United States Naval Aviation

1910–2010

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Volume I
Chronology

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Department of the Navy
Washington, D.C.

Library of Congress Cataloging-in-Publication Data

Evans, Mark L.
United States naval aviation 1910-2010 / Mark L. Evans, Roy A. Grossnick. -- 5th ed.
pages cm
Includes index.
ISBN 978-0-945274-75-9 (v. 1 : alk. paper) 1. United States. Navy--Aviation. 2. United States. Navy--Aviation--Chronology. I. Grossnick, Roy A. II. Naval History & Heritage Command (U.S.) III. Title.
VG93.E95 2015
359.9'409730904--dc23

2015002942

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Information on Photographs

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Preface

United States naval aviation celebrated more than 100 years of service in 2010. Its story as told in this volume and its companion had its origins in the 1950s. The book was first published as *United States Naval Aviation 1910–1960* and celebrated the first 50 years of naval aviation. Two subsequent editions added the decades of the 60s and 70s. A fourth edition brought the chronology up to 1995. This is the fifth update and, because naval aviation continually transforms and because of the extensive role it has played in its country's history, the book is published in two volumes.

This volume documents the people and events that proved crucial to naval aviation's history. The work expands upon the previous chronological format by providing additional information of campaigns and technical aspects, and it provides the researcher and the Navy a more detailed account of specific subjects pertinent to better understanding its history. This edition, while attempting to maintain the professional standards established by the previous editions, also corrects errors and omissions in the preceding volumes. It does not seek to be the comprehensive source on naval aviation but offers a basic guide to educate readers on the topic.

Compiling statistical information requires the historian to search a very wide range of sources, but over the past 15 years many of those reliable sources have ceased to exist. This loss was the result of the Navy discontinuing publication of specialized documents, as well as the trend toward computerized data that is not being maintained or transferred to the Naval History and Heritage Command archives. I made an exhaustive effort to research all possible sources and, when the records provided conflicting data, selected the most accurate information after reviewing all of the possible sources.

Special recognition is made to the naval aviation historians preceding me who researched and published the previous editions of this book: Roy A. Grossnick, Adrian O. Van Wyen, Lee M. Pearson, Dr. William J. Armstrong, and Clarke Van Vleet. As primary compiler for these chapters, I am fully responsible for any errors of fact or mistakes that may have occurred in this volume.

Mark L. Evans
Naval Aviation Historian

Acknowledgments

This centennial update of United States Naval Aviation would not be possible without the previous editions covering the periods 1910–1960, 1910–1970, 1910–1980, and 1910–1995. The dedication and professionalism of the authors of these original editions—Adrian O. Van Wyen, Lee M. Pearson, Clarke Van Vleet, Dr. William J. Armstrong, Roy A. Grossnick, and Major John M. Elliott, USMC (Ret.)—laid the foundation for this new version.

In addition, the extensive revisions and updates to the previous versions' appendices would not have been possible without the generous support of the Naval Historical Foundation. Updating of this primary reference work on naval aviation was facilitated by a generous donation from former CNO Admiral James L. Holloway III, USN (Ret.). His donation to the Naval Historical Foundation enabled an aviation historian to research, write, and update all the chapters of volume II. The Naval Historical Foundation then gifted the completed text to the Naval History and Heritage Command.

A project of this magnitude requires the work of many people. The authors owe a debt of gratitude to historians Dr. Michael J. Crawford, Dr. Timothy L. Francis, Dr. Jeffrey G. Barlow, Dr. Robert J. Schneller Jr., Dr. John D. Sherwood, and Robert J. Cressman of the Naval History and Heritage Command who reviewed chapter manuscripts. Their subject matter expertise, insight, and exacting verification of salient points ensured the historical accuracy and the development of cogent themes.

Additional people outside the command generously reviewed chapter manuscripts. Vice Adm. Robert F. Dunn, USN (Ret.) of the Naval Historical Foundation; Maj. Elliott; Dr. Sarandis Papadopoulos, Secretariat Historian, Department of the Navy; Capt. Edmund T. Wooldridge, USN (Ret.); and Capt. Rosario M. Rausa, USNR (Ret.) examined the voluminous material and provided critical objectivity and analysis.

Other members of the command played a key role by researching information or by providing their extensive background knowledge in specific areas. The then Head, Archives Branch Curtis A. Utz and archivists Dale J. Gordon and John L. Hodges provided an incalculable wealth of specific knowledge of naval aviation and archival sources.

Historian Dr. Regina T. Akers of the command contributed her unparalleled knowledge of diversity issues to ensure a balanced representation of the people who comprise the rich heritage of naval aviation. Then-Art Director Morgan I. Wilbur cheerfully disregarded the repeated interruptions to help with the accurate and comprehensive selection of images. Librarians Glenn E. Helm, A. Davis Elliott, J. Allen Knechtmann, and Linda J. Edwards provided crucial, enthusiastic, and knowledgeable reference support. Former photographic curator Robert Hanshew offered technical expertise that enabled the timely processing of the numerous photographic images.

The extent of the material involved required the assistance of additional people outside the command. Historian and consultant Harold Andrews was an indispensable technical expert, and his lifetime of experience and attentive character facilitated the compilation of multiple entries. Marine Corps historian Annette D. Amerman and Coast Guard historian Scott Price consistently offered immediate and vital assistance. William C. Booth of Aircraft Inventory N8812A provided indispensable support. Machinist's Mate 1st Class Ray H. Godfrey (Ret.) and Senior Master Sergeant William L. Slupe, USAF (Ret.), of the USS *Enterprise* (CVN 65) Association offered historical information.

A special acknowledgment goes to editors Wendy Sauvageot, James M. Caiella, and Caitlin Conway of the Naval History and Heritage Command. Their keen professionalism, diligent attention to detail, and unique combination of naval aviation knowledge and matchless editorial skills proved invaluable, and every page bears their legacy.

Because an index is the key to making this book a successful reference document, the final thanks go to those who helped with it: Cmdr. Austin W. O'Toole, USNR; Cmdr. Ronald B. Mitchell, USNR (Fleet Historian, Undersea Warfare Operations Det. D); and Byron W. Hurst, Communication and Outreach Division, NHHC.

Glossary

1st MAW	First Marine Aircraft Wing
6th FLT	Sixth Fleet
7th FLT	Seventh Fleet
A&R	Assembly & Repair
A.P.	armor piercing
AAF	United States Army Air Forces
AAM	air-to-air missile
AARGM	Advanced Anti-Radiation Guided Missile
AAS	United States Army Air Service
ABATU	advanced base training unit
ABDA	American-British-Dutch-Australian Command
ACC	Air Combat Command
ACLS	automatic carrier landing system
ACMR	Air Combat Maneuvering Range
ACNO	Assistant Chief of Naval Operations
ACP	aviation continuation pay
ADVCAP	advanced capability
AED	Aeronautical Engineering Duty
AEDO	Aeronautical Engineering Duty Officer
Aéronautique Militaire	Army Air Service (France)
AESR	active electronically scanned radar
AEW	airborne early warning
AEWWINGPAC	Airborne Early Warning Wing, Pacific
AFB	Air Force base
AIM	aircraft intermediate maintenance
AIM	air-launched aerial intercept guided missile
AIMD	Aircraft Intermediate Maintenance Division
AirDet/AIR DET	air detachment
AirLant/AIRLANT	Air Force, Atlantic Fleet or Commander, Air Force, U.S. Atlantic Fleet
AirPac/AIRPAC	Air Force, Pacific Fleet or Commander, Air Force, U.S. Pacific Fleet
ALARS	air-launched acoustical reconnaissance
ALM	Antilliaanse Luchtvaart Maatschappij (airline)
ALNAV	All Navy
ALVRJ	advanced low volume ramjet
AMD	aeronautical maintenance duty
AMO	aviation medical officer
AMRAAM	advanced medium range air-to-air missile
ANA	Association of Naval Aviation
ANG	Air National Guard
AOCP	aviation officer continuation pay
AOCS	aviation officer candidate school
ARAPHAHO	merchant ship portable modular aviation facility
ARG	amphibious ready group
ARM	antiradiation missile
Arowa	Applied Research: Operational Weather Analysis
ARPA	Advanced Research Projects Agency
ARPS	automatic radar processing system
ASM	air-to-surface missile
ASMD	antiship missile defense
ASO	aviation supply office
ASR	antisubmarine rocket
ASROC	Anti-Submarine Rocket
ASTOVL	advanced short takeoff/vertical landing
ASV	surface vessel detection
ASW	antisubmarine warfare
ATARS	Advanced Tactical Airborne Reconnaissance System
ATC	Air Transport Command
ATFLIR	advanced targeting forward looking infrared
ATG	air task group
ATS	Air Transport Service
ATU	advanced training unit
AVG	American Volunteer Group
AWACS	airborne warning and control systems
BAMS	Broad Area Maritime Surveillance
BAMS-D	Broad Area Maritime Surveillance Demonstrator
BRAC	Defense Base Closure and Realignment
BTG	basic training group
BuAer	Bureau of Aeronautics
BuC&R	Bureau of Construction and Repair
BuMed	Bureau of Medicine
BuNav	Bureau of Navigation

BuOrd	Bureau of Ordnance
BuPers	Bureau of Naval Personnel
BuShips	Bureau of Ships
BuWeps	Bureau of Naval Weapons
CAA	Civil Aeronautics Administration
CAA	Civil Aeronautics Authority
CAEWWS	Carrier Airborne Early Warning Weapons School
CAINS	carrier aircraft inertial navigation system
CalTech	California Institute of Technology
CAP	Civil Air Patrol
CAP	combat air patrol
CARDIV	carrier division
CASU	carrier aircraft service unit
CASU(F)	combat aircraft service unit (forward)
CC	Construction Corps
CCR	circulation control rotor
CEC	cooperative engagement capability
CG	commanding general
CGAS	Coast Guard Air Station
CHNAVRSCH	Chief of Naval Research
CIA	Central Intelligence Agency
CIC	combat information center
CincPac/CINCPAC	Commander in Chief, Pacific
CincPacFlt/CINCPACFLT	Commander in Chief, U.S. Pacific Fleet
CINCUS	Commander in Chief, U.S. Fleet
CIWS	Close-In Weapons System (Phalanx)
CJTF	Combined Joint Task Force
CNATRA	Chief of Naval Air Training
CNATT	Center for Naval Aviation Technical Training
CNO	Chief of Naval Operations
CNR	Chief of Naval Research
COD	carrier on-board delivery
COIN	counter insurgency
ComAirLant	Commander, Naval Air Force, U.S. Atlantic Fleet
ComAirPac	Commander, Naval Air Force, U.S. Pacific Fleet
ComFAIR/COMFAIR	Commander, Fleet Air
COMHATWING	Commander, Heavy Attack Wing
COMHSLWINGPAC	Commander, Helicopter Antisubmarine Light Wing, U.S. Pacific Fleet
COMINCH	Commander in Chief, U.S. Fleet
COMINCUS	Commander in Chief, U.S. Fleet
COMLATWING	Commander, Light Attack Wing
COMMATWING	Commander, Medium Attack Wing
COMNAVAIRESFOR	Commander, Naval Air Reserve Force
COMNAVAIRLANT	Commander, Naval Air Force, U.S. Atlantic Fleet
COMNAVAIRPAC	Commander, Naval Air Force, U.S. Pacific Fleet
COMNAVELEX	Naval Electronic Systems Command
COMNAVFOR Somalia	Commander, Naval Forces Somalia
COMNAVSUPFOR	Commander, Naval Support Force
COMOPDEVFOR	Commander, Operational Development Force, U.S. Fleet
COMPATWING	Commander, Patrol Wing
COMSTRKFIGHTWING	Commander, Strike Fighter Wing
CONUS	Continental United States
CTF	Combined Task Force
DARPA	Defense Advanced Research Projects Agency
DASH	Drone Anti-Submarine Helicopter
DCNO	Deputy Chief of Naval Operations
DEW	Distant Early Warning line
DICASS	directional command active sonobuoy system
DIFAR	directional frequency analysis and recording
DMZ	demilitarized zone
DOD	Department of Defense
DODGE	Department of Defense Gravity Experiment satellite
EALS	Electromagnetic Aircraft Launch System
ECM	electronic countermeasures
ECMO	electronic countermeasures operator/officer
ECP	Enlisted Commissioning Program
EDO	engineering duty officer
EFM	enhanced fighter maneuverability
ELEX	Naval Electronic Systems Command
EOD	explosive ordnance disposal
ESG	expeditionary strike group
EW	electronic warfare
EXCAP	expanded (extended) capability
FAA	Federal Aviation Administration
FAA	Fleet Air Arm
FAB	Fleet Air Base
FAC	Federal Aviation Commission
FAC	forward air controller
FAETU	fleet airborne electronics training unit

FARP	forward arming and refueling point
FASOTRAGRULANT	Fleet Airborne Specialized Operational Training Group Atlantic
FAW	fleet air wing
FAWTUPAC	Fleet All Weather Training Unit, Pacific
FBM	fleet ballistic missile
FEMA	Federal Emergency Management Agency
FEWSG	Fleet Electronic Warfare Support Group
FKR	frontoviye krilatiye raketi (frontal rocket)
FLIR	forward looking infrared radar
FMS	foreign military sales
FOB	forward operating base
FORSCOM	Forces Command
FROG	free rocket over ground
FTEG	Flight Test and Engineering Group
FY	fiscal year
G.P.	general purpose
GBU	guided bomb unit
GCA	ground-controlled approach
Glomb	guided glider bomb
GMGRU	guided missile group
GMU	guided missile unit
Halon	fire suppression agent
HARM	High Speed Anti-Radiation Missile
HATWING	heavy attack wing
HIPEG	high-performance external gun
HTA	heavier-than-air
HUD	heads-up display
Huff-Duff	high frequency direction-finder
HVAR	High-Velocity Aircraft Rocket
IBM	International Business Machine Company
ICAP	improved capability
IFF	identification friend or foe
IGY	International Geophysical Year
IO	Indian Ocean
IOC	initial operational capability
IR	imaging infrared
IR	infrared
ITALD	Improved Tactical Air Launched Decoy
JAGM	Joint Air-to-Ground Missile
JASSM	Joint Air-to-Surface Standoff Missile
JATO	jet-assisted takeoff
JCM	joint common missile
JCS	Joint Chiefs of Staff
JDAM	Joint Direct Attack Munition
JPALS	Joint Precision Approach and Landing System
JPATS	Joint Primary Aircraft Training System
JRB	joint reserve base
JRFB	joint reserve force base
JSF	joint strike fighter
JSOW	joint standoff weapon
JSTARS	Joint Surveillance Target Attack Radar System
KIA	killed in action
LAMPS	Light Airborne Multipurpose System
Lant/LANT	Atlantic
LANTIRN	low altitude navigation/targeting infrared for night
Laser-JDAM	Laser-Joint Direct Attack Munition
LCAC	landing craft, air cushion
LCS	littoral combat ship
LDO	limited duty officer
LGB	laser-guided bomb
LIC	low intensity conflict
LJDAM	Laser Joint Direct Attack Munition
Lofti	Low Frequency Transionospheric satellite
LORAN	Long Range Navigation
LRAACA	Long-Range Air Antisubmarine Warfare Capable Aircraft
LSO	landing signal officer
LTA	lighter-than-air
LTV	Ling-Temco-Vought Corp.
MAC	Military Airlift Command
MACV	Military Assistance Command, Vietnam
MAD	magnetic airborne/anomaly detection
MAG	Marine Aircraft Group
MAGTF	Marine Air-Ground Task Force
MATS	Military Air Transport Service
MAU	master augmentation unit
MAW	Marine Aircraft Wing
MAWSPAC	Medium Attack Weapons School, Pacific
MC	Medical Corps
MCAAS	Marine Corps Auxiliary Air Station
MCAF	Marine Corps Air Facility
MCAS	Marine Corps Air Station

MCB	Marine Corps Base
MCM	mine countermeasures
MEB	Marine Expeditionary Brigade
Med	Mediterranean Sea
MEF	Marine Expeditionary Force
MEU	Marine Expeditionary Unit
MIA	missing in action
MiG	Russian aircraft designed by Artem I. Mikoyan and Mikhail I. Gurevich
MIO	maritime interception operations
MIRALC/SLBD	mid-infrared advanced chemical laser/Sea Lite Beam Director
MIT	Massachusetts Institute of Technology
MLS	microwave landing system
MMA	multimission maritime aircraft
MOL	Manned Orbiting Laboratory
MOUT	military operations in urban terrain
MRASM	medium range air-to-surface missile
MRBM	medium range ballistic missile
MRC	major regional conflict
MSC	Military Sealift Command
MSO	maritime security operations
NAA	National Aeronautic Association
NAAF	Naval Air Auxiliary Facility
NAAS	Naval Air Auxiliary Station
NAATSC	Naval Air Advanced Training Subordinate Command
NAB	Naval Air Base
NACA	National Advisory Committee for Aeronautics
NAD	Naval Aviation Depot
NADC	Naval Air Development Center
NADEP	Naval Aviation Depot
NADS	Naval Air Development Station
NAEC	Naval Air Engineering Center
NAESU	Naval Aviation Electronic Service Unit
NAF	Naval Air Facility
NAF	Naval Aircraft Factory
NAFC	Naval Air Ferry Command
NAILS	Naval Aviation Integrated Logistic Support
NALCOLANTUNIT	Naval Air Logistics Control Office, Atlantic Unit
NAMC	Naval Air Material Center
NAMO	Naval Aviation Maintenance Office
NAMTC	Naval Air Missile Test Center
NAO	naval aviation observer
NAOTS	Naval Aviation Ordnance Test Station
NAP	naval aviation pilot/naval air pilot
NAR	Naval Air Reserve
NARF	Naval Air Rework Facility
NARTS	Naval Air Rocket Test Station
NARTU	Naval Air Reserve Training Unit
NARU	Naval Air Reserve Unit
NAS	Naval Aeronautic Station
NAS	Naval Air Station
NASA	National Air and Space Administration
NASM	National Air and Space Museum
NATB	Naval Air Training Base
NATC	Naval Air Training Center
NATC	Naval Air Training Command
NATEC	Naval Airship Training and Experimental Command
NATMSACT	Naval Air Training Maintenance Support Activity
NATO	North Atlantic Treaty Organization
NATOPS	Naval Air Training and Operating Procedures Standardization
NATS	Naval Air Transport Service
NATT	Naval Air Technical Training
NATTC	Naval Air Technical Training Center
NAVAIR	Naval Air Systems Command
NAVAIRSYSCOM	Naval Air Systems Command
NAVCAD	naval aviation cadet
NAVICP	Naval Inventory Control Point
NAVMAT	Naval Material Command
NAVPRO	Naval Plant Representative Office
NAVRES	Naval Reserve
NAVSEA	Naval Sea Systems Command
Navstar	navigation satellite
NAWC	Naval Air Warfare Center
NAWCAD	Naval Air Warfare Center Aircraft Division
NAWCWD	Naval Air Warfare Center Weapons Division
NAWS	Naval Air Weapons Station
NB	Naval Base
NERV	Nuclear Emulsion Recovery Vehicle
NFO	naval flight officer
NMC	Naval Material Command
NME	National Military Establishment
NMF	Naval Missile Facility

NNV	national naval volunteers
NOB	Naval Operating Base
NORAD	North American Air Defense Command
NorLant	Northern Atlantic Ocean
NorPac	Northern Pacific Ocean
NOTS	Naval Aviation Ordnance Test Station
NOTS	Naval Ordnance Test Station
NR	Naval Reserve/Navy Reserve
NRAB	Naval Reserve Aviation Base
NRFC	Naval Reserve Flying Corps
NRL	Naval Research Laboratory
NROTC	Naval Reserve Officer Training Corps
NS	Naval Station
NSA	Naval Support Activity
NSAWC	Naval Strike and Air Warfare Center
NSC	National Security Council
NSRB	National Security Resources Board
NTPS	Naval Test Pilot School
NVG	night vision goggles
NVN	North Vietnam
NWC	Naval Weapons Center
OASU	Oceanographic Air Survey
OCS	Officer Candidate School
ODM	operational development model
ONR	Office of Naval Research
OPNAV	Naval Operations
Ops	operations
OSD	Office of the Secretary of Defense
OSRD	Office of Scientific Research and Development
P/A	pilotless aircraft
Pac/PAC	Pacific
PASU	Patrol Aircraft Service Unit
Patriot	Phased Array Tracking Intercept of Target missile
PatSU/Patsu	Patrol Aircraft Service Unit
PatWing/PATWING	Patrol Wing
PIMA	planned incremental maintenance availability
PLAF	People's Liberation Armed Forces (Viet Cong)
PLAT	Pilot Landing Aid Television system
PMTC	Pacific Missile Test Center
POL	petroleum, oil, lubricants
POW	prisoner of war
PPI	plan position indicator
RAAF	Royal Australian Air Force
radar	radio detection and ranging
RAF	Royal Air Force
RAG	replacement air group
RAM	Rolling Airframe Missile
RAST	recovery assist, securing, and traversing system
RCA	Radio Corporation of America
RDT&E	research, development, test, and evaluation
retrorocket ASR	rearward-firing antisubmarine rocket
REWSON	reconnaissance, electronic warfare, and special operations
RFC	Royal Flying Corps
RimPac	Rim of the Pacific Exercise (Joint)
RIO	radar intercept officer
RN	Royal Navy
RNAS	Royal Naval Air Station
ROK	Republic of Korea
RPG	rocket-propelled grenade
RPV	remotely piloted vehicle
RVN	Republic of Vietnam
SAM	surface-to-air missile
SAR	search-and-rescue
SCS	sea control ship concept
SDB	small diameter bomb
SEAL	Sea-Air-Land team
SEAPAC	sea activated parachute automatic crew release
SecDef/SECDEF	Secretary of Defense
SecNav/SECNAV	Secretary of the Navy
SEVENTHFLT	Seventh Fleet
SIXTHFLT	Sixth Fleet
SLAM	Standoff Land Attack Missile
SLAM-ER	Standoff Land Attack Missile–Expanded Response
SLCM	Sea/Surface Launched Cruise Missile
SLEP	Service Life Extension Program
SoLant/SOLANT	Southern Atlantic Ocean
SolRad	Solar Radiation (satellite)
SoPac/SOPAC	Southern Pacific Ocean
SPASUR	Navy Space Surveillance System
SSM	surface-to-surface missile
STAG	Special Task Air Group
STM	supersonic tactical missile
STOL	short takeoff and landing

STOVL	short takeoff/vertical landing
STRATCOM	Strategic Command
SWIP	System Weapons Integration Program
SWOD	Special Weapons Ordnance Device
T&E	test and evaluation
TACAMO	Take Charge and Move Out
TACAN	tactical air navigation system
TACELWING	Tactical Electronic Warfare Wing
TACGRU	tactical group
TALD	tactical air launch decoy
TARPS	Tactical Aerial Reconnaissance Pod System
TERCOM	terrain contour matching
TF	task force
TG	task group
TINS	Thermal Imaging Navigation Set
TLAM	Tomahawk land-attack missile
TOW	tube-launched, optically tracked, wire-command-link
TRAM	Target Recognition Attack Multisensor
TraWing/TRAWING	Training Air Wing
TRIM	Trail Road Interdiction Mission
TU	task unit
TWA	Trans World Airlines
UAS	unmanned aerial systems
UAV	unmanned aerial vehicle
UCAS	unmanned combat air system
UDT	underwater demolition team
UN	United Nations
USA	United States Army
USAAF	United States Army Air Forces
USAAS	United States Army Air Service
USACOM	United States Atlantic Command
USAF	United States Air Force
USCG	United States Coast Guard
USMC	United States Marine Corps
USN	United States Navy
USNR	United States Naval/Navy Reserve
USNRF	United States Naval/Navy Reserve Force
USNS	United States Naval Ship
V/STOL	vertical and/or short takeoff and landing
VAST	versatile avionics shop test
VCNO	Vice Chief of Naval Operations
VFAX	advanced experimental fighter aircraft
Viet Cong	People's Liberation Armed Forces
VOD	vertical on-board delivery
VOR	very-high frequency omni-range direction finder
VORTAC	very-high frequency omni-range direction finder tactical air navigation system
VSTOL	vertical/short takeoff and landing
VT	variable-time (fuze)
VTOL	vertical takeoff and landing
VTUAV	vertical takeoff and landing tactical unmanned aerial vehicle
VTXTS	fixed-wing experimental training aircraft training system
VWS	ventilated wet suit
WAVES	Women Accepted for Volunteer Emergency Service
WestPac/WESTPAC	Western Pacific Ocean
WNY	Washington Navy Yard
WWI	World War I
WWII	World War II

Note: Acronyms or abbreviations for squadron designations, air groups or air wings, aviation ship designations, and aviation ratings may be found in the Vol. II appendices, as will other more specialized acronym meanings.

Chapter 1

A Few Pioneers

1898–1916

The United States Navy's official interest in airplanes emerged as early as 1898. That year the Navy assigned officers to sit on an interservice board to investigate the military possibilities of Samuel P. Langley's flying machine. In subsequent years naval observers attended air meets in the United States and abroad, and public demonstrations staged by Orville and Wilbur Wright in 1908 and 1909. These men became enthusiastic about the potential of airplanes as fleet scouts, and by 1909, many naval officers, including a bureau chief, urged the purchase of aircraft.

The next year the Navy made a place for aviation in its organizational structure when Capt. Washington I. Chambers was designated as the officer to whom all aviation matters were to be referred. Although holding no special title, he pulled together existing threads of aviation interest within the Navy and gave official recognition to the proposals of inventors and builders. Before the Navy had either planes or pilots, he arranged a series of tests in which civilian aircraft designer and entrepreneur Glenn H. Curtiss and Eugene B. Ely, a pilot who worked for Curtiss, dramatized the airplane's capability for shipboard operations and showed the world and a skeptical fleet that aviation could go to sea.

Early in 1911 the first naval officer reported for flight training. By mid-year the Navy appropriated the first money, purchased the first aircraft, qualified the initial pilot, and selected the site of the first aviation camp. The idea of a seagoing aviation force began to take form as plans and enthusiasms transformed into realities. By the end of the year a humble beginning had been made.

Recognizing the need for more science and less rule of thumb, Capt. Chambers collected the writings and scientific papers of leaders in the new field, pushed for a national aerodynamics laboratory, and encouraged naval constructors to work on aerodynamic and hydrodynamic problems. The Navy built a wind tunnel, and the nation established the National Advisory Committee for Aeronautics. A board under Chambers' leadership conducted the first real study of what was needed in aviation and included in its recommendations the establishment of a ground and flight training center at Pensacola, Fla., the expansion of research, and the assignment of an airplane to every major combatant ship of the Navy.

Naval aviation's progress in these early years included setting an endurance record of six hours in the air; the first successful catapult launch of an airplane from a ship; exercises with the fleet during winter maneuvers at Naval Station Guantánamo Bay, Cuba; and combat sorties at Vera Cruz, Mexico. These were but some of the accomplishments of pioneer pilots, whose activities furthered the importance of aviation to the Navy. In 1914 Secretary of the Navy Josephus Daniels announced that the Navy had reached the point "where aircraft must form a large part of our naval forces for offensive and defensive operations."

1898

25 MARCH • Assistant Secretary of the Navy Theodore Roosevelt recommended to Secretary of the Navy John D. Long that he appoint two officers "of scientific attainments and practical ability" who, with representatives from the War Department, would examine Professor Samuel P. Langley's flying machine and report upon its practicability and its potential for use in war.

29 APRIL • The first joint Army-Navy board on aeronautics submitted the report of its investigation of the Langley flying machine. Since the machine was a model with a 12-foot wing span, its value for military purposes was largely theoretical, but the report expressed a general sentiment in favor of supporting Professor Samuel P. Langley in further experimentation.

1908

17 SEPTEMBER • Lt. George C. Sweet and Assistant Naval Constructor William McEntee served as Navy observers at the first Army demonstration trials of the Wright flying machine at Fort Myer, Va.

2 DECEMBER • Rear Adm. William S. Cowles, Chief of the Bureau of Equipment, submitted a report on aviation prepared by Lt. George C. Sweet to Secretary of the Navy Truman H. Newberry. The report outlined the specifications of an airplane capable of operating from naval vessels on scouting and observation missions, discussed the tactical advantages of such capability for naval forces, and recommended that the service purchase a number of aircraft and place them "in the hands of the personnel of the Navy to further develop special features adapted to naval uses."

1909

16 AUGUST • Acting Secretary of the Navy George von L. Meyer disapproved a request by the Bureau of Equipment for authority to advertise for the construction of "two heavier than air flying machines," with the comment: "The Department does not consider that the development of an aeroplane has progressed sufficiently at this time for use in the Navy."

1 SEPTEMBER • Cmdr. Frederick L. Chapin, the Naval Attaché at Paris, reported his observations at the Reims aviation meet. Chapin opined that "the airplane would have a present usefulness in naval warfare, and that the limits of the field will be extended in the near future." He also noted two means by which aircraft were to be operated from naval vessels—the use of the Wright launching device (a catapult) to launch planes from the cleared quarterdeck of battleships, and the construction of a floor (flight deck) over the deck houses of auxiliary ships to provide the clear space required for takeoff runs and landings.

3 NOVEMBER • Lt. Frank P. Lahm, USA, piloted the first Army Wright plane during its initial flight at College Park, Md. Navy Lt. George C. Sweet accompanied Lahm as a passenger and is credited as the first Navy officer to fly in an airplane.

1910

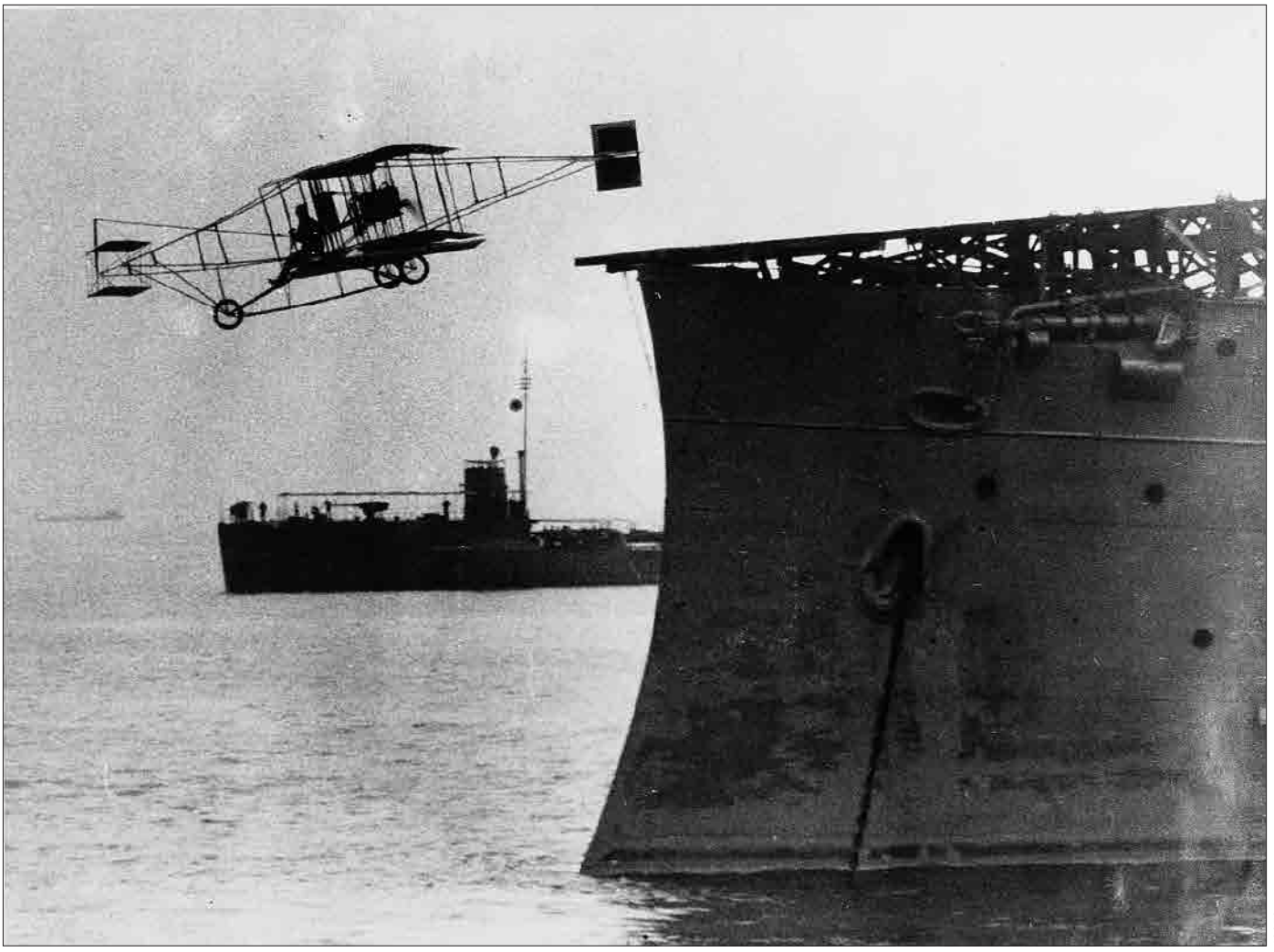
26 SEPTEMBER • The Secretary of the Navy informed the Aeronautical Reserve (an organization of private citizens formed to advance aeronautical science as a means of supplementing the national defense) that Capt. Washington I. Chambers, Assistant to the Aid for Material, had been designated as the officer to whom all correspondence on aviation was to be referred. This is the first recorded reference to a provision for aviation in the Navy Department organization.

1 OCTOBER • The General Board, of which Admiral of the Navy George Dewey was president, recommended to Secretary of the Navy George von L. Meyer that, in recognition of "the great advances which have been made in the science of aviation and the advantages which may accrue from its use in this class of vessel," the problem of providing space for airplanes or dirigibles was to be considered in all new designs for scouting vessels.

7 OCTOBER • Chief of the Bureau of Steam Engineering Capt. Hutch I. Cone wrote a letter to Secretary of the Navy George von L. Meyer that pointed to "the rapid improvement in the design and manipulation of airplanes and the important role they would probably play" and requested authority to requisition an airplane for *Chester* (Cruiser No. 1) and the services of an instructor to teach one or more officers to fly the machine.

13 OCTOBER • Secretary of the Navy George von L. Meyer approved the recommendation of the Chief Constructor that an officer from the Bureau of Construction and Repair and another from the Bureau of Steam Engineering were to be appointed to investigate the subject of aviation and gain technical knowledge of airplanes. Meyer also directed that these officers keep Assistant to the Aid for Material Capt. Washington I. Chambers, previously designated to serve in a similar capacity in the secretary's office, fully informed of the work contemplated and the results of all experiments.

22 OCTOBER • The International Aviation Tournament opened at Belmont Park, N.Y. Assistant to the Aid for Material Capt. Washington I. Chambers, Assistant Naval Constructor William McEntee, and Lt. Nathaniel H. Wright,



42878

Eugene B. Ely flies a Curtiss pusher from *Birmingham* (Cruiser No. 2) at Hampton Roads, Va., in the first takeoff from a ship, 14 November 1910.

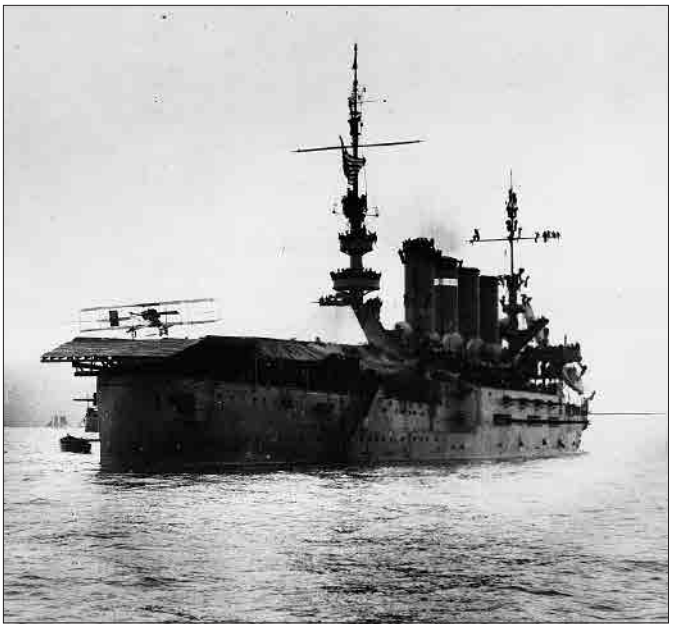
the three men recently named to investigate aviation, attended as official Navy observers.

31 OCTOBER • The Chief of the Bureau of Construction and Repair suggested to Secretary of the Navy George von L. Meyer that the Navy take steps to obtain one or more aeroplanes to develop their use for naval purposes, and recommended that in the absence of specific funds for their purchase, the specifications for *Texas* (Battleship No. 35) be modified so as to require contractors to supply one or more aircraft as a part of their obligation.

14 NOVEMBER • Flying a 50 hp Curtiss plane, civilian exhibition stunt pilot Eugene B. Ely made the first takeoff from a ship. Ely flew from an 83-foot slanted wooden platform built onto the bow of *Birmingham* (Cruiser No. 2) at anchor off Old Point Comfort, Hampton Roads, Va. Despite light rain and fog, the pilot elected to continue with the flight. As he left the platform, the plane settled slowly and touched the water, but rose again and landed about 2½ miles away on Willoughby Spit. The aircraft sustained slight splinter damage to the propeller tips.

29 NOVEMBER • Aircraft designer and entrepreneur Glenn H. Curtiss wrote to Secretary of the Navy George von L. Meyer offering flight instruction without charge for one naval officer as a means of assisting "in developing the adaptability of the aeroplane to military purposes."

23 DECEMBER • Lt. Theodore G. Ellyson, the first naval officer to undergo flight training, received orders to report to the Curtiss aviation camp at North Island, San Diego, Calif.



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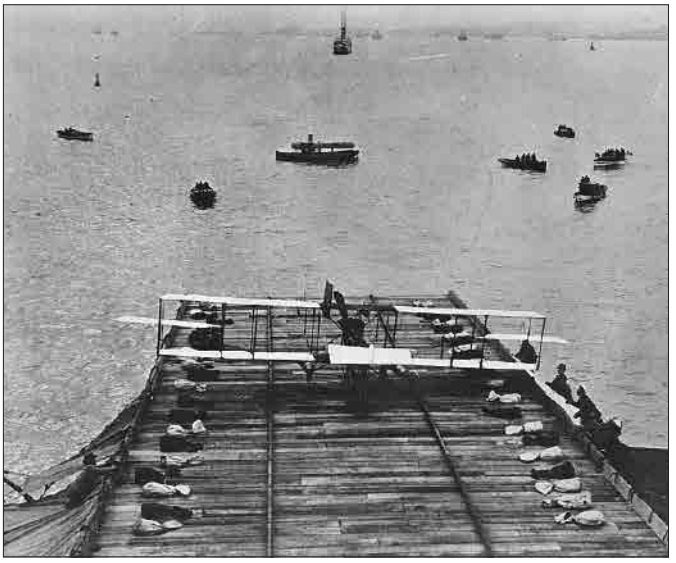

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Eugene B. Ely, flying a Curtiss pusher, approaches a platform built over the stern of *Pennsylvania* (Armored Cruiser No. 4) in the first shipboard landing of an aircraft, 18 January 1911 (top). The plane was arrested by hooks attached to the plane's landing gear, which engaged a series of ropes, with sandbags at each end, stretched across the temporary deck and held above it by boards laid along its length (bottom).

1911

18 JANUARY • At 1048 civilian exhibition stunt pilot Eugene B. Ely flew the same Curtiss pusher that he had used during his launch from *Birmingham* (Cruiser No. 2) on 14 November 1910 and took off from Selfridge Field south of San Francisco, Calif., and at 1101 landed on board *Pennsylvania* (Armored Cruiser No. 4) at anchor off Hunters Point in San Francisco Bay. The plane made a smooth landing from astern onto a specially built 130-foot long by 32-foot wide platform. At 1158 Ely took off and returned to Selfridge Field, completing the earliest demonstration of the adaptability of aircraft to shipboard operations.

26 JANUARY • Glenn H. Curtiss piloted a hydroaeroplane during the first successful flight of that type of plane at North Island, San Diego, Calif. Lt. Theodore G. Ellyson, who had assisted in preparing for the test, witnessed this important step in adapting aircraft to naval needs.

1 FEBRUARY • Glenn H. Curtiss made two successful flights from the water in a standard biplane at San Diego, Calif., using a single main float in place of the tandem triple float used in earlier tests. These takeoffs demonstrated the superior efficiency of the sled profile float that the Navy would use on hydroaeroplanes up to WWI.

10 FEBRUARY • Acting Secretary of the Navy Beekman Winthrop directed the Point Loma, Calif., Wireless Station to cooperate with Capt. Harry S. Harkness of the Aeronautical Reserve in experiments with the use of wireless from aeroplanes.

17 FEBRUARY • In another early demonstration of the adaptability of aircraft to naval uses, Glenn H. Curtiss taxied in a hydroaeroplane alongside *Pennsylvania* (Armored Cruiser No. 4) at anchor in San Diego Harbor, Calif. Curtiss arrived alongside the ship at 0845 and sailors manned the cruiser's crane to hoist the machine on board. At 0905 *Pennsylvania* hoisted the aircraft out and Curtiss taxied the plane to his hangar on North Island.

4 MARCH • The first funds appropriated for naval aviation provided $25,000 to the Bureau of Navigation for "experimental work in the development of aviation for naval purposes."

9 MARCH • The Wright Co. made a formal offer to train one pilot for the Navy, contingent on the purchase of one airplane for the sum of $5,000. Naval officials expressed their displeasure at the contingency, and Assistant to the Aid for Material Capt. Washington I. Chambers could not immediately arrange for the order of the aircraft, so the company repeated the offer without the contingency on 13 March.

424786

Capt. Washington I. Chambers.

17 MARCH • Lt. John Rodgers, who became Naval Aviator No. 2, reported to the Wright Co. at Dayton, Ohio, for instruction in flying. Despite rough weather and lack of equipment, he completed training at the encampment by making his first solo flight on 18 April.

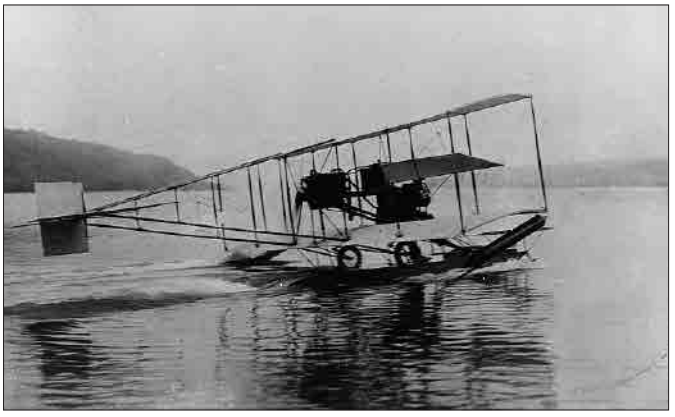
1 APRIL • Assistant to the Aid for Material Capt. Washington I. Chambers reported for duty with the General Board, a move suggested by board president Admiral of the Navy George Dewey because of a lack of space for aviation in the office of the Aid for Operations and to enable Chambers to have a stronger voice to impact policy.

14 APRIL • With Congress' allocation of a $25,000 appropriation for aviation within the Bureau of Navigation budget, the fledgling office of naval aviation transferred from the General Board and was established in BUNAV.

8 MAY • Capt. Washington I. Chambers of the Bureau of Navigation prepared requisitions for two Curtiss biplanes. One, the Triad, was to be equipped for arising from or alighting on land or water; with a metal-tipped propeller designed for a speed of at least 45 miles per hour; provisions for carrying a passenger alongside the pilot; and controls that either the pilot or passenger could operate. The machine described became the Navy's first airplane, the Curtiss hydroaeroplane A-1 (later AH-1). Although these requisitions lacked the signature of the Chief of BUNAV—necessary to direct the General Storekeeper to enter into a contract with the Curtiss Co.—they indicated Chambers' decision as to which airplanes the Navy should purchase. The Navy thus considers 8 May 1911 the date upon which the service ordered its first airplane, and the official birthday of naval aviation.

27 JUNE • Lt. j.g. John H. Towers, who was to become Naval Aviator No. 3, reported for duty and instruction in flying at the Curtiss School at Hammondsport, N.Y.

1 JULY • At 1850 Glenn H. Curtiss demonstrated A-1 (later AH-1), the first aircraft built for the Navy. The plane took off from and alighted on Keuka Lake at Hammondsport, N.Y. The five-minute flight reached an altitude of 25 feet. The aircraft completed three other flights the same evening, one by Curtiss with Lt. Theodore G. Ellyson as a passenger, and two by Ellyson alone. In the longest of these flights Ellyson was in the air for 15 minutes and achieved an altitude of 300 feet. However, a special motor that Curtiss had constructed for A-1 encountered mechanical difficulties and a standard Curtiss 50 hp motor was used in these flights.



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The first Navy plane A-1 taxiing on Keuka Lake, N.Y.

3 JULY • Lt. Theodore G. Ellyson completed the first night flight by a member of the naval service. Ellyson took Capt. Washington I. Chambers of the Bureau of Navigation in A-1 (later AH-1) from Hammondsport, N.Y., to Penn Yan, N.Y. Light winds kept the plane from climbing aloft, and Ellyson and Chambers taxied 22 miles with a brief stop at Keuka. At 2015 Ellyson lifted off to return alone. He stopped for oil at Keuka after dusk, but the distance to the water's surface appeared misleading in the darkness and the aircraft struck the water. The plane rose again and landed successfully on the water on the second attempt, without the aid of lights, at 2045. These were the 12th and 13th flights of A-1.

424469

Capt. Washington I. Chambers, seated left, prepares for a flight with Lt. Theodore G. Ellyson in A-1 Triad at Hammondsport, N.Y.

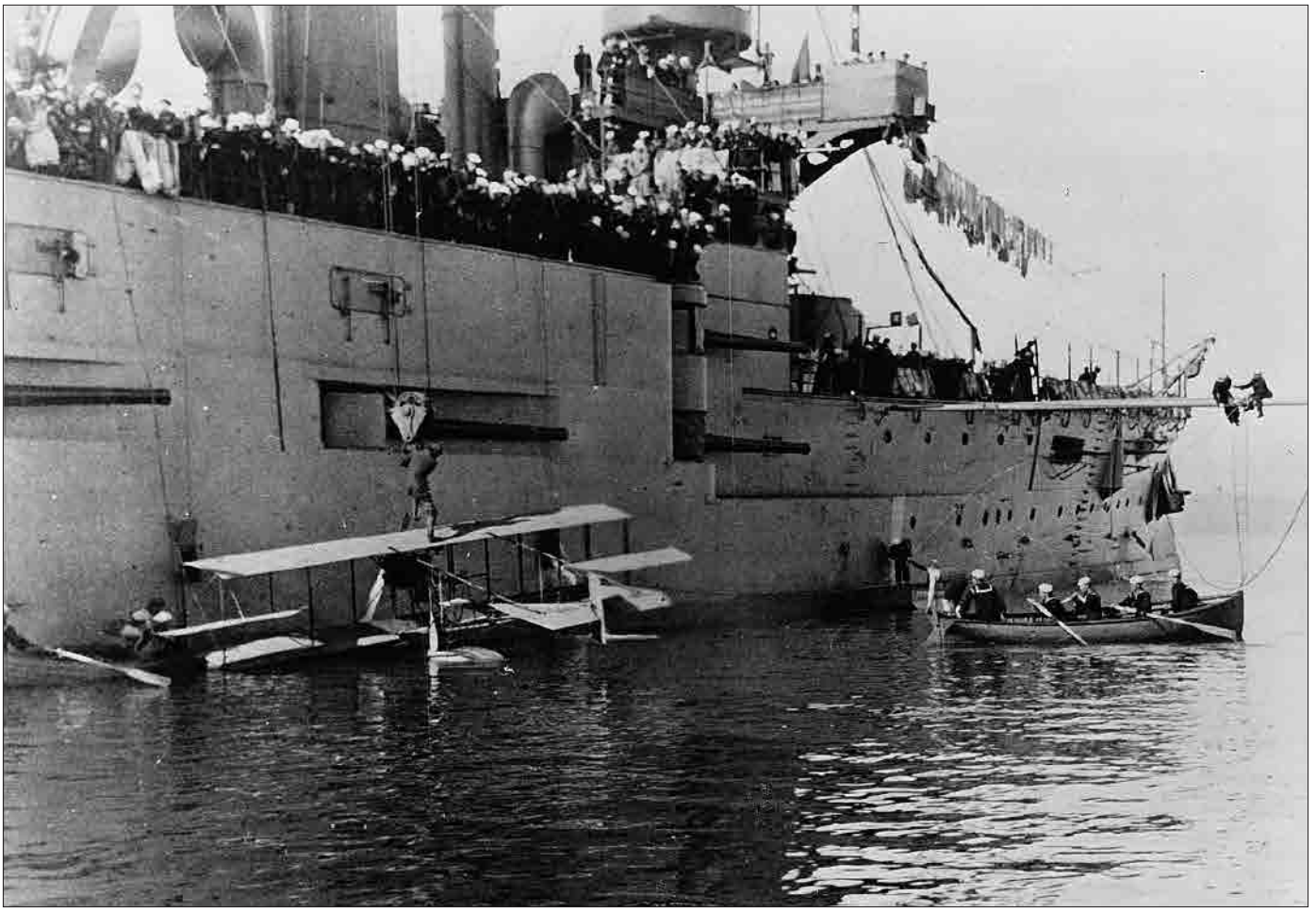
6 JULY • Capt. Washington I. Chambers of the Bureau of Navigation received orders for temporary duty at the Naval Academy, Annapolis, Md., in connection with the establishment of an aviation experimental station, the site for which had been previously selected on Greenbury Point near Annapolis. Although the aviators did not occupy the site until September, this became the first base for naval aviation.

10 JULY • The 24th flight of the Triad demonstrated the amphibious features of the Navy's first aircraft. Pilot Glenn H. Curtiss took off from land, lifted the plane's wheels while in the air, and landed the Triad in the water.

13 JULY • Glenn H. Curtiss made the first flight of the Navy's second aircraft, A-2 (later AH-2), at Hammondsport, N.Y. Lt. Theodore G. Ellyson accomplished the second flight. Each attempt lasted for several minutes and reached an altitude of 100 feet.

23 AUGUST • The officers on flight duty with the Curtiss Co., Hammondsport, N.Y., and Wright Co., Dayton, Ohio, were ordered to report for duty at the Engineering Experiment Station at the Naval Academy, "in connection with the test of gasoline motors and other experimental work in the development of aviation, including instruction at the aviation school," which was being established on Greenbury Point, Md.

7 SEPTEMBER • A memorable experiment in the Navy's search for a shipboard launching device concluded at Hammondsport, N.Y., when Lt. Theodore G. Ellyson made a successful takeoff in a Curtiss plane from an inclined wire rigged from the beach down to the water. Capt. Charles F. Pond, who commanded *Pennsylvania* (Armored Cruiser No. 4), had suggested the technique, and Capt. Washington I. Chambers of the Bureau of Navigation and Glenn H. Curtiss had developed the method to the point of the test. Ellyson's report described the historic experiment, "The engine was started and run at full speed and then I gave the signal to release the machine. . . . I held the machine on the wire as long as possible as I wanted to be sure that I had enough headway to rise and not run the risk of the machine partly rising and then falling. . . . Everything happened so quickly and went off so smoothly that I hardly knew what happened except that I did have to use the ailerons, and that the machine was sensitive to their action."



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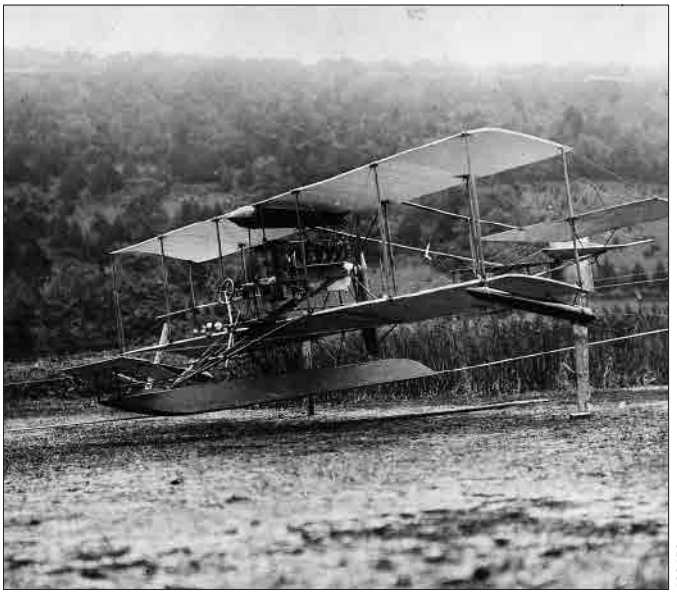
Glenn H. Curtiss, standing atop the wing of his D-III tractor hydroaeroplane, attaches the hook of the ship's crane in preparation to being hoisted on board *Pennsylvania* on 17 February 1911.

16 SEPTEMBER • In a letter to the Navy Department, Lt. Theodore G. Ellyson described plans to purchase flight clothing in the hope of persuading the Navy to pay for them later. The Navy had outlined the requirements as a light helmet with detachable goggles, or a visor, with covering for the ears, yet with holes so the pilot could hear the engine; a leather coat lined with fur or wool; leather trousers; high rubber galoshes and gauntlets; and a life preserver of some description. Ellyson purchased some of this gear from Brooks Brothers clothiers using his own funds.

20 SEPTEMBER • The attempt to equip aircraft with navigational instruments was reflected in a Bureau of Navigation request to the Naval Observatory for temporary use of a boat compass in experimental work connected with the development of aviation.



428450

Preparing A-1 for a launch from an inclined wire rigged from the beach down to the water at Hammondsport, N.Y.

427990

Lt. John H. Towers, left, and Lt. Theodore G. Ellyson.

10 OCTOBER • Assistant Naval Constructor Lt. Holden C. Richardson, CC, reported to the office of aviation at the Washington Navy Yard, D.C. Richardson became the Navy's first engineering and maintenance officer for aviation.

16 OCTOBER • Capt. Washington I. Chambers of the Bureau of Navigation described plans for a scientific test of hydroaeroplane floats at the Washington Navy Yard Model Basin, D.C., in a letter, in which he stated that a model of the pontoons with Forlanini planes (hydrovanes) was nearly ready for testing.

17 OCTOBER • Searching for improved powerplants, Capt. Washington I. Chambers of the Bureau of Navigation, in a letter to Glenn H. Curtiss, discussed heavy oil (or diesel) engines and turbine engines similar in principle to those that, some thirty years later, would make jet propulsion practical. Chambers wrote, "In my opinion, this turbine is the surest step of all, and the aeroplane manufacturer who gets in with it first is going to do wonders."

19 OCTOBER • Civilian exhibition pilot Eugene B. Ely lost control of an aircraft and crashed while landing before spectators during an exhibition at the state fair at Macon, Ga. Ely died from a broken neck when the plane struck the ground, throwing the pilot from the seat. On 16 February 1933 President Herbert C. Hoover presented the Distinguished Flying Cross as a posthumous award to the aviator's son, Col. Nathan D. Ely, USA (Ret.).

25 OCTOBER • Lt. Theodore G. Ellyson and Lt. John H. Towers flew A-1 (later AH-1) during an experiment to test the plane's durability on a cross-country flight from Annapolis, Md., to Fort Monroe, Va. A leaking radiator forced the aircraft down near Milford Haven, Va., after covering 112 miles in 122 minutes. This flight began a ten-day struggle to make the round trip.

8 NOVEMBER • Ens. Victor D. Herbster, later designated Naval Aviator No. 4, reported for flight instruction at the aviation camp at Greenbury Point, near Annapolis, Md.

14 NOVEMBER • The Navy's first major aircraft modification, the conversion of landplane B-1 (later AH-4) into a hydroaeroplane, began with a telegraphic order to the Burgess Co. and Curtis, Inc., Marblehead, Mass., for a suitable float.

20 DECEMBER • Lt. John H. Towers piloted A-1 (later AH-1) during experiments with airborne wireless transmission at Annapolis, Md. The plane made four flights, three with Ens. Charles H. Maddox and one with Assistant Naval Constructor Lt. Holden C. Richardson, CC. The men discovered that the trailing wire antenna reeled out after takeoff was too weak, and failed to obtain definite results.

26 DECEMBER • The search for a shipboard launching device continued when Capt. Washington I. Chambers of the Bureau of Navigation reported on interest by the Bureau of Ordnance concerning experimentation with a catapult for launching aeroplanes, somewhat after the manner of launching torpedoes. Chambers noted that the bureau decided to make a trial "with a device that gathers speed more gradually, something like the Curtiss air cylinder such as we use in ammunition hoists." These observations indicate the genesis of the Navy's compressed air catapult.

29 DECEMBER • The aviators at Greenbury Point, Md., received orders to transfer with their equipment to North Island, San Diego, Calif., to set up an aviation camp on land.

1912

9 MARCH • Assistant Naval Constructor Lt. Holden C. Richardson, CC, defined interest in steel and aluminum as aircraft structural materials in a letter to Capt. Washington I. Chambers of the Bureau of Navigation, stating, "From all I can gather, there is little doubt that much greater confidence would be felt if pontoons were constructed with a metal skin. . . . It would be unwise to make any requisition for such a construction until a practically standard design has been developed."

11 MARCH • Secretary of the Navy George von L. Meyer authorized the expenditure of not more than $50 for developing models of a helicopter design proposed by MMC F. E. Nelson of *West Virginia* (Armored Cruiser No. 5). Meyer did allow for the possibility of an expanded interest in the future, stating, "The Department recognizes the value of the helicopter principle in the design of naval aircraft and is following closely the efforts of others in this direction."

23 MARCH • Chief Electrician Howard E. Morin conducted experiments with wireless communications at Mare Island Navy Yard near San Francisco, Calif., in which he made transmissions from a dummy airplane fuselage hoisted to a height of 85 feet. An operator at a station at Point Richmond, 20 miles distant, received the signals "distinctly."

22 MAY • 1st Lt. Alfred A. Cunningham, USMC, the first Marine Corps officer assigned to flight instruction and afterward designated Naval Aviator No. 5, reported to the Superintendent of the Naval Academy for "duty in connection with aviation." Cunningham subsequently detached to the Burgess Co., at Marblehead, Mass., for flight instruction. This date is recognized as the birthday of Marine Corps aviation.

650871

Lt. Holden C. Richardson, CC.

21 JUNE • Lt. Theodore G. Ellyson ascended to 900 feet in A-1 (later AH-1) over Annapolis, Md., in 3 minutes 30 seconds.

20 JULY • The men of the aviation camp at Greenbury Point, Md., conducted comparative tests of Wright steel wire and Monel wire at Engineering Experiment Station, Annapolis, Md. These, the earliest recorded naval tests of aircraft structural materials, showed the Monel wire to be both free of corrosion and 50 percent stronger than the steel wire.

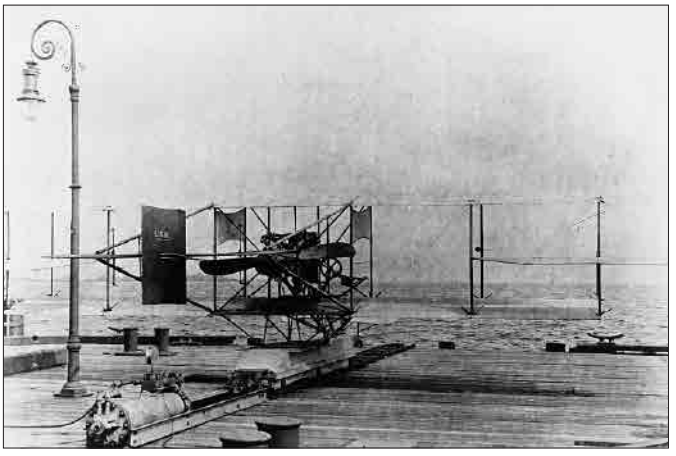
25 JULY • On the basis of the Navy's experience with its first airplanes, Secretary of the Navy George von L. Meyer published *Requirements for Hydroaeroplanes*, the first general specifications for naval aircraft. The Secretary's expressed purpose was "to assist manufacturers in maintaining the highest degree of efficiency, while improving the factors which govern safety in aviation, without demanding anything that may not be accomplished under the limitations of the present state of the art and without confining purchases to the products of a single factory."

26 JULY • Lt. John Rodgers continued airborne wireless communications tests in hydroaeroplane B-1 at Annapolis, Md. On one flight, Ens. Charles H. Maddox sent messages to *Stringham* (Torpedo Boat No. 19) at a distance of about 1½ miles. Subsequent tests over the following days included transmissions at short intervals and while the plane ran on the water. Maddox later received a letter of commendation noting his "valuable work" in the development of aviation radio equipment, including his personal manufacture and installation of the first radio transmitter used by the Navy in airplane communications.

31 JULY • Lt. Theodore G. Ellyson piloted A-1 (later AH-1) during the Navy's first attempt to launch an airplane by catapult, at the dock of the Naval Academy, Annapolis, Md. The aircraft, which was not secured to the catapult, reared at about mid-stroke; a crosswind caught it and the machine plunged into the water, although the pilot escaped without

466256

Ens. Godfrey deC. Chevalier.



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A-1 poised to launch during the Navy's first attempt to launch a plane from a catapult at Annapolis, Md., July 1912.

serious injuries. This catapult, powered by compressed air, was constructed at the Naval Gun Factory at the Washington Navy Yard, D.C., from a plan proposed by Capt. Washington I. Chambers of the Bureau of Navigation.

18 SEPTEMBER • 1st Lt. Bernard L. Smith, USMC, the second Marine officer assigned to flight training and later designated Naval Aviator No. 6, reported for instruction at the aviation camp at the Naval Academy, Annapolis, Md.

3 OCTOBER • The Davis recoilless gun underwent initial tests at Naval Proving Ground, Indian Head, Md. Cmdr. Cleland Davis designed the gun to fire from an aircraft a caliber shell large enough to damage submarines, but with a recoil slight enough to be absorbed by the aircraft. Davis tested the gun again in early December; however, the results of the two series of experiments demonstrated that although the gun was recoilless, the blast from the muzzle would pose problems should they install the weapon on board aircraft.

6 OCTOBER • Lt. John H. Towers took off in A-2 (later AH-2) from the water at Greenbury Point, Md., at 0650 and remained in the air 6 hours 10 minutes 35 seconds, setting a new American endurance record for planes of any type.

8 OCTOBER • Tests of a Gyro 50 hp rotary motor were completed at the Engineering Experiment Station, Annapolis, Md. The motor underwent three brief dynamometer tests, followed by ground runs and flight tests, marking the Navy's first recorded attempt to use laboratory equipment and methods to evaluate an aircraft engine.

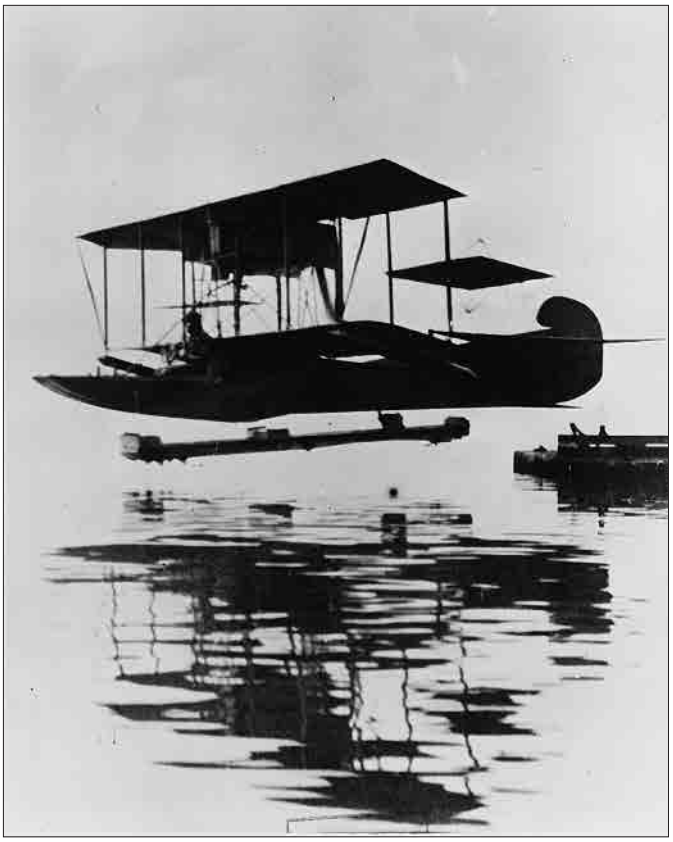
8 OCTOBER • The Navy first defined physical requirements for prospective naval aviators in Bureau of Medicine and Surgery Circular Letter 125221. Standards concerned equilibrium, hearing, vision, and organs of the circulatory and respiratory systems.

25 OCTOBER • Ens. Godfrey deC. Chevalier, later designated Naval Aviator No. 7, reported for flight training at the aviation camp at Annapolis, Md.

12 NOVEMBER • Lt. Theodore G. Ellyson accomplished the Navy's first successful launching of an airplane by catapult, in A-3 (later AH-3) at the Washington Navy Yard, D.C. The following month a flying boat successfully launched from this catapult.

26 NOVEMBER • Lt. j.g. Patrick N. L. Bellinger, later Naval Aviator No. 8, reported for flight instruction at the aviation camp at Greenbury Point, Md.

30 NOVEMBER • Lt. Theodore G. Ellyson tested C-1 (later AB-1), the Navy's first flying boat, at Hammondsport, N.Y. The pilot described its performance as "Circular climb, only one complete circle, 1,575 feet in 14 minutes 30 seconds



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Lt. Theodore G. Ellyson accomplishes the Navy's first successful catapult launch, flying in A-3 at the Washington Navy Yard, D.C., 12 November 1912.

fully loaded. On glide approximately 5.3 to 1. Speed, eight runs over measured mile, 59.4 miles per hour fully loaded. The endurance test was not made, owing to the fact that the weather has not been favorable, and I did not like to delay any longer."

2 DECEMBER • Ens. William D. Billingsley, later Naval Aviator No. 9, reported for duty at the aviation camp at Greenbury Point, Md. Billingsley subsequently began his assignment with instruction in hydroaeroplane B-2 (later AH-5).

18 DECEMBER • Lt. John H. Towers reported completion of a series of tests begun on 26 October to determine the ability to spot submarines from aircraft. Towers concluded that the best altitude for observation was about 800 feet, and that aircraft could detect submarines running a few feet below the surface. Noting that the waters of Chesapeake Bay were too muddy for a fair test, he suggested that additional trials be held at NS Guantánamo Bay, Cuba.

19 DECEMBER • President William H. Taft, acting on a recommendation made by Secretary of the Navy George von L. Meyer, created a "Commission on Aerodynamical Laboratory" to determine the need for and a method of establishing such a laboratory. Capt. Washington I. Chambers of the Bureau of Navigation and Naval Constructor David W. Taylor represented the Navy on the commission.

1913

6 JANUARY • The Navy's entire aviation element arrived at NS Guantánamo Bay, Cuba, and set up an encampment on Fisherman's Point for initial operations with the fleet. The assignment, which included scouting missions and exercises in spotting mines and submerged submarines as part of the fleet maneuvers, served both to demonstrate operational capabilities of the aircraft and to stimulate interest in aviation among sailors and Marines, more than a hundred of whom were taken up for flights during the aviation element's eight-week stay.

8 FEBRUARY • Lt. John H. Towers reported on experimental aviation work underway at NS Guantánamo Bay, Cuba, including bombing, aerial photography, and wireless radio transmission, stating in part: "We have become fairly accurate at dropping missiles, using a fairly simple device gotten up by one of the men. Have obtained some good photographs from the boats at heights up to 1,000 feet. I believe we will get some results with wireless this winter."

26 FEBRUARY • The Chief Constructor of the Navy formally approved action to provide the service with a wind tunnel, a basic tool in aeronautical research and development. The resulting tunnel was built at the Washington Navy Yard, D.C.

4 MARCH • The Navy Appropriations Act for fiscal year 1914 provided an increase of 35 percent in pay and allowances for officers detailed to duty as flyers of heavier-than-air craft, limited to 30 the number of officers that could be so assigned, and further provided that no naval officer above the rank of lieutenant commander in the Navy or major in the Marine Corps was to be detailed to duty involving flying.

652044

The base for the first aviation detachment to operate with the Fleet at Guantánamo Bay, Cuba, January 1913.

426948

Men of the aviation detachment at Guantánamo Bay, Cuba: 1st Lt. Bernard L. Smith, USMC, Lt. j.g. Patrick N. L. Bellinger, 1st Lt. Alfred A. Cunningham, USMC, Ens. William D. Billingsley (standing), Ens. Victor D. Herbster, and Ens. Godfrey deC. Chevalier (seated).

5 MARCH • Reporting on tests held at NS Guantánamo Bay, Cuba, from 3 to 5 March, Lt. John H. Towers stated that aircraft had spotted submarines from the air at a variety of depths. They discerned a submarine painted slate grey at depths up to 45 feet; a light blue boat at a depth of 40 feet; and a "dark greenish blue" boat at 30 feet.

13 MARCH • Capt. Washington I. Chambers of the Bureau of Navigation received the medal of the Aeronautical Society for 1912, and was cited for "his unusual achievements in being the first to demonstrate the usefulness of the aeroplane in navies, in developing a practical catapult for the launching of aeroplanes from ships, in assisting in the practical solution of the hydroaeroplane by the production in association with others of the flying boat, in having been instrumental in the introduction into our halls of Congress of bills for a National Aerodynamic Laboratory, and a Competitive Test, and through his perseverance and able efforts in advancing the progress of Aeronautics in many other channels."

31 MARCH • A list of aircraft instruments and allied equipment planned for installation in flying boat D-1 (later AB-6) included a compass, altimeter, inclinometer, speed indicator, chart board, radio, and generator. Although mechanics had not installed the radio and generator by this date, the other equipment represents instrumentation installed on naval aircraft of the period.

10 APRIL • The Secretary of the Navy approved performance standards for qualification as a Navy Air Pilot and the issuance of a certificate to all officers meeting the requirements. Capt. Washington I. Chambers of the Bureau of Navigation described these requirements as being different from those of the "land pilot," and more exacting than those of the international accrediting agency, the Federation Aeronautique Internationale.

28 APRIL • Rear Adm. Victor Blue, Chief of the Bureau of Navigation, approved a proposal that the Navy, Glenn H. Curtiss, and the Sperry Co. cooperate in testing the gyroscopic stabilizer on a new naval aeroplane.

9 MAY • President Woodrow Wilson approved the designation of representatives from governmental departments to serve on an advisory committee for the Langley Aerodynamical Laboratory, which the Smithsonian Institution had closed after the death of laboratory director Samuel P. Langley and reopened on 1 May to study questions relating to aerodynamics. Navy members of the advisory committee were Capt. Washington I. Chambers of the Bureau of Navigation and Assistant Naval Constructor Lt. Holden C. Richardson, CC.

12 JUNE • Secretary of the Navy Josephus Daniels approved detailing Lt. Jerome C. Hunsaker, CC, to the Massachusetts Institute of Technology to develop "a course of lectures and experiments on the design of aeroplanes and dirigibles, and to undertake research in that field." After making a tour of aeronautical research facilities in Europe, Hunsaker participated in establishing a course of aeronautical engineering in MIT's Department of Naval Architecture.

13 JUNE • Lt. j.g. Patrick N. L. Bellinger set an American altitude record for seaplanes when he reached 6,200 feet in A-3 (later AH-3) over Annapolis, Md.

20 JUNE • Ens. William D. Billingsley suffered an accident while flying B-2 (later AH-5) at 1,600 feet over the water near Annapolis, Md. Billingsley was thrown from the plane and fell to his death, becoming the first fatality in naval aviation. The mishap also unseated passenger Lt. John H. Towers, who clung to a piece of B-2 but fell with the plane's wreckage into the water and received serious injuries. Destroyer *Billingsley* (DD 293) was later named in honor of the fallen pilot.

23 JUNE • General Order No. 41 fixed the cognizance of various bureaus in aviation in a manner paralleling the division of responsibility for naval vessels.

30 AUGUST • A Sperry gyroscopic stabilizer (automatic pilot) was flight tested in flying boat C-2 (later AB-2) by Lt. j.g. Patrick N. L. Bellinger at Hammondsport, N.Y.

30 AUGUST • In a report to Secretary of the Navy Josephus Daniels, the General Board expressed its opinion that "the organization of an efficient naval air service should be immediately taken in hand and pushed to fulfillment."

5 OCTOBER • The Navy's first amphibian flying boat, the Over-Water-Land type, completed its initial trials at Hammondsport, N.Y., under the supervision of Assistant Naval Constructor Lt. Holden C. Richardson, CC. The aircraft, which was subsequently redesignated E-1, was hydroaeroplane A-2 (later AH-2), in which a flying boat hull containing a three-wheel landing gear replaced the pontoon.

7 OCTOBER • Secretary of the Navy Josephus Daniels appointed a board—dubbed the Chambers Board, after senior member Capt. Washington I. Chambers—to draw up "a comprehensive plan for the organization of a Naval Aeronautic Service." The board's members also included Cmdr. Carlo B. Brittain, Cmdr. Samuel S. Robison, Lt. Manley H. Simons, Lt. John H. Towers, Assistant Naval Constructor Lt. Holden C. Richardson, CC, and 1st Lt. Alfred A. Cunningham, USMC. Following 12 days of deliberation the board submitted a report emphasizing the need for expansion and for the integration of aviation within the fleet. This was the first comprehensive program for an orderly development of naval aviation. The board's recommendations included establishing an aeronautic center at Pensacola, Fla., for flight and ground training and for the study of advanced aeronautical engineering; creating a central aviation office under the secretary to coordinate the aviation work of the bureaus; assigning a ship for training in operations at sea and to make practical tests of equipment necessary for such operations; and assigning one aircraft to every major combatant ship. The board requested $1,297,700 to implement the program.

17 DECEMBER • Capt. Mark L. Bristol reported to the Navy Department for special duty as officer in charge of aviation, and relieved Capt. Washington I. Chambers of that duty.

72-CN-6422

Flying boats, hydroaeroplanes, and tent hangars at Naval Aeronautic Station Pensacola, Fla., c. 1914.

1061482

Lt. Cmdr. Henry C. Mustin.

1914

6 JANUARY • The Marine Corps element of the aviation camp at Greenbury Point, Md., 1st Lt. Bernard L. Smith, USMC, commanding, equipped with a flying boat, an amphibian, spare parts, and hangar tents, received orders to deploy to Culebra Island, Puerto Rico, for exercises with the Advance Base Unit to experiment with aircraft operations during fleet maneuvers.

7 JANUARY • The Office of Aeronautics, with Capt. Mark L. Bristol in charge, transferred from the Bureau of Navigation to the Division of Operations in the Office of the Secretary of the Navy.

10 JANUARY • Secretary of the Navy Josephus Daniels announced that "the science of aerial navigation has reached that point where aircraft must form a large part of our naval force for offensive and defensive operations."

20 JANUARY • The aviation unit from Annapolis, Md., consisting of 9 officers, 23 enlisted men, 7 aircraft, portable hangars, and other gear, under Lt. John H. Towers, arrived at the former Navy yard at Pensacola, Fla., on board the aeronautic training ship *Mississippi* (Battleship No. 23) and *Orion* (Fuel Ship No. 11) to set up a flying school. Lt. Cmdr. Henry C. Mustin, in command of *Mississippi*, also commanded the aeronautic station.

16 FEBRUARY • Lt. j.g. James M. Murray, Naval Aviator No. 10, died when he crashed into the water from 200 feet while on a flight in flying boat D-1 (later AB-6) at Pensacola, Fla.

20 FEBRUARY • The beginnings of aviation medicine were apparent in a letter from the Office of Aeronautics to the commanding officer of the aeronautic station at Pensacola, Fla., on the subject of physical requirements for aviator candidates, which expressed the opinion that useful information was to be obtained by observing pilots during flight and by physical examination before and after flight. The letter further directed that a program should be developed that would permit incorporation of such practice in the work of the flight training school.

9 MARCH • The construction of the wind tunnel at the Washington Navy Yard, D.C., was completed and the tunnel turned over its fan for the first time. Calibration required about three months, and the Navy first used the tunnel in July to test a ship's ventilator cowling. The wind tunnel remained in operation throughout WWII.

27 MARCH • General Order No. 88 changed the designations of aircraft to two letters and a number, with the first letter denoting class, the second letter the type, and the number the order in which aircraft within class were acquired. Four classes were set up: A for all heavier-than-air craft; B for balloons; D for airships or dirigibles; and K for kites. Within the A class, the types of aircraft were B for

An aircraft flies over Vera Cruz, Mexico, as the pilot searches for enemy snipers.

flying boats, C for convertibles, H for hydroaeroplanes, L for land planes, and X for combination land and water machines. For example, the third hydroaeroplane, formerly designated A-3, became AH-3, and the first flying boat, formerly designated C-1, became AB-1.

20 APRIL • The First Section, an aviation detachment from Pensacola, Fla., embarked *Birmingham* (Cruiser No. 2), which sailed to join the ships of the Atlantic Fleet operating off Tampico and Vera Cruz during a crisis in Mexican waters. The detachment comprised three aircraft—hydroaeroplane AH-2, carrying spare parts including most of AX-1, and flying boats AB-4 and AB-5—with pilot Lt. John H. Towers in command, pilots 1st Lt. Bernard L. Smith, USMC, and Ens. Godfrey deC. Chevalier, and 12 enlisted men. This operation signified naval aviation's first call to action.

20 APRIL • Albert B. Lambert, an entrepreneur from St. Louis, Mo., who had organized the "U.S. Aviation Reserve Corps" the year before, informed Secretary of the Navy Josephus Daniels that he would make the corps' services available for use in the Mexican crisis. Lambert listed the names of 44 members—not all of naval origins—20 of whom could furnish their own aircraft; however, the Navy declined his offer.

21 APRIL • The Second Section, an aviation detachment from Pensacola, Fla., embarked the aeronautic training ship *Mississippi* (Battleship No. 23) and sailed for Mexico to assist in operations at Vera Cruz. The detachment consisted of two aircraft—hydroaeroplane AH-3 and flying boat AB-3—with pilot Lt. j.g. Patrick N. L. Bellinger in command and student pilots Lt. j.g. Richard C. Saufley, Ens. Melvin L. Stolz, and Ens. Walter D. LaMont.

22 APRIL • The Bureau of Navigation approved formal courses of instruction for student aviators and student mechanics at the Pensacola, Fla. aeronautic station flying school.

25 APRIL • Lt. j.g. Patrick N. L. Bellinger piloted flying boat AB-3 on the Second Section's first flight at Vera Cruz, Mexico, during a preliminary search for a purported mine in the harbor. The plane nearly failed to take off through the heavy swells but rose to a height of about 3,000 feet for a 28-minute flight around the harbor. Bellinger returned and picked up Ens. Melvin L. Stolz, but the weather forced him to go inside the breakwater to find smooth water, and the crew failed to spot the mine.

28 APRIL • Lt. j.g. Patrick N. L. Bellinger and Ens. Walter D. LaMont took the Navy's first recorded aerial photographs during wartime from flying boat AB-3 at an average altitude of barely 200 feet over Vera Cruz, Mexico. The flight was cut short, however, when the crew reported that the engine "worked poorly."

2 MAY • Lt. j.g. Patrick N. L. Bellinger and Ens. Walter D. LaMont completed naval aviation's first mission in direct support of ground troops while flying hydroaeroplane AH-3. Marines encamped near Tejar, Mexico, had reported receiving fire from Mexican troops during the forenoon watch and requested that the aviation detachment at Vera Cruz locate the attackers.

6 MAY • Orders directed the Second Section to investigate a company of about 100 Mexican soldiers encamped near Punta Gorda, around one mile north of Vera Cruz. Lt. j.g. Patrick N. L. Bellinger, pilot, with Lt. j.g. Richard C. Saufley, observer, responded in hydroaeroplane AH-3. As the plane followed the coast north toward Boca del Rio Antigua at an average altitude of 3,200 feet, it flew low over a group of Mexican stragglers who opened fire with rifles, hitting the frail craft. Bellinger immediately pulled up and although he

On 28 April 1914, Lt. j.g. Patrick N. L. Bellinger and Ens. Walter D. LaMont take the Navy's first documented aerial photographs during wartime from AB-3 over the fortress of San Juan de Ulua and the harbor of Vera Cruz, Mexico.

and Saufley escaped unhurt, AH-3 bore the first marks of battle on a Navy plane.

19 MAY • As the need for scouting services diminished at Vera Cruz, Mexico, the Second Section resumed routine flight instruction at that city while awaiting orders to return to Pensacola, Fla.

24 MAY • The First Section—the aeronautic detachment on board *Birmingham* (Cruiser No. 2)—arrived at Vera Cruz, Mexico, following a brief deployment to Tampico, to join the Second Section in the school routine of flight instruction.

26 MAY • On the basis of flight tests, Assistant Naval Constructor Lt. Holden C. Richardson, CC, recommended that the Navy purchase two swept-wing Burgess-Dunne hydroaeroplanes "so that the advantages and limitations can be thoroughly determined . . . as it appears to be only the beginning of an important development in aeronautical design." The service subsequently designated the aircraft obtained as AH-7 and AH-10.

1 JULY • The Navy formally recognized aviation by establishing the Office of Naval Aeronautics in the Division of Operations under the Secretary of the Navy. Secretary of the Navy Josephus Daniels had recommended the establishment on 26 March, which President Woodrow Wilson approved.

28 JULY • Lt. j.g. Victor D. Herbster reported on bombing tests that he and 1st Lt. Bernard L. Smith, USMC, carried out at Indian Head Proving Grounds, Md. They dropped both dummy and live bombs over the side of the aircraft from about 1,000 feet against land and water targets. Herbster reported his bombing would have been more accurate "if I had been able to disengage my fingers from the wind-wheel sooner."

21 AUGUST • Lt. Cmdr. Henry C. Mustin, Lt.j.g. Patrick N. L. Bellinger, and 1st Lt. Bernard L. Smith, USMC, arrived in Paris, France, from a voyage on board *North Carolina* (Armored Cruiser No. 12) for a two-day tour of aircraft factories and aerodromes in the immediate area. This temporary assignment marked the first use of naval aviators

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Lt. j.g. Patrick N. L. Bellinger, far right, and some of the other men of the aviation camp at Vera Cruz, Mexico, stand before hydroaeroplane AH-3, the Navy's first plane struck by enemy gunfire.

as observers in foreign lands, and established a precedent for the assignment of aviation assistants to naval attachés, which began the same month when Lt. John H. Towers was dispatched to London, England, "for special duty in connection with the study of aviation." The following month Lt. j.g. Victor D. Herbster and 1st Lt. Smith reported to Berlin, Germany, and to Paris, respectively.

16 NOVEMBER • An administrative reorganization at Pensacola, Fla., shifted overall command of the flying school from the station ship to headquarters ashore, and the station was officially designated Naval Aeronautic Station, Pensacola.

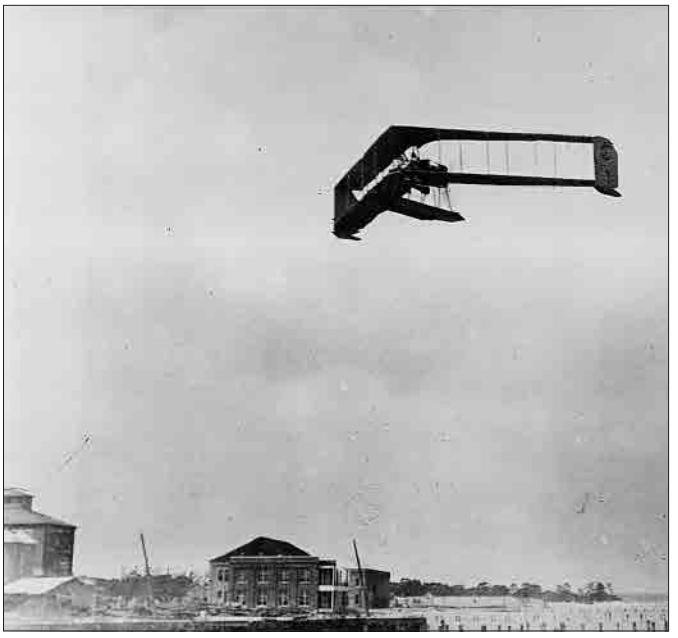
23 NOVEMBER • The Navy established the title Director of Naval Aeronautics to designate the officer in charge of naval aviation. Capt. Mark L. Bristol, already serving in that capacity, was ordered to report to Secretary of the Navy Josephus Daniels under the new title.

25 NOVEMBER • Director of Naval Aeronautics Capt. Mark L. Bristol established requirements for special meteorological equipment to measure and record velocity and direction of winds, gusts, and squalls, for installation at the two ends of the speed course at Pensacola, Fla.

1915

1 FEBRUARY • The Division of Naval Militia Affairs in the Bureau of Navigation directed that an aeronautic corps was to be organized in each state's Naval Militia.

Lt. Cmdr. Patrick N. L. Bellinger served at Vera Cruz, Mexico, as a lieutenant, junior grade.



1061479

The AH-7 flies over Pensacola, Fla.

3 MARCH • A rider to the Naval Appropriations Act of 1915 created the National Advisory Committee for Aeronautics. Navy members in the original organization were Director of Naval Aeronautics Capt. Mark L. Bristol and Assistant Naval Constructor Lt. Holden C. Richardson, CC. Futhermore, the Act added enlisted men and student aviators to those eligible for increased pay and allowances while flying on duty, increased the amount previously provided for qualified aviators, and provided for the payment of one year's pay to the next of kin of officers and men killed in aircraft accidents. The same act also raised the limits on sailors assigned to aviation to a yearly average of not more than 48 officers and 96 enlisted men for the Navy, and 12 officers and 24 enlisted men for the Marine Corps.

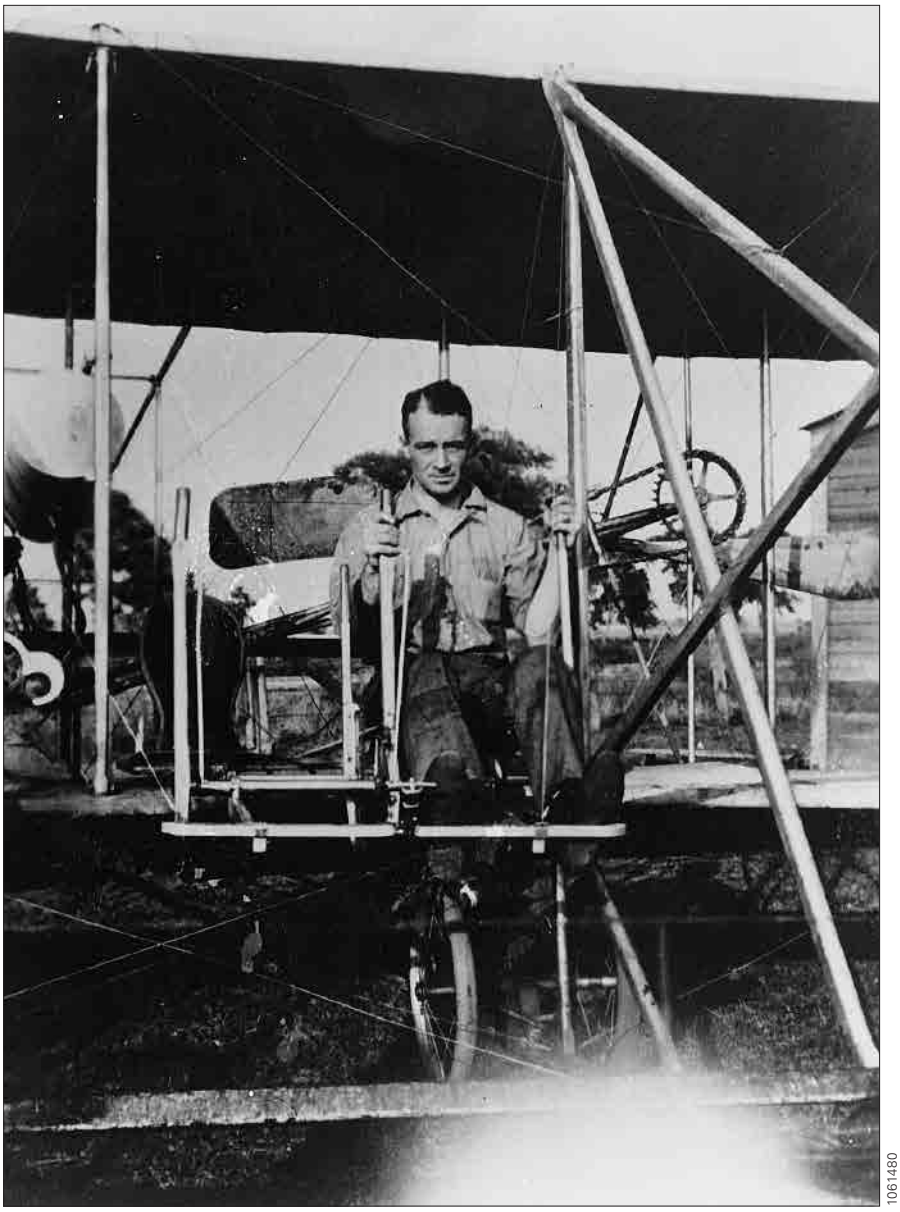
22 MARCH • The title Naval Aviator began to replace the former Navy Air Pilot designation for naval officers who had qualified as aviators.

16 APRIL • Lt.j.g. Patrick N. L. Bellinger successfully catapulted from a coal barge in flying boat AB-2 at Pensacola, Fla. Assistant Naval Constructor Lt. Holden C. Richardson, CC, had designed and fabricated the device at the Washington Navy Yard, D.C., in 1913. The success of this and subsequent launches by Lt. Kenneth Whiting, Lt. j.g. Richard C. Saufley, and Ens. Clarence K. Bronson led to the installation of catapults on board ships.

23 APRIL • Lt.j.g. Patrick N. L. Bellinger established a U.S. altitude record for seaplanes by ascending to 10,000 feet in AH-10 on a flight of 1 hour 19 minutes, over Pensacola, Fla.

8 MAY • Student aviator Lt. j.g. Melvin L. Stolz died when his Curtiss hydroaeroplane crashed at Pensacola, Fla. Although Stolz had not been designated a naval aviator, he had qualified for Aero Club Hydroaeroplane Certification No. 19.

28 MAY • The Naval Militia was informed that refresher flight training at Pensacola, Fla., had become available for a limited number of its aviators.



1061480

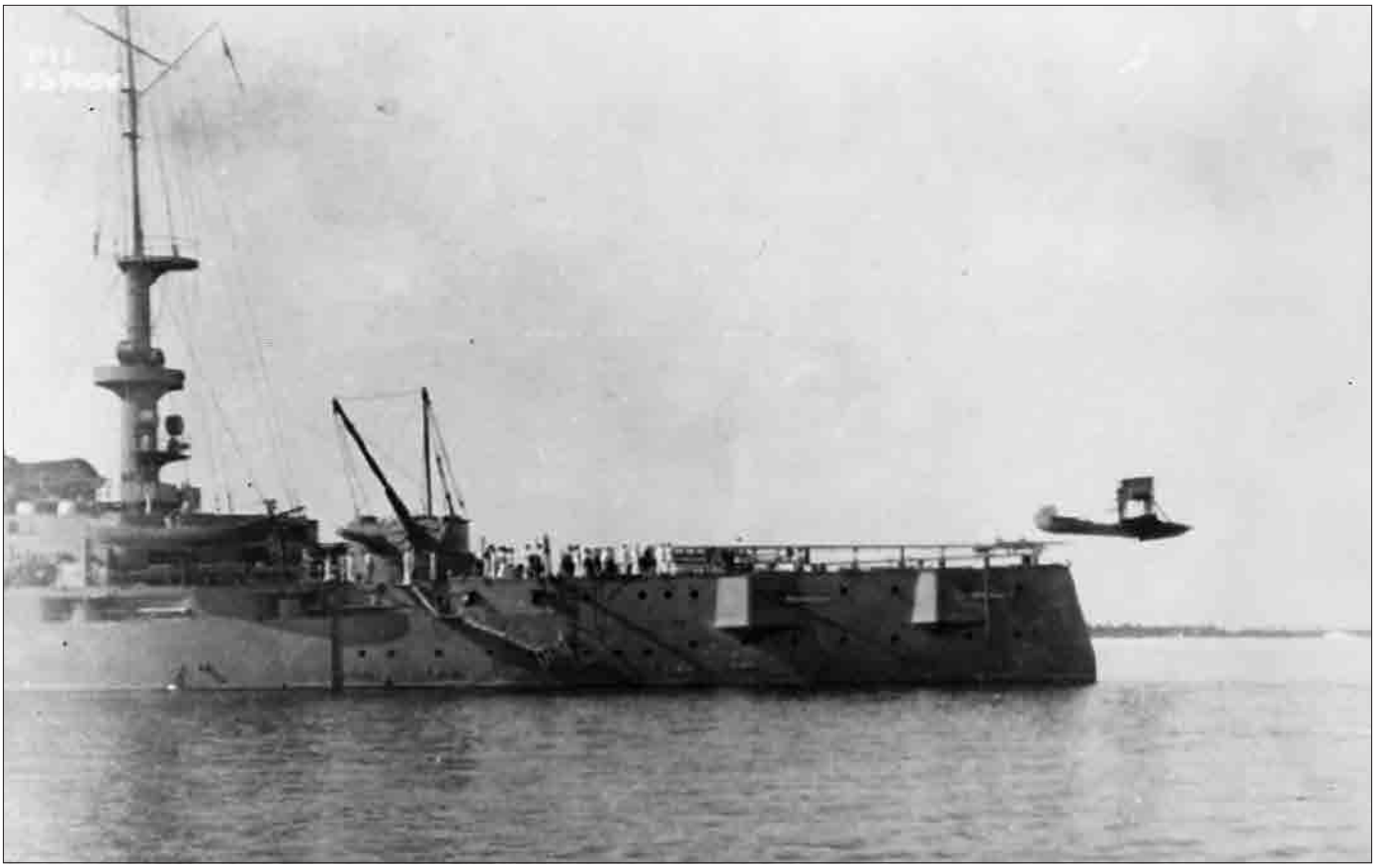
Lt. Kenneth Whiting, at the controls of a Wright aircraft, later became instrumental in the formation of naval carrier aviation.

1 JUNE • The Navy let its first contract for a lighter-than-air craft when it ordered a non-rigid airship from the Connecticut Aircraft Co. of New Haven. The craft, later designated DN-1, arrived at Pensacola, Fla., in December 1916. However, men had to remove one of the engines to lighten the ship enough to lift into the air, so DN-1 did not make its first flight until Lt. Cmdr. Frank R. McCrary piloted the ship aloft on 20 April 1917, the month that the U.S. entered WWI. The airship completed two additional flights but later received severe damage while being towed over water. Because of its poor performance the Navy removed DN-1 from inventory and broke up the airship. The Navy had developed its first and only floating hangar to accommodate DN-1, and afterward used the structure for the operation of B-class airships during WWI.

7 JULY • Secretary of the Navy Josephus Daniels attempted to mobilize scientific achievement to the modernization of the fleet by writing inventor Thomas A. Edison, stating in part: "One of the imperative needs of the Navy, in my judgment, is machinery and facilities for utilizing the natural inventive genius of Americans to meet the new conditions of warfare." This letter led to the establishment of the Naval Consulting Board, a group of civilian advisors that functioned during the WWI period and included in its organization a "Committee on Aeronautics, including Aero Motors."

10 JULY • Secretary of the Navy Josephus Daniels issued the authorization to outfit a building at Washington Navy Yard, D.C., for testing aeronautic machinery. This marked the beginning of the Aeronautical Engine Laboratory.

10 JULY • After a test of a sextant equipped with a pendulum-type artificial horizon, Lt. Cmdr. Henry C. Mustin, the



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Lt. Cmdr. Henry C. Mustin makes the first catapult launch from a ship, flying AB-2 from *North Carolina* (Armored Cruiser No. 12) at Pensacola, Fla., 5 November 1915.

commanding officer of Naval Aeronautic Station Pensacola, Fla., reported that while the pendulum principle was basically unsatisfactory for aircraft use, a sextant incorporating a gyroscopically stabilized artificial horizon might be acceptable.

10 JULY • A standard organization prescribed by General Order No. 153 became the first to provide for an aeronautic force within the Naval Militia. Its composition, paralleling that of other forces established at the same time, consisted of sections not to exceed 6 officers and 28 enlisted men, with two sections forming a division. Officers served in the "aeronautics duty only" category, with the highest rank provided as lieutenant commander at the division level. The enlisted structure provided that men taken in under regular rates of machinist mates and electricians were to perform duties as aeronautic machinists; carpenter mates were to perform duties as aeronautic mechanics; and landsmen (equivalent to later strikers) were to perform special duties.

22 JULY • Based on recommendations received from the Naval Aeronautic Station, Pensacola, Fla., the Director of Naval Aeronautics established requirements for 13 instruments to be installed in service aeroplanes: air speed meter, altitude barometer, binoculars, clock, compass, course and distance indicator, fuel gauge, incidence indicator, magazine camera, oil gauge, sextant, skidding and sideslip indicator, and tachometer. All except the binoculars, camera, clock, and navigational instruments were also required for school aeroplanes.

5 AUGUST • Lt.j.g. Patrick N. L. Bellinger flew AH-10 while spotting mortar fire for Army shore batteries at Fort Monroe, Va. Bellinger signaled his spots with Very pistol flares.

11 AUGUST • The Naval Observatory requested the Eastman Kodak Co. to develop an aerial camera with high-speed lens, suitable for photography at 1,000 to 2,000 yards altitude, and so constructed that the pressure of the air during flight would not distort the focus.

416327

Ens. Wadleigh Capehart holds a sample bomb from the cockpit of a Burgess-Dunne plane.

12 OCTOBER • A directive was issued establishing an Officer in Charge of Naval Aeronautics under the Chief of Naval Operations and giving authority for aviation programs in the Navy to CNO and to the bureaus. Although this had the effect of abolishing the Office of the Director of Naval Aeronautics, that office continued to exist until the incumbent director detached on 4 March 1916.

15 OCTOBER • Secretary of the Navy Josephus Daniels referred to the General Board a proposal, made by Director of Naval Aeronautics Capt. Mark L. Bristol, to convert a merchant ship to operate aircraft. Daniels commented that the fleet had a more immediate need to determine how they could operate *North Carolina* (Armored Cruiser No. 12), which had already been fitted to carry aeroplanes.

5 NOVEMBER • Lt. Cmdr. Henry C. Mustin made the first catapult launch from a commissioned warship, launching in flying boat AB-2 from the stern of *North Carolina* (Armored Cruiser No. 12) at 1158 in Pensacola Bay, Fla. Sailors had originally removed the catapult from a coal barge, and on 28 October installed the device onto the cruiser's stern. Assistant Naval Constructor Lt. Holden C. Richardson, CC, and Lt.j.g. Patrick N. L. Bellinger completed an additional takeoff on 6 November, and 1st Lt. Alfred A. Cunningham, USMC, completed the first Marine Corps launch on 8 November.

3 DECEMBER • Lt. j.g. Richard C. Saufley set a U.S. altitude record for hydroaeroplanes in AH-14 at 11,975 feet over Pensacola, Fla., surpassing the pilot's own record of 11,056 feet, which he had set only three days before. The Aero Club of America awarded Saufley its Medal of Merit for "twice breaking the American Hydroaeroplane altitude record in one year."

1916

6 JANUARY • Instruction commenced at Pensacola, Fla., for the first group of enlisted men to receive flight training.

11 JANUARY • The Naval Observatory forwarded two magnetic compasses to Pensacola, Fla., for tests under all conditions. These compasses, modified from the British Creigh-Osborne design on the basis of recommendations by naval aviators, provided a model for the compasses widely used in naval aircraft during WWI.

21 JANUARY • In a step that led to the establishment of an aviation radio laboratory at Pensacola, Fla., the Officer in Charge of Naval Aeronautics requested the Superintendent, Radio Service authorize the radio operators at the Pensacola Radio Station to experiment with aircraft radio. Simultaneously, men at Pensacola received four sets of radio apparatus for aeroplanes. Although initiation of developmental work did not begin immediately, by late July an officer and a civilian radio expert had been detailed to aircraft radio experimentation at Pensacola, and the Bureau of Steam Engineering had ordered approximately 50 aircraft radio sets.

10 FEBRUARY • The Bureau of Construction and Repair implemented a Navy Department decision, directing that designation numbers were to be assigned to all aircraft under construction, and that these numbers were to be used for identification purposes until the aircraft were tested or placed in service, at which time standard designations provided by the order of 27 March 1914 were to be used. The service simultaneously assigned numbers to 33 aircraft, beginning with 51-A, introducing the system of serial numbers hereafter assigned to all aircraft.

4 MARCH • Capt. Mark L. Bristol detached as Director of Naval Aeronautics and both the title and the office ceased to exist. Bristol received orders to command *North Carolina* (Armored Cruiser No. 12) and, under a new title of Commander of the Air Service, assumed operational supervision over all aircraft and aeronautic stations, as well as the further development of aviation in the Navy. Lt. Clarence K. Bronson assumed the remaining aviation duties in the Office of Chief of Naval Operations.

7 MARCH • During an exhibition flight at Mobile, Ala., a wind gust struck the hydroaeroplane AH-10 at an altitude of 75 feet, causing it to crash into the schooner *Melba*, at anchor in the Mobile River. The pilot, Lt. Edward O. McDonnell, survived because the vessel's rigging checked his fall. AH-10 was demolished and *Melba* sustained damage to her rigging and stays, but the plane was subsequently rebuilt.

25 MARCH • General Order No. 198 defined qualifications for officers and enlisted men in the Aeronautic Force of the Naval Militia in addition to those prescribed for the same ranks and ratings of the Naval Militia. These extras were cumulative for ranks in ascending order. Ensigns were required to have knowledge of navigation (except nautical astronomy) and scouting problems, practical and theoretical knowledge of airplanes and motors, and ability to fly at least one type of aircraft. Lieutenants (junior grade) were to have some knowledge of nautical astronomy and principles of airplane design, and to qualify for a Navy pilot certificate. Additional requirements for lieutenants called for a greater knowledge of nautical astronomy and ability to fly at least two types of naval aircraft, while those for lieutenant commanders, the highest rank provided for the force, included knowledge of Navy business methods used in aeronautics. Enlisted aviation mechanics were to have knowledge of aircraft maintenance; aviation machinists, a similar knowledge of motors.

29 MARCH • Lt. Richard C. Saufley bettered his own U.S. altitude record, piloting a Curtiss hydroaeroplane to 16,010 feet at Pensacola, Fla. On 2 April Saufley again extended the record by attaining a mark of 16,072 feet.

30 MARCH • Secretary of the Treasury William G. McAdoo informed Secretary of the Navy Josephus Daniels that Coast Guard officers 2d Lt. Charles E. Sugden and 3rd Lt. Elmer F. Stone had been assigned to flight instruction at Pensacola, Fla., in accordance with an agreement between the two departments.

15 APRIL • A Bureau of Construction and Repair drawing prescribed an anchor and a two-digit numeral, both in dark blue on a white background, as "Distinguishing Marks for Naval Aeroplanes." The anchor and numeral were painted outboard on the upper and lower wing surfaces; the anchor was generally placed on the vertical tail surfaces; and the numeral, fore and aft on both sides of the fuselage.

13 MAY • Chief of Naval Operations Adm. William S. Benson requested appropriate bureaus to undertake development of gyroscopic attachments for instruments and equipment, including base lines, bombsights (forerunners of turn and bank indicators), and compasses.

20 MAY • The Navy initiated development of a gyroscopically operated bomb-dropping sight and allocated $750 to the Bureau of Ordnance, for use in placing an order with the Sperry Gyroscope Co.

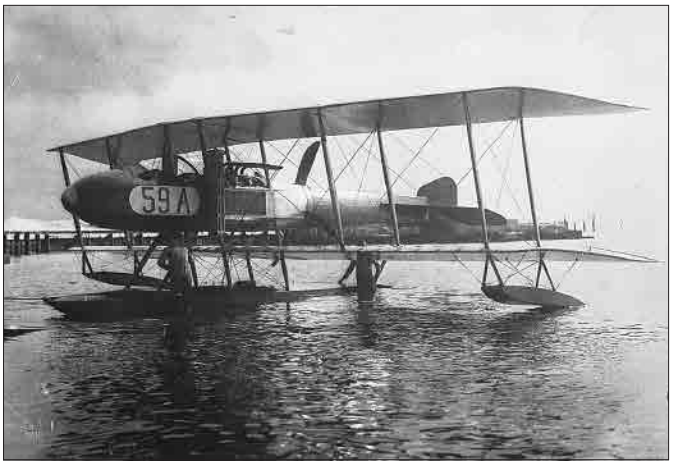
22 MAY • The Naval Observatory sent a color camera, made by the Hess-Ives Corp., to Naval Aeronautic Station Pensacola, Fla., to determine if color photography would be of value in aeronautic work.

3 JUNE • Formal instruction in free and captive balloons began at Pensacola, Fla., when Secretary of the Navy Josephus Daniels approved a course proposed by Lt. Cmdr. Frank R. McCrary, and directed that the curriculum was to be added to the Bureau of Navigation Circular "Courses of Instruction and Required Qualifications of Personnel for the Air Service of the Navy."

9 JUNE • During an endurance flight over Santa Rosa Island off Pensacola, Fla., Lt. Richard C. Saufley crashed in AH-9 from a height of about 700 feet, killing him. The aircraft had been in the air for 8 hours 52 minutes. Investigators attributed the loss to a structural defect in the plane's tail surfaces. The destroyer *Saufley* (DD 465) and Saufley Field at NAS Pensacola were named in his honor.

20 JUNE • The issuance of General Order No. 222, superseding that of 23 June 1913, defined the cognizance for aeronautics in the Navy Department. In addition to extending the subject from "Naval Aeroplanes" to "Aeronautics," this order embraced lighter-than-air and certain heavier-than-air components that had not been provided for in the earlier order.

12 JULY • Lt. Godfrey deC. Chevalier was catapulted from *North Carolina* (Armored Cruiser No. 12) in flying boat AB-3 in Pensacola Bay, Fla. The launch completed calibration of the first catapult designed for shipboard use. *North Carolina* became the first U.S. Navy ship equipped to carry and operate aircraft.



1061646

The novel Gallaudet 59-A; note the propeller mounted in the fuselage aft of the wings.

17 JULY • Civilian pilot David H. McCulloch made the first flight of the Gallaudet 59-A, a novel airplane with the propeller mounted in the fuselage aft of the wings, at Norwich, Conn. Navy Inspector Lt. j.g. George D. Murray witnessed the event. On 11 September Commander of the Air Service Capt. Mark L. Bristol, in command of *North Carolina* (Armored Cruiser No. 12), requested that 59-A be assigned to the cruiser. Despite substantial tests which showed the aircraft failed to meet contract requirements, a trial board recommended on 29 January 1917 that the Navy accept it into inventory. The service struck the machine on 21 July 1919.

18 JULY • Secretary of the Navy Josephus Daniels established flight clothing allowances. Aviators were to be furnished helmets, goggles, and safety jackets. Enlisted men whose duties involved flying were also to receive wool head covers, suits, gauntlets, and boots.

22 JULY • Serious interest in the development of light metal alloys for aeronautical use led Chief Constructor Rear Adm. David W. Taylor to request that the Aluminum Company of America develop a suitable alloy for use in fabricating Zeppelin-type girders. German successes in operating Zeppelins with a hitherto unknown aluminum alloy (later revealed as duralumin) prompted the Navy's interest.

8 AUGUST • The Secretary of the Navy clarified the place of aviation in the departmental organization by redefining the responsibilities of bureaus and offices for specific elements of the naval aviation program. While the new directive

followed the division of cognizance over material established by a general order on 20 June 1916, it went further in that it assigned the General Board responsibility for advising as to the numbers and general characteristics of aircraft, and in effect made the Bureau of Construction and Repair a lead bureau for aircraft development and procurement.

10 AUGUST • Negotiation for the first aircraft production contract began with a telegram to Glenn H. Curtiss requesting him to "call at the Bureau [of Construction and Repair] Monday with a proposition to supply at the earliest date practicable thirty school hydro aeroplanes." Specified characteristics included two seats, loading of about 4 pounds per square foot, and power loading of about 20 pounds per horsepower. The telegram concluded, "Speed, climb and details of construction to be proposed by you. Rate of delivery is important and must be guaranteed." The telegram resulted in a contract for 30 N-9 seaplanes, which the company delivered between November 1916 and February 1917. The N-9 became a popular training aircraft during WWI.

12 AUGUST • Secretary of the Navy Josephus Daniels agreed with Secretary of War Newton D. Baker that the Navy and War departments should adopt the straight Deperdussin system of controlling aircraft in flight as the standard system for use in all of their aircraft. The French aviation firm Societé de Production Armand Deperdussin's system—comprising a central control stick to manipulate aircraft elevators and ailerons, with pedals or a rudder bar to control the vertical rudder—had proven its reliability during testing.

17 AUGUST • The Secretary of the Navy approved a reorganization of the Naval Aeronautic Station, Pensacola, Fla., which reassigned the training of commissioned and enlisted sailors for aeronautic services with the fleet as a primary mission, and ordered the establishment of an aeronautics school and departments for experimental test and inspection, manufacturing, medical, public works, and supply.

29 AUGUST • The Naval Appropriation Act for fiscal year 1917 provided for the establishment of a Naval Flying Corps composed of 150 officers and 350 enlisted men in addition to those provided by law for other branches of the Navy. It also provided for the establishment of a Naval Reserve force of six classes, including a Naval Reserve Flying Corps composed of officers and enlisted men transferring from the Naval Flying Corps, surplus graduates of aeronautics schools, and members of the Naval Reserve Force with experience in aviation.

9 SEPTEMBER • The Secretary of the Navy issued an order initiating formal flight testing as a basis for accepting new aircraft and establishing procedures to determine whether operational aircraft were safe to fly.

12 SEPTEMBER • Lt. Theodore S. Wilkinson of the Bureau of Ordnance witnessed a demonstration of a piloted hydroaeroplane equipped with automatic stabilization and direction gear developed by the Sperry Gyroscope Co. and electrical engineer Peter C. Hewitt at Amityville, Long Island, N.Y. Wilkinson reported: "The automatic control of the aeroplane is adequate and excellent. The machine left the water without difficulty, climbed to its desired height, maintained this altitude until the end of the run, when it dived sharply; and, unless controlled by the aviator, would have dived to the earth." This is one of the first recorded instances of the Navy's development of what became guided missiles.

20 SEPTEMBER • The Navy issued the earliest extant instruction regarding the color of naval aircraft. This instruction canceled the use of slate color and provided that the wings, body, and pontoon of Curtiss N-9 aircraft were to be finished with opaque yellow (or greenish-yellow) varnish.

11 OCTOBER • Secretary of War Newton D. Baker recommended to Secretary of the Navy Josephus Daniels that a joint Army-Navy board be appointed to consider the requirements for developing a lighter-than-air service in the Army or Navy or both. The secretary's concurrence set the stage for the establishment of an agency for interservice cooperation in aeronautics, subsequently named the Aeronautical Board, which served until 1948.

24 OCTOBER • The Bureau of Steam Engineering requested that the Navy Yard in Philadelphia, Pa., was to undertake the development of a radio direction finder for use on aeroplanes, and specified that the apparatus was to be as light as possible and use wavelengths of 600 to 4,000 meters.

27 OCTOBER • Chief of Naval Operations Adm. William S. Benson directed that all aircraft loaned or donated to the Naval Militia by private individuals or organizations were to

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Pioneer naval photographer W. L. Richardson, left, and pilot E. F. Johnson.

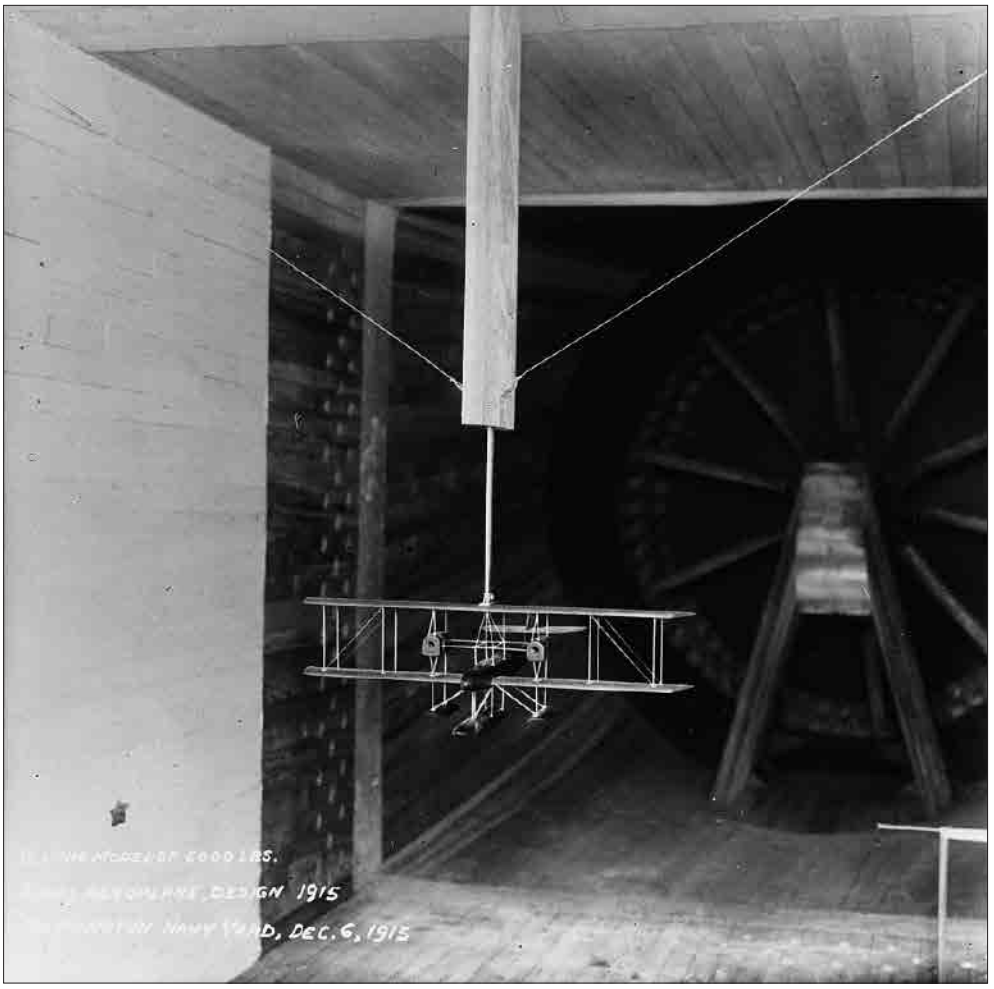
be designated NMAH and be given numbers in sequence beginning with one.

8 NOVEMBER • During an experimental bomb test flight at Naval Proving Ground, Indian Head, Md., a bomb exploded about three feet below an N-9 seaplane, killing pilot Lt. Clarence K. Bronson (Naval Aviator No. 15) and Lt. Luther Welsh. The explosion tore the tail off, and the seaplane plummeted into the Potomac River.

17 NOVEMBER • Efforts to develop high-speed seaplanes for catapulting from ships led Chief Constructor Rear Adm. David W. Taylor to solicit suitable designs from manufacturers. The requirements included a speed range of 50 to 95 miles per hour, a 2½-hour endurance, and provisions for radio.

18 NOVEMBER • Lighter-than-air tests were completed on board *Nevada* (Battleship No. 36) and *Oklahoma* (Battleship No. 37) that demonstrated that kite balloons potentially provided an added advantage for battleships in gunfire spotting and scouting/reconnaissance. However, additional tests on board *Oklahoma* during succeeding days revealed problems, namely that balloons carrying hydrogen

posed an increased hazard; it took time to inflate them, and they leaked; they became easy targets for antiaircraft gunners at ranges under 12,000 yards; and if kept inflated and moored to ships, balloons restricted vessels' maneuverability. *Oklahoma*'s commanding officer, Capt. Roger Welles, reported that if they were to correct these problems balloons would become valuable to battleship operations, but he neglected to note that whenever men raised balloons for scouting or spotting the fall of shot, the craft also revealed the surface ships' positions. Meanwhile, Lt. j.g. Robert R. Paunack (Naval Aviator No. 27) was also assigned to lighter-than-air training on board *Nevada* during this period, and was designated as the first lighter-than-air pilot the following November.



72-CN-6423

A model of 82-A, the first airplane designed and built by the Navy, undergoes a wind tunnel test.

7 DECEMBER • Lt. Cmdr. Henry C. Mustin reported that an Eastman Aero camera, tested at altitudes of 600 to 5,100 feet over Naval Aeronautic Station Pensacola, Fla., was the best camera tested up to that time, and produced photographs satisfactory for military purposes.

12 DECEMBER • Capt. Mark L. Bristol detached as Commander of the Air Service, and the functions of the command but not the title were transferred to Rear Adm. Albert Gleaves, Commander Destroyer Force, Atlantic Fleet.

13 DECEMBER • The Navy modified specifications for a training dirigible—which Chief of Naval Operations Adm. William S. Benson had originally ordered in October 1916—to require a top speed of 45 miles per hour; a 12-hour endurance at 35 miles per hour; a crew of three; a radio range of 150 miles; and the capability of landing at sea and for being towed.

30 DECEMBER • The Commission on Navy Yards and Naval Stations, which had been authorized by the Naval Act of 29 August 1916 to select new sites for the expansion of Navy yards and for submarine and air bases along the coastlines of the United States, submitted its preliminary report to Congress. For aviation the commission reported that "the present development of aeronautical machines . . . and the practical experience so far obtained in the utilization of such machines to meet the tactical and strategical requirements of the Fleet and the defense of the coast, is such as to preclude the determination at this time of any extensive system of aviation bases." The commission—commonly referred to as the Helm Board after senior member Rear Adm. James M. Helm—recommended that a joint Army-Navy board decide upon locations for use by both services.

Chapter 2

Test of Strength

1917–1919

A small group of pioneer Navy and Marine Corps aviators nurtured the early growth of naval aviation, but the program emerged from these early trials too poorly equipped to wage war. When the call came on 6 April 1917, the U.S. Fleet counted only one operating air station, 48 available aviators and students, and 54 aircraft on hand. Naval aviation expanded remarkably during the 19 months between the U.S. declaration of war with Germany and the Armistice. Air stations sprang up on both sides of the Atlantic. Officers established training programs at new air stations, on university campuses, and with private industry. The Naval Reserve Flying Corps produced thousands of aviators, ground officers, mechanics, and technical specialists. Aircraft of many types entered production, and Liberty aircraft engines advanced from concept to mass production and operation.

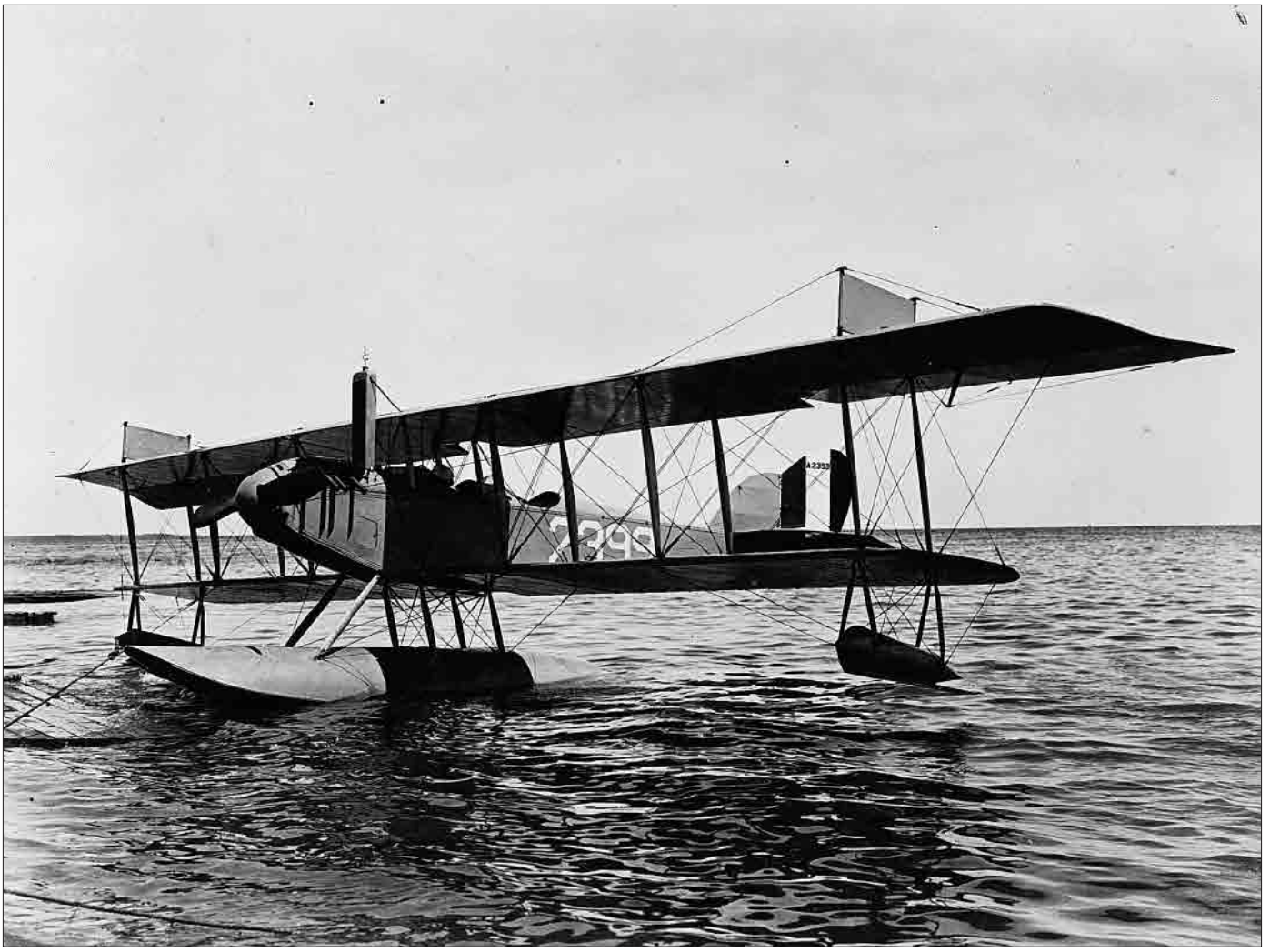
Naval aviation achieved a good wartime record despite the chaos generated by the speed and breadth of its expansion. One detachment became the first from the United States to reach France. Naval aircraft flew more than three million nautical miles and attacked and damaged 12 German submarines. By war's end Navy and Marine Corps squadrons had organized the Northern Bombing Group, which prepared a round-the-clock air campaign that was to have led toward the first strictly American air offensive of the war. When the fighting ended, Navy and Marine Corps aviators were flying from 27 stations in Europe, two in Canada, one in the Panama Canal Zone, one in the Azores islands, and 12 in the United States.

Naval aviation's outstanding technical product of the war arguably became long-distance flying boats. Although the designs progressed through HS-1s and H-16s to British Felixstowe F-5s, which the Americans converted into F-5Ls by installing superb Liberty engines, all of these aircraft types traced their ancestry to the earlier work of the designer and pilot Glenn H. Curtiss. The Curtiss NC-type flying boats secured a place in aviation history in 1919 as the first aircraft to fly across the Atlantic. Flying boats evolved into impressive weapons, and many naval aviators urged the Navy to adopt them as the major means of taking airpower to sea. Other pilots held the opinion that aircraft should fly from warships of the fleet, and enthusiasts of lighter-than-air craft pointed to airship successes in the war and urged development of their specialty. Planners could not ignore the logic of these claims and the usefulness of these aeronautic types, and the 1920s witnessed development in lighter-than-air, flying boat, and shipboard design and operations. The sentiment in favor of aircraft carriers also gained currency, and in 1919 the Navy decided to convert a collier to a carrier. This decision represented a modest beginning for a program that occupied the attention of a host of shipbuilders, aircraft designers, and naval tacticians for years following World War I.

1917

6 JANUARY • A committee of Army and Navy officers recommended to Secretary of the Navy Josephus Daniels and Secretary of War Newton D. Baker the design and construction of an airship of the Zeppelin type under the direction of the Chief Constructor of the Navy, with funds provided equally by the Army and Navy. The committee also recommended the creation of a board of three Army and three Navy officers to ensure effective interservice cooperation in prosecution of the work. The secretaries approved the recommendation, which led to the appointment of the Joint Army and Navy Airship Board.

8 JANUARY • A Benet-Mercie machine gun installed in a flexible mount in the AH-10 hydroaeroplane performed satisfactorily during firing tests at altitudes of 100 and 200 feet above Pensacola, Fla.



1312

A Burgess-built Curtiss N-9H seaplane with a Hispano-Suiza engine used for training.

10 JANUARY • The Navy initiated its first production order for aerial photographic equipment when the Naval Observatory issued requisitions for 20 aero cameras and accessories for manufacture by the Eastman Kodak Co.

15 JANUARY • *Seattle* (Armored Cruiser No. 11) arrived at Culebra, Puerto Rico, with an aviation detachment and aircraft on board for fleet exercises at the Southern Drill Grounds. Her air detachment operated from ship and temporary shore bases, and performed scouting and other missions in conjunction with fleet operations until 23 March.

4 FEBRUARY • Secretary of the Navy Josephus Daniels directed the procurement of 16 B-class nonrigid airships. Two days later the Navy issued specifications to five companies—Connecticut Aircraft Co., Curtiss Aeroplane and Motor Corp., Goodyear Tire & Rubber Co., B. F. Goodrich Co., and U.S. Rubber Co. This quantity proved beyond the capabilities of any one company, and only Connecticut Aircraft had any experience in building airships. On 19 March the Navy awarded contracts for two airships to Connecticut, three to Curtiss, two to Goodrich, and nine to Goodyear. The U.S. Rubber Co. was confined to providing fabric to Connecticut Aircraft.

5 FEBRUARY • Chief of Naval Operations Adm. William S. Benson recommended that eight aeronautic coastal patrol stations be established. The admiral did not mention specific sites but noted that planners were to consider locations "in the vicinity of" Massachusetts Bay; Newport, R.I.; New York Cty; Cape May, N.J.; Hampton Roads, Va.; Key West, Fla.; Galveston, Texas; and the Panama Canal Zone. Seven days later officers began suitability studies in these areas.

10 FEBRUARY • The National Advisory Committee for Aeronautics established a patent subcommittee with Lt. John H. Towers as a member. The necessity for this subcommittee arose from the threat of infringement suits brought by the holders of basic aeronautic patents that caused prohibitive prices for aircraft and general demoralization of the entire industry.

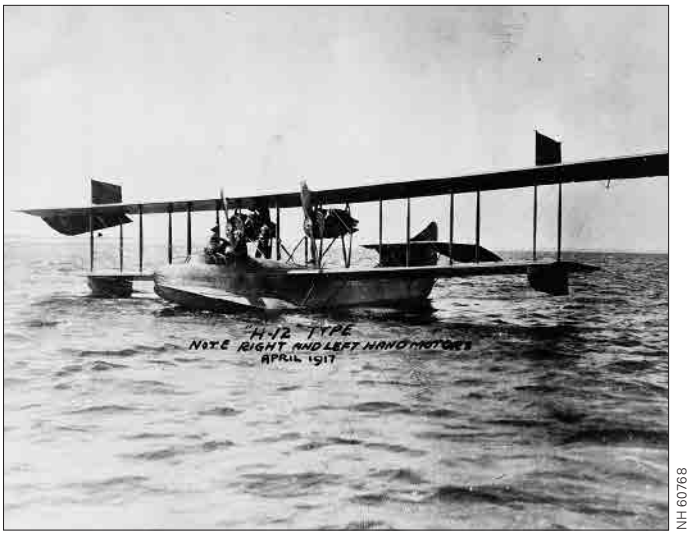
13 FEBRUARY • Capt. Francis T. Evans, USMC, performed the first loop with a seaplane in an N-9 at 3,000 feet over Pensacola, Fla. Evans then forced the craft into a spin and recovered, consequently receiving the Distinguished Flying Cross for this contribution to aviation.

12 MARCH • A committee of Army and Navy officers submitted the first interservice agreement regarding the development of aeronautic resources and aircraft operations. The Secretaries of War and Navy subsequently approved the agreement, which recognized a general division of aeronautical functions along lines traditional to the services but stressed the importance of joint development, organization, and operation.

13 MARCH • The Bureau of Construction and Repair directed that all seaplanes be finished in an opaque yellow color overall.

22 MARCH • A Bureau of Ordnance letter to Chief of Naval Operations Adm. William S. Benson listed machine guns under consideration for naval aviation: Colt, Marlin, and Vickers types for synchronized fire through propellers, and Benet-Mercie, Berther, Colt, Lewis, Marlin, and Vickers for all-round fire for observers.

24 MARCH • The First Yale Unit of 29 men enlisted in the Naval Reserve Flying Force and departed four days later to train at West Palm Beach, Fla. These volunteers became the first of several college groups to join as a unit for war service. Four of the Yale men subsequently attained distinguished positions: F. Trubee Davison became Assistant Secretary for War; Artemus L. Gates, Under Secretary of the Navy and Assistant Secretary of the Navy for Air; David S. Ingalls, Assistant Secretary of the Navy for Air; and Robert A. Lovett, Secretary of Defense. Commander, Naval Forces Operating in European Waters Rear Adm. William S. Sims later paid them tribute, stating, "Whenever the French and English asked us to send a couple of our crack men to reinforce a squadron, I would say, 'Let's get some of the Yale gang.'"



NH 60768

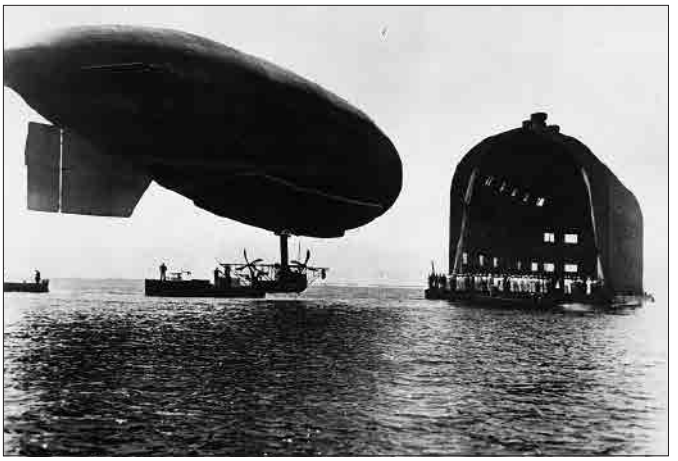
An H-12 twin-engine flying boat, April 1917.

6 APRIL • The United States declared that a state of war existed with the German Empire. The strength of naval aviation (Navy and Marine Corps combined) totaled 54 airplanes, 1 airship, 3 balloons, 1 air station, 48 officers, and 239 enlisted men.

6 APRIL • Following the approval of the recommendation of the Board on Flying Equipment, Secretary of the Navy Josephus Daniels established standard flight clothing for the Naval Flying Service and authorized its issuance as Title B equipage. The clothing consisted of a tan sheepskin long coat, short coat and trousers, moleskin hood, goggles, black leather gloves, soft leather boots, waders, brogans, and life belts.

7 APRIL • President Woodrow Wilson's Executive Order 2587 directed the transfer of the Coast Guard from the Treasury Department to operate as part of the Navy until further orders.

14 APRIL • The Navy's first guided missile effort began when the Naval Consulting Board recommended to the Secretary of the Navy the apportionment of $50,000 to carry on experimental work on aerial torpedoes in the form of automatically controlled aeroplanes or aerial machines carrying high explosives.



19370

The Navy's first airship *DN-1* approaches its floating hangar during flight tests at Pensacola, Fla., April 1917.

20 APRIL • The Navy's first airship *DN-1* made its initial flight at Pensacola, Fla. The airship's performance proved unsatisfactory on several counts, and following two more flights this month the service grounded it and *DN-1* did not return to the air.

26 APRIL • The first dead-load tests on a catapult installed on board *Huntington* (Armored Cruiser No. 5) were performed at Mare Island Navy Yard, Calif. *Huntington* thus prepared for her employment as the Navy's third ship equipped to carry and operate aircraft.

27 APRIL • The Marine Aeronautic Company, Advance Base Force, under Capt. Alfred A. Cunningham, USMC, was established at Marine Barracks, Philadelphia Navy Yard, Pa., with the transfer of men from the Marine Aviation Section at Pensacola, Fla., other Marine Corps commands, and the Marine Corps Reserve Flying Corps to the new organization.

1 MAY • The Bureau of Navigation issued an aviation circular concerning expansion of the training program, calling for assignment of new classes every three months and the establishment of an 18-month-long course to qualify officers as pilots of either seaplanes or airships. The program also provided for training enlisted men as aviation mechanics, and selecting a few men for pilot training and qualification as quartermaster.

4 MAY • The Commandant of the First Naval District received direction to assume control of the Naval Militia station at Squantum, Mass., for use in air training. Also on this day the Navy completed arrangements to take over the Naval Militia station at Bay Shore, N.Y. These were two of several actions taken immediately following the declaration of war to expand the flight training program during the construction of stations of a more permanent nature.

5 MAY • Secretary of War Newton D. Baker agreed to a proposal from the Secretary of the Navy concerning the establishment of a joint board for the purpose of standardizing the design and specifications of aircraft. The board subsequently established was initially called the "Joint Technical Board on Aircraft, Except Zeppelins."

5 MAY • Naval Aeronautic Station Pensacola, Fla., reported on a test firing of a Berthier machine gun made by Hopkins and Allen Arms Co., synchronized to fire through the propeller arc from an R-3 floatplane as it taxied on water and stood on the beach. Draftsman W. M. Fellers designed the synchronizing gear to keep projectiles from striking the propeller.

15 MAY • Secretary of the Navy Josephus Daniels established an order of precedence for work involved in the preparation for war, which placed "aircraft and their equipment" ninth on a list of 20 major fields of material procurement.

16 MAY • A resolution of the Council of National Defense established the Aircraft Production Board as a subsidiary agency to act in an advisory capacity on questions of aircraft production and procurement. Membership included a representative from each service, with Chief Constructor Rear Adm. David W. Taylor representing the Navy.

17 MAY • Secretary of the Navy Josephus Daniels requested the purchase of 50 aircraft machine guns synchronized to fire through the propeller arcs and 50 for all-around fire. The secretary noted that tests had determined that the belt-fed Vickers gun manufactured by the Colt Co. for the Army proved the most suitable for synchronized firing, and the 47-round magazine-fed Lewis gun manufactured by the Savage Arms Co. was best for all-around fire.

17 MAY • Capt. Noble E. Irwin received orders to the Material Branch to relieve Lt. John H. Towers as Officer in Charge of Aviation at the Office of the Chief of Naval Operations. Towers continued to assist Irwin but received

additional duty orders to the Bureau of Navigation as Supervisor, Naval Reserve Flying Corps.

17 MAY • To continue experimental work in aerial torpedoes the Navy presented plans to Sperry Co. to furnish six sets of automatic control gear, install five of them in Navy furnished N-9 seaplanes, and provide suitable testing grounds.

17 MAY • The Navy awarded a contract to the Curtiss Exhibition Co. to train 20 men of the Naval Reserve Flying Force as aviators at the company field at Newport News, Va.

18 MAY • Representatives from the Bureau of Standards demonstrated to Army and Navy officers experimental self-sealing fuel tanks consisting of double-walled galvanized iron containing layers of felt, gum rubber, and an Ivory soap-whiting paste.

19 MAY • General Order No. 299 described a distinguishing insignia for all U.S. government aircraft and directed its placement on all naval aircraft. The insignia called for a red disc within a white star on a blue circular field to be displayed on the wings and for red, white, and blue vertical bands on the rudder, with the blue forward.

19 MAY • The Secretary of the Navy directed the placement of the building (bureau) number of each aircraft in figures three inches high at the top of the white vertical band on each side of the rudder. As a result of this order, the practice of assigning numbers to aircraft using the AH prefix was discontinued and the building (bureau) or serial number became the sole means of identifying a particular aircraft.

19 MAY • The Chief of Naval Operations requested that two small seaplanes and one pilot be detailed for duty in connection with radio experimentation at Pensacola, Fla.

19 MAY • The Harvard unit, comprising seven student aviators, with Lt. Henry B. Cecil in charge, reported for flight instruction to the Curtiss Field at Newport News, Va.

23 MAY • The Joint Technical Board on Aircraft, Except Zeppelins, recommended that the initial production program to equip the Navy with the aircraft necessary for war consist of 300 school machines, 200 service seaplanes, 100 speed scouts, and 100 large seaplanes. The board recommended N-9s and R-6s as the most satisfactory for school and service seaplanes, but determined that the scouts and large seaplanes were not sufficiently developed to permit a selection.

28 MAY • *Huntington* (Armored Cruiser No. 5) arrived from Mare Island, Calif., at Pensacola, Fla., where she participated in various aeronautic experiments involving the operation of seaplanes and kite balloons from her deck through 1 August.

29 MAY • The Navy awarded a contract to Goodyear Tire & Rubber Co. of Akron, Ohio, to train 20 men as lighter-than-air pilots.

30 MAY • Airship *B-1* completed an overnight test flight from Chicago, Ill., landing in a meadow ten miles from Akron, Ohio. Goodyear had manufactured *B-1* at Akron and assembled it in Chicago. Goodyear pilot Ralph H. Upson flew the airship on this flight. A crew of three consisting of a pilot, assistant pilot, and engineer manned subsequent B-class airships.

4 JUNE • The Aircraft Production Board and the Joint Technical Board on Aircraft, Except Zeppelins authorized construction of five prototype models of 8- and 12-cylinder Liberty motors. J. G. Vincent of the Packard Motor Car Co. and E. J. Hall of the Hall-Scott Motor Car Co. worked out the design of these engines—based on conservative engineering practices specially adapted to mass production techniques—in a hotel room in Washington, D.C.

5 JUNE • The First Aeronautic Detachment, Lt. Kenneth Whiting commanding, arrived on board the collier *Jupiter* (Fuel Ship No. 3) at Pauillac, France. This marked the deployment of the initial U.S. military command to that country during WWI. When the ship reached a position about 60 miles off the estuary of the Gironde River, lookouts spotted an apparent torpedo pass ahead of the ship and a second wake pass astern, indicating an attack by a German submarine. The detachment comprised 7 officers and 122 enlisted men and included an element on board the collier *Neptune* (Fuel Ship No. 8) that arrived at St. Nazaire three days later. The entire detachment completed offloading by 10 June. The men from *Jupiter* originally billeted on board a French receiving ship at Bordeaux, while those from *Neptune* housed at a French naval air station at Camaret. The French had requested the early deployment of the men to bolster allied morale.

11 JUNE • *Seattle* (Armored Cruiser No. 11) transferred all of her aviation sailors and planes ashore in preparation for convoy duty at the Brooklyn Navy Yard, N.Y. The men left the raised catapult on board but lowered and secured the apparatus to the deck so it would not interfere with normal operations at sea.

13 JUNE • NAS Dunkirk, France, was established as the first U.S. naval air station developed on foreign soil during WWI. The station was disestablished on 1 January 1919.

14 JUNE • The Navy let the first contract for construction of new patrol stations along the Atlantic coast, starting with sites located at Bay Shore, Montauk, and Rockaway on Long Island, N.Y.

17 JUNE • A joint Army-Navy team, called the Bolling Commission after its senior member Maj. Raynal C. Bolling, USA, sailed for Europe to study air developments among the allies and to recommend a policy and program for the American air services. The Navy members were Cmdr. George C. Westervelt and Lt. Warren G. Child. The commission met key allied leaders across England, France, and Italy including Commander-in-Chief, American Expeditionary Forces Gen. John J. Pershing, USA.

20 JUNE • The first R-5 twin-float seaplanes assigned to naval service were received at NAS Pensacola, Fla. R-type aircraft briefly served on cruisers, in flight training, and in a number of early experiments with torpedoes.

22 JUNE • Enlisted men of the First Aeronautic Detachment began preliminary flight training in Caudron landplanes under French instructors at the *Ecole d'Aviation Militaire* (Military Aviation School) at Tours, France. About the same time, 50 men of the detachment began training as mechanics at St. Raphael, France.

22 JUNE • Change No. 11 in uniform regulations became the first to make special provision for aviators. The change provided for a summer service flying uniform of Marine Corps khaki in the same pattern and design as service whites, to be worn when on immediate active duty with aircraft. The order also provided for a working dress uniform made as a coverall from canvas, khaki, or moleskin of the same color as the flying uniform.

28 JUNE • Landsman Thomas W. Barrett of the First Aeronautic Detachment was killed in an airplane crash during training at Tours, France. Barrett thus became the first member of naval aviation to die in that country during WWI.

4 JULY • The first eight-cylinder Liberty motor arrived for testing by the Bureau of Standards in Washington, D.C. The Packard Motor Car Co. had assembled the engine from parts made by manufacturers in various plants from Philadelphia, Pa., to Berkeley, Calif. The design, manufacture, and assembly of the motor required less than six weeks.

7 JULY • Commander First Aeronautic Detachment Lt. Kenneth Whiting cabled Secretary of the Navy Josephus Daniels the results of his negotiations with the French regarding training and establishment of air stations, and requested departmental approval. The French agreed to train the detachment at existing French Army aviation schools (pilots at Tours and mechanics at St. Raphael, both in France). They also agreed to start construction of three patrol stations—Dunkirk, which was established on 13 June; Le Croisic, on an island at the mouth of the Loire River; and St. Trojan, at the mouth of the Gironde River—and a training station at Moutchic near Lake Lancanau, each for U.S. use.

9 JULY • A group of 24 potential naval aviators, Ens. Frederick S. Allen officer in charge, reported to the University of Toronto in Canada for the start of flight training under the British Royal Flying Corps (RFC). The U.S. Army and the RFC arranged for the instruction to include 25 men from the U.S. Navy in a contingent of 100 Americans for which the Canadians agreed to provide flight training.

10 JULY • A plan for training student officers of the Naval Reserve Flying Corps, which circulated for comment within the Navy, proposed a three-part program: a Ground School for indoctrination into the Navy and study of subjects related to aircraft and flight; a Preliminary Flight school for flight training through five to ten hours of solo flights; and a Completing Flight school for advanced flight training and qualification as a naval aviator and a commission as ensign, USNRF. The Navy implemented the plan without a formal directive, establishing the Ground School in late July and later dividing flight training into elementary and advanced courses.

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HS flying boats moored at NAS Moutchic, France.

23 JULY • Ground instruction for prospective pilots and for aviation ground officers began at the Massachusetts Institute of Technology, with a class of 43 students comprising the Naval Air Detachment, Lt. Edward H. McKitterick commanding. In this and similar programs later established at the University of Washington, in Seattle and the Dunwoody Institute in Minneapolis, Minn., officers received indoctrination and introduction to the fundamentals of aviation. The Navy subsequently divided this training into elementary and advanced.

26 JULY • The Army and Navy Airship Board endorsed a proposal by the Bureau of Mines for the experimental production of helium and recommended the allotment of $100,000 to construct a small plant for that purpose. Both departments subsequently approved the action, which initiated helium production in the United States.

27 JULY • Public Law 31 of the 65th Congress authorized President Woodrow Wilson to take possession of North Island, San Diego, Calif., for use by the Army and Navy in establishing permanent aviation stations and aviation schools. Lt. Earl W. Spencer arrived on 8 November under orders to establish and command a station for the purpose of training pilots and mechanics and conducting coastal patrols, marking the beginning of what became NAS North Island. Spencer trained these men at Balboa Park on the mainland until they began to move into permanent quarters on the island on 8 June 1918.

27 JULY • Construction of the Naval Aircraft Factory at the Philadelphia Navy Yard, Pa., was authorized for the purposes of constructing aircraft, undertaking aeronautical developments, and providing aircraft construction cost data. Ground was broken for the facility on 10 August.

NH 2493

Women at work at the Naval Aircraft Factory, Philadelphia, Pa.

8 AUGUST • Secretary of the Navy Josephus Daniels approved plans to establish one training and three coastal patrol stations in France. The decision marked the first of several such plans dealing with an overseas base construction program. The plan underwent successive expansion and ultimately provided 27 locations in France, England, Ireland, and Italy, from which naval aviation operated by the close of WWI.

14 AUGUST • An experiment initiated through the efforts of Rear Adm. Bradley A. Fiske and conducted by Lt. Edward O. McDonnell launched a dummy torpedo from beneath a wing of an F-5L flying boat at Huntington Bay, Long Island, N.Y. The weapon struck the water at an unfavorable angle, ricocheted, and nearly struck the plane. The experiment marked the beginning of serious Navy interest in launching torpedoes from aircraft.

15 AUGUST • The Bureau of Construction and Repair authorized the Curtiss Co. to paint the wings of naval aircraft with "English–Khaki–Gray–Enamel," and all aircraft manufacturers to use either opaque yellow or clear varnish on floats and hulls. These variations to the color scheme that had been established the preceding March were followed by so many other exceptions that no standard existed during the next six months. The trend developed to use an opaque yellow finish for school machines and a khaki finish similar to that used on British aircraft for service machines.

16 AUGUST • The initial students of the First Aeronautic Detachment to complete the flight course at Tours, France, transferred to Lake Hourtin, France, for training in Franco–British Aviation flying boats. These students completed training by November when 13 men received orders to Moutchic, France. Some of the other graduates went to St. Raphael, France, 12 of whom also received orders to the Army's training school at Issoudun, France, for instruction in *Chasse* (chase or scout) planes and from there to Scotland for further hours in British machines.

25 AUGUST • Chief Constructor David W. Taylor initiated NC flying boat development in a memo to Naval Constructor Jerome C. Hunsaker that outlined certain general requirements of an airplane needed in war and directed his staff to investigate the subject further. Taylor stated, "The 'United States Liberty Motor' gives good promise of being a success, and if we can push ahead on the airplane end, it seems to me the submarine menace could be abated, even if not destroyed, from the air. The ideal solution would be big flying boats or the equivalent, which would be able to fly across the Atlantic to avoid difficulties of delivery, etc."

25 AUGUST • The 12-cylinder Liberty motor passed a 50-hour test, with a power output of 301 to 320 hp, preliminary to entering mass production.

31 AUGUST • NAS Moutchic, France, was established as a flight and ground training station, Lt. John L. Callan commanding. Meanwhile, NAS Montauk, N.Y., was also established earlier in the month, Lt. Marc A. Mitscher (Naval Aviator No. 33) commanding. The Navy operated Montauk initially as a seaplane patrol station but later expanded the facilities to include lighter-than-air operations. NAS Moutchic was disestablished on 1 January 1919.

4 SEPTEMBER • The technical members of the Bolling Commission submitted a report to the Secretaries of War and Navy following the commission's return from studying air developments in Europe. Their recommendations included assigning air measures precedence over all other air measures against submarines, establishing and operating as many coastal patrol stations in Europe as possible, and obtaining European aircraft for use at those stations until more satisfactory types manufactured in the United States became available.

72979

HS-1L flying boats at NAS Tréguier, France, used to patrol the English Channel for German submarines.

7 SEPTEMBER • An R-6 flying from NAS Pensacola, Fla., sent radio signals to operators at Naval Radio Station New Orleans, La., approximately 140 miles distant. The successful test led to additional orders for 300 Simon radio transmitters.

7 SEPTEMBER • Secretary of the Navy Josephus Daniels approved a change in the uniform regulations which authorized a forestry green winter service flying uniform, of the same design as the summer uniform, for all officers assigned to aviation duty.

7 SEPTEMBER • Secretary of the Navy Josephus Daniels approved a change in the uniform regulations designating a winged foul anchor with the letters "U.S." as the official device to be worn on the left breast by all qualified Navy and Marine Corps aviators. An additional change, approved on 12 October, directed the deletion of the letters "U.S." from the design, establishing the basic form of the device, which is still in use today.

8 SEPTEMBER • NAS Hampton Roads, Va., was established as an air training station and patrol base to conduct experimental work in seaplane operations at Naval Operating Base Hampton Roads, Va. Detachments under training at the Curtiss School at Newport News, Va., and at Squantum, Mass., were transferred to the naval air station the following month.

17 SEPTEMBER • *Huntington* (Armored Cruiser No. 5) passed through European waters during the morning and hoisted observer Lt. j.g. Henry W. Hoyt aloft in a kite balloon. When Hoyt reached about 400 feet, the temperature suddenly dropped, causing the balloon to descend almost 200 feet. As sailors worked to haul the balloon down, a sudden squall slammed the balloon into the water. Hoyt was knocked from the basket and the balloon's rigging entangled him underwater. Shipfitter First Class Patrick McGunigal noted his plight and jumped overboard, clearing the tangle and putting a bowline around Hoyt. Men hauled the observer on deck, and McGunigal subsequently received the Medal of Honor.

17 SEPTEMBER • Secretary of the Navy Josephus Daniels approved the establishment of 15 overseas naval air stations equipped for seaplane missions to be operational by 1 July 1918. Five of these stations were also to support airship and kite balloon operations.

18 SEPTEMBER • The Joint Technical Board on Aircraft, Except Zeppelins, established a production program of 1,700 operational aircraft of the following Curtiss types under consideration: 235 H-16 and 825 HS-1 flying boats and 640 R-6 seaplanes.

26 SEPTEMBER • The Naval Air Detachment at Akron, Ohio, Lt. Louis H. Maxfield commanding, reported the qualification of 11 students, including Maxfield, as lighter-than-air pilots and requested their designation as Naval Aviator (Dirigible). These men became the first to accomplish training specifically as dirigible pilots and subsequently received naval aviator numbers ranging from 94 to 104.

27 SEPTEMBER • Ens. Robert A. Lovett, USNRF, made the first flight in a Franco–British Aviation flying boat, BuNo A-295, at NAS Moutchic, France. Lovett had also directed the assembly of the aircraft and subsequently became the fourth Secretary of Defense.

6 OCTOBER • Secretary of War Newton D. Baker authorized the Navy to use a part of the Army landing field at Anacostia, D.C., to erect and maintain a seaplane hangar. The terms of use were laid out in a revocable license beginning on 1 November and ending within six months of the war's conclusion, and with the understanding that the Army was to have use of the Navy area at any time.

6 OCTOBER • NAS Cape May, N.J., was established as a seaplane and lighter-than-air patrol station. The First Marine Aeronautic Company trained here from 14 October until its departure for the Azores on 9 January 1918.

11 OCTOBER • *North Carolina* (Armored Cruiser No. 12) completed the removal of her catapult, aircraft, and all aeronautics gear at the Brooklyn Navy Yard, N.Y.

13 OCTOBER • *Huntington* (Armored Cruiser No. 5) transferred her aeronautic equipment ashore at New York City, N.Y., marking the end of the operational test of aircraft on board three warships, which had started with *North Carolina* (Armored Cruiser No. 12) in 1916.

14 OCTOBER • The Marine Aeronautic Company at Philadelphia, Pa., was divided into the First Aviation Squadron composed of 24 officers and 237 men, and the First Marine Aeronautic Company composed of 10 officers and 93 men. On the same day the First Marine Aeronautic Company transferred for training in seaplanes and flying boats to NAS Cape May, N.J., and three days later the First Aviation Squadron transferred for training in landplanes to the Army field at Mineola on Long Island, N.Y.

21 OCTOBER • An HS-1 made the first successful Navy flight test of a 12-cylinder Liberty engine at Buffalo, N.Y. The flying boat climbed 4,000 feet in ten minutes and attained a speed of 95 mph at 1,680 rpm using the No. 3 experimental engine. This flight and other successful demonstrations led to the adoption of both the engine and the airplane as standard service types. The engine subsequently received the designation L-12.

22 OCTOBER • The Ground School program at the Massachusetts Institute of Technology expanded to include special courses to train men as inspectors, with 14 students enrolled. The program was eventually established as an inspector school and met the expanding need for qualified inspectors of aeronautical material by producing 58 motor and 114 airplane inspectors before the end of the war.

24 OCTOBER • U.S. Naval Aviation Forces, Foreign Service, which had evolved from the First Aeronautic Detachment, became operational when Capt. Hutch I. Cone relieved Lt. Cmdr. Kenneth Whiting of command over all naval aviation forces abroad.

24 OCTOBER • Routine instruction in flight and ground courses began at NAS Moutchic, France.

2 NOVEMBER • Twelve men organized as the Second Yale Unit who undertook flight training at their own expense at Buffalo, N.Y., received commissions as ensigns, USNRF. The pilots soon thereafter received their designations as naval aviators.

5 NOVEMBER • To coordinate the aviation program Officer in Charge of Aviation Capt. Noble E. Irwin requested that representatives of bureaus having cognizance over some phase of the program meet each week to discuss and expedite all matters pertaining to aviation.

9 NOVEMBER • The Argentinean government granted permission to use as instructors in the ground school at Pensacola, Fla., three Argentine naval officers who had recently qualified as U.S. naval aviators—Lt. Ricardo Fitzsimmon Jr., Lt. Carlos F. Pichon Jr., and Lt. Marco A. Zar.

10 NOVEMBER • A Navy "flying bomb" manufactured by the Curtiss Co. arrived for testing at the Sperry Flying Field at Copiague on Long Island, N.Y. Designers intended the flying bomb (also called an aerial torpedo) for automatic operation carrying 1,000 pounds of explosive, with a range of 50 miles and a top speed of 90 mph. In addition to this specially designed aircraft, N-9s received conversions for automatic operations as flying bombs that closely resembled subsequent guided missiles.

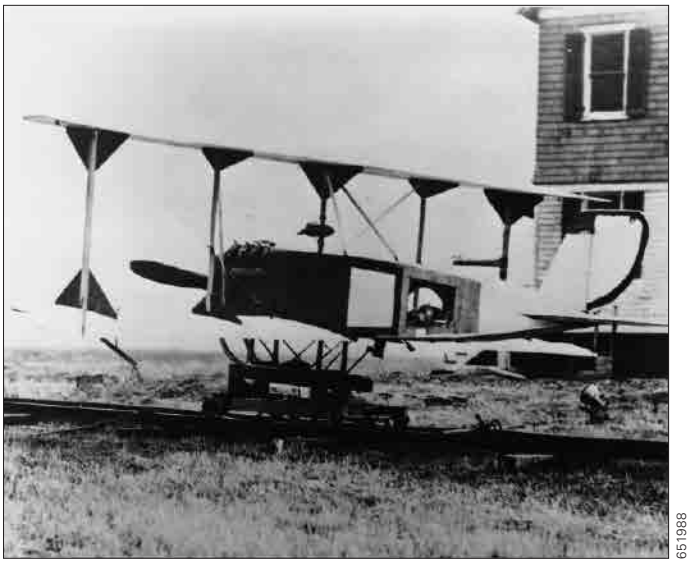
14 NOVEMBER • Secretary of War Newton D. Baker approved a recommendation "that priority be given by the War Department to naval needs for aviation material necessary to equip and arm seaplane bases." This was a major step toward the expansion of the Navy's aircraft production.

15 NOVEMBER • The National Advisory Committee for Aeronautics' Subcommittee on Standardization and Investigation of Material established a committee to intensify efforts to develop light metal alloys for aeronautical use. The members included Naval Constructor Jerome C. Hunsaker.

18 NOVEMBER • Naval aviation began aerial coastal patrols in European waters from Le Croisic, France. Lt. j.g. Reginald C. Coombe and Ens. Henry H. Landon of the First Yale Unit piloted a pair of Tellier flying boats on a two hour familiarization flight. The aircraft were unarmed because they had not received ordnance. A consignment of bombs reached Le Croisic two days later, enabling the station's planes to stand ready to fly combat patrols.

21 NOVEMBER • Chief Signal Officer Maj. Gen. George O. Squier, USA, witnessed a demonstration of the N-9 flying bomb at Amityville, Long Island, N.Y. The Army subsequently established a parallel aerial torpedo project.

22 NOVEMBER • Pilot Ens. Kenneth R. Smith, USNRF (Naval Aviator No. 87), and crewmembers Electrician Homer M. Wilkinson and Machinist's Mate Second Class T. J. Brady flew Seaplane No. 87, a Tellier flying boat, from Le



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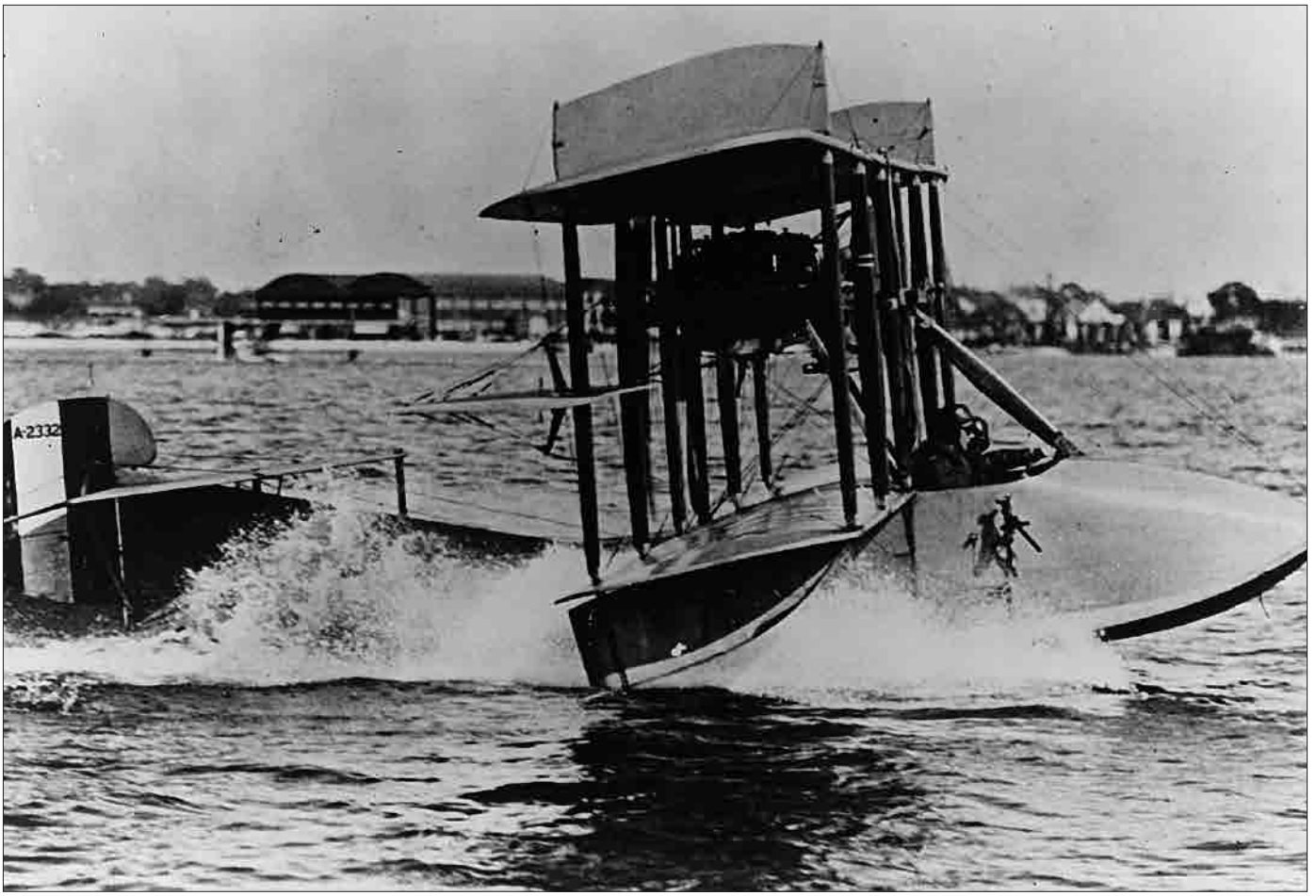
The Curtiss "flying bomb" is the predecessor of today's guided missiles.

Croisic, France, to investigate reports of up to four German submarines that had been spotted south of Belle-Île. This was the first armed patrol by a U.S. naval aviator in European waters. The aircraft's motor died, forcing Smith to make a "tail to wind" landing in rough water. Two days later, a French destroyer rescued the survivors minutes before the damaged plane sank about 25 miles southeast of Rochebonne.

22 NOVEMBER • Commander, U.S. Naval Aviation Forces, Foreign Service Capt. Hutch I. Cone reported to Commander, U.S. Naval Forces Operating in European Waters Vice Adm. William S. Sims that they had allotted for 16 seaplanes, 20 officers, and 183 men at each of 15 planned stations ashore. Six of these stations were under consideration for development in the United Kingdom and nine in France. Lighter-than-air allotments included four airships and a complement of 15 officers and 198 men each at three stations in France, and 6 kite balloons, 13 officers, and 60 men each at three stations in the United Kingdom (Ireland). The school at NAS Moutchic required 9 officers, 150 men, and a repair and assembly base. The program also needed a further store depot and receiving barracks to be established at NAS Pauillac, France, and 75 officers and men in Paris and at the headquarters in London for a total of 870 officers and 8,454 men.

24 NOVEMBER • Chief of Naval Operations Adm. William S. Benson issued a report regarding the development of aircraft torpedoes and torpedo planes, in which he pointed



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The two-seat Curtiss Model F, at Pensacola, Fla., in 1918, was the standard Navy flying boat trainer.

out that available aircraft could carry no more than a 600-pound ordnance load, and were thus incapable of delivering a torpedo with an explosive charge large enough to seriously damage large, modern warships. These concerns hindered torpedo plane development in WWI and beyond.

27 NOVEMBER • NAS Le Croisic, France, was established, Lt. William M. Corry commanding. It was disestablished on 28 January 1919.

1 DECEMBER • NAS Pauillac, France, was established as an assembly and repair station supporting naval air stations in France. It was disestablished on 15 February 1919.

5 DECEMBER • The secretaries of the War and Navy departments established a policy regarding helicopter development on the basis of recommendations made by the Joint Technical Board on Aircraft, Except Zeppelins. The members recognized the need for improvements in power plants and propellers in order to successfully obtain a helicopter, but limited support of development efforts to moral encouragement of potential vendors until they demonstrated a helicopter of military value.

7 DECEMBER • The Navy initiated fighter aircraft development with the Secretary of the Navy's authorization for the Curtiss HA type, subsequently known as the "Dunkirk Fighter." Planners intended the aircraft to function in the escort and air superiority role over the French coast from Calais to Dunkirk. Dual synchronized machine guns forward and dual flexible machine guns in the rear cockpit equipped the two-man, single-pontoon seaplane.

7 DECEMBER • Naval Aeronautic Station Pensacola, Fla., was redesignated Naval Air Station (NAS) Pensacola.

15 DECEMBER • The Marine Aeronautic Detachment, Capt. Roy S. Geiger, USMC, commanding, activated at Marine Barracks, Philadelphia Navy Yard, Pa.

18 DECEMBER • NAS Key West, Fla., was established chiefly as an elementary flight training station and as a base for limited patrol operations.

22 DECEMBER • The start of classes with a single student enrolled marked the addition of an Aerography School in the training program at the Massachusetts Institute of Technology. The school carried out a major portion of the new instruction program at the Blue Hill Observatory at Harvard University, Mass., but held some classes at the Aerographic Laboratory on the MIT campus. Fifty-four men qualified as aerologists by the end of the war.

31 DECEMBER • The First Aviation Squadron of the Marine Corps, Capt. William M. McIlvain, USMC (Naval Aviator No. 12), commanding, transferred from Mineola, N.Y., to Gerstner Field, Lake Charles, La., for advanced training in landplanes.

1918

JANUARY • NAS Chatham, Mass., Lt. Edward H. McKitterick commanding, was established.

JANUARY • During the New Year a detachment of about 12 American volunteer chase pilots from Escadrille (squadron) N124 of the French Aéronautique Militaire (Army Air Service), popularly known as the Escadrille Lafayette, offered their services to naval aviation. Several of the men had seen action over the lines and officers recognized the value of their experience for pursuit operations at Dunkirk. Following their release from French service the men enrolled as ensigns and traveled to NAS Moutchic, France, for training in seaplanes.

1 JANUARY • The Experimental and Test Department at Pensacola, Fla., transferred to NAS Hampton Roads, Va., to overcome difficulties arising from the Florida location's remoteness from the principal manufacturing and industrial areas.

18 JANUARY • During a nighttime raid the Germans bombed the French air station adjacent to NAS Dunkirk, France. Four bombs destroyed seven French HD-2 seaplane fighters and a large wooden hangar. Another four bombs landed between NAS Dunkirk and Chantier de France, the nearest of which knocked out windows and cut several holes in the storehouse and pay office. About 50 men from NAS Dunkirk helped the French fight fires, and the Americans subsequently loaned their allies four HD-2s for temporary use. The Germans struck again on the night of 21 January and a small bomb tore out the end of the mess hall. At about 0100 the Germans fired a 15-inch gun, and during the battle several ships steaming offshore opened fire. At least six large caliber and several smaller rounds impacted within the perimeter of the station but failed to inflict casualties. Enemy aircraft returned three nights later, and a bomb shattered the windows of the commanding officer's office. The Germans frequently bombed the area during the succeeding days but did not inflict significant damage. This was the first instance of enemy aerial bombardment of naval aviation facilities on record.

19 JANUARY • NAS Anacostia, D.C., was established to provide a base for short test flights, as well as housing and repair services for seaplanes on test flights from NAS Hampton Roads, Va., and the Army station at Langley Field, Va., and to display new seaplanes for study.

22 JANUARY • The 12 officers and 133 enlisted men of the First Marine Aeronautic Company, Capt. Francis T. Evans, USMC, commanding, disembarked from the transport *Hancock* escorted by *Beale* (Destroyer No. 40) and *Terry* (Destroyer No. 25) at Naval Base 13 at Ponta Delgada in the Azores. Commander Azores Detachment Rear Adm. Herbert O. Dunn also arrived on board the ship and six days later hoisted his flag aloft. This marked the arrival of the first trained and equipped American aviation command to be deployed overseas during WWI. The Marines subsequently flew antisubmarine patrols over convoy lanes in the Azores area with two N-9s and ten R-6s, later reinforced by six HS-2Ls.

25 JANUARY • Supervisor, Naval Reserve Flying Corps requested that the director of Harvard University's Blue Hill Observatory, Dr. Alexander G. McAdie, be enrolled as a lieutenant commander in the Naval Reserve, and that he be

assigned to the Chief of Naval Operations Aviation Office to create a Naval Aerological Organization.

3 FEBRUARY • Aerial gunnery training for prospective naval aviators and enlisted men began under British Royal Flying Corps instructors at the Army's field at Camp Taliaferro near Fort Worth, Texas.

3 FEBRUARY • Work began on a lighter-than-air station for airships at Gujan southwest of Bordeaux, France. The station never became operational because of frequent delays resulting from material transportation difficulties and the necessity of using the men there for other work. The Navy returned the facility to the French on 15 January 1919.

4 FEBRUARY • NAS Fromentine, France, was established. Aircraft began to fly seaplane patrols from the facility the following July. It was disestablished on 28 January 1919.

8 FEBRUARY • General Order No. 364 promulgated a change in national aircraft insignia, which replaced the white star on the outer sections of the wings, above and below, with concentric circles of red and blue around white, and reversed the order of the red, white, and blue vertical bands on the rudder, placing the red nearest the rudder post.

10 FEBRUARY • The Marine Aeronautic Detachment, Capt. Roy S. Geiger, USMC, commanding, transferred to operate water-based aircraft from Marine Barracks, Philadelphia Navy Yard, Pa., to NAS Miami, Fla. The detachment consequently moved to nearby Marine Flying Field, Miami.

13 FEBRUARY • Lt. Grattan C. Dichman took command of the U.S. air station at Brest, France, which served as a base for seaplane and kite balloon operations, and as an assembly plant for aircraft shipped overseas. This began what became NAS Brest, which was disestablished on 15 February 1919.

15 FEBRUARY • Two H-12s—one with pilot Ens. Albert D. Sturtevant, copilot British Flight Lt. C. C. Purdy, and crewmembers S. J. Holeridge and A. H. Stevenson, and the other with a South African pilot named Faux and copilot British Flight Lt. C. W. Bailey—departed the British station at Felixstowe, England, to escort a convoy to Dutch waters. At least five German W.29 fighter floatplanes, Oberleutnant Friedrich Christiansen commanding, attacked the two aircraft. Faux managed to escape, but the Germans shot down Sturtevant. British and German eyewitnesses reported that the Americans continued to fire as they fell. Sturtevant posthumously received the Navy Cross for this action and for previous patrols over the North Sea, and became the first U.S. naval aviator to fall in battle with enemy forces.

16 FEBRUARY • A German submarine appeared off L'Aber Vrach, France, in view of men ashore but departed without incident. French islanders told the Americans that prior to the arrival of the naval aviation detachment, German submarines often shelled sailing craft or power boats at sea just off the coast.

21 FEBRUARY • The Italian and United States flags rose simultaneously over the establishment of NAS Bolsena, Italy, Ens. William B. Atwater commanding. The first of two air stations opened in that country during WWI, Bolsena operated primarily as a flying school. U.S. naval aviation operations in Italy consisted of training American pilots on Italian machines, conducting bombing raids on Austro-Hungarian targets including the naval fortress at Pola, and flying as chase pilots with Italian planes that contended the Habsburg advance in autumn 1918. Plans for the establishment of several additional stations in Italy were cancelled following the Armistice, and NAS Bolsena was disestablished on 2 January 1919.

22 FEBRUARY • Officer in Charge of Aviation Capt. Noble E. Irwin asked the Director of Naval Communications to provide wireless transmitting and receiving equipment to permit pilots on patrol to communicate with the naval air stations at Cape May, N.J.; Chatham, Mass.; Montauk and Rockaway, N.Y.; Key West, Fla.; San Diego, Calif.; and Coco Solo, Panama Canal Zone. The following May officers expanded this request to cover all naval air stations.

22 FEBRUARY • NAS Queenstown, Ireland, was established, Lt. Cmdr. Paul J. Peyton commanding. The facility served as the assembly and repair station for all naval air stations in Ireland. Aircraft began to fly patrols from Queenstown on 30 September. NAS Queenstown was disestablished on 10 April 1919.

26 FEBRUARY • Recognizing the importance of data on weather phenomena in the upper atmosphere to flight operations, and acting largely on the recommendations of Lt. Cmdr. Alexander G. McAdie, formerly of Harvard University's Blue Hill Observatory, Mass., the Chief of Naval Operations established an allowance list of aerographic equipment for air stations abroad.

28 FEBRUARY • President Woodrow Wilson issued Proclamation No. 1432, effective in 30 days but published in General Order No. 407 of 8 July. This order prohibited private flying over the United States, as well as its territorial waters and possessions, without a special license issued by the Joint Army and Navy Board on Aeronautic Cognizance.

1 MARCH • NAS Paimboeuf, France, was established as the Americans assumed control of the airship station there, Lt. Cmdr. Louis H. Maxfield commanding. Several U.S. naval aviators had served with the French at Paimboeuf since November 1917. Prior to the Armistice the U.S. Navy obtained 12 airships from the French, but the station at Paimboeuf was the only airship facility that became operational before war's end. NAS Paimboeuf was disestablished on 26 January 1919.

6 MARCH • The Bureau of Navigation established instrument allowances for naval aircraft, allotting a compass, two altimeters, and a clock for service in seaplanes and flying boats; a compass, altimeter, clock, and statoscope for airships and free balloons; and an altimeter and clock for kite balloons and training planes.

6 MARCH • A falling-weight type catapult launched an unmanned flying-bomb type plane that flew 1,000 yards at the Sperry Flying Field at Copiague on Long Island, N.Y.

7 MARCH • Wartime expansion drove the establishment of the Office of the Director of Naval Aviation in the Office of the Chief of Naval Operations and the expansion of the Aviation Section into a division.

9 MARCH • The Navy initiated a revised training program for naval aviators (seaplanes), which provided that following a period of general training, all student aviators were to specialize in one of three general types of seaplanes—fighting scouts, light fast bombing, and patrol. In addition, the change divided the program into elementary, advanced, and advanced specialization courses and designated the stations at which the respective courses were to be given.

11 MARCH • Work began on an airship station at Guipavas near Brest, France, Lt. J. F. Maloney commanding. Planners originally scheduled the station for establishment on 15 November and it consequently failed to open prior to the Armistice. The Americans returned the facility to the French on 13 January 1919.

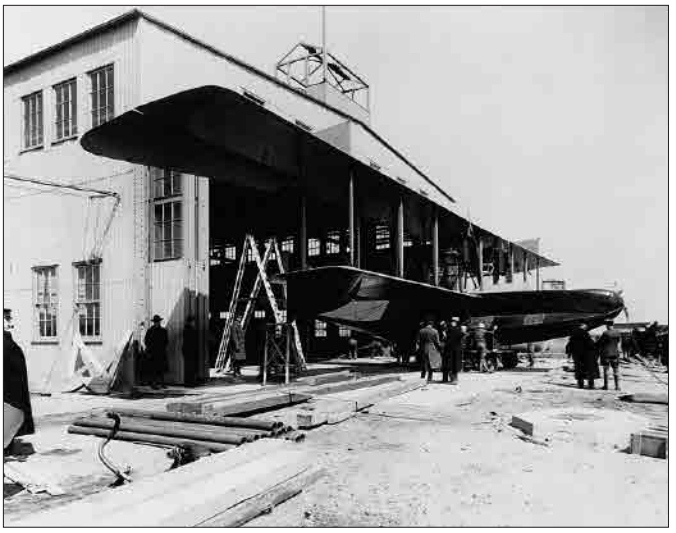
14 MARCH • NAS Ile Tudy, France, was established, 1st Lt. Charles E. Sugden, USCG, commanding. NAS Ile Tudy was disestablished on 25 January 1919.

15 MARCH • The Bureau of Construction and Repair directed that all new naval aircraft be painted in low-visibility naval gray enamel.

17 MARCH • Twenty-two kite balloon pilots arrived at Liverpool, England, and received orders to British Royal Naval Air Station Roehampton to commence instruction. Upon graduation the men detached to kite balloon stations in Britain and France. Ten additional kite balloon pilots arrived in May 1918 for duty in France.

19 MARCH • As combat operations underlined the need for aviation intelligence officers Commander, U.S. Naval Aviation Forces, Foreign Service Capt. Hutch I. Cone distributed a circular letter to his subordinate commands defining the duties and functions performed by such officers at British Royal Navy air stations, with the suggestion that provisions for similar services be made at naval air stations "as may seem expedient." Supplementary letters clarified the duties and functions, and on 31 October it was specifically stated that aviation intelligence officers be specially trained for this work.

19 MARCH • A formation of flying boats flew a long-range reconnaissance mission over the Heligoland Bight off the German coast. German seaplanes attacked the planes, and pilot Ens. Stephan Potter, USNRF (Naval Aviator No. 130), shot down one of the attackers to receive credit as the first U.S. naval aviator to shoot down an enemy seaplane, an exploit for which he also received the Navy Cross. Potter had trained with the Second Yale Unit at the Curtiss plant at Buffalo, N.Y.



NAH 2121

The first H-16 flying boat built at the Naval Aircraft Factory, Philadelphia, Pa., leaves the assembly building.

21 MARCH • Thousands of German guns opened fire on the allied lines to begin Operation Michael, the first of a series of German offensives along the Western Front in France, and allied leaders feared an enemy drive on Paris. The French began to move some government offices and industrial facilities from the vicinity of the capital to other areas of the country, including arrangements for sections of the headquarters of U.S. naval aviation in France to relocate to NAS Pauillac.

21 MARCH • Curtiss test pilot Roland Rohlfs and observer Capt. Bernard L. Smith, USMC, made the first flight of the prototype HA seaplane, or "Dunkirk Fighter," BuNo A-2278, at Port Washington on Long Island, N.Y. During the fighter's second flight on 15 April the aircraft capsized and was heavily damaged. A fire destroyed the plane on 7 August.

25 MARCH • Ens. John F. McNamara made the first attack on an enemy submarine by a U.S. naval aviator during a flight from British Royal Naval Air Station Portland, England. Commander, U.S. Naval Forces Operating in European Waters Vice Adm. William S. Sims reported the attack as "apparently successful," and Secretary of the Navy Josephus Daniels commended McNamara for his "valiant and earnest efforts." McNamara received the Navy Cross for his services during the war, though the citation did not specifically mention this battle.

27 MARCH • The first aircraft built at the Naval Aircraft Factory at Philadelphia, Pa., an H-16, BuNo A-1049, made its first flight. Navy H-16s, equipped with two 230-pound bombs and five Lewis machine guns, conducted antisubmarine patrols from U.S. and European stations during WWI.

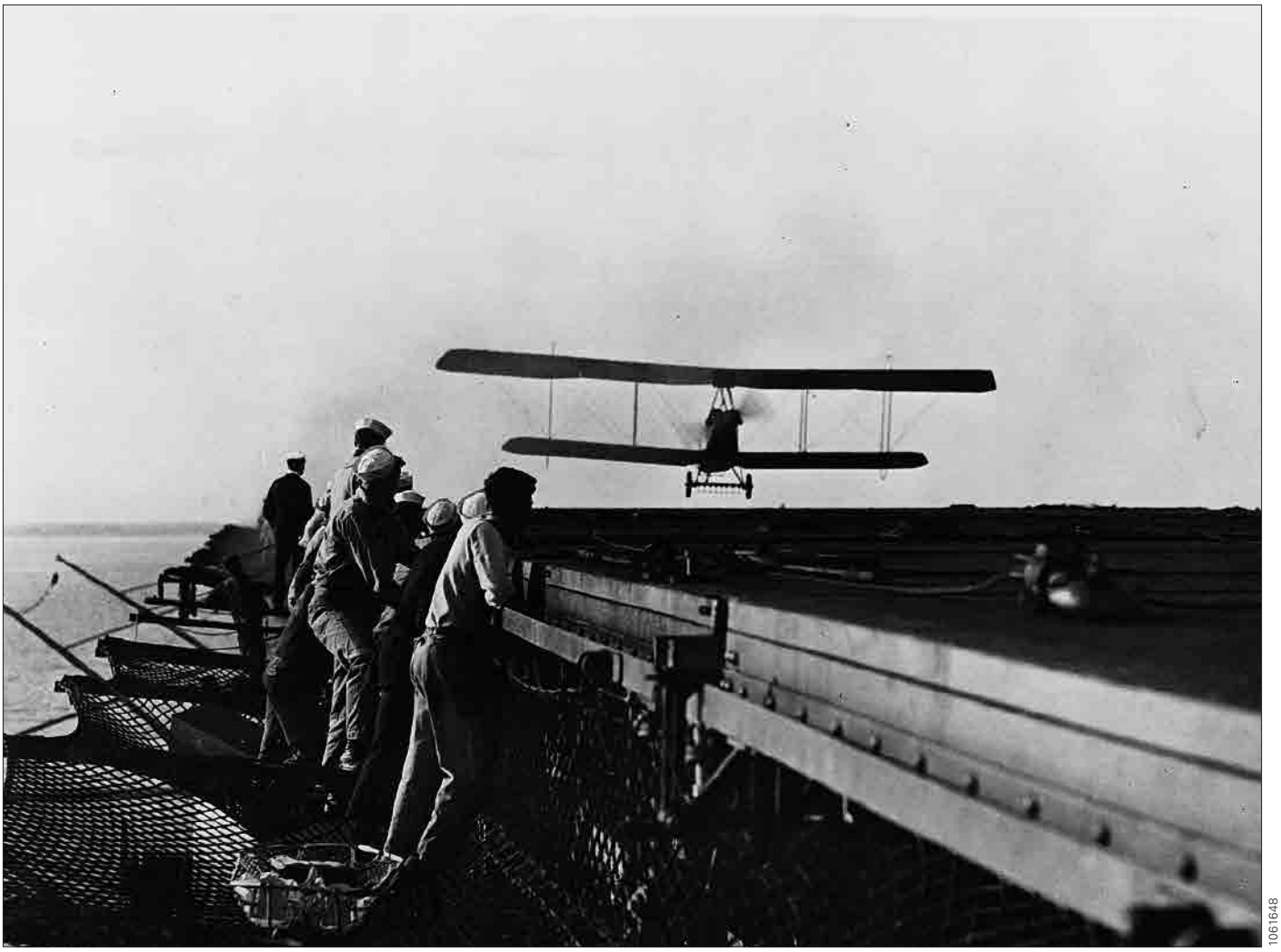
30 MARCH • Commander, U.S. Naval Forces Operating in European Waters Vice Adm. William S. Sims sent a message to Navy forces in France to prepare to reinforce the allies to "the utmost of our capacity" to contain the German breakthrough on the Western Front. Commander, U.S. Naval Aviation Forces, Foreign Service Capt. Hutch I. Cone cabled air stations in France to determine the availability of men for "transport and other auxiliary work," not including those qualified or in training. Cone directed a temporary halt to construction on these stations, which provided an estimated 2,070 men and several hundred machine guns. After the Germans overextended their supply lines and allied reinforcements stabilized the front, on 3 April the French declined the offer of the men and rescinded their orders, but directed the retention of these reinforcements to stand ready for deployment within a "fortnight."

30 MARCH • The Navy ordered an 18-T (Kirkham) triplane fighter from Curtiss Engineering Corp. The principal armament of this single-engine, two-seater landplane consisted of two synchronized and two flexible machine guns.

31 MARCH • The First Aviation Squadron transferred from Gerstner Field at Lake Charles, La., to Marine Flying Field, Miami, Fla.

APRIL • NAS La Trinité, France, which had been in operation since November 1917, was established, Ens. Charles M. Johnson commanding. Located in the fishing village of La Trinité-sur-Mer about four miles from Carnac on the Bay of Morbihan, the facility had been selected with a view to relay kite balloons for convoys between Brest and La Pallice while ships entered Quiberon Bay. Due to later modifications in the convoy system, however, the base never achieved this function. NAS La Trinité was disestablished on 5 February 1919.

10 APRIL • A training school for female apprentices began at the Naval Aircraft Factory at Philadelphia, Pa.



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The first Curtiss-built 18T Kirkham fighter, shown in its 1919 18T-2 guise with extended wings, set records for both speed and altitude.

15 APRIL • The First Marine Aviation Force, Capt. Alfred A. Cunningham, USMC, commanding, was formed with men of the First Aviation Squadron and the Aeronautic Detachment, USMC, at Marine Flying Field, Miami, Fla. The latter two commands had disbanded the day before. A headquarters company and four squadrons, designated A, B, C, and D, were organized within this force on 16 June. These squadrons later deployed to France and operated as the Day Wing of the Northern Bombing Group, where they subsequently received the designations of 7 through 10. These squadrons normally comprised an authorized strength of 18 planes each.

16 APRIL • The first detachment of trained aerologists consisting of 9 officers and 15 enlisted men, Lt. Cmdr. Alexander G. McAdie commanding, departed to naval air stations in Europe.

17 APRIL • Lt. William F. Reed Jr. reported for "aerographical" duty at NAS Pensacola, Fla., marking the first such assignment made to a U.S. naval air station.

17 APRIL • NAS Berehaven, United Kingdom (Ireland) was established. The station was disestablished on 12 February 1919.

22 APRIL • Pilot QM1 R. H. Harrell with observer QM2 H. W. Studer and pilot Ens. Kenneth R. Smith with observer O. E. Williams flew two planes on a patrol from NAS Ile Tudy, France. Both aircraft bombed and damaged a U-boat stalking a convoy of about 20 ships escorted by the Americans off the coast of France. The second plane dropped two bombs and then flew to *Stewart* (Destroyer No. 13) and directed her to attack. The French

426915

Naval planes, including two Curtiss F-boats (foreground), on the beach at Pensacola, Fla., May 1918.

antisubmarine gunboat *Ardente* joined the battle. *Ardente* attempted to ram the boat, but her action compelled *Stewart* to turn away from her depth charge run at the last moment. The destroyer dropped three depth charges, and wreckage, bits of sea growth, and oil floated to the surface. Smith received the Navy Cross for this exploit. The French credited Smith and Williams for probably sinking the boat and awarded Smith their *Croix de Guerre* and also bestowed upon the pilot the Legion of Honor, rank of *Chevalier*.

23 APRIL • The first shipment of Liberty engines to naval aviation commands in France arrived at the assembly and repair station at NAS Pauillac.

25 APRIL • Ens. Stephan Potter, USNRF, and Capt. N. A. Magor, Royal Air Force, flew an Felixstowe F.2A—an improved British variant of an H-12—Side No. 8677, as one of two flying boats on a patrol from Felixstowe, England. German Oberleutnant Friedrich Christiansen led a flight of five single-seat planes and a pair of two-seaters that attacked the patrol about six miles west-southwest of North Hinder Light. Christiansen shot the F.2A's stern gunner, and his gunner fired a burst that ignited a fire on board the flying boat. Potter attempted to climb, but he was too low to turn into the wind and crashed. Potter, Magor, and two crewmen died in Christiansen's fifth (claimed) victory.

25 APRIL • The airship *Capitaine Caussin* suffered an accident during a patrol from NAS Paimboeuf, France. A gas valve, which had failed to close after valving, caused the airship to lose pressure and dive into the sea from several hundred feet. The impact threw two crewmembers into the water; Lt. Cmdr. Louis H. Maxfield and Lt. Frederick P. Culbert jumped from the airship and aided them until

rescuers recovered all the swimmers. Ens. Merrill P. Delano and French Commandant Leroy guided *Capitaine Caussin* while it drifted to the beach where the crew then dismantled the airship. Maxfield received a gold life saving medal, and he and Culbert each received French life saving medals.

27 APRIL • The airship *AT-1*, Lt. Frederick P. Culbert commanding, and manned by a crew comprising Ens. Arthur D. Brewer, Ens. Merrill P. Delano, and Ens. Thomas E. McCracken, completed a 25-hour, 43-minute flight from NAS Paimboeuf, France. During the patrol the airship escorted three convoys through a mined zone. This was the longest flight on record for an airship of this type.

29 APRIL • The British transferred the Royal Air Force kite balloon station at Berehaven in the United Kingdom (Ireland) to the Americans, who immediately established NAS Berehaven, Ens. Carl E. Shumway commanding.

30 APRIL • Secretary of the Navy Josephus Daniels approved a plan recommended by the General Board and developed by Naval Forces in Europe for the Northern Bombing Group to undertake air operations in the Dunkirk–Bruges–Ostend–Zeebrugge region against German submarines and their support facilities, and directed that the bureaus and offices expedite the assembly of the necessary men and equipment.

2 MAY • NAS Wexford in the United Kingdom (Ireland) was established. The station was disestablished on 15 February 1919.

6 MAY • NAS Coco Solo, Panama Canal Zone, was established, Lt. Ralph G. Pennoyer commanding, to maintain patrols over the seaward approaches to the Panama Canal.

15 MAY • The Bureau of Steam Engineering reported that a Marconi SE 1100 radio transmitter designed for use on H-16s had demonstrated dependability in voice communications at distances of up to 50 nautical miles, and in code communications at up to 120 nautical miles. This became one of the first radio sets used in, and the first tube set developed for, naval aircraft.

18 MAY • The Chief of Naval Operations set training goals to provide pilots for foreign service and directed that eight elementary training squadrons be operated—two at Bay Shore, N.Y., two at Key West, Fla., and four at Miami, Fla. He also directed that elementary training at Pensacola, Fla., be discontinued as soon as the students on board had graduated, and that six advanced training squadrons be organized there to begin training patrol plane and night bomber pilots as soon as practicable.

20 MAY • Work began on a naval air station at La Pallice, France, Lt. j.g. John H. Dashiell commanding. The station never formally established, and the Americans returned the facility to the French on 5 January 1919.

24 MAY • The first consignment of American-built HS-1 flying boats, consisting of six planes (BuNos A-808 through A-813) on board the transport *Houston* and two planes (BuNos A-1575 and A-1583) on board the cargo ship *Lake Placid* arrived at NAS Pauillac, France.

4 JUNE • NAS L'Aber Vrach, France, was established, Lt. Cmdr. Henry B. Cecil commanding. NAS L'Aber Vrach was disestablished on 22 January 1919.

8 JUNE • NAS Arcachon, located southwest of Bordeaux, France, was established, Ens. Joseph N. Brown, USNRF, acting commanding officer until relieved by Lt. Zeno W. Wicks on 15 June. NAS Arcachon was disestablished on 7 January 1919.

13 JUNE • Pilot Lt. Charles P. Mason and passengers Cmdr. James B. Patton and Lt. William B. Jameson, USNRF, made the first flight of the initial American-built aircraft to be assembled in France, an HS-1, at NAS Pauillac.

19 JUNE • Sailors at NAS Pensacola, Fla., began taking upper atmospheric weather soundings to provide information on wind velocity and direction required for navigational training flights. The station's Meteorological Officer, Lt. William F. Reed Jr., developed a technique to carry recording instruments aloft in a kite balloon, gradually refining his method to take six soundings a day at an altitude of 1,000 feet.

29 JUNE • Two Levy-Le Pen HB-2s became the first aircraft to operate from St. Trojan, France, when they arrived from NAS Le Croisic.

1053765

The last of the six rotary-engine Thomas-Morse S-5s purchased by the Navy.

30 JUNE • The first Navy pilots of the Night Wing, Northern Bombing Group, to take special training with the British marked the completion of their course by participating as observers in a night bombing raid by No. 214 Squadron of the British Royal Air Force.

1 JULY • An act of Congress repealed all laws relating to the National Naval Volunteers and authorized President Woodrow Wilson to transfer as a class all of its members in their confirmed ranks and ratings to the Naval Reserve, Naval Reserve Flying Corps, or Marine Corps Reserve.

1 JULY • NAS Lough Foyle, United Kingdom (Ireland), was established, Cmdr. Henry D. Cooke commanding. NAS Lough Foyle was disestablished on 22 February 1919.

4 JULY • NAS Whiddy Island was established as a small seaplane station on the western end of the Irish island located in Bantry Bay in the United Kingdom. This was to be the westernmost air station established in Europe during the war. Patrol planes from the island met Atlantic convoys as they approached the British Isles. NAS Whiddy Island was disestablished on 29 January 1919.

4 JULY • A detachment of 12 kite balloons and 42 men arrived at NAS Berehaven in the United Kingdom (Ireland). The detachment initially operated from the adjoining French kite balloon station at Lannion, which marked the beginning of extensive lighter-than-air operations in Europe.

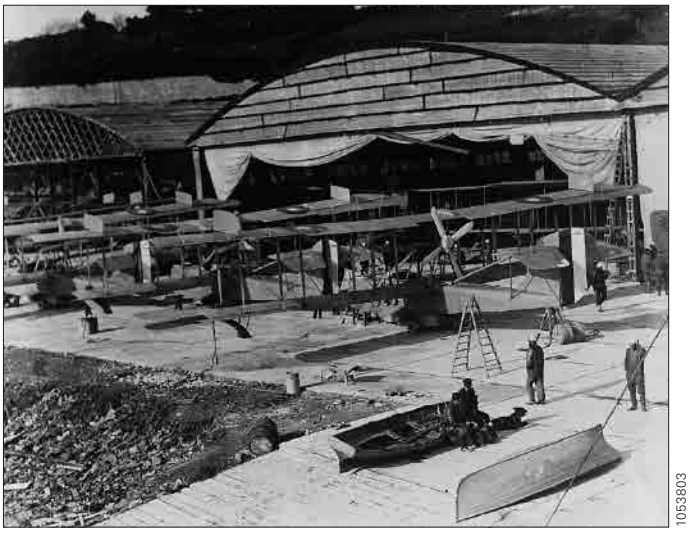
7 JULY • The Naval Aircraft Factory, Philadelphia, Pa., completed its first order for 50 H-16s.

14 JULY • NAS St. Trojan, France, was established, Lt. Virgil C. Griffin commanding. NAS St. Trojan was disestablished on 19 January 1919.

19 JULY • During a patrol in an H-12 from Killingholme, England, pilot Ens. John J. Schieffelin and crewmembers Lt. j.g. Roger W. Cutler, USNRF, E3 Taggert, and LMM Bernstein sighted a surfaced U-boat east of Whitby. The plane dropped a bomb that burst 20 feet to port of the submarine's waist, thrusting the boat's bow downward and lifting her stern until the screws almost broke the surface. The plane had encountered turbulence en route, forcing it to jettison a bomb. After signaling the U-boat's position to a trawler, the plane departed the area. British ships including destroyer *Garry*, subsequently depth charged *UB-110* about 15 miles from that position and forced her to surface, and *Garry* rammed and sank the boat. Interviews with the survivors revealed they failed to submerge because of damage sustained during a previous attack, but Schieffelin surmised that *UB-110* was a different boat than the one he had bombed because of the distance between the two positions. For this battle and an action on 9 July Schieffelin later received the Navy Cross.

19 JULY • The German submarine *U-156* sank *San Diego* (Armored Cruiser No. 6) off Fire Island, Long Island. Two planes on patrol from NAS Montauk, N.Y., sighted the stricken cruiser and sent the first reports of her sinking. Two days later *U-156* slipped through fog and attacked the tug *Perth Amboy* of the Lehigh Valley Railroad as she towed the barges *Lansford* and *Nos. 403*, *740*, and *766* three miles off Nauset Beach, Cape Cod, Mass. German shooting started fires on board the tug that burned her to the waterline, sank three of the barges, and wounded three men. At 1050 on 21 July two planes took off from NAS Chatham, Mass., to intercept the submarine—an HS-2L, A-1695, with pilot Ens. Eric A. A. Lingard and crewmembers Ens. Edward M. Shields and MMC Edward H. Howard; and R-6, A-991, with pilot 1st Lt. Philip B. Eaton, USCG (Coast Guard Aviator No. 6). They bombed but missed the submarine. German gunfire drove the aircraft to higher altitudes, and then *U-156* submerged and escaped. Eyewitnesses dubbed the action "The Battle of Chatham."

20 JULY • NAS Killingholme, England, Lt. Cmdr. Kenneth Whiting commanding, was established when the British



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HS flying boats at NAS Brest, France.

turned their Royal Air Force station over to the Americans. U.S. Navy aircraft had patrolled from the station since February 1918. NAS Killingholme was disestablished on 6 January 1919.

23 JULY • NAS Eastleigh, England, was established at the British Royal Air Force facility at that location on the English Channel, Lt. Cmdr. Godfrey deC. Chevalier commanding. The facility served as a supply, assembly, and repair station to support the Northern Bombing Group. NAS Eastleigh was disestablished on 10 April 1919.

24 JULY • NAS Porto Corsini, Italy, was placed in operating status, Lt. Wallis B. Haviland commanding. The Austro-Hungarians learned of the event and bombed the station that night but failed to inflict serious damage. NAS Porto Corsini was disestablished on 31 December 1918.

25 JULY • Secretary of War Newton D. Baker approved a recommendation by the Joint Army and Navy Airship Board assigning responsibility for the development of rigid airships to the Navy.

27 JULY • N-l, the first experimental aircraft designed and built at the Naval Aircraft Factory, Philadelphia, Pa., made its fourth successful flight and first test of the Davis gun for which it was designed. Lt. Victor Vernon piloted N-1, and Lt. Sheppard operated the gun, which performed satisfactorily against a target moored in the Delaware River near the factory.

30 JULY • One hundred seven officers and 654 enlisted men of Headquarters Company and Squadrons A, B, and C of the First Marine Aviation Force arrived on board transport *DeKalb* at Brest, France. They proceeded to aerodromes between Calais and Dunkirk for operations as the Day Wing, Northern Bombing Group. Part of their equipment, including some planes, arrived separately at NAS Pauillac. The squadrons were subsequently redesignated Squadron Nos. 7, 8, and 9, respectively.

2 AUGUST • The first Marines of the Northern Bombing Group arrived at the front. The Marines requested permission from the British to operate with the Royal Air Force (RAF) to maintain proficiency, and the British accepted their service and assigned them to missions. The Marines subsequently flew with Nos. 217 and 218 (bombing) Squadrons of the RAF, and with French Aéronautique Militaire (Army Air Service) bombing and observation squadrons.

3 AUGUST • Pilot QM1 C. J. Boylan and observer QM2 L. W. Wintsch flew a Donnet-Denhaut flying boat from NAS Ile Tudy, France, in response to a U-boat sighting. At 1640 the plane spotted an apparent periscope almost immediately disappear and then a large spot of oil. The aircraft detected converging wakes approaching the surface and dropped two bombs, which caused more oil, bubbles, and debris to appear. French trawlers also fired at the (possible) submarine and sighted a long trail of oil. Meanwhile, two seaplanes, one piloted by Ens. Morris H. Bailey, USNRF, with observer E2 G. Wolff, and the other by Boatswain L. T. O'Loughlin, USNRF, with observer MM1 R. Haizlett, arrived several minutes later and each dropped two bombs that caused more oil and bubbles to rise. The planes circled the position, spotted additional wreckage, and departed.

5 AUGUST • Pilot Ens. Ashton W. Hawkins and second pilot Lt. j.g. George F. Lawrence took off in a flying boat from NAS Killingholme, England, in rain and poor visibility at 2230 to patrol a course intercepting a reported German Zeppelin raid. The plane patrolled in good weather above the clouds without sighting the Germans but dropped through heavy weather at South Shields at 0530, having almost consumed its fuel to complete the first U.S. night combat patrol from Killingholme.

10 AUGUST • NAS Pauillac, France, received 300 pigeons from the French. During WWI naval aviation used homing pigeons as an additional means of sending and receiving messages. Observers on board aircraft and airships "liberated" the birds by throwing them upward and clear of the craft, in some cases from altitudes of 1,500 to 2,000 feet. French trainers experienced in handling the birds cared for the creatures until 21 August when trainers from the American Racing Pigeon Union, National Aeronautic Association, and International Federation of American Homing Pigeon Fanciers arrived from the United States. At least one French trainer each then remained at the headquarters in Paris and at Pauillac to facilitate operations. The French officially transferred the pigeons to the U.S. handlers beginning on 12 October 1918.

11 AUGUST • Pilot Ens. James B. Taylor made the initial flight of the M-2 Kitten landplane at Mineola on Long Island, N.Y. This aircraft had originally been intended for use on board ship and did not prove successful, but is of special interest because it was the first monoplane developed under Navy contract. It was also one of the smallest manned aircraft built for the Navy, with an empty weight of less than 300 pounds. Although equipped with a British ABC engine, the aircraft was designed for use with a two-cylinder Lawrance 30 hp air-cooled engine that became the predecessor of the large American air-cooled radial engines.

13 AUGUST • During a patrol from NAS Dunkirk, France, pilot Ens. Julian F. Carson sighted a surfaced U-boat. The Germans challenged the plane and opened fire with their deck gun, hitting the aircraft in several places with fragments. Carson returned fire and bombed the submarine as it attempted to submerge, which drove the boat back to the surface at a sharp angle. The U-boat stayed there briefly and then slid stern first underwater. The French credited Carson with sinking the craft and awarded him the Croix de Guerre.

13 AUGUST • Ens. Frank E. Wade received the designation of Naval Aviator No. 1,000 at NAS Pensacola, Fla. Because of fractional numbers assigned to men who had preceded him, however, he was not the actual 1,000th naval aviator.

15 AUGUST • The independent offensive operations of the Northern Bombing Group began as pilot Ens. Leslie R. Taber, second pilot Ens. Charles Fahy, and rear gunner D. C.

Hale of Squadron 1 participated in a night raid in a Ca-44 on the German submarine repair docks at Ostend, Belgium.

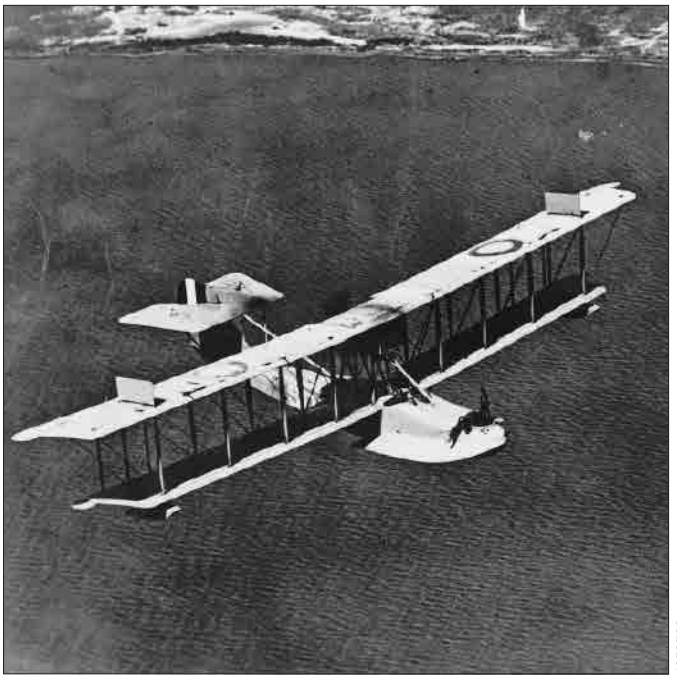
17 AUGUST • The blimp *AT-1* made a brief flight from NAS Paimboeuf, France, carrying Assistant Secretary of the Navy Franklin D. Roosevelt as a passenger during his tour of overseas facilities.

19 AUGUST • NAS Halifax, Nova Scotia, was placed in operating status, Lt. Richard E. Byrd Jr. commanding. The facility was the first of two air stations established in Canada, and located near Eastern Passage at Dartmouth, Nova Scotia, to dispatch patrols over the northern approaches to the Atlantic coast.

19 AUGUST • The 18-T Kirkham experimental triplane fighter achieved speeds of 161, 162, and 158 mph in trial runs over a measured course. Naval Constructors Holden C. Richardson, CC, and Charles N. Liqued observed the trials.

20 AUGUST • While preparing to depart NAS St. Trojan, France, for a patrol, Ens. Edmund B. Barry, USNRF (Naval Aviator No. 421), died when his seaplane exploded on the slipway because of defective bomb-carrying gear. The blast also killed seven other men—QM2 Miles H. Holley and E3 Earl J. Vath died immediately, and CMM Ellsworth W. Stoker, MM1 Jessee C. Richardson, and QM2s Leonard L. Kneeland, John J. McVeigh, and Lewis F. Tucker died during the succeeding days. Sixteen other men received injuries. This was the station's only fatal accident during WWI.

21 AUGUST • At 1120 a flight of five Macchi M-5 single-seat fighters and two M-8 two-seat bombers from NAS Porto Corsini, Italy, dropped leaflets on the Austro-Hungarian fortress of Pola on the Adriatic Sea. Enemy guns fired at the incoming aircraft, and five fighters and two seaplanes rose to intercept the Americans, shooting down pilot Ens. George H. Ludlow (Naval Aviator No. 342) in an M-5 three miles from the harbor entrance and damaging a fighter flown by Ens. Charles H. Hammann, USNRF (Naval Aviator No. 1494). Hammann evaded his pursuers, landed alongside the downed pilot, took him on board, and returned to Porto Corsini. Hammann later received the Medal of Honor. The Navy subsequently named two ships in his honor.



1053768

An HS-2L flying boat powered by a Liberty engine.

27 AUGUST • Following almost a year's operation, NAS Hampton Roads, Va., was established, Lt. Cmdr. Patrick N. L. Bellinger commanding.

31 AUGUST • NAS North Sydney was established as a seaplane station on Cape Breton Island, Nova Scotia, 1st Lt. Robert Donahue, USCG, commanding.

1 SEPTEMBER • Commander, U.S. Naval Aviation Forces, Foreign Service Capt. Hutch I. Cone detached to head the aviation section of the staff of Commander, U.S. Naval Forces Operating in European Waters Adm. William S. Sims in London, England. Cone had supervised the construction and operation of air stations in France. All naval forces deployed in France, with the exception of the Northern Bombing Group, Capt. David C. Hanrahan commanding, were placed under the command of Rear Adm. Henry B. Wilson. Capt. Thomas T. Craven of the admiral's staff relieved Cone. Unit commands were set up for France, England, Ireland, Italy, and the Northern Bombing Group to control and direct the operations of stations in these areas.

3 SEPTEMBER • Aircraft began the first naval air operations from NAS Lough Foyle in the United Kingdom (Ireland) with patrols over the North Channel entrance to the Irish Sea.

1053766

The Davis recoilless antisubmarine gun mounted on a flying boat.

7 SEPTEMBER • The first U.S. day-bombing plane arrived at the front in France—a DH-4 designated D-1, BuNo A-3295.

23 SEPTEMBER • The flywheel catapult, a forerunner of those subsequently installed on board *Lexington* (CV 2) and *Saratoga* (CV 3), launched a flying bomb from Copiague on Long Island, N.Y. The Sperry Co. developed this catapult in connection with the Bureau of Ordnance's flying bomb project.

23 SEPTEMBER • The Aircraft Radio School at Pensacola, Fla., began a course of instruction for aircraft radio electricians that included code work, semaphore and blinker study, gunnery, and laboratory work. In November the school transferred to Harvard University, Mass.

24 SEPTEMBER • While on a test flight in a Sopwith Camel, Lt. j.g. David S. Ingalls, USNRF (Naval Aviator No. 85), sighted a German two-seat Rumpler over Nieuport, Belgium. In company with another Camel, Ingalls attacked and scored his fifth aerial victory in six weeks to become the Navy's first ace. Ingalls also shot down at least one enemy observation balloon while serving with No. 213 Squadron of the British Royal Air Force. For these and other meritorious acts the British awarded Ingalls the Distinguished Flying Cross, and the United States conferred upon him the Distinguished Service Medal. "He is one of the finest men," the British evaluated his service, "No. 213 Squadron ever had."

25 SEPTEMBER • Pilots Ens. John A. Jova and ACMM Francis E. Ormsbee Jr., during a flight in two planes observed

a two-seat plane go into a tailspin and crash about three-quarters of a mile away in Pensacola Bay, Fla. Ormsbee landed his plane nearby, dove overboard, and swam for the wreck as the stricken aircraft sank. He pulled out the gunner and held his head above water until other men arrived in a speedboat, then made repeated dives into the tangled wreckage in an unsuccessful attempt to rescue the pilot. Ormsbee later received the Medal of Honor.

25 SEPTEMBER • NAS Whiddy Island in the United Kingdom (Ireland) became operational.

27 SEPTEMBER • Pilot Ens. Edwin S. Pou, USNRF, with observer QM2 H. F. Duffy, and pilot QM2 P. H. Tuttle with observer QM1 Otis Wherley flew two seaplanes during a patrol over a northbound convoy from NAS Ile Tudy, France. Pou and Duffy spotted three trawlers firing on a suspected mine about four miles south of Point de Penmarc'h. As the trawlers departed, the aviators sighted a "dark spot" four miles distant and dropped two bombs and a smoke bomb on the suspected U-boat. Their attack generated a "violent explosion" that brought oil to the surface, the force of which shook the aircraft. The seaplanes dropped a message buoy to the leading trawler and departed.

28 SEPTEMBER • Pilot Lt. Everett R. Brewer, USMC, and observer Sgt. Harry Wershiner, USMC, flying a plane with No. 218 Squadron of the British Royal Air Force, shot down a German Fokker aircraft to score the first Marine Corps victory in aerial combat.

30 SEPTEMBER • The Goodyear twin-engine airship *C-1*, BuNo A-4118, accomplished its maiden flight. The war ended before the Navy introduced all of the C-class lighter-than-air craft originally planned, and only 10 of the 30 airships ordered were built.

1 OCTOBER • NAS La Trinité in France became operational.

1 OCTOBER • The airship *AT-13* (also designated P-4) flew from NAS Paimboeuf, France, and rendezvoused with a convoy sailing from La Pallice to Quiberon. As *AT-13* circled the convoy, the airship approached a suspicious object, which it discovered to be a surfaced U-boat, about ten miles south of the lighthouse of Le Four, France. The Germans opened fire and 13 shrapnel shots rapidly burst near the craft. The airship could not return fire because the firing spring had broken on its solitary 47 mm gun during a second practice shot en route. *AT-13* alerted escort ships to the submarine's presence, came about, and resumed coverage of the convoy.

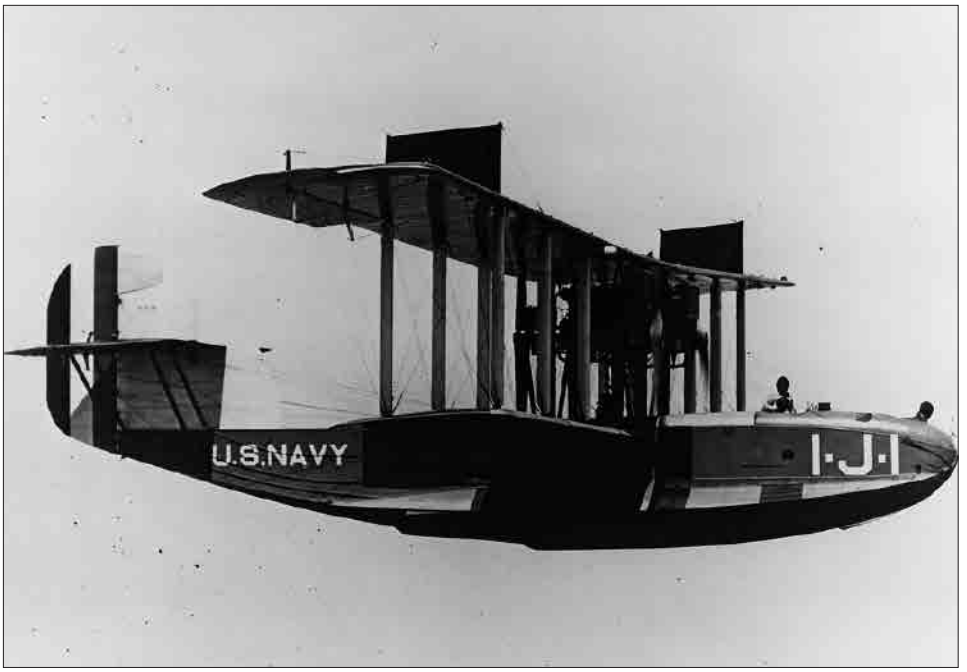
1 OCTOBER • The French disestablished a naval air station located at Lake Cazaux on the Gironde River about five miles southeast of NAS Arcachon. The Americans at NAS Arcachon agreed to accommodate up to several aircraft from the French station at Bayonne. Two Donnet-Denhaut flying boats arrived that afternoon and later made the first flight operations from NAS Arcachon.

2 OCTOBER • Pilot Capt. Francis P. Mulcahy, USMC, second pilot Capt. Robert S. Lytle, USMC, and crewmembers 2d Lt. Frank Nelms Jr., USMC, Sgt. Archie Paschal, USMC, Sgt. Amil Wiman, USMC, and Cpl. Henry L. Tallman, USMC, flew a plane during the earliest recorded U.S. aerial food-dropping mission. On this day and the next the aircraft made five low-level runs in the face of enemy artillery, machine gun, and rifle fire and delivered 2,600 pounds of food and badly needed supplies to a French regiment surrounded by German troops near Stadenburg, Belgium. Paschal, Wiman, and Tallman threw the food packages overboard. The pilots consequently received the award of the Distinguished Service Medal and the gunners received the Navy Cross. (The precedence of these medals was reversed in 1942.)

4 OCTOBER • Cmdr. Holden C. Richardson, CC, and Lt. David H. McCulloch made the initial flight of the first NC flying boat, NC-1, BuNo A-2291, at NAS Rockaway, N.Y.

5 OCTOBER • Squadron D of the First Marine Aviation Force, comprising 42 officers and 188 enlisted men, arrived at an aerodrome at Le Fresne, France, completing the Day Wing, Northern Bombing Group. Additional planes reinforced the group during the month.

8 OCTOBER • Pilot 2d Lt. Ralph Talbot, USMC, and observer GySgt. Robert G. Robinson, USMC, of Squadron C flew D-1, the first Marine DH-4 received in France, during a raid against German-occupied Westend, Belgium. Nine German scout planes attacked the Marines, but D-1 shot down one of the attackers.



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The F-5L was a Naval Aircraft Factory version of the British Felixstowe F.5, which itself was an improved American Curtiss H.12.

10 OCTOBER • German submarine *UB-123* sank the British steamer *Leinster* in the Celtic Sea while the ship sailed from Dublin, Ireland, to Holyhead, Wales. Capt. Hutch I. Cone traveled on board while en route to head the aviation section of the staff of Commander, U.S. Naval Forces Operating in European Waters Adm. William S. Sims in London. Cone was among the casualties but recovered despite his wounds.

14 OCTOBER • Eight DH-4s and DH-9As of Marine Day Squadron 9 made the first day raid-in-force by the Northern Bombing Group, flying against the German-held rail junction at Thielt Rivy, Belgium. Despite mist that obscured their targets the aircraft dropped 17 bombs. At least 11 German aircraft counterattacked. 2d Lt. Ralph Talbot, USMC, with observer GySgt. Robert G. Robinson, USMC, in a DH-4 designated D-1 shot down a German plane, but two other German aircraft attacked and wounded Robinson. Talbot came about and downed a German plane, and landed at a Belgian aerodrome at Hondschoot. For this battle and an earlier raid in which they had engaged enemy aircraft, Talbot and Robinson later received the Medal of Honor.

15 OCTOBER • The Bureau of Steam Engineering reported the construction of five Hart and Eustiss reversible pitch propeller hubs for use on twin-engine airships. The Navy consequently ordered two of these for F-5Ls.

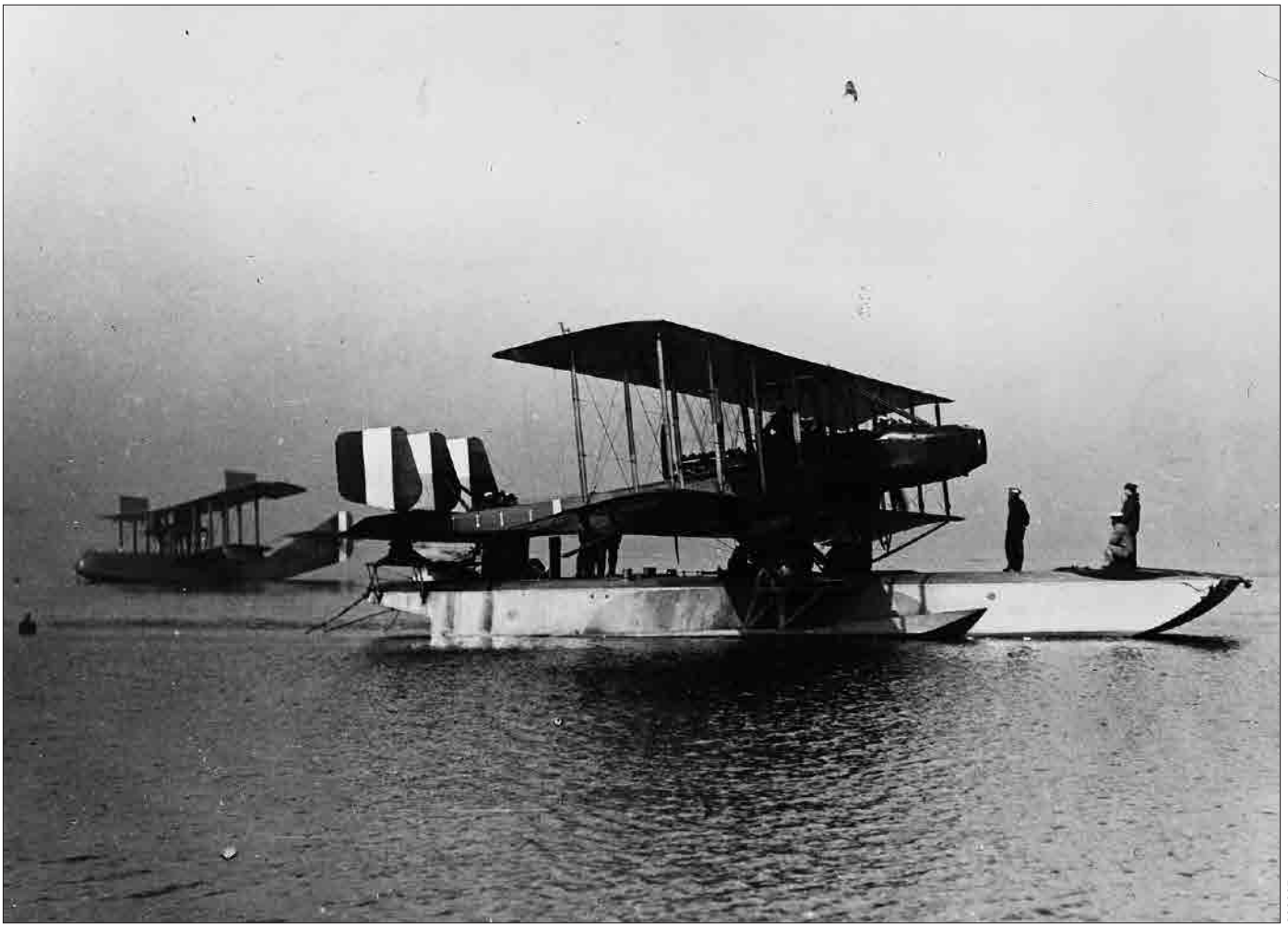
17 OCTOBER • A pilotless N-9 training plane converted to an automatic flying machine launched from Copiague on Long Island, N.Y. The plane flew a prescribed course but failed to land at the preset range of 14,500 yards. Observers last saw the plane over the air station at Bay Shore, flying eastward at an altitude of 4,000 feet.

19 OCTOBER • While flying as part of a convoy escort in the Lough Foyle sector off northern Ireland, Ens. George S. Montgomery Jr. (Naval Aviator No. 300) sighted and bombed a U-boat stalking the convoy. The explosions brought heavy turbulence and oil to the surface. Montgomery received a commendation for "probably damaging" the submarine and preventing the Germans from attacking the convoy.

22 OCTOBER • Maj. Bernard L. Smith, USMC, and crewmembers Lt. Ralph A. D. Preston, USNRF, Lt. j.g. Donald T. Hood, USNRF, Ens. Warner L. Hamlen, USNRF, Ens. Marcus H. Estorly, USNRF, and civilian mechanics M. Roulette and James Royal delivered the airship *C-1* from Akron, Ohio, via Washington, D.C., to NAS Rockaway, N.Y. Smith and Hamlen later received the Aero Club of America's Medal of Merit for this flight.

22 OCTOBER • Pilot Ens. Edwin S. Pou, USNRF, with observer QM2 H. F. Duffy, flew an HS-1 from NAS Ile Tudy, France, to investigate an area in which the Germans had made an attack earlier in the day. The men sighted and exploded a mine by bombing. The French patrol boat *Leger* detected what she believed to be a submarine on listening devices, but the sounds faded following the attack, which led the French to surmise that Pou and Duffy drove off a U-boat.

25 OCTOBER • Pilot 2d Lt. Ralph Talbot, USMC, with observer 2d Lt. Colgate W. Darden Jr., USMC, flew a DH-4



229907

A sea sled used to transport and launch planes, with a Caproni Ca-44 heavy bomber on board, November 1918.

designated D-1 that struck a bank of earth on the edge of an ammunition dump in a field near Le Fresne in France. The aircraft rebounded, crashed into a newly arrived pile of 1,500 bombs, and caught fire. The impact threw Darden clear, but Talbot was trapped in the front cockpit and died. Marines pulled the bombs from the pile and rolled them in the mud until the fire was extinguished. The destroyer *Ralph Talbot* (DD 390) was commissioned in the pilot's honor on 14 October 1937.

26 OCTOBER • Pilot Ens. William C. Sprague, with observer H. A. Ropke, flew a plane on a patrol and sighted an oil wake indicating a possible U-boat about four miles southwest of Point de Penmarc'h, France. Sprague and Ropke dropped two bombs. Four minutes later pilot Ens. Elbert J. Dent and observer Ens. Morris H. Bailey, USNRF, arrived in a second plane and dropped two more bombs on the same position. Pilot Ens. Harold J. Rowen with Bailey again on board as observer, who had returned with Dent and accompanied Rowen, reached the scene in a third aircraft and bombed the same spot. The determined attacks proved ineffective.

1 NOVEMBER • The night flight training program was discontinued at NAS Pensacola, Fla.

1 NOVEMBER • NAS Tréguier, France, was established, Lt. Augustus M. Baldwin commanding. The rise and fall of the tide on the river and the steep incline of the shipway at the former French station necessitated an unusual method of launching flying boats. To prevent planes from immersing nose-first, men put the machines onto a cradle on tracks and then eased the aircraft into the water by a line. NAS Tréguier was disestablished on 19 January 1919.

11 NOVEMBER • The Allied Countries and Central Powers signed an armistice to end WWI. During the 19 months of U.S. participation the total strength of naval aviation comprised 2,107 aircraft, 15 airships, and 215 kite and free balloons on hand, together with 6,716 officers and 30,693 men for the Navy, and 282 officers and 2,180 men for the Marine Corps. About 570 aircraft and 18,000 officers and men had shipped abroad. Naval aircraft had dropped a total of 155,998 pounds of ordnance on the enemy and flown more than three million nautical miles of war patrols. Naval aircraft made at least 39 attacks against U-boats and partially succeeded in driving off submarines during at least ten of these battles. The Marines participated in 43 missions with the British and French, and the Day Wing of the Northern Bombing Group flew 14 independent raids behind the German lines. The naval air arm suffered 208 casualties, including 74 officers. Following the Armistice the Navy cancelled contracts for 1,728 planes. When representatives from the Commission for the Relief of Belgium reported their inability to continue their work without support, sailors and Marines transferred trucks, ambulances, and motorcycles to the charity during early examples of naval aviation humanitarian relief efforts.

12 NOVEMBER • Naval aviation headquarters in France sent a dispatch to all air stations: "Suspend patrol flights. Only flights now authorized are those necessary to look for dangerous mines and harbor flights reduced to strict minimum to test planes and train personnel. Deflate all kite balloons except those judged necessary for mine sweeping. Limit ascensions and trips to mine searching, test of material and training of personnel."

17 NOVEMBER • NAS Hampton Roads, Va., reported that an H-16 equipped with a radio direction finder using the British six-stage amplifier had received signals from a radio station at a distance of 150 miles at Arlington, Va.

22 NOVEMBER • Pilot Lt. Victor Vernon and observer S. T. Williams dropped a 400-pound dummy torpedo from an F-5L from a height of 40 feet during the initial test of a torpedo launching gear at the Naval Aircraft Factory at Philadelphia, Pa. The weapon's development had begun the preceding July.

23 NOVEMBER • Secretary of the Navy Josephus Daniels authorized the use of the titles Aerographic Officer and Navigation Officer in naval air station organization to identify officers trained to perform the special duties involved.

27 NOVEMBER • Flying boat NC-1, BuNo A-2291, established a new world record for people carried in flight by embarking 51 persons during a flight from NAS Rockaway Beach, N.Y.

2 DECEMBER • The Chief of Naval Operations renewed efforts to develop planes to operate from ships by requesting that the Bureau of Construction and Repair provide aircraft of the simplest form, lightly loaded, and with the slowest flying speed possible.

6 DECEMBER • The Marines of the Day Wing of the Northern Bombing Group, minus Squadron 10, embarked on board transport *Mercury* at St. Nazaire, France, for their return to Newport News, Va. Squadron 10 remained behind and sailed separately on 28 December.

8 DECEMBER • Commander, Naval Forces Operating in European Waters Adm. William S. Sims ordered the preparation of two airships with photographers on board to rendezvous with the convoy of ships carrying President Woodrow Wilson and the U.S. delegates to the peace conference at Versailles, France. Planners subsequently added a flight of seaplanes from NAS Brest, France. At dawn on 13 December airships *AT-13* and *Capitaine Caussin* lifted off from Guipavas, France, but severe wind and rain squalls compelled them to steer almost entirely by compass. The airships separately sighted and then escorted the convoy ships despite intermittent fog that afternoon. Sailors began to deflate *Capitaine Caussin* the next day, and it was shipped to the United States in January. On 13 December one H-16, two HS-1s, and four HS-2Ls took off from Brest, but 25 mph winds and a rough sea disrupted their attempts at formation flying. Six of the planes reached and escorted the ships at different times.

12 DECEMBER • Airship Officer Lt. George Crompton Jr. at NAS Rockaway, N.Y., conducted a test to determine the feasibility of carrying fighter aircraft on lighter-than-air craft. Crompton piloted airship *C-1* and lifted 1st Lt. A. W. Redfield, USA, commanding officer of the 52d Aero Squadron at Mineola, in an Army JN-4 Jenny in a wide spiral climb to

2,500 feet over Fort Tilden, N.Y. Crompton then released Redfield from that height, and the Jenny made a free flight back to earth.

24 DECEMBER • Pilot Ens. Thomas E. Maytham completed a flight in a B-class airship from NAS Key West to Tampa, Cape Sable, and Palm Beach, Fla., and back, covering approximately 690 miles. This accomplishment bettered Maytham's endurance mark of 32 hours on 23 November with a continuous flight of 40 hours 26 minutes, ending on 26 December. Although recognized only as a U.S. record, this flight surpassed by more than 25 hours the existing world record.

30 DECEMBER • Pilot Lt. Thomas C. Rodman, USNRF, flew an H-16 to score the Navy's first win in the Curtiss Marine Trophy Race at NAS Pensacola, Fla. Aircraft designer and pilot Glenn H. Curtiss had set up the annual competition in 1915 to encourage seaplane development. The contest standard evaluated the basis of the miles traveled in ten hours of flight, with extra mileage credit for the passenger load. Rodman carried 11 passengers 670 statute miles and received credit for a total of 970 miles.

1919

1 JANUARY • During this period the worldwide influenza epidemic caused more than 50 million deaths. Navy medical facilities treated 121,225 Navy and Marine victims including 4,158 fatalities during 1918. "The morgues were packed almost to the ceiling with bodies stacked one on top of another," Navy Nurse Josie Brown of Naval Hospital, Great Lakes, Ill., recalled. Naval aviation in Europe dispersed following the Armistice, however, and despite proximity to the outbreak and the adverse weather of the northern climate, few men succumbed. Exceptions included an outbreak in September 1918 at NAS St. Trojan, France, that killed one officer and five men and incapacitated 210 men, rendering the station inoperative at times. During the first two months of 1919 a recurrence of the epidemic affected NAS Brest, France, when Marines and sailors of the Northern Bombing Group experienced respiratory exposure during transportation in cold and crowded rail cars en route to that station. Similar outbreaks of lesser concern occurred at other stations. Medical inspectors noted that naval aviation staff predominantly confronted these issues with "skill and good judgment."

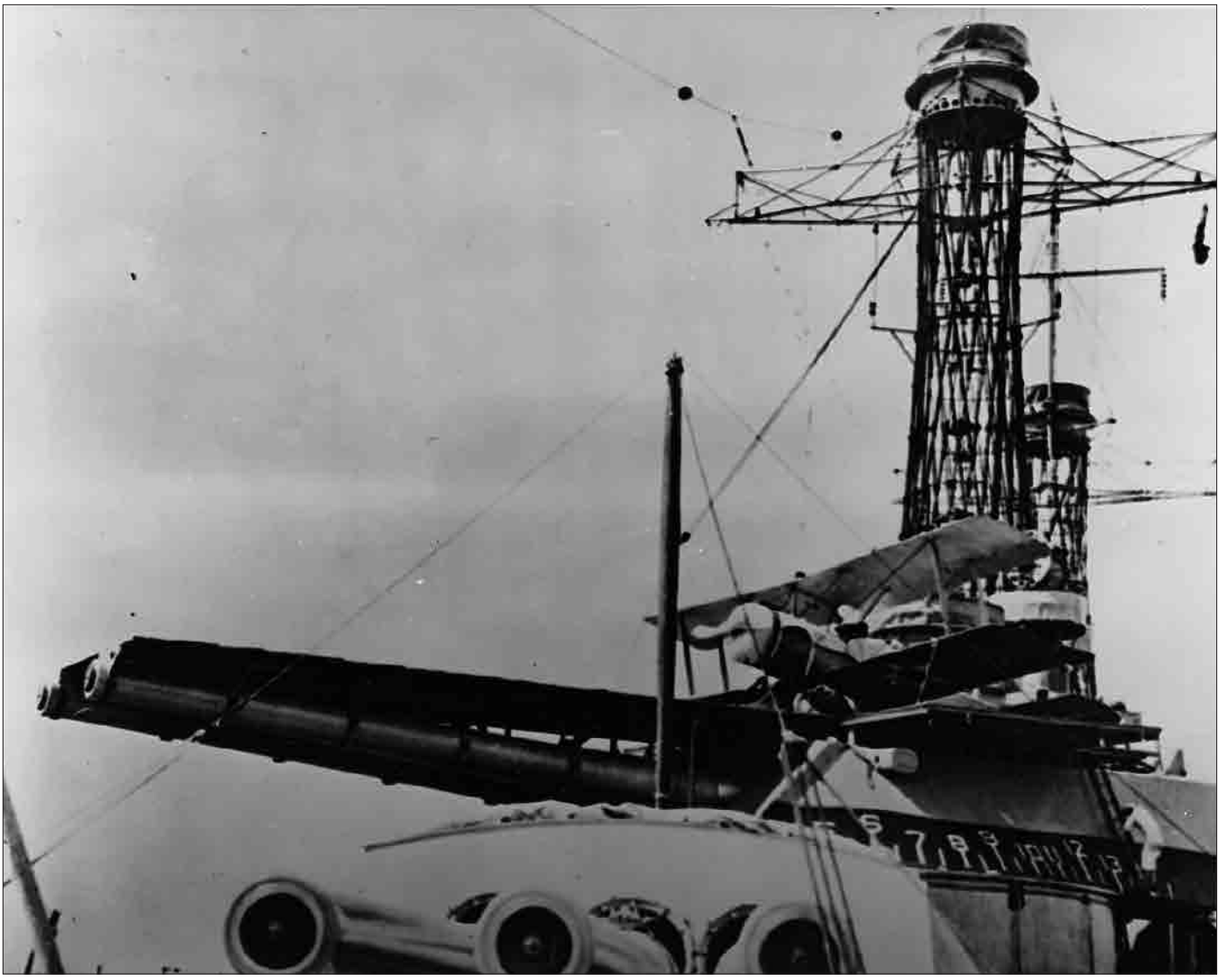
24 JANUARY • The Marines at Ponta Delgada, Azores, received orders to abandon their station and return to the United States. On 17 March the men arrived at Marine Flying Field, Miami, Fla.

3 FEBRUARY • Capt. George W. Steele Jr. assumed command of Fleet Air Detachment, Atlantic Fleet, on board *Shawmut* (Minelayer No. 4) at Boston Navy Yard, Mass. The detachment's establishment enabled testing of the capabilities of aviation to operate with fleet forces and marked the beginning of a permanent provision for aviation in fleet organization. All elements of the detachment did not immediately assemble but consisted of *Shawmut* as flagship and aircraft tender (commonly referred to by pilots as the "mother ship"); a squadron of six H-16s, Lt. Cmdr. Bruce G. Leighton commanding; a division of three single-seat scout planes, Lt. Cmdr. Edward O. McDonnell commanding, on board *Texas* (Battleship No. 35); and a division of six kite balloons, Lt. j.g. John G. Paul commanding, assigned to various ships including *Shawmut*.

9 FEBRUARY • The submission of aerological data obtained at various naval air stations to the Weather Bureau for use in coordinated study of weather conditions commenced with a report submitted by NAS Pensacola, Fla.

15 FEBRUARY • The Fleet Air Detachment, Atlantic Fleet, completed assembling at Guantánamo Bay, Cuba. Two days later the detachment began operations by participating in long-range spotting practice. The men gave a practical demonstration of the capabilities of aircraft and the advantages to be gained from their coordinated employment with ships. Secretary of the Navy Josephus Daniels reported the exercise to be a "considerable success."

7 MARCH • Pilot Lt. j.g. Frank M. Johnson launched in an N-9 from a sea sled and attained a speed of approximately 50 knots during a test at NAS Hampton Roads, Va. Cmdr. Henry C. Mustin had recommended that a powerful motor boat be converted into a sea sled to launch a plane at a point within range of a target as a means of attacking German submarine pens. The firm of Murray and Tregurtha of



428436

A Sopwith 1 1/2–Strutter sits on a flying-off platform atop a 14-inch gun turret of most likely *Oklahoma* (BB 37) during operations off Guantanamo Bay, Cuba, c.1920.

South Boston, Mass., manufactured the sled, and civilian industrialist Albert Hickman designed and patented the essential features of the device.

9 MARCH • Lt. Cmdr. Edward O. McDonnell made the first flight of a Sopwith Camel from a turret platform on board a U.S. Navy battleship when he successfully took off from the No. 2 14-inch gun turret of *Texas* (Battleship No. 35) as she lay at anchor at NS Guantánamo Bay, Cuba.

12 MARCH • Lt. j.g. Harry Sadenwater, USNRF, demonstrated the feasibility of using voice radio and telephone relay for air to ground communications when he carried on a conversation from an airborne flying boat with Secretary of the Navy Josephus Daniels, who was seated at his desk in the Navy Department 65 miles away.

13 MARCH • The Chief of Naval Operations issued a preliminary program for postwar naval airplane development. The specialized types desired comprised fighters, torpedo carriers, and bombers for fleet use; single-engine, twin-engine, and long distance patrol and bomber planes for station use; and a combination landplane and seaplane for Marine Corps operations.

21 MARCH • A gyrocompass developed by Sperry Gyroscope Co. for the Navy was tested in an aircraft. The evaluations failed to find this particular instrument acceptable but marked the first recorded tests of this device, which subsequently proved an invaluable navigational instrument for long-range flight.

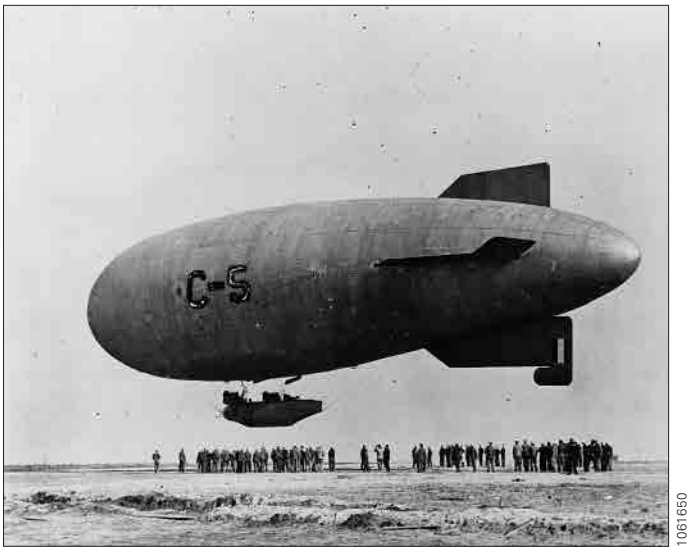
7 APRIL • The Seaplane Squadron and *Shawmut* (Minelayer No. 4) of Fleet Air Detachment sailed from NS Guantánamo Bay, Cuba, for the United States following almost seven weeks of participation in fleet exercises. The squadron operated entirely afloat and without support from ashore during this period.

8 APRIL • Capt. Thomas T. Craven detached from the Bureau of Navigation for duty in the Office of the Chief of Naval Operations. The following month Craven relieved Capt. Noble E. Irwin as Director of Naval Aviation.

10 APRIL • The roll-up of naval air stations in Europe that began on 31 December 1918 with the disestablishment of NAS Porto Corsini, Italy, completed with the disestablishment of NAS Eastleigh, England.

26 APRIL • Flying an F-5L (BuNo A-3589) equipped with two 400 hp Liberty engines, pilot Lt. Harold B. Grow and crewmembers Ens. Rutledge Irvine, Ens. Hugh S. Souther, and Ens. Delos Thomas completed a record flight of 20 hours 19 minutes covering 1,250 nautical miles from Hampton Roads, Va. Although the record was unofficial because the crew made the flight without National Aeronautic Association supervision and prior to the date on which seaplanes received recognition as a separate class for record purposes, their achievement stood as the longest seaplane flight until 1 May 1925.

28 APRIL • In the process of developing and testing navigational equipment for the forthcoming NC flying boats' transatlantic flight, Lt. Cmdr. Richard E. Byrd Jr. requested from the Naval Observatory a supply of bubble levels, which he adapted for attachment to navigational sextants, thereby providing an artificial horizon that made it possible for men to use these instruments for astronomical observations from aircraft.



1061650

Airship *C-5* makes a record flight but fails to cross the Atlantic.

8 MAY • At 0959 flagship NC-3, the first of three NC flying boats of Seaplane Division One, Cmdr. John H. Towers commanding, took off from NAS Rockaway, N.Y., for Halifax, Nova Scotia, on the first leg of a projected transatlantic flight. Towers commanded NC-3, BuNo A-2293; Lt. Cmdr. Patrick N. L. Bellinger commanded NC-1, A-2291; and Lt. Cmdr. Albert C. Read commanded NC-4, A-2294, along with crewmembers Lt. James L. Breese, Lt. Elmer F. Stone, USCG, Lt. j.g. Walter K. Hinton, Ens. Herbert C. Rodd, and MMC Eugene S. Rhoads. Each plane completed the flight's second leg, from Halifax to Trepassey Bay, Newfoundland, over the next three days.

14 MAY • Lt. Cmdr. Emory W. Coil commanded the airship *C-5* during a record flight for nonrigid airships from Montauk Point, Long Island, N.Y., to Pleasantville, St. Johns, Newfoundland, covering 1,050 nautical miles in 25 hours 50 minutes. Coil and his crew of six made the nonstop voyage to determine whether they were able to cross the Atlantic, and determined that such a flight would be feasible. However, shortly following *C-5*'s arrival a heavy gale sprang up, and despite efforts to deflate the bag, the gale tore the airship from the moorings and swept her to sea. The two sailors on board jumped clear and survived.

16 MAY • A few minutes after 1800 three NC flying boats of Seaplane Division One (NC-1, NC-3, and NC-4) took off from Trepassey Bay, Newfoundland, for the voyage to the Azores with NC-3 in the van. At one point Radioman Ens.

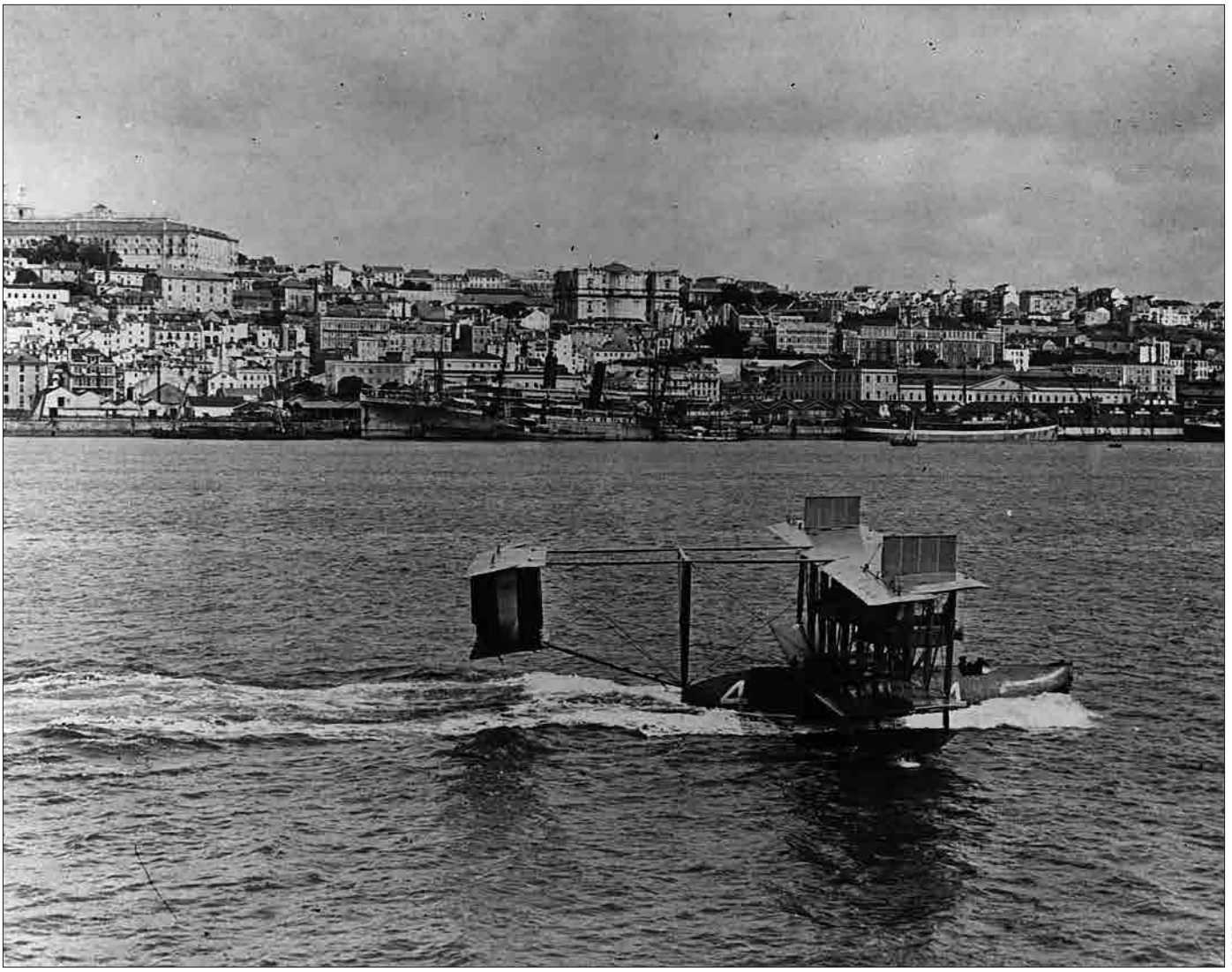
1061649

The crew of NC-4 with Commander Azores Detachment Capt. Richard H. Jackson, left to right: 1st Lt. Elmer F. Stone, USCG, CMM Eugene S. Rhoads, Lt. j.g. Walter K. Hinton, Ens. Herbert C. Rodd, Lt. James L. Breese, Lt. Cmdr. Albert C. Read, and Capt. Jackson.

Herbert C. Rodd of NC-4 intercepted a radio message from steamship *George Washington* 1,325 miles distant. Also on this date a radio station at Bar Harbor, Maine, intercepted a message from one of the planes from about 1,400 miles away.

17 MAY • At 1323 NC-4 descended to Horta in the Azores. NC-4 became the only one of the three NC flying boats that left Trepassey Bay, Newfoundland, the previous day to reach the Azores by air. The other NC boats lost their bearings in the fog, landed at sea to determine their positions, and sustained damage that rendered them unable to resume the flight. Lt. Cmdr. Patrick N. L. Bellinger of NC-1 descended to the water 45 miles on the other side of Flores, but heavy seas disabled the plane. After five hours on the water, Greek steamer *Ionia* took NC-1 in tow but the lines parted. *Gridley* (Destroyer No. 92) attempted to tow NC-1, but NC-1 broke up and sank. The crew clambered on board *Ionia* and arrived at Horta at 1230 the following day. Cmdr. John H. Towers landed NC-3 about 35 miles from the island of Fayal. The plane encountered rough seas, drifted backward toward the Azores, and arrived at Ponta Delgada at 1650 on 19 May.

27 MAY • At 2001, Lt. Cmdr. Albert C. Read of NC-4 completed the first Atlantic Ocean crossing by air when he landed at Lisbon, Portugal after departing from the Azores early on the morning of 26 May. On 31 May, Read lifted off again and arrived at Plymouth, England at 1326.



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Lt. Cmdr. Albert C. Read runs flying boat NC-4 into Lisbon, Portugal, following the completion of the first flight across the Atlantic, 27 May 1919.

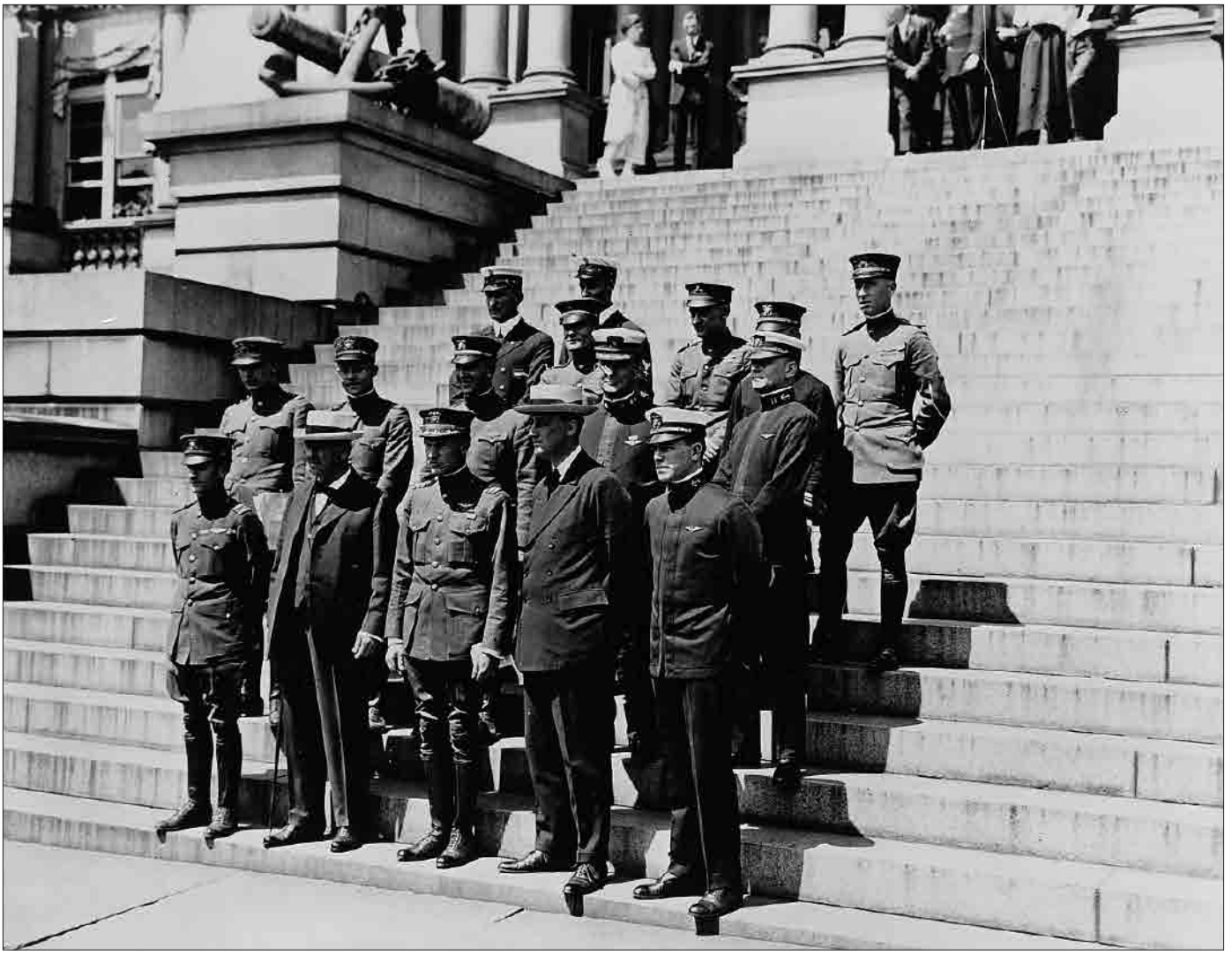
31 MAY • By this point 669 officers and 7,100 enlisted men remained in naval aviation, and their numbers continued to drop because of the rapid postwar demobilization.

12 JUNE • A contract was issued to construct a revolving platform for use in the experimental development of techniques and equipment for landing aircraft onto ships at Hampton Roads, Va.

14 JUNE • Medal of Honor recipient Ens. Charles H. Hammann, USNRF, died when the flying boat he was piloting during a flying circus at Langley Field, Va., fell into a tailspin and crashed.

21 JUNE • The Bureau of Construction and Repair reported a modification to the aircraft color scheme whereby stretched fabric surfaces were to be finished with aluminum enamel. Thus, wing and tail and in some instances fuselage surfaces were to be aluminum-colored, while the specified color for other exterior surfaces continued as naval gray enamel.

23 JUNE • The General Board submitted the last of a series of reports to Secretary of the Navy Josephus Daniels concerning a policy for developing a naval air service. The board stated that "aircraft have become an essential arm of the fleet," and urged the adoption of a broad program for peacetime development to establish a naval air service "capable of accompanying and operating with the fleet in all



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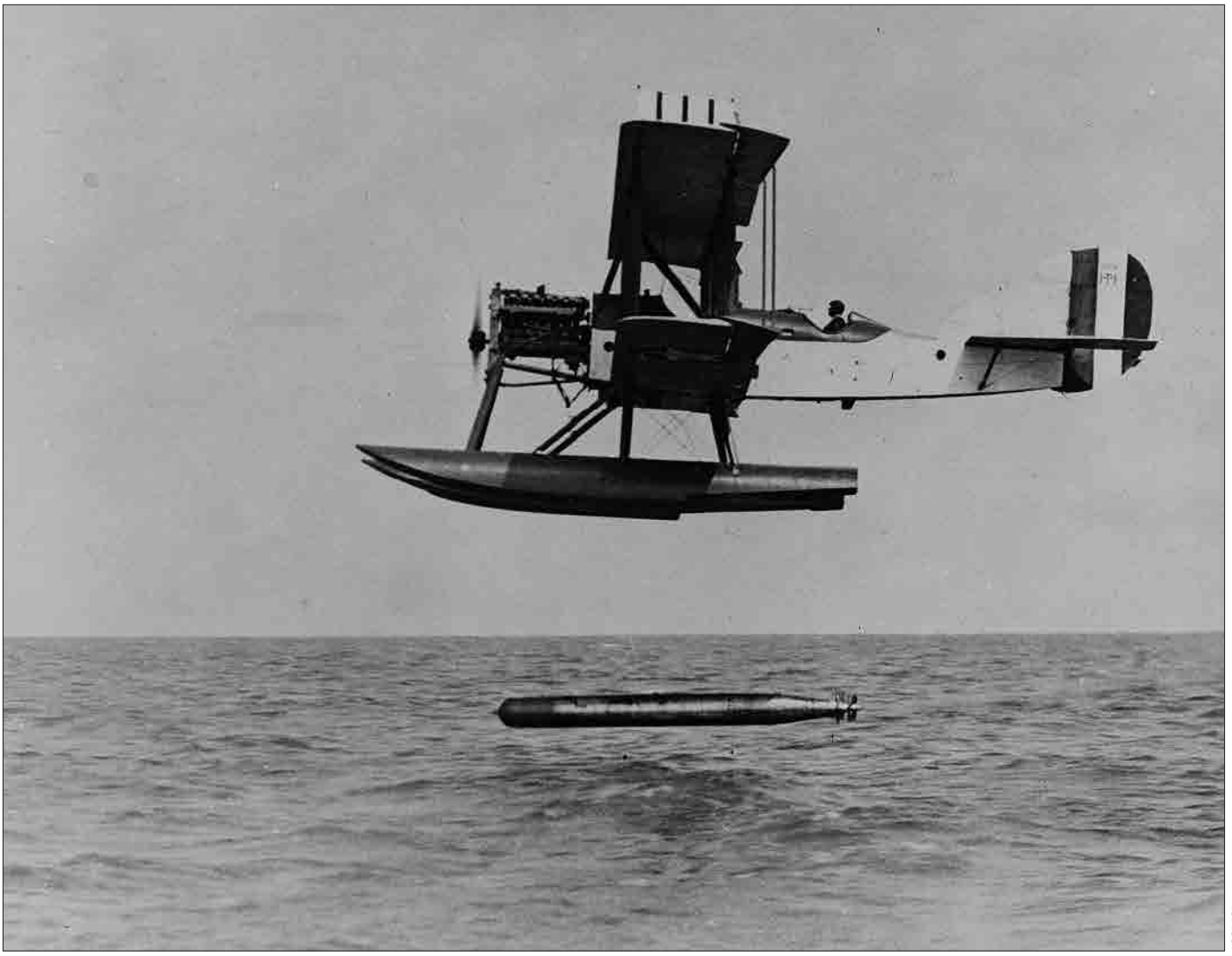
Secretary of the Navy Josephus Daniels with the NC transatlantic fliers, 2 July 1919, left to right: first row, Lt. Cmdr. Albert C. Read, Secretary Daniels, Cmdr. John H. Towers, Assistant Secretary of the Navy Franklin D. Roosevelt, Lt. Cmdr. Patrick N. L. Bellinger; second row, Ens. Herbert C. Rodd, Lt. Harry Sadenwater, USNRF, Lt. Louis T. Barin, USNRF, Cmdr. Holden C. Richardson, CC, Lt. David H. McCulloch, USNRF; third row, Lt. James L. Breese, Lt. Robert A. Lavender; fourth row, CMM Eugene S. Rhoads, MM Rasmus Christensen, Lt. Elmer F. Stone, USCG, and Lt. j.g. Walter K. Hinton.

waters of the globe." On 24 July the secretary approved (with some modification) the report, and this program provided the direction for a number of actions taken during the following months.

25 JUNE • NAS Anacostia, D.C., reported experiments in which planes carried aloft instruments to measure the temperature and humidity of the upper atmosphere.

1 JULY • The Secretary of the Navy authorized installation of launching platforms on two main turrets in each of eight battleships. During WWI *Texas* (Battleship No. 35) received a platform to launch aircraft from one of her 14-inch gun turrets at Newcastle, England. Experience with *Texas* and the battleships subsequently converted disclosed that these platforms interfered with operating the turrets and planes and reduced visibility from the bridge, which eventually led to discarding these plans and increasing the emphasis on catapults. At times a mix of Hanriot HD-2s, Nieuport 28s, Sopwith Camels, and Sopwith 1 ½–Strutters operated from the battleships.

1 JULY • British Maj. George H. Scott commanded the rigid airship *R-34* during a flight across the Atlantic to Mineola,



1061481

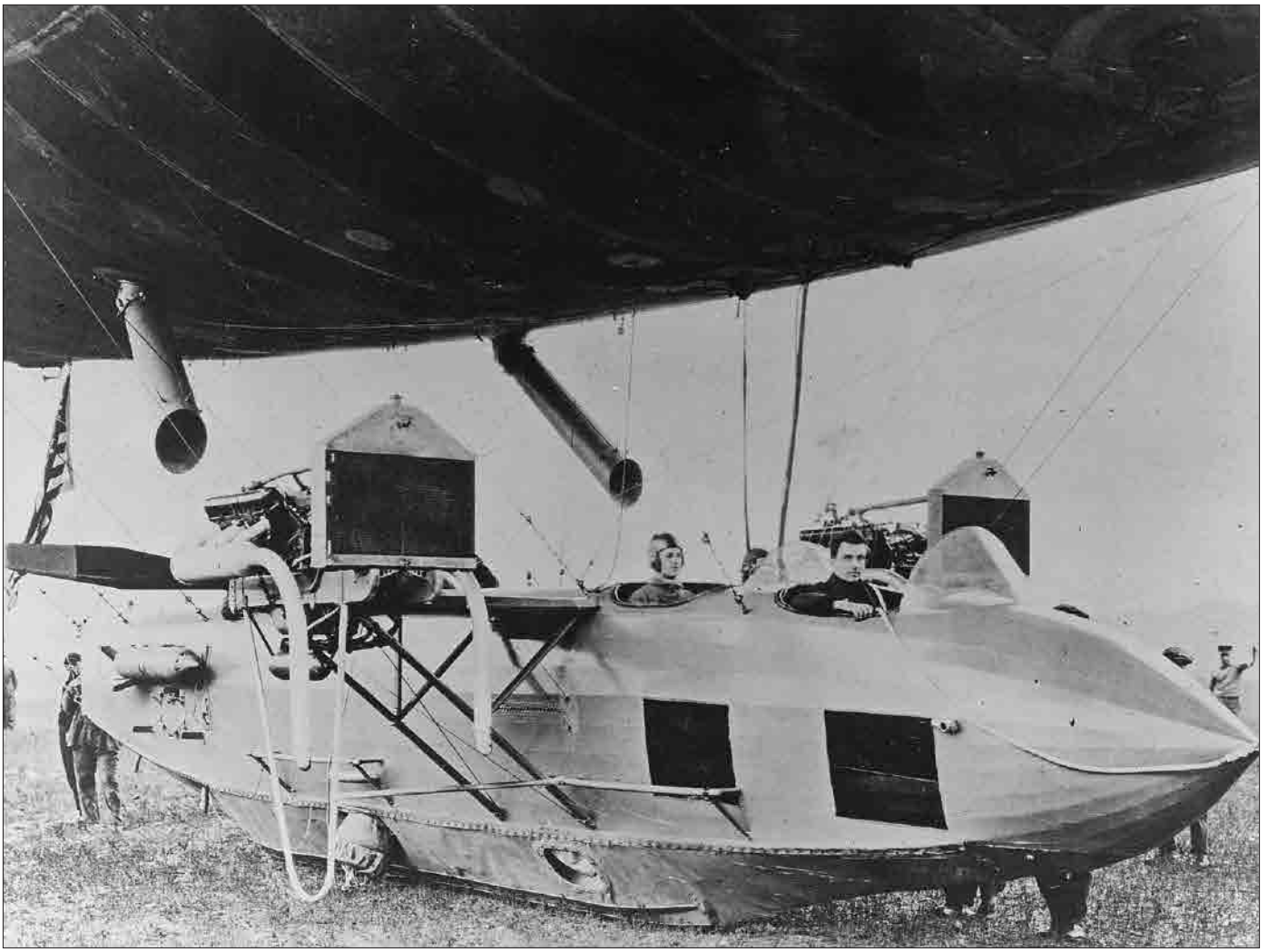
An uncowled R-6 drops a torpedo.

N.Y. Scott arrived on 6 July and remained until midnight three days later when he lifted off for the United Kingdom. Lt. Cmdr. Zachary Lansdowne (Naval Aviator No. 105) and Lt. j.g. Ralph Kiely had become the first two U.S. naval aviators to report for European duty in airships during WWI, and Lansdowne accompanied *R-34* by Scott's invitation on the return flight. The British achievement spurred American interest in the development of lighter-than-air craft.

2 JULY • The officer in charge of the Navy Detachment under instruction in landplanes at the Army Air Service School at Langley Field, Va., reported that 27 naval aviators had completed their preliminary flight phase in JN-4s, and were approaching the end of the formation flight syllabus in DH aircraft. This training was to prepare the men to operate landplanes from battleship turrets.

2 JULY • Secretary of the Navy Josephus Daniels and Assistant Secretary of the Navy Franklin D. Roosevelt received some of the NC flying boat crewmembers and presented them to the American public from the steps of the Navy Department Building in Washington, D.C. The Navy subsequently dispatched NC-4 on a recruiting tour across the United States that began in Boston, Mass., on 1 October and finished in Charleston, S.C., on 1 January 1920. Upon completion the plane was returned to NAS Rockaway, N.Y.

11 JULY • The Naval Appropriations Act for fiscal year 1920 made several important provisions for the future of



1053767

The crew and gondola of a C-class airship with a bomb on its starboard rack.

naval aviation, including conversion of the collier *Jupiter* (Fuel Ship No. 3) into an aircraft carrier, subsequently named *Langley* (CV 1); conversion of two merchant ships into seaplane tenders, only one of which, later named *Wright* (AZ 1), actually was commissioned as such; construction of a rigid airship, later designated ZR-1 and named *Shenandoah*; and purchase of a rigid airship from abroad, later designated ZR-2 (*R-38*). The act also limited to six the heavier-than-air stations along the coasts of the United States.

1 AUGUST • To merge aviation with other naval activities the Aviation Division of the Office of the Chief of Naval Operations was abolished, and its functions were reassigned to other divisions and to the Bureau of Navigation. The Director of Naval Aviation retained his title as head of the Aviation Section of the Planning Division. The decision included the transfer of the Aircraft Test Board to the Board of Inspection and Survey.

19 AUGUST • The Secretary of the Navy ordered the use of the prewar white star national insignia on all naval aircraft in place of the concentric circle design adopted during WWI. By this order the red, white, and blue vertical bands on the rudder reverted to their prewar position with the blue forward.

23 AUGUST • General Order No. 499 directed that airships were to carry enough parachutes during flights for each person on board. General Order No. 509 of 5 November 1919 amplified this directive to apply also to flights in kite balloons, and added that life preservers were to be carried in all lighter-than-air craft during flights over water.

28 AUGUST • President Woodrow Wilson issued Executive Order 3160 that returned the Coast Guard from the wartime command of the Navy to the Treasury Department.

22 OCTOBER • Secretary of War Newton D. Baker approved the Navy's request for 18 naval aviators and 10 mechanics to attend landplane training at the Air Service Training School at Carlstrom Field, Arcadia, Fla. Two days later Secretary Baker approved a similar program at March Field, Riverside, Calif. Secretary of the Navy Josephus Daniels requested this training as an extension of the program already conducted under the Army at Langley Field, Va., as necessary to the successful operation of scouting planes from battleship turrets.

1 NOVEMBER • The Aerological School opened with a class of one Marine and four Navy officers at NAS Pensacola, Fla.

18 NOVEMBER • Secretary of the Navy Josephus Daniels informed Secretary of War Newton D. Baker that in response to his request arrangements had been made for six Army soldiers to attend the enlisted men's course in meteorology at NAS Pensacola, Fla. Secretary Josephus Daniels suggested their arrival for about 1 December to coordinate with the start of classes.

21 NOVEMBER • Engineering plans for the conversion of the collier *Jupiter* (Fuel Ship No. 3) to an aircraft carrier were modified and the Bureau of Construction and Repair issued a summary specification. In addition to an unobstructed "flying-on and flying-off deck," stowage space for aircraft, and facilities for repair of aircraft, the new plans provided for catapults to be fitted on both forward and aft ends of the flying-off deck. The schedule had originally earmarked her completion for 5 July 1920.

5 DECEMBER • Secretary of the Navy Josephus Daniels approved the basic agreement covering the procurement of the rigid airship *R-38* (ZR-2) from the British Air Ministry.

Chapter 3

The Roaring Twenties

1920–1929

The 1920s stand out in the history of naval aviation as a decade of growth. The air arm steadily increased in size and strength while improving its administrative and operational position within the Navy.

The period began under the leadership of a director without authority to direct but ended with a flourishing Bureau of Aeronautics. In the early 1920s small air detachments in each fleet proved effective during operations at sea. At the end of the decade three carriers sailed in full operation, patrol squadrons performed scouting functions, and commanders regularly assigned planes to battleships and cruisers. Together these elements played important roles in the annual fleet war games.

Impressive technical progress also characterized the decade. Despite slim funds, radial air-cooled engines developed into efficient and reliable sources of propulsion. Better instruments came into use, and an accurate bombsight was developed. Aircraft equipped with oleo struts and folding wings enhanced the operating capabilities of carriers. Each year planes flew faster, higher, and longer, and naval aviation contributed to world records.

Sailors and Marines developed innovative tactics and learned techniques of dive bombing, torpedo attack, scouting, spotting for gunfire, and operating from advanced bases. Naval pilots used their skills to turn airplanes to new uses in polar exploration and photographic surveying, and solved the basic and unique problems of taking aviation to sea.

Controversy also riddled these years, however, as journalists reported angry statements by the proponents of airpower and virulent retorts from its opponents. Critics directed charges of duplication, inefficiency, prejudice, and jealousy toward aviation advocates. Debates over the role of airpower and such issues as the role of the services in coastal defense included questions on the further need for a Navy. Many naval aviators grew frustrated with their career limitations and lack of command responsibilities. People within the aircraft industry became discontented with small peacetime orders, government procurement policies, and federal competition. Most of this controversy was typical of new technology developing at a rapid pace, but some of these questions would persist for decades.

1920

8 JANUARY • The policy of the Army and Navy relating to aircraft was published, defining the functions of Army, Navy, and Marine Corps aircraft as a guide to procurement, training, and expansion of operating facilities. It also set forth the conditions under which commanders coordinated air operations in coast defense, enunciated the means by which to avoid duplication of efforts, and provided for the free exchange of technical information.

19 JANUARY • The commandant at NAS Pensacola, Fla., reported that in the future no students were to be designated naval aviators or given certificates of qualification as Navy Air Pilots unless they could send and receive 20 words per minute on radio telegraph.

20 JANUARY • An allocation of $100,000 to the Bureau of Steam Engineering initiated the development and purchase of 200-hp radial air-cooled engines from the Lawrance Aero Engine Company.

22 JANUARY • CQM Harold H. Karr became the first enlisted man to receive the designation Naval Aviation Pilot under a program enabling enlisted sailors to undergo flight training.

184698

An MBT bomber drops a torpedo in the Potomac River, 12 May 1920.

17 MARCH • The approval of a change in the flight training program to overcome an acute shortage of pilots separated the heavier-than-air (seaplane) and lighter-than-air (dirigible) courses, and reduced the overall training period from nine to six months for the duration of the shortage.

24 MARCH • The first Coast Guard air station opened in Morehead City, N.C. The station began operations with six HS-2L flying boats borrowed from the Navy, but a lack of funds compelled the closure of the facility following 15 months of operation.

27 MARCH • Testers completed examination of a Sperry gyrostabilized automatic pilot system in an F-5L flying boat at NAS Hampton Roads, Va.

2 APRIL • NAS Hampton Roads, Va., reported the success of night weather soundings since January, using candle-lighted free balloons to measure the force and direction of the wind.

1 MAY • A report from the Bureau of Construction and Repair disclosed developmental and experimental work in metal construction for aircraft. Twelve German Fokker D.VIIs, which used welded steel extensively, were to be obtained from the Army, and two sets of metal wings for an HS-3 flying boat procured from contractor Charles Ward Hall.

12 MAY • An MBT bomber dropped a torpedo in the Potomac River off Hains Point, D.C. The event marked renewed Navy interest in aerial torpedoes.

18 JUNE • A reversible pitch propeller designed by Seth Hart and manufactured by the Engineering Division of the Army Air Service was installed onto the airship *C-10* at NAS Rockaway Beach, N.Y. The Navy ordered Hart's reversible pitch propellers for VE-7 biplanes in June.

22 JUNE • The Bureau of Navigation revealed plans to select four officers for a two-year postgraduate course in aeronautical engineering at the Naval Academy and at the Massachusetts Institute of Technology, and asked for volunteers for the fall semester. Part of the requirement was that appointees take flight instruction and qualify as naval aviators after completing their studies.

28 JUNE • Six F-5L flying boats of the Atlantic Fleet Airboat Squadron, Lt. Cmdr. Bruce G. Leighton commanding, returned to Philadelphia, Pa., following a seven-month cruise through the West Indies during which the squadron logged 12,731 nautical miles, including 4,000 flown on maneuvers with the fleet.

6 JULY • In a test of the radio compass as an aid to navigation, an F-5L flying boat flew from NAS Hampton Roads, Va., to *Ohio* (Battleship No. 12) while she sailed in a maneuvering area unknown to the pilot 94 miles at sea. The pilot located the ship and, without landing, made the return trip to Hampton Roads, this time navigating by signals from Norfolk, Va.

12 JULY • A General Order provided for the organization of forces afloat into the Atlantic, Pacific, and Asiatic fleets, and for the formation of seven type forces: Battleship, Cruiser, Destroyer, Submarine, Mine, Air, and Train. Under this order the air detachments in each fleet became air forces.

17 JULY • The Navy prescribed standard nomenclature for types and classes of naval vessels and aircraft, using "Z" for lighter-than-air craft and "V" for heavier-than-air craft. Class letters assigned within the Z type consisted of K, N, and R for kite balloons, nonrigid dirigibles, and rigid dirigibles, respectively. Within the V type, the class letters F, G, O, P, S, and T identified fighter, fleet, observation, patrol, scouting, and torpedo and bombing planes, respectively.

AUGUST • The Navy directed that all Marine Corps aircraft were to carry an insignia that comprised a circle pierced by an anchor and surmounted by a North American bald eagle. The circle's outer ring would be red, the middle circle blue, and the center white.

17 SEPTEMBER • The site of the naval aviation activities on Ford Island, Territory of Hawaii, was designated NAS Pearl Harbor.

2 OCTOBER • Pilot Lt. Arthur C. Wagner and passenger Lt. Cmdr. William M. Corry crashed in a JN-4 near Hartford, Conn. The impact threw Corry clear, and despite the intense flames rising from the stricken Jenny, he valiantly but unsuccessfully attempted to pull Wagner clear of the wreckage. Corry died from his burns four days later and posthumously received the Medal of Honor.

13 OCTOBER • F-5L and H-16 flying boats carried out a series of tests at Tangier Sound in the Chesapeake Bay under controlled conditions to determine the accuracy with which aircraft could drop bombs on stationary targets and the damage caused by near-misses and direct hits. Planes bombed target ship *Indiana* (Battleship No. 1) twice between 13 and 16 October, and completed a third evaluation on 4 November.

1921

20 JANUARY • Secretary of the Navy Josephus Daniels approved a recommendation that the Bureau of Ordnance and the Bureau of Engineering develop radio-controlled aircraft.

20 JANUARY • The Bureau of Construction and Repair approved a Naval Aircraft Factory design of a turntable catapult powered by compressed air for fabrication at the Philadelphia Navy Yard, Pa.

7 MARCH • Capt. William A. Moffett relieved Capt. Thomas T. Craven as Director of Naval Aviation. Moffett would later become instrumental in the development of the naval air arm.

12 MARCH • A Marine air detachment designated Flight L arrived at Guam to reinforce the island's aerial defenses. The detachment was subsequently redesignated VP-3M and in 1933 returned to San Diego, Calif.

466366

William A. Moffett, who later becomes the first chief of the Bureau of Aeronautics.

15 MARCH • The Metallurgical Laboratory at the Naval Aircraft Factory, Philadelphia, Pa., reported that a high-strength, chromium-vanadium steel alloy proved satisfactory in laboratory tests and in the manufacture of aircraft fittings. These findings marked an advance in the development of metal as a high-strength aircraft structural material.

16 JUNE • The Navy ordered two CR-1 racers, the first of the series with which Navy and Army fliers captured many world speed records.

21 JUNE • The services began a series of controversial bombing tests off the Virginia Capes, designed to provide detailed technical and tactical data on the effectiveness of aerial bombing against ships, and of the value of compartmentation in enabling vessels to survive such damage. The Army participated subject to the Navy's requirement that the bombing be accomplished as a series of controlled tests, and that inspectors board the target vessels following each attack to assess the results. In the first test, three naval F-5L flying boats dropped 12 bombs from 1,100 feet on the German submarine *U-117,* which sank in 12 minutes after the first hit. On 29 June Navy planes located the radio-controlled *Iowa* (Coast Battleship No. 4) 1 hour 57 minutes after being alerted to her approach somewhere within a 25,000-square-mile area, and attacked the ship with dummy bombs. The Navy opposed an Army proposal to attack *Iowa*, because the ship provided an unfair advantage by maneuvering under radio control. The rudimentary aerial navigation equipment available hindered testing, however, and many of the participants could not have found the ship without aids. Army bombers sank the German destroyer *G-102* on 13 July. Five days later the German light cruiser *Frankfurt* sank beneath 74 bombs dropped from Army and Navy aircraft. Bombing runs against the German battleship *Ostfriesland* began on 20 July when Army, Navy, and Marine planes dropped 52 bombs, ending the next day when Army NBS-1 bombers sank the battlewagon with a total of eleven 1,000- and 2,000-pound bombs. The incident escalated the controversy on the effectiveness of aerial bombing against ships when the Army refused to allow investigators to board *Ostfriesland,* and their planes continued their runs until they sank the ship. Additional tests sank (decommissioned) *Alabama* (BB 8) on 27 September 1921, and *New Jersey* (BB 16) and *Virginia* (BB 13) on 5 September 1923. Brig. Gen. William Mitchell, USA, proclaimed the obsolescence of warships and increased his lobbying for an independent air force. Naval officers upheld the effectiveness of ships by noting that the target vessels had not been able to maneuver or defend themselves, but many observers noted the capability of unopposed planes to sink capital ships.

161903

A bomb explodes near the German battleship *Ostfriesland* off the Virginia Capes, July 1921.

1 JULY • The Aviation Machinist's Mate, Aviation Metalsmith, Aviation Carpenter's Mate, Aviation Rigger, and Photographer basic aviation ratings were established. These five ratings were the first concerned specifically with the air arm and based solely on aviation requirements. Prior to this time the Navy had identified certain general service ratings parenthetically as pertaining to aviation, and their qualifications required meeting the standards of the general rating in addition to those required for the aviation specialty.

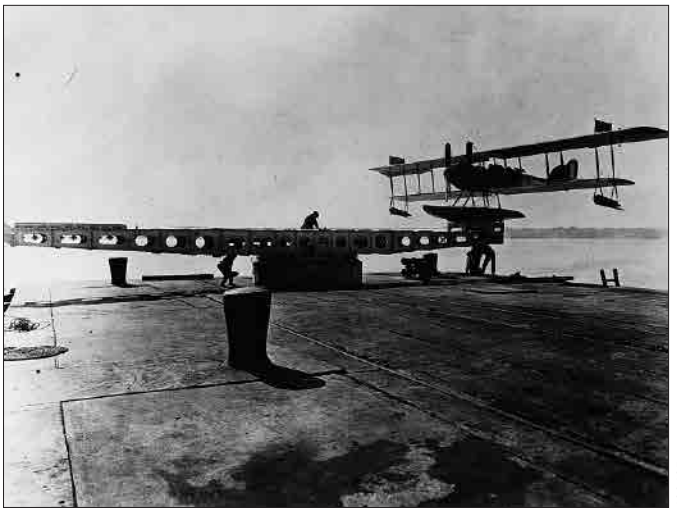
12 JULY • An act of Congress created the Bureau of Aeronautics and charged it with matters pertaining to naval aeronautics as prescribed by the Secretary of the Navy.

1 AUGUST • Torpedo Squadron, Atlantic Fleet, tested a WWI high-altitude bombsight mounted on a gyroscopically stabilized base at Yorktown, Va. The occasion marked the successful completion of the first phase of designer Carl L. Norden's development of an effective high-altitude bombsight for the Bureau of Ordnance.

9 AUGUST • Rear Adm. Bradley A. Fiske (Ret.) proposed "a nice soft cushion" as a landing surface for aircraft carriers, so mounted "that it was to take up the forward motion of the airplane and not check its forward velocity at once."

10 AUGUST • A general order established the Bureau of Aeronautics and defined its duties under the Secretary of the Navy as comprising "all that relates to designing, building, fitting out, and repairing Naval and Marine Corps aircraft." The order granted BUAER the authority to make recommendations to the Bureau of Navigation and the Commandant of the Marine Corps on all matters pertaining to aeronautic training and the assignment of men to aviation; described the scope of its relationships with other bureaus having cognizance of aeronautical materials and equipment; and directed that BUAER make special provision in its organization to furnish information "covering all aeronautic planning, operations and administration that may be called for by the Chief of Naval Operations."

11 AUGUST • The practical development of carrier arresting gear began when pilot Lt. Alfred M. Pride taxied an Aeromarine plane onto a dummy deck and engaged arresting wires at NAS Hampton Roads, Va. These tests resulted in the development of arresting gear for *Langley* (CV 1) that consisted essentially of athwartship wires attached to weights along with fore and aft wires.



428435

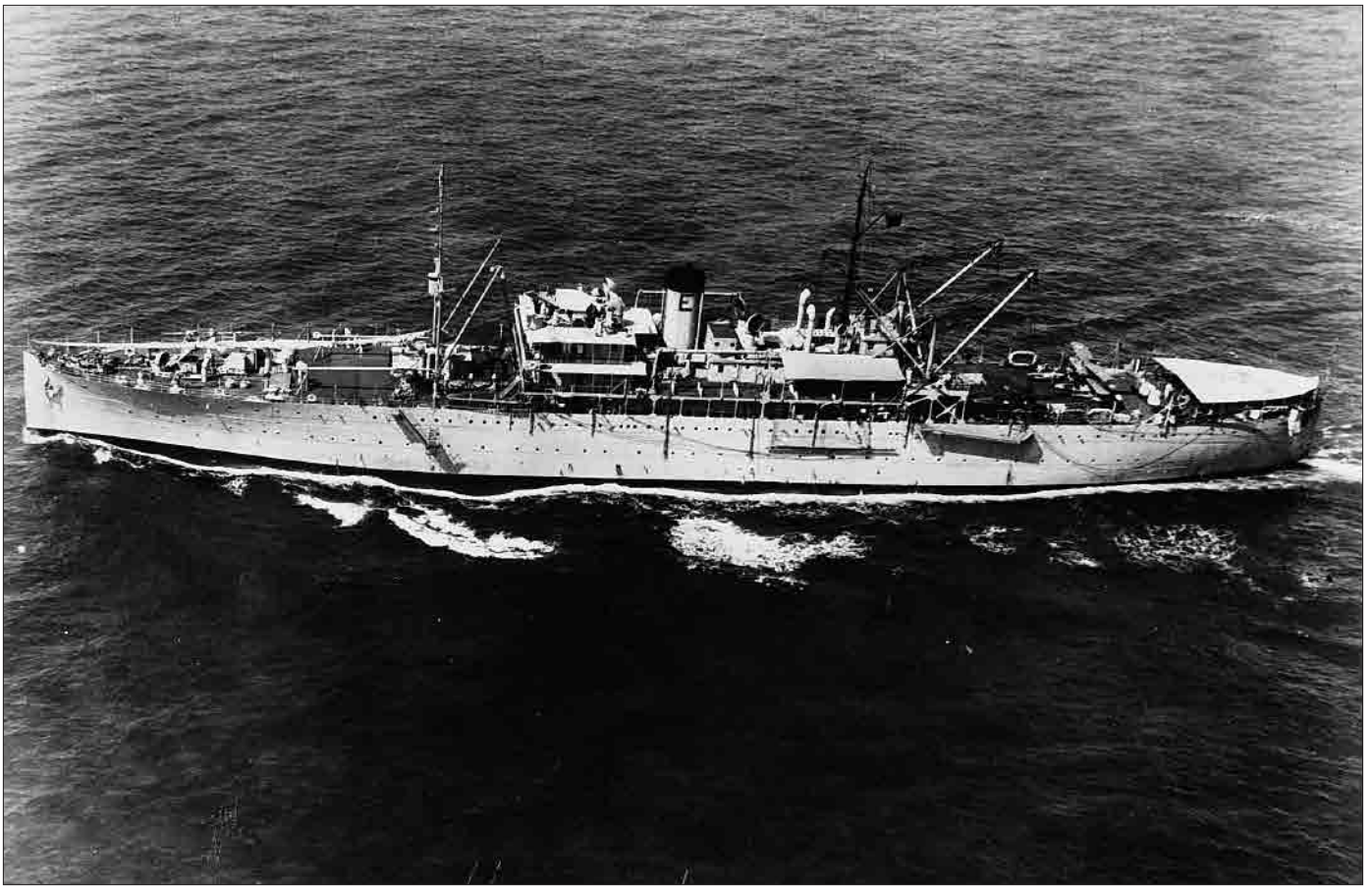
An N-9 seaplane prepares to launch from a ship-type turntable catapult on a pier at the Naval Aircraft Factory, Philadelphia, Pa.

23 AUGUST • The rigid airship *R-38* (ZR 2), which the Navy had purchased from the British Royal Air Force, lifted off on her fourth trial flight at 0710 from Howden Aerodrome in England. At 1737 on 24 August, an explosion in the forward section broke the airship into two parts, and both of the sections together with men and debris fell into the Humber River near Hull. The crash killed 16 Americans, including prospective skipper Cmdr. Louis H. Maxfield, Lt. Cmdr. Emory W. Coil, and Lt. Henry W. Hoyt, and 28 Britons, including Air Commodore E. M. Maitland, RAF.

1 SEPTEMBER • The Bureau of Aeronautics began functioning as an organizational unit of the Navy Department under Rear Adm. William A. Moffett.

26 OCTOBER • A compressed air, turntable catapult launched an N-9 seaplane piloted by Naval Constructor Cmdr. Holden C. Richardson, CC, during the first successful test of the device from a pier at the Philadelphia Navy Yard, Pa.

3 NOVEMBER • Civilian pilot Bert Acosta in a CR-1 racer, BuNo A-6080, powered by a 400-hp Curtiss engine and on loan to the builder, won the Pulitzer Race with a world record speed of 176.7 mph in Omaha, Neb.



1053778

The Navy's first vessel especially fitted as a seaplane tender, *Wright* (AZ 1).

1 DECEMBER • Lt. Cmdr. Ralph F. Wood piloted the *C-7* during the first flight of an airship inflated with helium gas at Norfolk, Va.

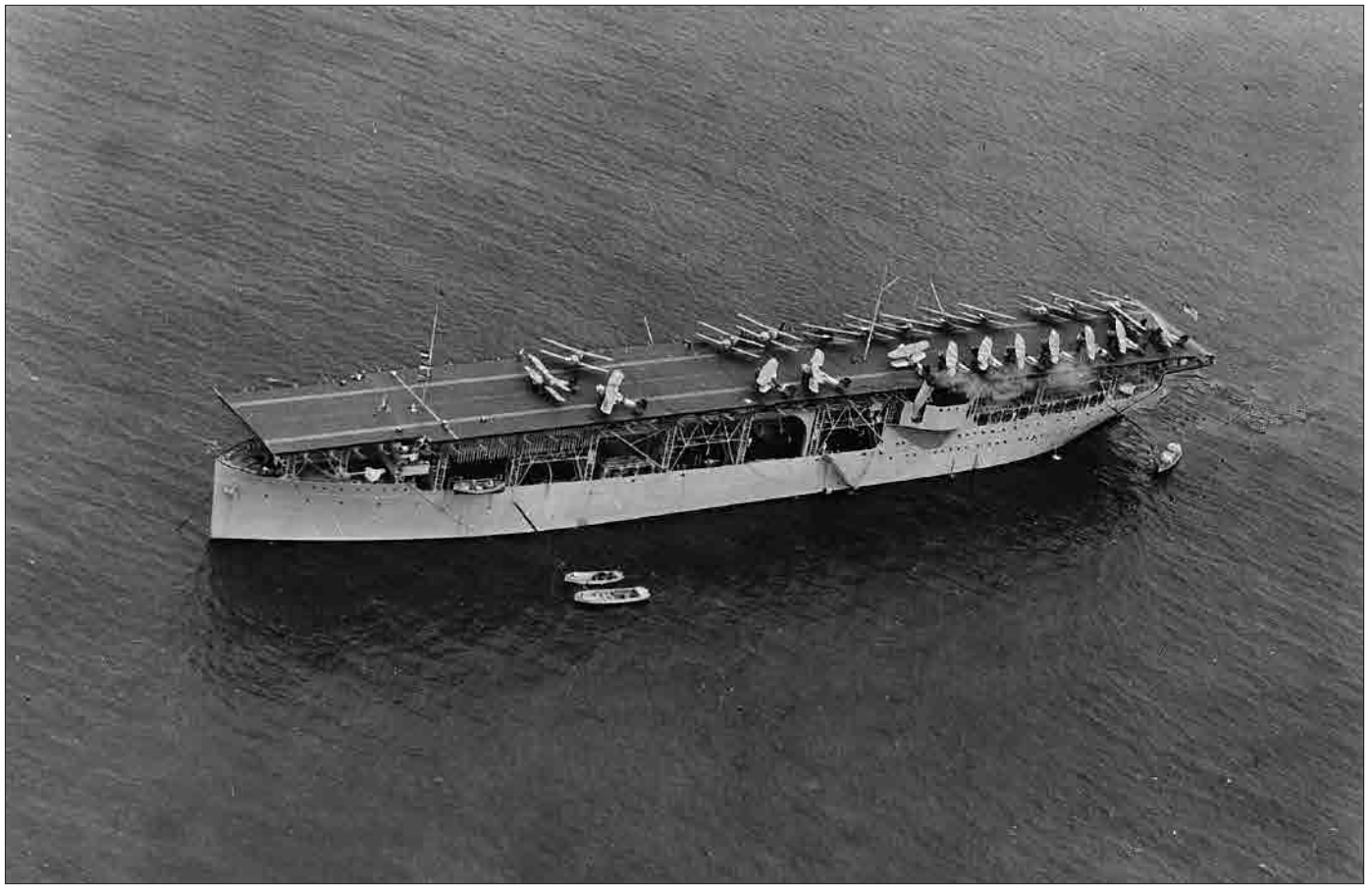
16 DECEMBER • The seaplane tender *Wright* (AZ 1), uniquely designed as a heavier-and lighter-than-air tender, was commissioned at New York, N.Y., Capt. Alfred W. Johnson commanding.

20 DECEMBER • To meet requirements of several Pacific Fleet commands, the commanding officer of NAS San Diego, Calif., received authorization to establish a school to train naval aviators in the use of landplanes.

1922

16 JANUARY • The Bureau of Aeronautics directed the shipment of Army-type seat pack parachutes for heavier-than-air use to Marines in Haiti, the Dominican Republic, Guam, and Quantico, Va.

6 FEBRUARY • At a meeting in Washington, D.C., British, French, Italian, Japanese, and U.S. representatives signed the Washington Treaty limiting naval armament. The treaty established a respective tonnage ratio of 5–5–3 for British, American, and Japanese capital ships, and lesser figures for the French and Italians. The same ratio for aircraft carrier tonnage set the overall limits at 135,000–135,000–81,000 tons. The treaty also limited new carriers to 27,000 tons with a provision that, as long as the nations did not exceed total carrier tonnage by doing so, they could build two carriers of not more than 33,000 tons each or obtain them by converting existing or partially constructed ships that the treaty would otherwise require to be scrapped. The



185915

Fighters and torpedo planes pack the deck of the first U.S. aircraft carrier, *Langley* (CV 1).

Americans, British, and Japanese scrapped 66 existing or partially constructed capital ships totaling more than 1.8 million tons.

7 FEBRUARY • The completion of a 50-hour test run of the 200-hp Lawrance J-1 radial air-cooled engine by the Aeronautical Engine Laboratory at the Washington Navy Yard, D.C., foreshadowed the successful use of radial engines in naval aircraft.

11 FEBRUARY • The first cradle of the rigid airship designated ZR-1, subsequently named *Shenandoah*, was completed at NAS Lakehurst, N.J., marking the initial step in the assembly of the Navy's first rigid airship. The Secretary of the Navy had authorized her construction on 9 August 1919. The first materials for ZR-1 arrived at the Naval Aircraft Factory, Philadelphia, Pa., where construction began in 1920. NAS Lakehurst later completed the assembly. During this period, the Navy constructed at Lakehurst the largest hangar built to date in the United States to accommodate the craft, measuring 804-feet-long by 318-feet-wide by 200-feet-high.

2 MARCH • The Navy initiated experimental investigation and development of catapults using gunpowder, which eventually produced a new type of catapult for use in launching aircraft from capital ships.

20 MARCH • The first U.S. aircraft carrier *Langley* (CV 1) was commissioned at Norfolk, Va., under the command of Executive Officer Cmdr. Kenneth Whiting. The Norfolk Navy Yard had converted *Langley* from the collier *Jupiter* (AC 3), replacing her coal-handling derricks with a wooden flight deck and converting holds to hangars and fuel tanks. *Langley* was named in honor of aviation pioneer Samuel P. Langley.

25 MARCH • The Secretary of the Navy established an Experimental and Research Laboratory as provided for in a public law passed in August 1916. Following the

construction of buildings at Bellevue, D.C., the Aircraft Radio Laboratory at NAS Anacostia, D.C., the Naval Radio Research Laboratory from the Bureau of Standards, and the Sound Research Section of the Engineering Experiment Station were consolidated at the new organization in Bellevue prior to its establishment in July 1923. People generally called this facility the Naval Research Laboratory, and with the Naval Appropriations Act of 1926 this name became official.

27 MARCH • To comply with a provision of the law establishing the Bureau of Aeronautics that emphasized that its chief and at least 70 percent of the bureau's officers were to consist of either pilots or observers, the bureau defined the functions and qualifications of Naval Aviation Observers and recommended a course of study for their training. Upon approval of the course and its qualifications by the Bureau of Navigation, Rear Adm. William A. Moffett reported for training, qualifying as the first Naval Aviation Observer on 17 June 1922.

29 MARCH • The Navy promulgated a change in the aircraft designation system: adding the identity of the manufacturer to model designations. Symbols consisted of a combination of letters and numbers in which the first letter identified the manufacturer and the second, the class (or mission) of the aircraft. Numbers that appeared between letters indicated the series of designs within classes built by the same manufacturer (the 1 being omitted), and numbers following a dash after the class letter indicated modifications of the basic model. For example, MO would indicate a Martin observation plane; the second modification of MOs were MO-2s; and the second-design observation planes built by Martin were M2Os.

1 APRIL • The Bureau of Aeronautics sent descriptive specifications of arresting gear of the type later installed in *Lexington* (CV 2) and *Saratoga* (CV 3) to various design engineers, including Carl L. Norden and Warren Noble. "The arresting gear will consist of two or more transverse wires stretched across the fore and aft wires . . . [and which] lead around sheaves placed outboard to hydraulic brakes. The plane after engaging the transverse wire is guided down the deck by the fore and aft wires and is brought to rest by the action of the transverse wire working with the hydraulic brakes."

22 APRIL • Secretary of the Navy Edwin Denby approved a recommendation from the General Board to assign a spotting plane to each fleet battleship and cruiser, and test the feasibility of operating more aircraft from these ships.

24 APRIL • Seeking to increase the service life of aircraft engines beyond the 50 hours then required, the Bureau of Aeronautics issued a contract to the Packard Motor Car Co. for a 300-hour test of a Packard 1A-1551 dirigible engine. Such endurance testing—whereby runs to destruction identified the weaker components of an engine, which were then redesigned for longer life—came to be an important step in both increasing the operating life of engines and in the development of new high performance engines.

25 APRIL • Pilot Eddie Stinson made the initial flight of an ST-1 twin-engine torpedo plane built by Stout Engineering Laboratory as the first all-metal airplane designed for the Navy. The aircraft possessed inadequate longitudinal stability, but its completion marked a step forward in the development of all-metal aircraft.

24 MAY • Routine operation of shipboard catapults commenced when pilot Lt. Andrew C. McFall and passenger Lt. DeWitt C. Ramsey launched in a VE-7 biplane via a compressed air catapult from the battleship *Maryland* (BB 46) off Yorktown, Va. The Navy subsequently installed catapults on battleships and then on cruisers, thereby achieving the ability to operate aircraft from existing capital ships. From these platforms, enterprising aviators developed techniques for supporting conventional surface forces by scouting and spotting for ships' guns.

31 MAY • Two free balloons represented the Navy in the National Elimination Balloon Race at Milwaukee, Wis. The first, manned by Lt. Cmdr. Joseph P. Norfleet and Chief Rigger James F. Shade, operated with helium in the first recorded use of the gas in a U.S. free balloon. The second balloon, with Lt. William F. Reed Jr. and Chief Rigger K. Mullenix, finished third in the race with a distance of 441 miles and became the only Navy qualifier for the International Balloon Race held later in the year in Geneva, Switzerland.

17 JUNE • The practice of numbering aircraft squadrons to conform to the number of the ship squadron they served was changed to a system of numbering squadrons serially by

class in the order of their initial authorization. The Navy also adopted the use of letter abbreviations to indicate missions.

17 JUNE • In anticipation of a reorganization that was to merge the Atlantic and Pacific fleets into a U.S. Fleet (and further divide it into the Battle Fleet and the Scouting Fleet) on 6 December, the fleet aviation commands whose titles had previously been changed from Air Forces to Air Squadrons were retitled Aircraft Squadrons of the Scouting and Battle fleets.

26 JUNE • The Navy ordered a rigid airship from the Zeppelin Airship Co., Friedrichshafen, Germany. The United States obtained the zeppelin, designated *LZ-126* by the builder, as a nonmilitary aircraft as part of WWI reparations under the terms approved by the Conference of Ambassadors on 16 December 1921. The Navy subsequently christened the ship *Los Angeles* (ZR 3).

1 JULY • The training of nucleus crews for two rigid airships, subsequently named *Los Angeles* (ZR 3) and *Shenandoah* (ZR 1), began at NAS Hampton Roads, Va.

1 JULY • The first eight medical officers to report for flight training began instruction at NAS Pensacola, Fla. Four of these officers had previously completed the flight surgeon course at the Army Technical School of Aviation Medicine.

1 JULY • Congress authorized the conversion of the unfinished battle cruisers *Lexington* (CC 1) and *Saratoga* (CC 3) to carriers as permitted under the terms of the Washington Treaty.

1 JULY • Sailors began training in the care and packing of parachutes as ten chief petty officers arrived for two months of instruction at the Army's Chanute Field at Rantoul, Ill.

3 JULY • Class XVI, the first class of student naval aviators to receive training in landplanes, commenced training at NAS Pensacola, Fla.

17 JULY • The Chief of Naval Operations forwarded a list of bureau and division representatives to the Bureau of Navigation, and requested that they be ordered to meet as a board in order to draw up tactical doctrine governing the employment of spotting aircraft in fleet fire control.

601020

Lt. Adolphus W. Gorton wins the Curtiss Marine Trophy Race for seaplanes in a TR-1, 8 October 1922.

27 SEPTEMBER • Eighteen PT seaplanes of Torpedo and Bombing Plane Squadron One conducted the first mass torpedo practice against a live target when they attacked the battleship *Arkansas* (BB 33) while she sailed in a formation of three battleships maneuvering at full speed off the Virginia Capes. During the 25-minute attack the bombers approached the ships from port and starboard and released 17 Mk VII Model 1 A torpedoes at distances of 500 to 1,000 yards and scored eight "hits" on *Arkansas*. Despite artificialities that prevented the practice from demonstrating the true combat capabilities of either the surface or air servicemembers, the bombing run demonstrated that planes could launch torpedoes, which were capable of running straight.

27 SEPTEMBER • The commanding officer at NAS Anacostia, D.C., proposed the use of radios to detect the passage of ships at night or during heavy fog. The reported "best method of detection" resulted from the unexpected nature of a radio signal observed by Cmdr. A. Hoyt Taylor and civilian L. C. Young of the Aircraft Radio Laboratory at that station, when a passing river steamer interrupted experimental high-frequency radio transmissions between Anacostia and a receiver across the river at Hains Point. The observation and analysis of the phenomenon marks the first step in the chain of events that led to the Navy's introduction of radar.

8 OCTOBER • Lt. Adolphus W. Gorton won the Curtiss Marine Trophy Race for seaplanes, held during the National Air Races at Detroit, Mich. Gorton averaged 112.6 mph in a TR-1, BuNo A-6303, powered by a Lawrance J-1 engine over the 160-mile course. Second place went to Lt. Harold A. Elliott in a VE-7H.

1053781

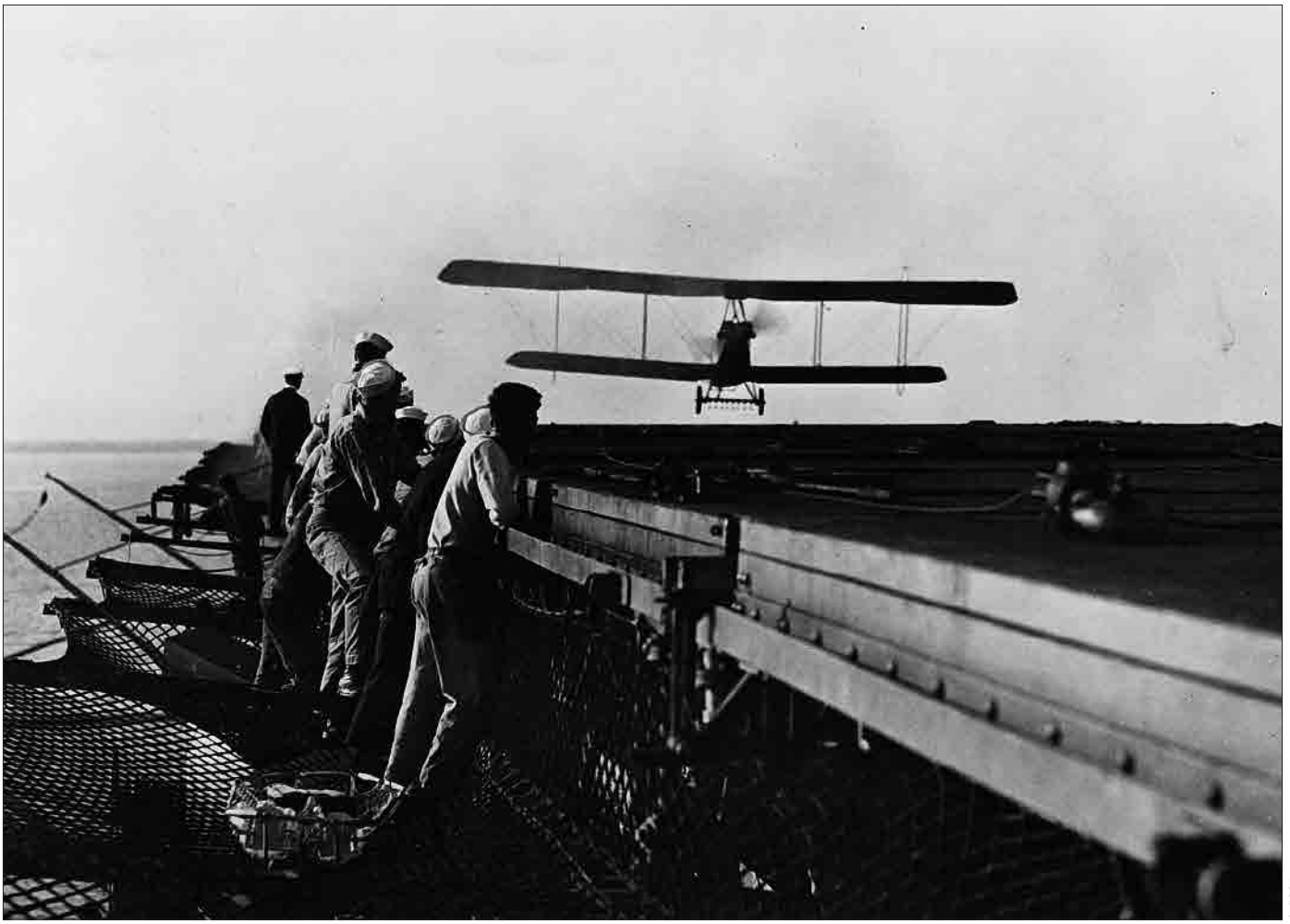
The 1922 Pulitzer Trophy Air Race third-place finisher Lt. Harold J. Brow poses with his CR-2 racer.

651598

A VE-7 biplane similar to the first plane to take off from *Langley* (CV 1).

14 OCTOBER • Lt. Harold J. Brow and Lt. Alford J. Williams flew CR-2 and CR-1 racers with D-12 engines to finish third and fourth, respectively, in the Pulitzer Trophy Race at Detroit, Mich. The planes attained speeds of 193 and 187 mph.

14 OCTOBER • Pilots Lt. Ben H. Wyatt and Lt. George T. Owen flew two DH-4B-1 biplanes during a round trip transcontinental flight. Wyatt flew BuNo A-6377. The pilots made the trip in short hops along a southern route on the outward leg from San Diego, Calif., through Tucson, Ariz., New Orleans, La., and Pensacola, Fla., and on the homeward leg from Washington, D.C., through Dayton, Ohio, Omaha, Neb., Salt Lake City, Utah, and San Francisco, Calif. They completed the 7,000-mile trip in about 90 hours of flight and returned to San Diego on 29 November. Layovers caused by mechanical difficulties, poor-quality gasoline, inclement



215821

An Aeromarine similar to the one that first landed on board *Langley* (CV 1) practices landings on the ship.

weather, and lack of navigating equipment accounted for most of their elapsed time.

17 OCTOBER • Lt. Virgil C. Griffin (Naval Aviator No. 41) completed the Navy's first carrier takeoff, flying a VE-7SF biplane, BuNo A-5932, from *Langley* (CV 1) at anchor at Berth No. 58 in the York River, Va.

26 OCTOBER • Lt. Cmdr. Godfrey deC. Chevalier (Naval Aviator No. 7), flying an Aeromarine 39-B, made the first landing on board the carrier *Langley* (CV 1) while she steamed off Cape Henry, Va.

12 NOVEMBER • Lt. Cmdr. Godfrey deC. Chevalier (Naval Aviator No. 7) crashed in a VE-7 at Lochaven near Norfolk, Va. He died from his injuries two days later while in the Naval Hospital, Portsmouth, Va.

1053779

An aerial camera fitted to the gun mount of a DH-4 biplane.

18 NOVEMBER • Cmdr. Kenneth Whiting, flying a PT seaplane, made the first catapult launch from *Langley* (CV 1) at anchor in the York River, Va.

1923

6 FEBRUARY • Secretary of the Navy Edwin Denby authorized the transfer of the Aeronautical Engine Laboratory from the Washington Navy Yard, D.C., to the Naval Aircraft Factory, Philadelphia, Pa., thereby clearly establishing the factory as the center of the Navy's aeronautical development and experimental work.

12 FEBRUARY • The Bureau of Navigation informed Commandant Eighth Naval District Rear Adm. Thomas P. Magruder at Pensacola, Fla., that two years' service in an operating unit subsequent to graduation from flight training was no longer required for designation as naval aviator.

18 FEBRUARY • In annual fleet problems, the Navy conducted maneuvers on the largest scale and under the most realistic conditions attainable. Fleet Problem I included a test of the defenses of the Panama Canal against aerial attacks. The "Blue" fleet and Army coast artillery and aircraft defended the canal assisted by 18 patrol planes of Scouting Plane Squadron 1 operating from the tenders *Wright* (AZ 1), *Sandpiper* (AM 51), and *Teal* (AM 23). Planners compensated for the lack of carriers and aircraft for the attacking "Black" fleet by designating two battleships as simulated carriers. On 21 February the battleship *Oklahoma* (BB 37) approached the area and launched a seaplane by catapult to scout ahead of the Black Fleet. Early the following morning a single plane representing an air group took off from Naranyas Cays in the Panama Canal Zone, flew undetected and without encountering aerial opposition or antiaircraft fire, and theoretically destroyed Gatun Spillway with ten miniature bombs. The lessons learned included the need for more planes and antiaircraft guns to defend the canal, to rush completion of carriers, and to fit all battleships with catapults.

21 FEBRUARY • *Langley* (CV 1) tested aircraft handling with Aeromarine planes operating in groups of three. The tests revealed that it took two minutes to prepare the deck following each landing.

21 FEBRUARY • Recognizing that newer aircraft engines offered advantages of longer life and lower cost, the Bureau of Aeronautics issued guidelines that severely restricted the repair and reuse of engines more than two years old. The Navy promptly expended its residual stocks of WWI engines, equipped most new aircraft with newer engines, and freed itself of stocks of obsolescent engines, thereby enabling the service to aggressively sponsor the development of improved aircraft engines to meet requirements.

10 MARCH • The Navy modified its aircraft model designation system by reversing the order of letters, placing the class letter first and manufacturer's letter last. The designation FB thus indicated fighters built by Boeing. This system, which applied only to new aircraft and did not change designations already assigned, remained in use until 18 September 1962.

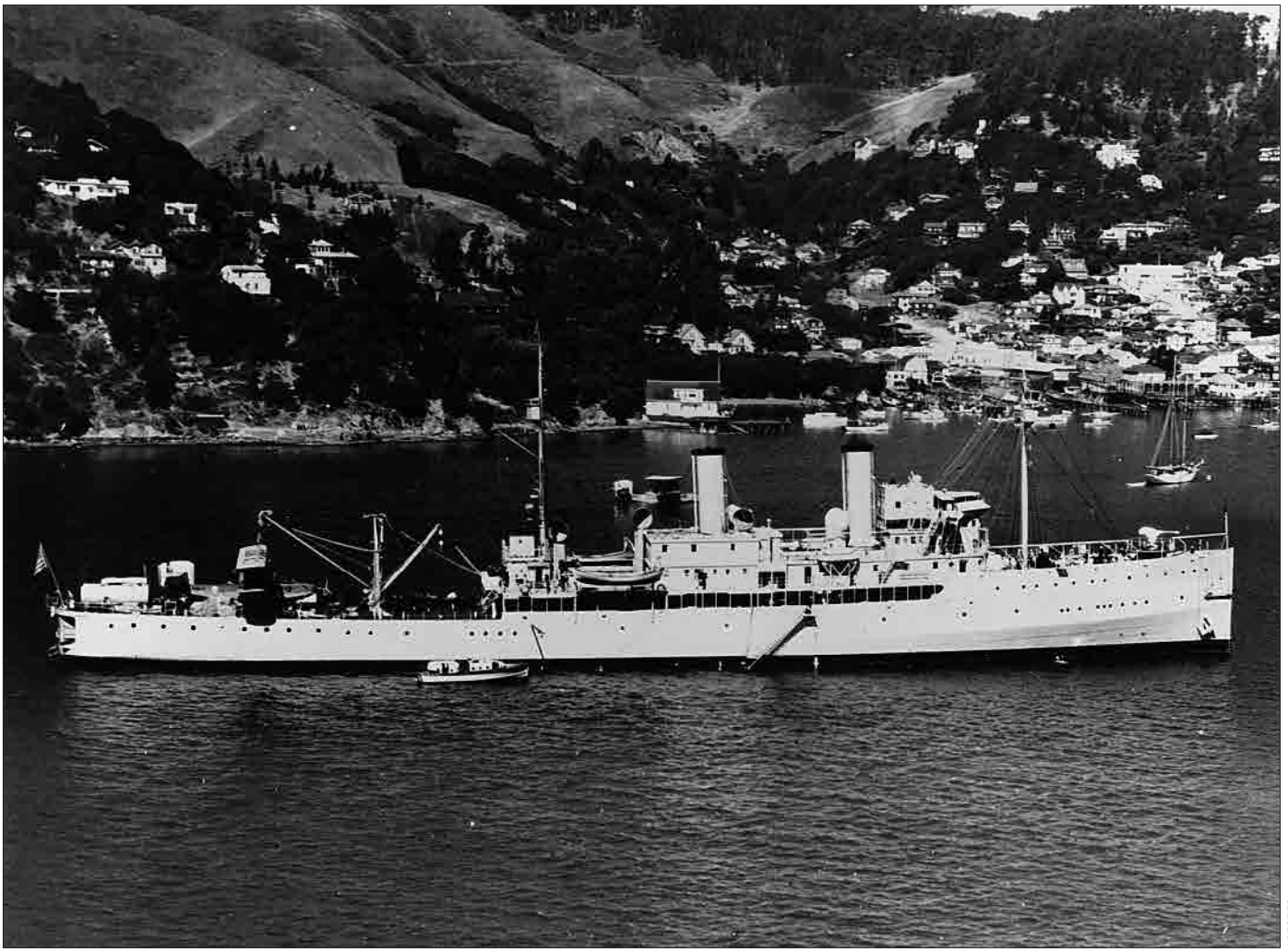
15 MARCH • Ground school work began during the training of nucleus crews for two rigid airships, subsequently named *Los Angeles* (ZR 3) and *Shenandoah* (ZR 1), at NAS Lakehurst, N.J., under lighter-than-air expert Capt. Anton Heinan, formerly of the Imperial German Navy.

19 MARCH • Fighting Plane Squadron Two was established under Commanding Officer Lt. Cmdr. Robert P. Molten Jr. and Executive Officer Lt. Homer C. Wick. The squadron served with Aircraft Squadrons, Battle Fleet, attached to the tenders *Aroostook* (CM 3) and *Gannet* (AM 41) at NAS San Diego on North Island, Calif.

15 APRIL • The Naval Research Laboratory reported that an evaluation of equipment for radio control of aircraft in an F-5L flying boat proved satisfactory up to a range of ten miles, and announced the feasibility of radio control of airplanes during landings and takeoffs.

17 APRIL • Pilot Lt. Rutledge Irvine established a world altitude record for Class C airplanes, with a useful load of 1,000 kilograms, reaching 11,609 feet in a DT torpedo bomber equipped with a Liberty engine over McCook Field near Dayton, Ohio.

26 APRIL • The General Board completed a study on naval strategy in the Pacific that anticipated Japan as the most likely future enemy. The board recommended that the U.S. develop and fortify bases in the Hawaiian Islands, in the

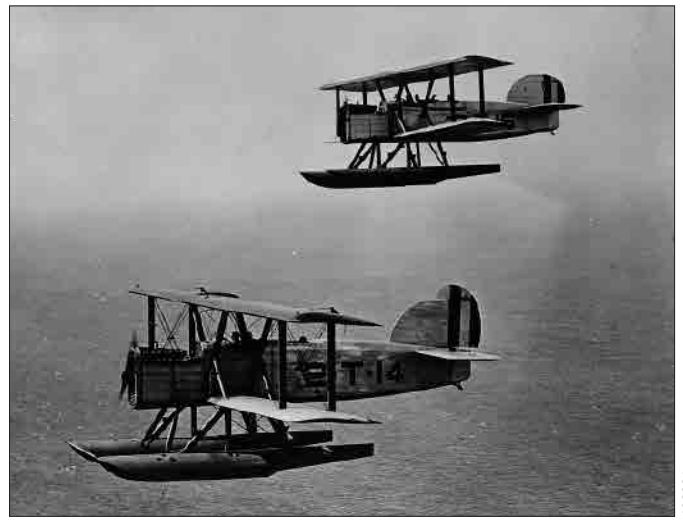


1053770

Minelayer *Aroostook* (CM 3) serves as an aircraft tender, 1919–1931.

Philippines, and at locations along the supply lines to these points, including Guam, and advocated the creation and maintenance of a fleet capable of sustained operations in the western Pacific.

26 MAY • The chief of the Bureau of Aeronautics agreed with the chief of the Air Service on the advantages to the aviation industry and the military services of working under identical aeronautic specifications whenever possible and further stated the desirability of Army and Navy working together toward that end. In December Lt. Ralph S. Barnaby received orders to McCook Field, Dayton, Ohio, as the bureau's representative at an interservice conference on standardization during a series of annual meetings that continued until 1937, when the Aeronautical Board assigned a full-time staff to carry on the work.



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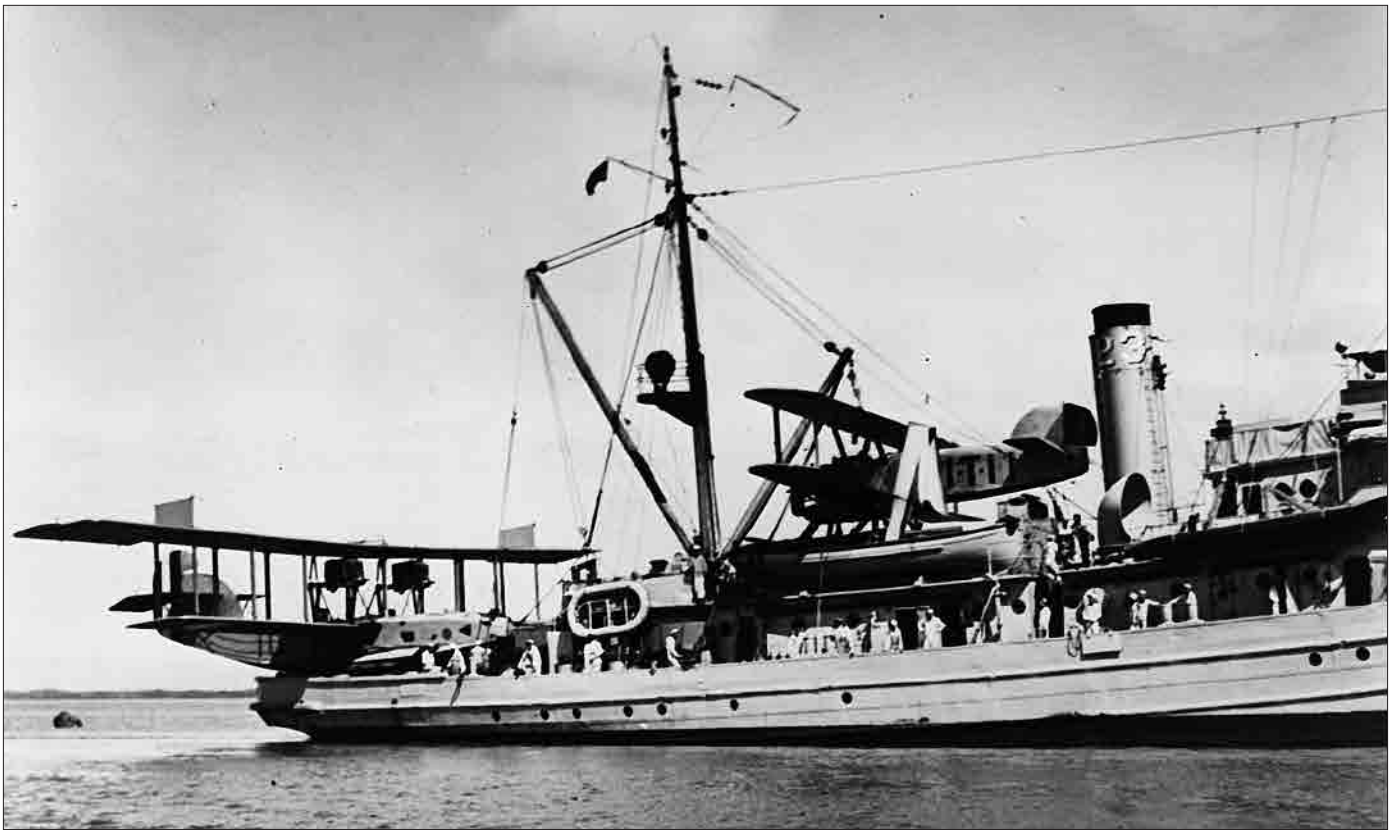
Two versions of the Douglas-designed DT—the first planes designed and built for the Navy as torpedo bombers.



1053769

An F-5L flying boat, left, and a DT torpedo bomber, right, on board aircraft tender *Teal* (AM 23).

6 JUNE • Planes and pilots of Aircraft Squadrons, Battle Fleet established seven world records for Class C seaplanes at San Diego, Calif.:

- Lt. j.g. Mainrad A. Schur set the speed record for 500 km in a DT-2 torpedo bomber at 72 mph.
- Lt. Henry T. Stanley set distance and duration records, with a 250-kg payload, in an F-5L patrol plane at 574.75 miles, and 10 hours 29 minutes 58 seconds.
- Lt. Herman E. Halland set distance and duration records, with a 500-kg payload, in an F-5L at 466 miles, and 7 hours 35 minutes 54 seconds.
- Lt. Robert L. Fuller set distance and duration marks, with a 1,000-kg payload, in a DT-2 at 205.2 miles, and 2 hours 45 minutes 9 seconds.

7 JUNE • Planes and pilots of Aircraft Squadrons, Battle Fleet continued their assault on the record books with eight new world marks for Class C seaplanes:

- Lt. Earl B. Brix set an altitude record of 10,850 feet for planes carrying a 250-kg useful load in a DT-2 torpedo bomber.
- Lt. Robert L. Fuller set an altitude record of 8,438 feet for planes carrying a 500-kg load in an F-5L patrol plane.
- Ens. Edward E. Dolecek set an altitude record of 7,979 feet for planes, with a 1,000-kg load, in an F-5L.
- Lt. Cecil F. Harper set the altitude record of 13,898 feet for planes, with "no useful load," in a DT-2.
- Lt. Henry T. Stanley set an altitude record of 5,682 feet in an F-5L, with a 1,500-kg load and the duration mark at 2 hours 18 minutes.
- Lt. Herman E. Halland set an altitude record of 4,885 feet in an F-5L, with a 2,000-kg load and a duration record of 51 minutes.

12 JUNE • Pilot Lt. j.g. Mainrad A. Schur set three world records for Class C seaplanes in a DT-2 torpedo bomber powered by a Liberty engine at San Diego, Calif.: a duration mark of 11 hours 16 minutes 59 seconds; distance mark of 792.25 miles; and speed of 70.49 mph for 1,000 km.

13 JUNE • Pilot Lt. Ralph A. Ofstie set world speed records for Class C seaplanes for 100 and 200 km in a TS-1 seaplane equipped with a Lawrance J-1 engine with speeds of 121.95 and 121.14 mph, respectively, at San Diego, Calif.

13 JUNE • Following a demonstration at a flying exhibition to civil and military dignitaries near Washington, D.C., *Langley* (CV 1) moored at the Washington Navy Yard where President Warren G. Harding boarded the ship, marking the first presidential visit to a U.S. carrier.

5 JULY • Chief of Naval Operations Adm. Edward W. Eberle directed the selection of a destroyer undergoing overhaul for a trial installation of a catapult and a seaplane. Four days later Commander Scouting Fleet Vice Adm. John D. McDonald assigned the destroyer *Charles Ausburn* (DD 294) while the ship finished an overhaul at the Philadelphia Navy Yard, Pa. The destroyer completed the installation of the catapult before her bridge on 23 August and sailed to Hampton Roads, Va., where between 29 and 31 August she received a TS-1 seaplane, BuNo A-6300. Operational experience revealed that the seaplane impacted the destroyer's visibility during navigation; the guy-wires and support structure for the fly-off rails restricted the arc of the forward 4-inch gun off the bow; and the wings extended beyond the ship and twice received damage during mooring. The seaplane and catapult were removed from *Charles Ausburn* at Philadelphia over 20 to 29 December, and skipper Lt. Cmdr. Frank C. McCord recommended to the fleet that future installations on board destroyers be located between their No. 4 stacks and mainmasts.

21 JULY • The Bureau of Aeronautics established a policy of assigning experimental airplanes to fleet squadrons for operational evaluation before adopting them as service types.

13 AUGUST • The establishment of Naval Aviation Reserve Units at Ft. Hamilton, N.Y., and at Squantum, Mass., marked constructive action toward building an effective aviation branch of the Naval Reserve Force.

23 AUGUST • The light cruiser *Detroit* (CL 8) received the first UO-1 observation biplane, BuNo A-6551, to operate from one of the ten *Omaha* (CL 4)-class scout cruisers. The delivery marked the introduction of routine float plane operations from cruisers.

175426

Lt. David Rittenhouse wins the 1923 Schneider Trophy in a CR-3 seaplane converted from the CR-2 racer.

4 SEPTEMBER • The rigid airship *Shenandoah* (ZR 1) made her first flight, Capt. Frank R. McCrary commanding, at NAS Lakehurst, N.J.

28 SEPTEMBER • Pilots Lt. David Rittenhouse and Lt. Rutledge Irvine won first and second place in the international seaplane race for the Schneider Trophy in two CR-3 seaplanes equipped with D-12 engines at Cowes, England. Their victory established a new world record for seaplanes with a speed of 169.89 mph for 200 km. Rittenhouse placed first at 177.38 mph and Irvine second with 173.46 mph.

6 OCTOBER • Navy planes swept the Pulitzer Trophy Race at St. Louis, Mo., taking the first four places all at faster speeds than the previous year's winning time. Both first and second place bettered the world's speed mark. Pilot Lt. Alford J. Williams set the new records for 100 and 200 km in an R2C-1 racer, BuNo A-6692, at 243.812 and 243.673 mph, respectively.

15 OCTOBER • Aircraft Nos 2-F-7, 2-F-9, and 2-F-11 of VF-2, Lt. Forrest P. Sherman commanding, took off from NAS San Diego, Calif., for San Francisco, Calif., to participate in an American Legion convention. 2-F-7 crashed en route at Mojave but a working party returned the plane in a truck three days later, which enabled sailors to subsequently salvage the aircraft. On 16 October, Aircraft Nos 2-F-2, 2-F-5, and 2-F-12 of VF-2, Lt. E. H. Barkelew commanding, departed for San Francisco via Bakersfield.

458279

1923 Pulitzer Trophy Air Race winner Lt. Alford J. Williams takes off in his R2C-1 racer.

These flights necessitated long journeys over alternating deserts and mountains. All of the planes returned by 23 October 1923.

2 NOVEMBER • Pilot Lt. Harold J. Brow established a world speed record in an R2C-1 racer equipped with a D-12 engine at Mitchel Field on Long Island, N.Y., averaging 259.47 mph in four flights over the 3-km course.

4 NOVEMBER • Pilot Lt. Alford J. Williams raised the world speed record to 266.59 mph in an R2C-1 racer equipped with a D-12 engine at Mitchel Field, N.Y., bettering the record set two days before by Lt. Harold J. Brow.

459589

Lt. Alford J. Williams stands alongside his winning R2C-1 racer at the 1923 Pulitzer Trophy Air Race.

5 NOVEMBER • The submarine *S-1* (SS 105), Lt. Powel M. Rhea commanding, carried out a series of tests designed to show the feasibility of stowing and launching a seaplane on board a submarine at Hampton Roads, Va. Lt. Cmdr. Virgil C. Griffin supervised a crew from *Langley* (CV 1) that cooperated with *S-1* by removing a disassembled MS-1 from a tank on board the submarine, assembling the plane, and launching it by submerging the boat.

6 NOVEMBER • Pilot Lt. Alford J. Williams climbed in an R2C-1 racer to 5,000 feet in a minute, bettering the best previously reported climb of 2,000 feet in the same time.

12 NOVEMBER • The battleship *Mississippi* (BB 41) received the first UO-1 observation biplane to operate routinely from battleships, BuNo A-6605.

16 NOVEMBER • The Bureau of Aeronautics directed that all planes attached to vessels of the fleet were to be overhauled once every six months.

3 DECEMBER • Chief of Naval Operations Adm. Edward W. Eberle approved the establishment of VS-3 as a special service squadron for the purpose of developing long-distance scouting planes, Lt. Cmdr. Charles P. Mason commanding, at NAS Anacostia, D.C.

7 DECEMBER • The Bureau of Aeronautics established a new designation system for catapults whereby a type letter indicated the energy sources—"A" for compressed air, "P" for powder, and "F" for flywheels—while Mark numbers indicated major design modifications. Under this system the compressed air, turntable catapult demonstrated at the Naval Aircraft Factory, Philadelphia, Pa., and installed on board the battleship *Maryland* (BB 46) received the designation type A, Mark I, and the device on board *Langley* (CV 1) of catapult type A, Mark III. The Navy subsequently extended this designation system with modification to include other energy sources, notably the type letter "H" for hydraulic catapults.

1924

JANUARY • During the winter the Battle Fleet, Scouting Fleet, and Control Force carried out tactical exercises for Fleet Problems II, III, and IV en route to Panama and from those waters to the point of mobilization at Culebra Island, P.R. During Fleet Problem III, VF-2 reported to Commanding Officer 6th Composite Group, Army Air Service, screened VO-2, and strafed opposing force Marines who simulated an opposed landing to seize the Panama Canal.

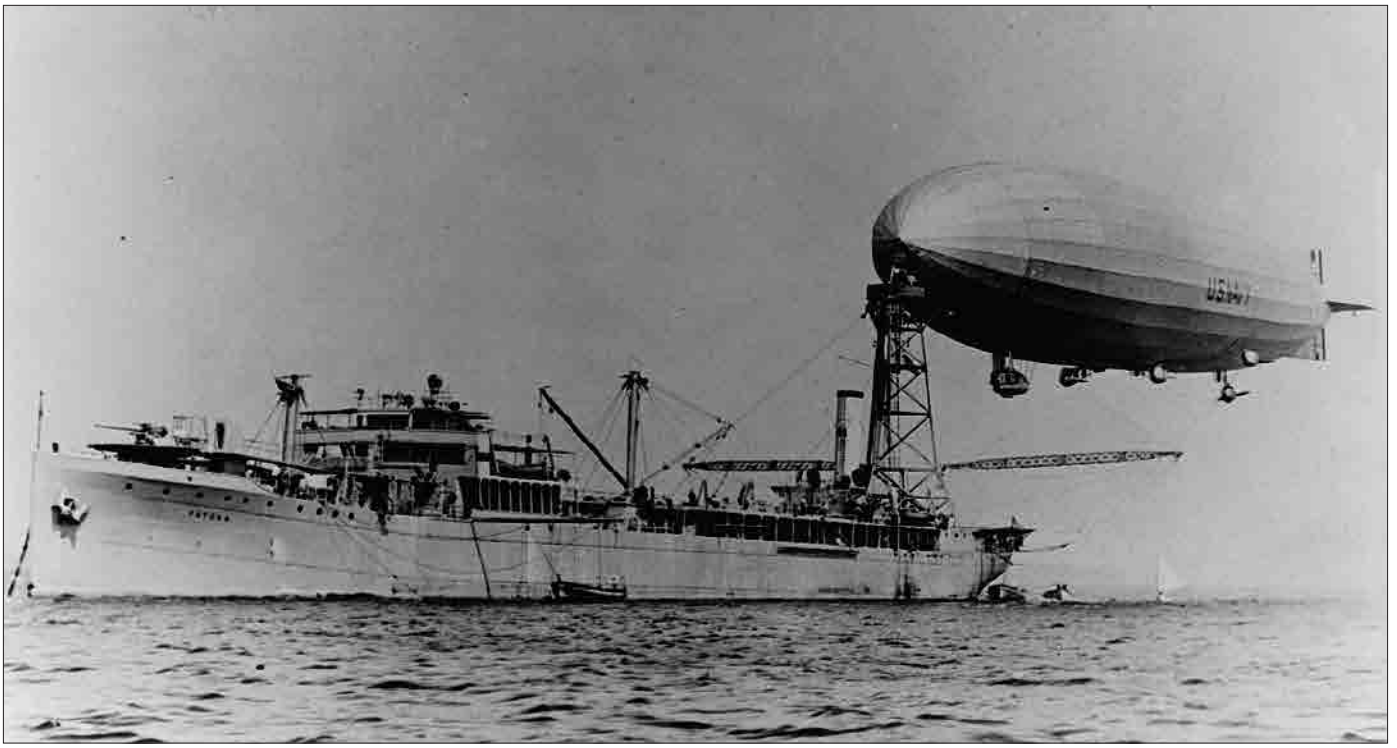
3 JANUARY • VT-20, Lt. Cmdr. George D. Murray commanding, embarked the cargo ship *Vega* (AK 17), which sailed from San Diego, Calif., for the Philippines. Upon arrival VT-20 operated from the tender *Ajax* (AG 15) as the first air detachment of the Asiatic Fleet.

16 JANUARY • A storm ripped the rigid airship *Shenandoah* (ZR 1) away from her mooring mast at NAS Lakehurst, N.J. Only some of the crew were on board and, despite their efforts, the airship drifted over New York City later that evening, where onlookers below reported observing the airship's red and green warning lights dimly through the clouds. Cmdr. M. R. Pierce returned the ship as the storm subsided.

25 JANUARY • VF-2 embarked the collier *Jason* (AC 12) and sailed from Coco Solo in the Panama Canal Zone for Culebra Island, P.R. Disembarking there on 2 February, the squadron operated from an improvised camp at Coontz Field subsequently (informally) designated Camp Robison.

4 FEBRUARY • The Bureau of Aeronautics directed naval aviation squadrons to discontinue the practice of striping or camouflaging aircraft and instructed them to paint all aircraft by 1 July with the prescribed naval gray, except the stretched fabric on the wing and tail and some aluminum fuselage surfaces. In one exception all squadrons of a station, force, or fleet could uniformly paint the upper wing chrome yellow or another color to increase visibility in case of a forced landing.

26 FEBRUARY • VS-3 received authorization to fly one division of Curtiss CS seaplane torpedo bombers from NAS Anacostia, D.C., to NAS Miami, Fla., and NAS Key West, Fla., and back to conduct service tests under actual operating conditions.



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Airship *Shenandoah* (ZR 1) and oiler *Patoka* (AO 9) accomplish the first use of a mooring mast on board a ship, 8 August 1924.

8 MARCH • Pilot Lt. L. V. Grant won the race for the Curtiss Marine Trophy in a VE-7 fighter at an average speed of 116.1 mph in Miami, Fla.

21 MARCH • The Bureau of Aeronautics directed the use of service parachutes by all sailors and Marines on all flights.

21 APRIL • The Bureau of Aeronautics requested that the Bureau of Steam Engineering investigate the development of a single-wave radio sending and receiving set suitable for installation in fighting planes, with a 20-mile sending radius and powered by a small battery- or engine-driven generator.

2 MAY • Pilot Lt. W. M. Dillion and gunnery officer Lt. Stanton H. Wooster launched by catapult in a DT torpedo bomber carrying a dummy torpedo from *Langley* (CV 1) at anchor in the bay off Pensacola, Fla.

19 JUNE • The Bureau of Ordnance issued a contract for the development of an antiaircraft director for shipboard fire control to the Ford Instrument Co.

22 JUNE • Pilot Lt. Frank W. Wead and gunnery officer Lt. John D. Price set five world records for class C seaplanes in a CS-2 with a Wright T-3 Tornado engine over a two-day period at NAS Anacostia, D.C.: one for distance, with 963.123 miles; one for duration, with 13 hours 23 minutes 15 seconds; and three for speed, attaining 73.41 mph for 500 km, 74.27 mph for 1,000 km, and 74.17 mph for 1,500 km.

24 JUNE • The Bureau of Aeronautics issued a technical order prescribing the external color of naval aircraft. The overall color was to be aluminum enamel with clear varnish on wooden spars and struts. Naval yellow enamel was to be used on the top surfaces of upper wings of training planes and yellow or other high visibility color could similarly be applied to all aircraft of any station, force, or fleet.

11 JULY • Pilot Lt. Frank W. Wead and gunnery officer Lt. John D. Price broke world records for Class C seaplanes in a CS-2 equipped with a Tornado engine over two days at NAS Anacostia, D.C., with new marks for a distance of 994.19 miles and a duration of 14 hours 53 minutes 44 seconds.

8 AUGUST • The rigid airship *Shenandoah* (ZR 1) secured to the mooring mast of the oiler *Patoka* (AO 9) while underway in Narragansett Bay, R.I. *Shenandoah* remained moored to *Patoka* during the ship's passage to anchor

off Jamestown, R.I., and cast off the following day. This achievement marked the first use of a mooring mast erected on board ships to facilitate airship operations with the fleet.

11 AUGUST • Observation planes from the light cruiser *Raleigh* (CL 7) took off from the water near the Arctic Circle on the first of several reconnaissance flights over the Greenland coast from Angmagsalik to Cape Farewell. The aircraft intended to locate suitable emergency landing areas for Army aircraft crossing the Atlantic via Iceland on the last leg of a round-the-world flight.

15 AUGUST • In the first use of rigid airships with the fleet, *Shenandoah* (ZR 1) lifted off from NAS Lakehurst, N.J., to take part in a Scouting Fleet problem 300 miles at sea. *Shenandoah* discovered the "enemy" fleet, but heavy rains compelled her early retirement to base. The airship returned to Lakehurst on 17 August after 40 hours in the air.

1 SEPTEMBER • The first parachute school in the Navy opened to train enlisted men in the care, operation, maintenance, and testing of parachutes at NAS Lakehurst, N.J.

15 SEPTEMBER • An N-9 training seaplane equipped with radio control and without a human pilot on board conducted a 40-minute flight at the Naval Proving Ground, Dahlgren, Va. Although the aircraft sank from damage sustained while landing, this test demonstrated the practicability of radio control of aircraft.

18 SEPTEMBER • The repair ship *Medusa* (AR 1) was commissioned at the Navy Yard Puget Sound, Bremerton, Wash., Capt. R. T. Menner commanding. A section of VO-2 consisting of 2 officers and 20 enlisted men served as a ship-plane repair detail to support the operations of VO-1—both of which operated ashore.

7 OCTOBER • The rigid airship *Shenandoah* (ZR 1), Lt. Cmdr. Zachary Lansdowne commanding, began a round-trip transcontinental cruise from NAS Lakehurst, N.J. The airship's voyage included stops at Fort Worth, Texas, San Diego, Calif., and a stay of 11 days on the West Coast, including a flight to Camp Lewis at Tacoma, Wash. The airship returned to Lakehurst on 25 October having covered 9,317 miles in 258 hours of flight.

10 OCTOBER • Lt. Andrew Crinkley and Lt. Rossmore D. Lyon landed a CS-2 seaplane at Quantico, Va., following a continuous flight from NAS Anacostia, D.C., of 20 hours 28 minutes and 1,460 miles. The flight exceeded world records for endurance and distance but was not officially timed and therefore not an official record.

12 OCTOBER • The rigid airship designated ZR-3 lifted off from Friedrichshafen, Germany, under the command of Dr. Hugo Eckener, and with prospective skipper Capt. George W. Steele Jr. on board. The airship flew more than 5,000 miles in 81 hours and arrived on 15 October at NAS Lakehurst, N.J. The oiler *Patoka* (AO 9) and the light cruisers *Detroit* (CL 8) and *Milwaukee* (CL 5) sailed into the Atlantic to provide ZR-3 with weather reports and forecasts. The airship was subsequently named *Los Angeles*.

25 OCTOBER • Following the withdrawal of all foreign entrants from the Schneider Cup Race scheduled at Bayshore Park, Md., the United States agreed to cancel the race rather than to attain victory by a flyaway. The Navy instead staged a series of record attempts in which the scheduled contestants and other naval aircraft put 17 world records in the book for Class C seaplanes: Lt. George T. Cuddihy broke a world speed record of almost two years standing in a CR-3 racing seaplane powered by a D-12 engine with 188.078 mph. Lt. Ralph A. Ofstie broke world speed records for 100, 200, and 500 km in a CR-3 with marks of 178.25 mph for both the 100 and 200, and 161.14 mph for the 500. Lt. George R. Henderson set four records for speed over 100 and 200 km, with loads of 250 and 500 kg, in a PN-7 flying boat equipped with two Wright T-2 engines at 78.507 mph; and four records, with a useful load of 1,000 kg, with a speed of 78.507 mph for both 100 and 200 km, a distance record of 248.55 miles, and a duration record of 5 hours 28 minutes 43 seconds. Lt. Osborne B. Hardison set world records for speed over 100 km in a PN-7, and for distance, with a useful load of 1,500 kg, at 68.4 mph and 62.137 miles, and three more, with a useful load of 2,000 kg, in speed over 100 kilometers of 68.4 mph, distance 62.137 miles, and duration 1 hour 49 minutes 11.9 seconds.

11 NOVEMBER • Pilot Lt. Dixie Kiefer completed a successful night catapult launch in a UO-1 observation biplane from the battleship *California* (BB 44) at anchor at San Diego, Calif. Searchlights trained about 1,000 yards ahead aided the launch.

14 NOVEMBER • The chiefs of the Bureau of Aeronautics and the Bureau of Medicine and Surgery agreed on qualifications for flight surgeons that included a three-month course at the Army's school of aviation medicine and three months of satisfactory service with a naval aviation command before receiving the designation. The requirement that qualified medical officers make flights in aircraft was limited to emergencies and the desire of the officers.

17 NOVEMBER • *Langley* (CV 1) ended more than two years in experimental status upon reporting to the Battle Fleet as the first operational aircraft carrier in the U.S. Navy. On 1 December *Langley* became the flagship of Aircraft Squadrons, Battle Fleet.

25 NOVEMBER • First Lady Grace A. Coolidge christened the rigid airship designated ZR-3 as *Los Angeles*, Capt. George W. Steele Jr. commanding, at NAS Anacostia, D.C.

13 DECEMBER • The all-metal NM-1 biplane flew at the Naval Aircraft Factory, Philadelphia, Pa. The Navy designed and built the plane to develop metal construction for naval airplanes, and intended the type for Marine Corps expeditionary use.

14 DECEMBER • Pilot Lt. L. C. Hayden and passenger Lt. William M. Fellers launched in an MO-1 observation plane via a powder catapult from a forward turret of the battleship *Mississippi* (BB 41) at the Navy Yard Puget Sound, Bremerton, Wash. Following this demonstration the Navy began wide-scale use of powder catapults on board battleships and cruisers.

1925

17 JANUARY • A special board headed by Chief of Naval Operations Adm. Edward W. Eberle submitted its report to Secretary of the Navy Curtiss D. Wilbur. The secretary had appointed the board on 23 September 1924 to consider recent developments in aviation, and to recommend a policy for the development of the Navy in its various branches. The members of the board devoted most of their discussion to the importance of battleships, but their recommendations gave prominence to aviation, including construction of carriers up to treaty limits, expeditious completion of *Lexington* (CV 2) and *Saratoga* (CV 3), and laying down of a new 23,000-ton carrier; introduction of a progressive aircraft building program to ensure a complete complement of modern planes for the fleet; expansion of aviation offerings at the Naval Academy and assignment of all qualified academy graduates to aviator or observer training following two years of sea duty; and establishment of a defined policy governing assignment of officers to aviation.

22 JANUARY • VF-2 began landing practice on board *Langley* (CV 1) off San Diego, Calif. This marked the introduction to the fleet of the first command trained to operate as a squadron from a carrier, and the beginning of *Langley*'s operations as a ship of Aircraft Squadrons, Battle Fleet.

2 MARCH • Fleet Problem V off the coast of Southern California became the first problem to incorporate aircraft carriers. The small size of *Langley* (CV 1) and the inexperience of the ship's crew in aircraft handling restricted its operations to sending no more than ten planes aloft simultaneously to scout in advance of the "Black" fleet movement to Guadalupe Island. *Langley* once launched ten planes in 13 minutes but the carrier's limited performance convinced Commander in Chief U.S. Fleet Adm. Robert E. Coontz to recommend the rapid completion of *Lexington* (CV 2) and *Saratoga* (CV 3). The admiral advocated the introduction of steps to develop planes of greater durability, dependability, and radius, and the further improvement of catapult and recovery gear. Coontz also reported that experience now permitted routine catapulting of planes from battleships and cruisers. The problem concluded on 11 March.

11 MARCH • NAS Anacostia, D.C., reported arrangements for routine aerological sounding flights to an altitude of 10,000 feet to obtain weather data and to test upper-air sounding equipment. These flights began in mid-April; the following February the schedule extended to weekend and holiday flights, and the altitude increased to 15,000 feet.

13 MARCH • Rear Adm. William A. Moffett was appointed for a second tour as chief of the Bureau of Aeronautics.

2 APRIL • Pilot Lt. Cmdr. Charles P. Mason and passenger

Lt. Braxton Rhodes demonstrated the feasibility of using flush-deck catapults to launch landplanes when they catapulted in a DT-2 torpedo bomber from *Langley* (CV 1) while the carrier lay moored at NAS San Diego, Calif.

8 APRIL • Lt. John D. Price of VF-1 made the first planned night landing on board a U.S. aircraft carrier when he landed on *Langley* (CV 1) at sea off San Diego, Calif. Lts. Delbert L. Conley, Adolphus W. Gorton, and Rossmore D. Lyon followed shortly thereafter. (An accidental landing occurred on the night of 5 February 1924 when Lt. Harold J. Brow stalled while practicing night approaches.)

426936

Cmdr. John Rodgers attempts to fly a PN-9 flying boat from San Francisco to Honolulu but completes the voyage 450 miles under sail, 31 August–10 September 1925.

8 APRIL • Almost two years following the abolition of a special aviation uniform, the Navy authorized new forestry green uniforms for winter and khaki for summer for naval aviators, observers, and other officers on duty that involved flying. Although the design received minor modifications in later years, the entire service adopted the khaki uniform in 1941.

1 MAY • Lt. Clarence H. Schildhauer and Lt. James R. Kyle broke the world endurance record for Class C seaplanes during a test flight in a PN-9, BuNo A-6878, at Philadelphia, Pa. The Naval Aircraft Factory there manufactured the metal-hulled flying boat equipped with two Packard engines. The plane remained in the air into the next day for a total time of 28 hours 35 minutes 27 seconds.

5 MAY • Secretary of the Navy Curtiss D. Wilbur approved the reorganization of certain departments at the Naval Academy as required to make aviation an integral part of the curriculum. His decision established a program that began with the Class of 1926, in which all midshipmen received three months of special ground and flight instruction, and additional instruction as necessary to qualify graduates as aviators or observers during the first two years after graduation.

29 MAY • The Bureau of Aeronautics issued a directive modifying the standard color of naval aircraft. The hulls and floats of seaplanes were to be painted Navy gray; the wings, fuselages, landing gear, etc., aluminum color; and the top surface of upper wings, stabilizers, and elevators, orange-yellow.

17 JUNE • The MacMillan Expedition departed from Boston, Mass., to accomplish aerial exploration of the area of northern Greenland. The Naval Air Detail, Lt. Cmdr. Richard E. Byrd Jr. commanding, sailed with three Loening amphibians on board the destroyer *Peary* (DD 340). The civilian research ship *Bowdoin* joined *Peary* off Wiscasset, Maine. Following a 3,000-mile voyage the expedition reached Etah in northern Greenland on 1 August, and the aerial explorers covered 30,000 square miles before the end of the month.

1 JULY • When a law enacted on 28 February became effective on this date, the Naval Aviation Reserve began to organize into ten squadrons of four divisions each. Authorized squadron complements for each of three scouting and three bombing squadrons were established at 40 officers and 130 enlisted men, and for each of four fighting squadrons at 18 officers and 20 enlisted men.

31 AUGUST • Pilot Cmdr. John Rodgers, copilot Lt. Byron J. Connell, and a crew of three attempted to fly the metal hulled PN-9 flying boat, BuNo A-6878, equipped with two Packard engines, from San Francisco, Calif., to Honolulu,

184669

Cmdr. John Rodgers and his crew receive a traditional Hawaiian greeting at Kauai after their harrowing crossing.

Territory of Hawaii. Lack of fuel, however, forced the plane down shortly after 1600 on 1 September. Despite an extensive air and sea search, Rodgers and his crew remained lost at sea for ten days, but they rigged sail from the wing fabric and set course for the island of Kauai. The PN-9 covered about 450 miles under sail when the submarine *R-4* (SS 81) sighted the flying boat on 10 September barely ten miles from the goal of the voyage. The Fédération Aéronautique Internationale accepted the 1,841.12 statute miles that had been flown until the landing as a new world airline distance record for Class C seaplanes. The record remained unbeaten for almost five years.

3 SEPTEMBER • A severe squall tore the rigid airship *Shenandoah* (ZR 1) apart as she flew over Byesville, Ohio, en route from NAS Lakehurst, N.J., to Scott Field, Ill. The control car and aft section of the hull fell directly to the ground, but navigation officer Cmdr. Charles E. Rosendahl and six crewmembers manning the forward section free-ballooned for an hour before they landed 12 miles from the scene of the crash. Fourteen men died, including skipper Lt. Cmdr. Zachary Lansdowne, and 29 survived the ordeal.

29 SEPTEMBER • Chief of Naval Operations Adm. Edward W. Eberle directed the training of all heavier-than-air naval aviators in the operation of landplanes if they were not already qualified as such.

3 OCTOBER • In view of the need for an accumulation of upper air data for improved weather forecasting, the Bureau of Aeronautics requested that aircraft squadron flagships take upper air soundings twice a day when at sea.

5 OCTOBER • VJ-1B, Lt. John F. Moloney commanding, was formed from VS-2B at NAS San Diego, Calif. This first of the Navy's utility squadrons received assignment to Aircraft Squadrons, Battle Fleet.

26 OCTOBER • During the Schneider Trophy Race at Bay Shore Park, Md., engine trouble forced the two Navy entries flown by Lt. George T. Cuddihy and Lt. Ralph A. Ofstie from the race during the last lap.

27 OCTOBER • The Bureau of Aeronautics reported the use of oleo shock-absorbing landing gear on FB-1 fighters, NB-1 trainers, SC-2 torpedo bombers, UO-1 observation biplanes, and new bombing planes under construction by the Naval Aircraft Factory, Philadelphia, Pa., and by the Douglas and Boeing companies.

1053780

An SC-1 scout bomber and torpedo plane.

30 NOVEMBER • The President's Aircraft Board, known as the Morrow Board after its senior member, submitted its report to President Calvin Coolidge. On the basis of views expressed in extended hearings by prominent civilian and military leaders, the board made recommendations on the aviation industry and military aviation that influenced a number of legislative actions taken during the following months. Its recommendations against a separate air force and in favor of representation for aviation in operational commands and high-level administrative offices, and its recognition of the need for long-range procurement and standard replacement schedules, were among the items of special interest to the Navy.

14 DECEMBER • The Lampert Committee filed its report. The House of Representatives had established this committee as the Select Committee of Inquiry into the Operations of the U.S. Air Services on 24 March 1924. The review favored establishment of a Department of National Defense and an adequate representation of aviation in the high military councils. Expressing particular concern over the state of the aircraft industry, the report recommended the government cease competing to produce aircraft, their engines, and their accessories; abolish the competitive bidding requirement in favor of other restrictions that promote the government's best interests; expend for new flying equipment $10 million annually in both the War and the Navy departments; and implement a five-year construction and procurement program.

18 DECEMBER • The competitive trials of Consolidated, Curtiss, and Huff-Daland aircraft designed as land, sea gunnery, and training planes ended at NAS Anacostia, D.C. These trials led to the procurement of the Consolidated NY series of training planes used into the 1930s.

1926

1 MARCH • The combined U.S. Fleet participated in a joint Army-Navy exercise that included Fleet Problem VI in the Panamanian and Caribbean areas through 15 March.

21 APRIL • Secretary of the Navy Curtiss D. Wilbur directed that beginning with the Class of 1926 all Naval Academy graduates were to complete a 25-hour course on flight instruction during their first year of sea duty. To provide for this instruction, the Navy would establish flight schools at NAS Hampton Roads, Va., and NAS San Diego, Calif.

9 MAY • Pilot Lt. Cmdr. Richard E. Byrd Jr. and Aviation Pilot Floyd E. Bennett made the first flight over the North Pole in Fokker trimotor *Josephine Ford*. After circling the Pole, they returned to base at Kings Bay, Spitzbergen, Norway, completing the round trip in 15.5 hours.

460634

A D-12 engine powers this F6C-1 fighter, which later became the protoype F6C-4.

14 MAY • Lt. Thomas P. Jeter won the Curtiss Marine Trophy Race held over the Potomac River off Hains Point, D.C., in an F6C-1 Hawk, with a speed of 130.94 mph.

6 JUNE • The last elements of the Alaskan Aerial Survey Expedition, Lt. Ben H. Wyatt commanding, departed Seattle, Wash., for Alaska. The mission comprised the tender *Gannet* (AM 41), three OL amphibians, and the barge *YF-88*, which housed a photo lab. The expedition, performed in cooperation with the Department of the Interior to conduct early aerial mapping of Alaska, continued through September.

16 JUNE • The Bureau of Aeronautics reported that the emergency barricade on board *Langley* (CV 1) had successfully prevented landing aircraft from crashing into planes parked on the flight deck during landing operations in Californian waters on 16 June.

24 JUNE • Congress approved an act implementing the recommendations of the President's Aircraft Board, known as the Morrow Board after its senior member. The act authorized the assignment of naval aviators to command aviation stations, schools, and tactical flight units as well as naval aviators or naval aviation observers to command aircraft carriers and tenders; the creation of the office of an assistant secretary of the Navy to foster naval aeronautics; the establishment of a five-year aircraft program to increase the number on hand to 1,000 useful planes; and the requirement that the number of enlisted pilots was to comprise not less than 30 percent of the total number of pilots on active duty in the Navy. The law became effective on 1 July.

2 JULY • Congress authorized the Distinguished Flying Cross as an award for acts of heroism or extraordinary achievement in aerial flight by any member of the armed services, including the National Guard and the Reserves, retroactive to 6 April 1917.

10 JULY • Edward P. Warner took the oath of office as the first Assistant Secretary of the Navy for Aeronautics.

28 JULY • The submarine *S-1*, (SS 105) Lt. Charles B. Momsen commanding, surfaced and launched Lt. Dolph C. Allen in a Cox-Klemin XS-2 seaplane. The submarine also recovered the aircraft, secured the XS-2 in a tank affixed to the deck, and submerged, completing the first cycle of operations in a series of tests investigating the feasibility of basing planes on board submarines.

Edward P. Warner becomes the first Assistant Secretary of the Navy for Aeronautics, 10 July 1926.

9 AUGUST • In a day of tests to determine the speed of handling aircraft at sea, planes of VF-1 completed 127 landings on board *Langley* (CV 1) off southern California. This experience allowed the squadron to land 12 planes in 21 minutes under the emergency conditions encountered when the ship ran into a heavy mist on a later date.

18 AUGUST • The Navy let a contract to the Aircraft Development Corp., of Detroit, Mich., for a metal-clad airship designated ZMC-2. The descriptive term "metal-clad" resulted from the fact that a gas-tight stressed-aluminum skin covered the lightly framed hull. The design also had to be pressure-rigid in that positive internal gas pressure maintained the shape of the hull.

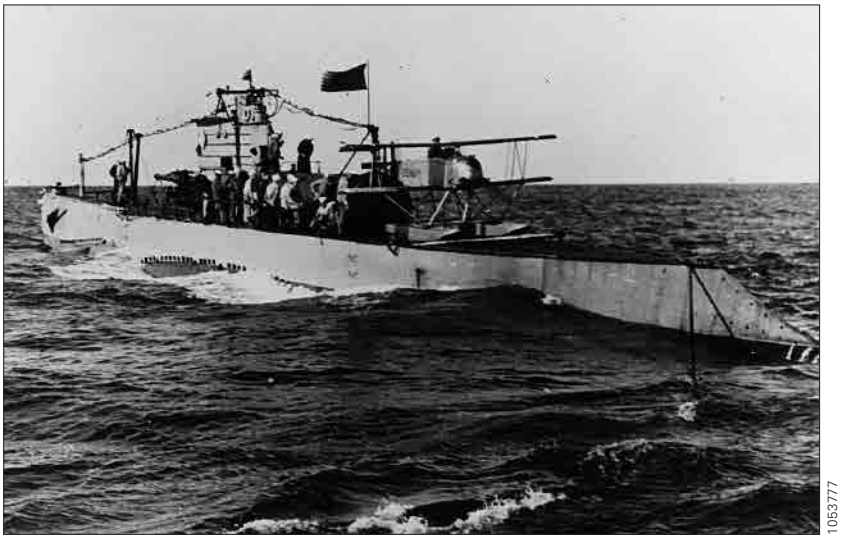
27 AUGUST • While attempting to land at the Philadelphia Navy Yard after a flight from NAS Anacostia, D.C., pilot Cmdr. John Rodgers (Naval Aviator No. 2) and aircrewman AMM1 Samuel J. Schultz crashed in a VE-9 biplane, BuNo A-6470, in the Delaware River near the dock of the Naval Aircraft Factory. Sailors extricated Rodgers from the wreck and took him to a hospital, but he died from his injuries. Schultz survived but sustained serious injuries.

22 OCTOBER • In a display of tactics developed by VF-2, a flight of F6C-2 carrier-based fighters, Lt. Cmdr. Frank D. Wagner commanding, simulated an attack on the heavy ships of the Pacific Fleet as they sortied from San Pedro, Calif. The Hawks conducted almost vertical dives from 12,000 feet at the preappointed time of which the fleet had been forewarned, but nonetheless achieved complete surprise. The general consensus among observers was that the tactic proved operationally effective. This became the first fleet demonstration of dive bombing. Although VF-2 had independently initiated this demonstration, VF-5 on the East Coast was simultaneously developing similar tactics, indicating the obvious nature of the solution to the problem of effective bomb delivery.

13 NOVEMBER • Lt. Christian F. Schilt, USMC, took second place in the Schneider Cup Race in an R3C-2 racing seaplane at Hampton Roads, Va., with an average speed of 231.363 mph. Schilt's achievement marked the final Navy participation in international racing competition.

19 NOVEMBER • The battleship *Maryland* (BB 46) conducted experimental firing of the Mark XIX antiaircraft fire control system. Developed by the Ford Instrument Co., the system incorporated a stabilized line of sight to aid in tracking approaching aircraft.

13 DECEMBER • Commander Aircraft Squadrons, Battle Fleet Rear Adm. Joseph M. Reeves reported on the results of the first dive-bombing exercise, known as "light bombing," conducted in a formal fleet gunnery competition. One Marine Corps and two Navy fighter squadrons, along with three Navy observation squadrons,



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Lt. Dolph C. Allen launches XS-2 seaplane from the submarine *S-1* (SS 105), 28 July 1926.

participated. The Marine and Navy fighters separately made 45-degree dives and dropped 25-pound fragmentation bombs. The observation squadrons simulated attacks from 1,000 feet. A flight of F6C and FB-5 biplanes of VF-2, Lt. Cmdr. Frank D. Wagner commanding, scored 19 hits with 45 bombs on a 100-by-45 foot target. The uses visualized for this tactic included disabling or demolishing flight decks, destroying enemy aircraft in flight, attacking exposed people on ships or ashore, and assailing light surface craft and submarines.

1927

1 JANUARY • A flight test section was established as a separate department at NAS Anacostia, D.C., Lt. George R. Henderson in charge.

1 JANUARY • VF-2 was established at NAS San Diego, Calif., Lt. Cmdr. James M. Shoemaker commanding. Four naval aviators and ten aviation pilots manned the squadron to test the feasibility of using enlisted pilots in fleet squadrons.

18 JANUARY • Lt. Cmdr. John R. Poppen, MC, reported for duty in charge of the Aviation Section of the Naval Medical School in Washington, D.C. For the next three months the school devoted all of its resources to intensive instruction in aviation medicine. This marked the beginning of flight surgeon training in the Navy as well as the end of an interservice agreement, in effect since 1922, by which Navy medical officers trained at the Army's flight surgeon school.

2 MARCH • Just prior to Fleet Problem VII the Army and Navy engaged in a joint exercise to test the U.S. defenses of the Panama Canal. During the simulation ships bombarded the Pacific side of the canal, and aircraft bombed the Miraflores Locks. Evaluators noted that the exercises confirmed their opinion that ships alone could not knock out the canal but could do so in combination with aerial attacks. These findings called for greater defense of the canal from attacks from above. The exercise concluded on 5 March.

9 MARCH • During Fleet Problem VII conducted in the Caribbean through 14 March, sailors and Marines gained further experience in carrier operations. The Bureau of Aeronautics reported that the exercises revealed that ships should be allowed great latitude in maneuvering, that carriers need to provide constant protection against air attack, and that Commander Aircraft Squadrons must be allowed wide freedom of action in employing planes.

9 MARCH • The Navy purchased a JR-1 trimotor from the Ford Motor Co. as its first passenger transport following a demonstration at NAS Anacostia, D.C.

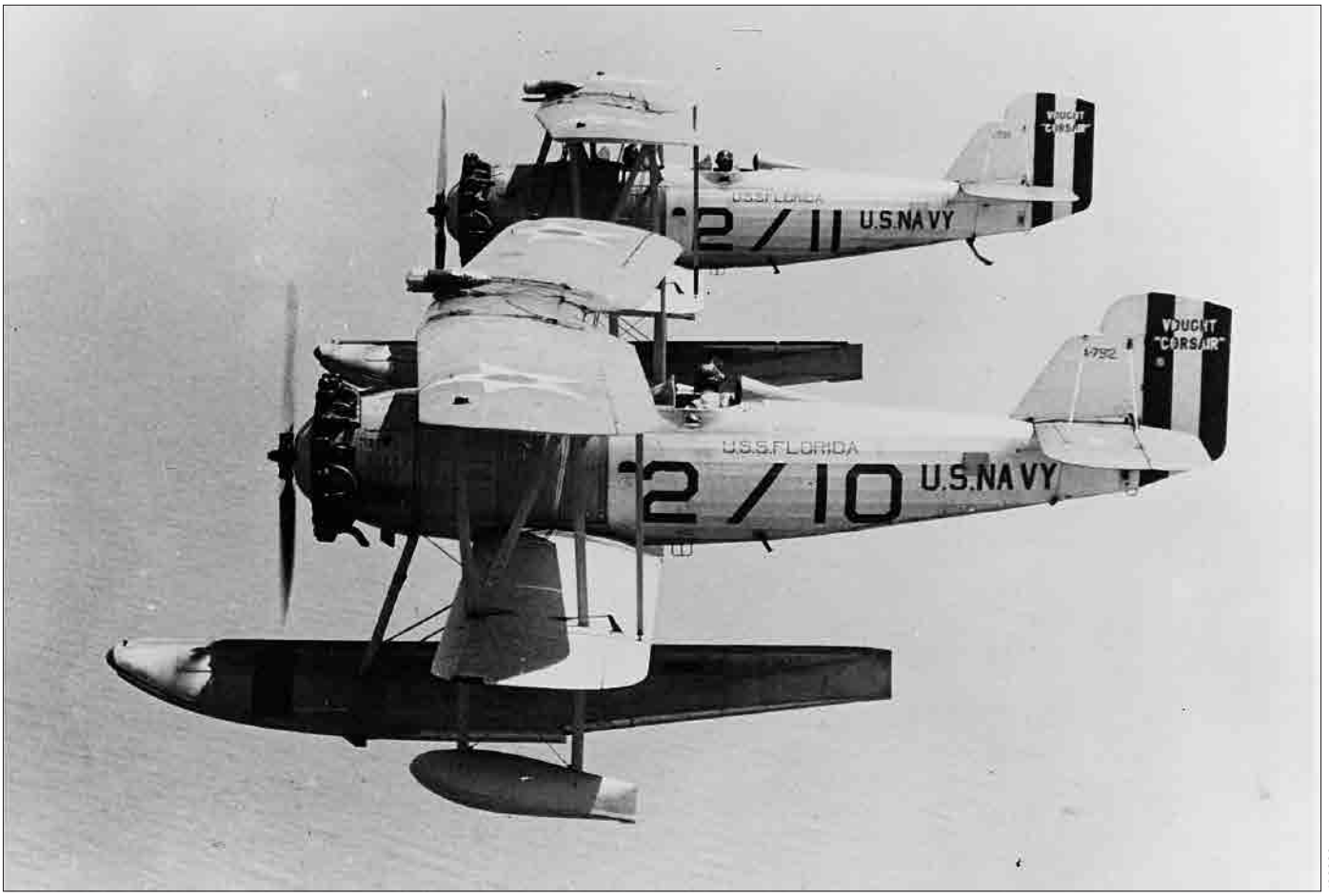
31 MARCH • Pilot Lt. j.g. William T. Rassieur, copilot Cmdr. Robert W. Cabaniss (Naval Aviator No. 36) and the commanding officer of the aircraft tender *Aroostook* (CM 3), with crewmembers Lt. Martin B. Stonestreet, ACMM C. Vincent, RM1 J. R. Roe, and AAM2 E. W. Oliver, crashed in a PN-9 flying boat, BuNo A-6878, at NS Guantánamo Bay, Cuba. The PN-9 took off in a moderate swell during the morning watch but encountered a cross wind and heavy seas while flying off the northwestern tip of Navassa Island. The wind carried away the plane's tail and it crashed nose down, caught fire, and sank. Cabaniss died, and the other men all sustained varying degrees of injuries, including burns. On 9 July 1941 the Navy dedicated Cabaniss Field in his honor at NAS Corpus Christi, Texas.

14 APRIL • Lt. George R. Henderson broke the world altitude record for Class C seaplanes, with a 500-kg useful load, reaching 22,178 feet in an O2U Corsair equipped with a Pratt & Whitney Wasp engine over Washington, D.C.

23 APRIL • Lt. Steven W. Callaway set a new 100-km world speed record for Class C seaplanes, with a 500-kg useful load, in an O2U Corsair at 147.263 mph at NAS Hampton Roads, Va.

30 APRIL • Lt. James D. Barner broke the 500-km world speed record for Class C seaplanes carrying a useful load of 500 kg in an O2U Corsair with a speed of 136.023 mph at NAS Hampton Roads, Va.

5 MAY • Lt. Carleton C. Champion took off in the Wright XF3W Apache equipped with a Pratt & Whitney Wasp engine and National Advisory Committee for Aeronautics supercharger from NAS Hampton Roads, Va., and climbed to an altitude of 33,455 feet, breaking the existing world record for Class C seaplanes by better than 3,000 feet.



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O2U-1 Corsairs observe for battleship *Florida* (BB 30).

21 MAY • Lt. Rutledge Irvine established a world record for Class C Seaplanes for 1,000 km in an O2U Corsair with a speed of 130.932 mph above NAS Hampton Roads, Va.

23 MAY • A major advance in the transition from wooden to metal aircraft structures resulted from a report that the Naval Aircraft Factory, Philadelphia, Pa., submitted on this date. Researchers discovered that the application of anodic coatings decreased the corrosion of aluminum by salt water, hitherto a serious obstacle to the use of aluminum alloys on naval aircraft.

27 MAY • Chief of Naval Operations Adm. Edward W. Eberle ordered the Commander in Chief, Battle Fleet, to conduct tests to evaluate effectiveness of dive bombing against moving targets. VF-5S carried out the tests in late summer and early fall, the results of which generated wide discussion of the need for special planes and units and led directly to the development of equipment and adoption of the tactic as a standard method of attack.

1 JULY • A new system of squadron designation became effective providing, in addition to the standard class designation letters and identification number, a suffix letter to indicate the fleet, force, or unit to which the squadron served. Under this system VF-1 of Battle Force became VF-1B.

1 JULY • The practice of sending Naval Reserve aviation officers to one year of training duty with the fleet following graduation from NAS Pensacola, Fla., began with the assignment of the first group of 50 newly commissioned ensigns.

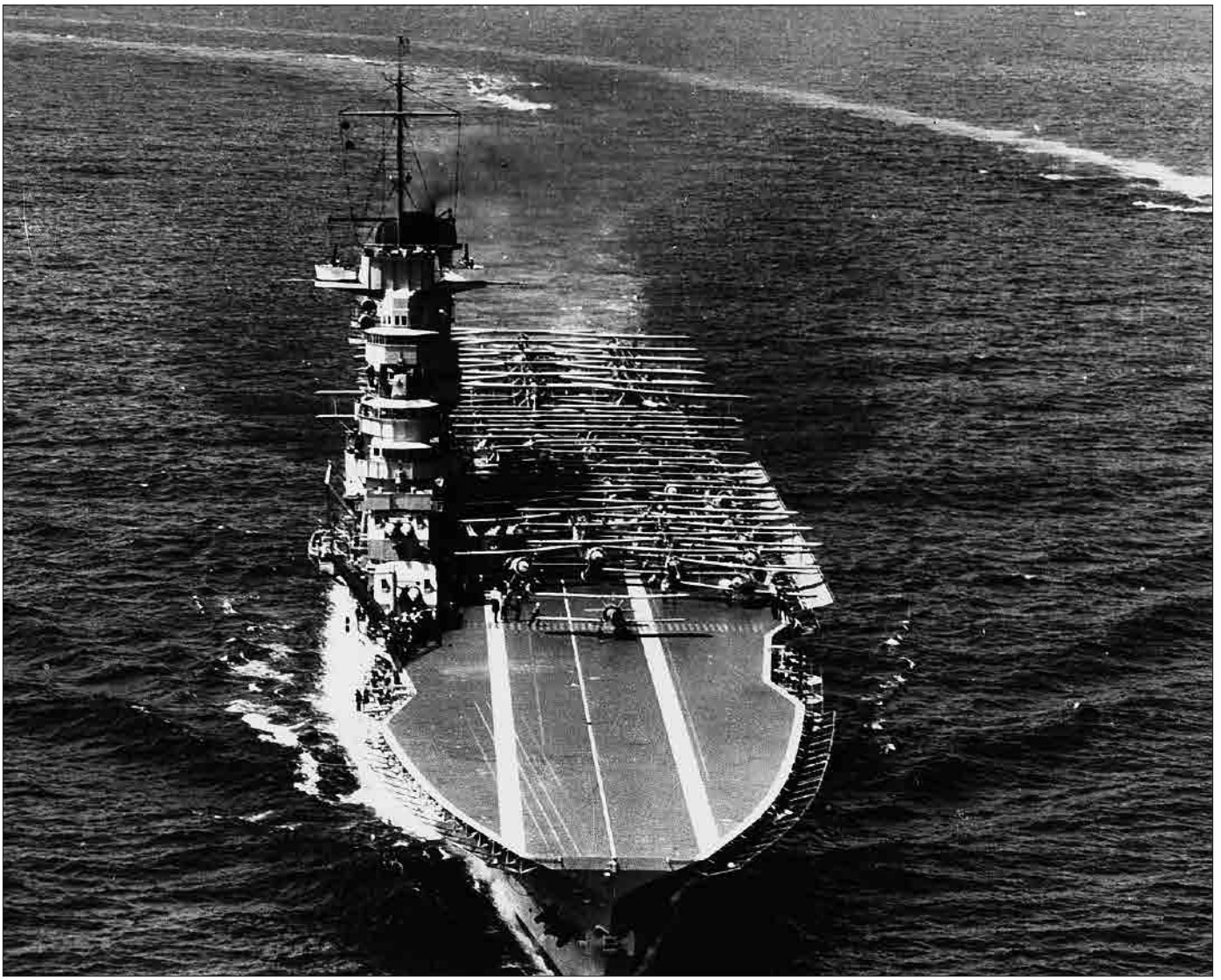
4 JULY • Lt. Carleton C. Champion reached 37,995 feet in the XF3W Apache over NAS Anacostia, D.C., breaking the world altitude record for Class C seaplanes that he had established two months earlier. This achievement exceeded any altitude previously reached by heavier-than-air planes.

5370

An RR-5 trimotor transport assigned to NAS Anacostia, D.C.

8 JULY • Pilot Lt. Byron J. Connell and copilot and naval aviation pilot S. R. Pope set new world duration and distance records for Class C seaplanes, with a useful load of 2,000 kg, and a new world duration record with a 1,000-kg load, on the same flight from NAS San Diego, Calif. in a PN-10 flying boat equipped with two Packard engines. The flight logged 11 hours 7 minutes 18 seconds in the air and a distance of 947.705 miles.

15 JULY • Maj. Ross E. Rowell, USMC, led a flight of five DH-4B-1 biplanes of VO-7M in a strafing and dive-bombing attack against bandits surrounding a garrison of 41 U.S. Marines and 48 Nicaraguan National Guardsmen at Ocotal, Nicaragua. The planes dove in sequence in approximately



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Saratoga (CV 3) launches her planes.

50-degree dives from 1,000 feet, and dropped 17-pound fragmentation bombs from as low as 300 feet. The de Havillands broke up the attackers in less than an hour. The bandits lost 40 to 80 men, while the Marines lost one killed and one wounded, and the Nicaraguan guardsmen suffered three wounded and four captured. Aircraft from other nations had accomplished diving attacks during WWI and the Marines used similar techniques in Haiti in 1919, however, the Navy and Marine Corps recognize these organized dive-bombing and low-altitude attacks at Ocotal as the first made in direct support of ground troops.

25 JULY • Lt. Carleton C. Champion reached 38,419 feet in the Wright Apache rigged as a landplane above NAS Anacostia, D.C., establishing a new world record that stood for two years.

16 AUGUST • Pilot Lt. Byron J. Connell and copilot Lt. Herbert C. Rodd broke three world records for Class C seaplanes during two days of flights in a PN-10 flying boat with two Packard engines over San Diego, Calif.—distance; distance with a 500-kg load; and duration with a 500-kg load. They flew a total of 1,569 miles and spent 20 hours 45 minutes 40 seconds in the air.

18 AUGUST • Pilot Lt. Byron J. Connell and copilot Lt. Herbert C. Rodd took off in a PN-10 flying boat from NAS San Diego, Calif., with a useful load of 7,726 pounds, and climbed to 2,000 meters to break the world record for the greatest payload carried to that altitude to date by a Class C seaplane.

25 AUGUST • A blast of cold air raised raised the stern of *Los Angeles* (ZR 3) on her moorings at NAS Lakehurst, N.J., until the rigid airship stood on her nose. The craft then slowly settled back down 180 degrees from the original position. Twenty-five men rode the craft over the mooring mast during the extraordinary incident, but *Los Angeles* did not suffer appreciable damage.

16 NOVEMBER • *Saratoga* (CV 3) was commissioned at Camden, N.J., Capt. Harry E. Yarnell commanding. The former battlecruiser was the first carrier and fifth ship of the Navy to bear the name. *Saratoga*'s heavy displacement enabled the operation of a large air group of 80 to 90 planes and thus allowed for a mix of fighters, scouts, and bombers as needed for missions. Designers, however, retained four twin 8-inch gun turrets fore and aft of the bridge that limited the space for aircraft, fuel, and stores.

2 DECEMBER • The first F2B-1 fighter to serve in squadron inventory arrived at VF-1B, and the squadron subsequently operated from *Saratoga* (CV 3). The planes contributed to fighter development with their air-cooled radial engines and tubular steel frames.

14 DECEMBER • *Lexington* (CV 2) was commissioned at Quincy, Mass., Capt. Albert W. Marshall commanding, as the first carrier and fourth ship of the Navy to carry the name.

1928

5 JANUARY • Lt. Alfred M. Pride made the first takeoff and landing in a UO-1 observation biplane on board *Lexington* (CV 2), as the ship moved from the Fore River Plant to the Boston Navy Yard, Mass.

6 JANUARY • Nicaraguan rebels drove two separate columns of Marines to the village of Quilahi. Pilot 1st Lt. Christian F. Schilt, USMC, of VO-7M, voluntarily made the first of 11 flights in which he landed an O2U-1 Corsair observation biplane on a crude airstrip the Marines created. Through 8 January, Schilt flew in Marines and supplies while under fire, and evacuated 2 wounded officers and 14 enlisted men one or two casualties at a time. Schilt subsequently received the Medal of Honor.

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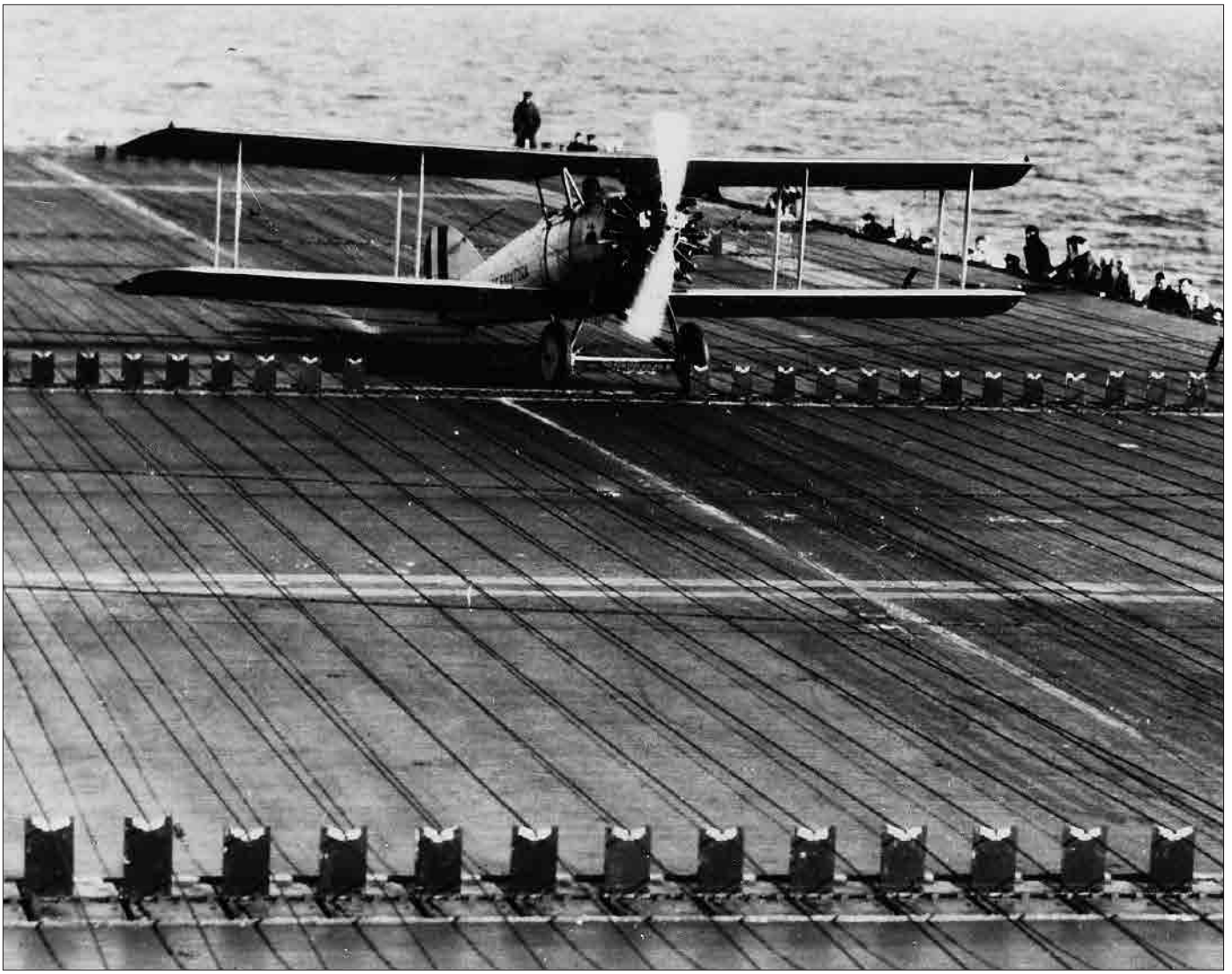
1st Lt. Christian F. Schilt, USMC, receives the Medal of Honor for his heroism under fire in Nicaragua.



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A UO-1 observation biplane similar to the one that first landed on board *Saratoga* lands on the ship.

11 JANUARY • Air Officer Cmdr. Marc A. Mitscher made the first takeoff and landing in a UO-1 observation biplane on board *Saratoga* (CV 3).

27 JANUARY • The rigid airship *Los Angeles* (ZR 3) landed on board *Saratoga* (CV 3) at sea off Newport, R.I. The airship remained on board long enough to transfer passengers and take on fuel, water, and supplies.

1 FEBRUARY • Joint Army-Navy nomenclature for aircraft engines became effective whereby standard type names were assigned to engines based upon the cubic inches of piston displacement to the nearest ten. Under this scheme, the V-type Curtiss D-12 engine received the standard type name Curtiss V-1150, and the air-cooled radial J-5 Whirlwind became the Wright R-790.

27 FEBRUARY • Pilot Cmdr. Theodore G. Ellyson (Naval Aviator No. 1) and crewmembers Lt. Cmdr. Hugo Schmidt and Lt. Roger S. Ransehousen died when their XOL-7 observation amphibian, BuNo A-7335, crashed into the Chesapeake Bay while en route from NAS Hampton Roads, Va., to Annapolis, Md. Portions of the amphibian's tail and wing drifted onto a beach several days later. The aviation pioneer had received the Navy Cross for his service with submarine chasers in WWI, and the destroyer *Ellyson* (DD 454, later DMS 19) was named in his honor.

28 FEBRUARY • The Navy issued an order limiting the application of standard type names for aircraft engines to air-cooled engines of recent design. This order abolished, for example, the standard type name Curtiss V-1150 and reassigned this engine its earlier D-12 designation. On the other hand, the designation Wright R-790 was retained with provisions for use of R-790-A to indicate a major modification; earlier models of this engine kept the old designations, J-2, J-3, and J-4.

28 FEBRUARY • A contract for the XPY-1 flying boat was issued to the Consolidated Aircraft Corp. This aircraft was designed for alternate installation of two or three engines. The initial configurations of this first large monoplane flying boat procured by the Navy evolved into the PBY Catalina.

2 MARCH • During a flight from New York to the Panama Canal, the rigid airship *Los Angeles* (ZR 3) attempted to moor at NAS Lakehurst, N.J., but heavy wind gusts snapped her mooring lines. Commanding Officer Lt. Cmdr. Charles E. Rosendahl attempted to maneuver the airship, but a snow squall buffeted the craft and Rosendahl ordered men to release the landing lines. The ship rose skyward carrying four sailor line handlers to the control car hundreds of feet into the air. Rosendahl called all stop for the engines, and crewmembers pulled the four sailors into the car without injuries.

18 APRIL • Naval aviation gained limited experience in carrier operations and in scouting patrols during Fleet Problem VIII in Pacific waters between San Francisco, Calif., and the Hawaiian Islands. *Langley* (CV 1) took part with a lengthened flight deck and altered arresting gear, and in combination with her crew's improved expertise in aircraft handling operated 42 planes—30 fighter and 12 observation types. The aircraft tenders *Aroostook* (CM 3) and *Gannet* (AM 41) also took part. The Bureau of Aeronautics reported that "little could be expected from a problem in which air operations were so limited and where the air forces available were so small." The problem concluded on 28 April.

3 MAY • Pilot Lt. Arthur Gavin and copilot Lt. Zeus Soucek set the world duration record for Class C seaplanes in a PN-12, BuNo A-7384, equipped with two Wright Cyclone engines in a two-day flight of 36 hours 1 minute that culminated over Philadelphia, Pa.

11 MAY • An Act of Congress provided that duty performed by officers assigned to airships, which required them to make regular and frequent aerial flights, could be certified by the Secretary of the Navy as service equivalent to sea duty.

19 MAY • Maj. Charles A. Lutz, USMC, won the Curtiss Marine Trophy Race in an F6C-3 Hawk at NAS Anacostia, D.C., with a speed of 157.6 mph over the 100-mile course.

25 MAY • Lt. Arthur Gavin and copilot Lt. Zeus Soucek set world marks for Class C seaplanes, with a 1,000-kg useful load, in a PN-12, BuNo A-7384, over two days: speed over 2,000 km at 80.288 mph; distance at 1,243.20 miles; and duration at 17 hours 55 minutes 13.6 seconds.

12 JUNE • *Lexington* (CV 2) anchored in Lahaina Roads, Territory of Hawaii, at the end of a speed run from San Pedro, Calif., to Honolulu that broke all existing records for the distance, with an elapsed time of 72 hours 34 minutes.

26 JUNE • Lt. Arthur Gavin set a world altitude record of 15,426 feet in a PN-12, BuNo A-7384, at Philadelphia, Pa., for Class C seaplanes, with a payload of 2,000 kg.

27 JUNE • Lt. Arthur Gavin made a world record altitude flight for Class C seaplanes in a PN-12, BuNo A-7384, equipped with two 525-hp Pratt & Whitney engines, to 19,593 feet at Philadelphia, Pa., with a useful load of 1,000 kg.

30 JUNE • The Navy issued a contract to the Martin Co. for development of the XT5M-1 "diving bomber," which evolved in later production versions into BM-1s. These

416531

Lexington (CV 2) anchors off Diamond Head, Hawaii.

aircraft and the similar XT2N-1 from the Naval Aircraft Factory, Philadelphia, Pa., became the first dive bombers designed to drop 1,000-pound bombs.

11 JULY • Pilot Lt. Adolphus W. Gorton and copilot BMC Earl E. Reber set five world records for Class C seaplanes in a PN-12, BuNo A-7384, equipped with two 525-hp Pratt & Whitney engines, at Philadelphia, Pa., over two days: distance and speed for 2,000 km, with both 1,000- and 2,000-kg loads, at 1,336 miles and 81.043 mph; and a duration of 16 hours 39 minutes, with a 2,000-kg load.

25 JULY • The Bureau of Aeronautics authorized the removal of bow and stern catapults on *Langley* (CV 1) because the ship had not operated either for three years.

6 OCTOBER • The Navy let contracts for the 6.5 million-cubic-foot rigid airships ZRS-4 and ZRS-5, subsequently christened *Akron* and *Macon*, respectively, to the Goodyear Zeppelin Corp., Akron, Ohio.

14 DECEMBER • The shipment of 14 fighting-plane radio telephone sets, operating on a frequency of 3,000 to 4,000 kilocycles and featuring an engine-driven generator, to VB-2B on board *Saratoga* initiated service tests. This equipment was designed at NAS Anacostia, D.C., and manufactured at the Washington Navy Yard, D.C., to provide early evaluation of radio equipment in single-seat aircraft.

1929

16 JANUARY • Experience in night flying became a requirement for all heavier-than-air naval aviators and naval aviation pilots. Chief of Naval Operations Adm. Charles F. Hughes ordered that, by 1 July 1930, each qualified aviator must pilot a plane for 10 hours at night and make at least 20 landings, and that student aviators meet the same requirement during the first year of their initial assignment.

21 JANUARY • The Naval Proving Ground at Dahlgren, Va., recommended the acceptance of three prototypes of the production version of the Mark XI Norden bombsight, and reported that on the first trial two of the three sights had placed a bomb within 25 feet of the target.

23 JANUARY • The participation of *Lexington* (CV 2) and *Saratoga* (CV 3) in Fleet Problem IX attached to opposing forces introduced new elements into fleet operations, including *Saratoga*'s employment to achieve the theoretical destruction of the Panama Canal. The aircraft tenders *Wright* (AV 1), *Sandpiper* (AM 51), and *Teal* (AM 23) operated near Bahía Honda in Cuba in support of planes that flew from NAS Hampton Roads, Va. The aircraft tender *Aroostook* (CM 3) relieved *Langley* (CV 1), which was delayed by yard work, as part of the train that supported *Saratoga*. On the morning of 26 January, *Saratoga* launched 69 planes that arrived over the Miraflores and Pedro Miguel Locks undetected shortly after dawn and destroyed the locks without opposition. The Bureau of Aeronautics noted that the losses incurred drove home the necessity of providing carriers with "maximum escort protection." The concussion from the gunfire of the battleships and light cruisers repeatedly rendered their planes inoperable. Observers noted the concentration of naval airpower in a handful of ships that confirmed the need for small carriers to supplement larger fleet types. The problem concluded on 27 January.

1 MARCH • Secretary of the Navy Curtiss D. Wilbur directed the designation of 33 officers of the Construction Corps and one officer of the line for engineering duty only. As the exigencies of the Navy permitted and the needs of the Bureau of Aeronautics required, the additional naval constructors and EDO officers were to be assigned to duty in the aeronautical organization.

1 MARCH • The Navy changed the indoctrination courses at NAS Hampton Roads, Va., and NAS San Diego, Calif., to emphasize flight familiarization and determine aptitude, open only to those meeting the physical requirements for aviators. This effort sought to increase the proportion of officers completing the flight training course at NAS Pensacola, Fla., and thereby reduce per capita training expense.

13 MARCH • Rear Adm. William A. Moffett was appointed for a third consecutive tour as chief of the Bureau of Aeronautics.

9 APRIL • Evaluators confirmed the feasibility of abandoning fore-and-aft wire arresting gear during operations on board *Langley* (CV 1). Together with similar operations on board *Saratoga* (CV 3) later in the month,

their conclusions culminated a year of experimental development on the landing platform at NAS Hampton Roads, Va., and led Secretary of the Navy Charles F. Adams to authorize the removal of the wires in September.

4 MAY • Lt. Thomas G. W. Settle and Ens. Wilfred Bushnell won the National Elimination Balloon Race during a two-day flight from Pitt Stadium in Pittsburgh, Pa., to Savage Harbor on Prince Edward Island, Canada. The balloon won the Litchfield Trophy, qualified for the International Race held later in the year, and established world distance records for balloons in three categories from 1,601 to 4,000 cubic meters' capacity, with a flight of 952 miles.

8 MAY • The Bureau of Aeronautics announced the policy of providing all carrier planes with brakes and wheel-type tail skids following successful tests of a T4M-1 torpedo plane so equipped on board *Langley* (CV 1).

8 MAY • Pilot Lt. Apollo Soucek set a new world record for Class C landplanes, reaching 39,140 feet in the XF3W Apache equipped with a 425-hp Pratt & Whitney Wasp engine over NAS Anacostia, D.C.

10 MAY • Lt. Alford J. Williams received the Distinguished Flying Cross from Secretary of the Navy Charles F. Adams for extraordinary achievement in aerial flight. Williams had studied the action of aircraft in violent maneuvers and inverted flight, and developed and applied principles of operation, which contributed directly to flight safety and aircraft performance test accuracy.

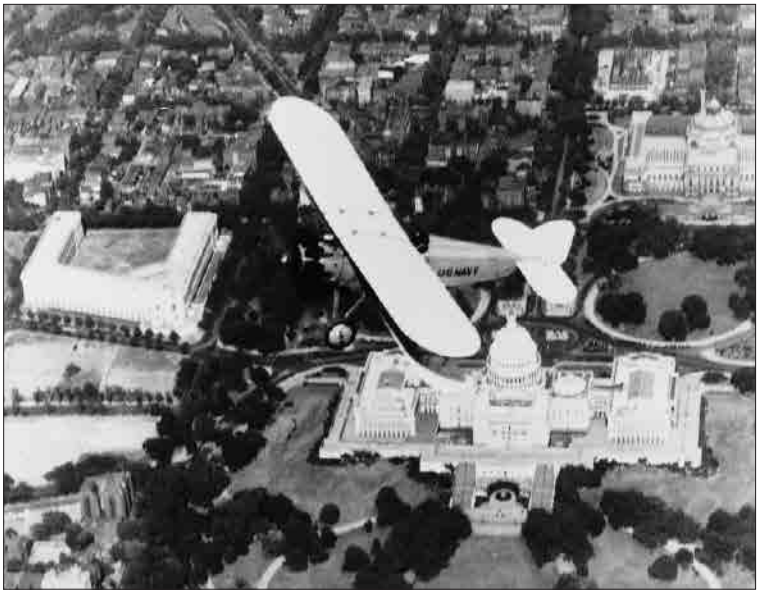
25 MAY • Pilot Lt. William G. Tomlinson won the race for the Curtiss Marine Trophy held at NAS Anacostia, D.C., in the XF7C-1 Seahawk, BuNo A-7653, with a speed of 162.52 mph.

4 JUNE • Pilot Lt. Apollo Soucek set the new world altitude mark for Class C seaplanes in the XF3W Apache at 38,560 feet.

11 JUNE • A conference at the Bureau of Standards established general standards for shielding aircraft engine ignition, which were essential to long-range radio reception. Navy representatives included Lt. Cmdr. Allen I. Price from the Bureau of Aeronautics, and civilians C. B. Mirick and L. A. Hyland from Naval Research Laboratory. A naval radio group attached to the Bureau of Standards had developed basic techniques for shielding airborne radios from ignition interference at the close of WWI, which permitted some remarkable radio reception. Although limited use of ignition shielding had been made throughout the 1920s, the results appeared generally indifferent in that adequate shielding had brought with it undue cost in terms of aircraft maintenance or degradation of plane performance. At this conference spokesmen for aircraft, engine, and radio fields and for magneto, sparkplug, and cable specialties considered each other's problems in order to develop practical shielding standards. Later, the 1932 edition of the *General Specification for the Design and Construction of Airplanes for the United States Navy* included a requirement for ignition shielding.

9 AUGUST • The metal-clad 200,000-cubic-foot airship ZMC-2 built by Aircraft Development Corp. made its first flight at Grosse Ile Airport in Detroit, Mich. This airship subsequently served for several years for training purposes at NAS Lakehurst, N.J.

20 AUGUST • Pilot Lt. Adolphus W. Gorton in a specially equipped UO-1 observation biplane made several successful hook-ons to the trapeze of the rigid airship *Los Angeles* (ZR 3) over NAS Lakehurst, N.J. Gorton's earlier attempts on 3 July had been foiled when the hook failed to operate after making contact with the trapeze.



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Lt. Apollo Soucek sets a new world altitude record in the XF3W Apache over Washington, D.C., 8 May 1929.

21724

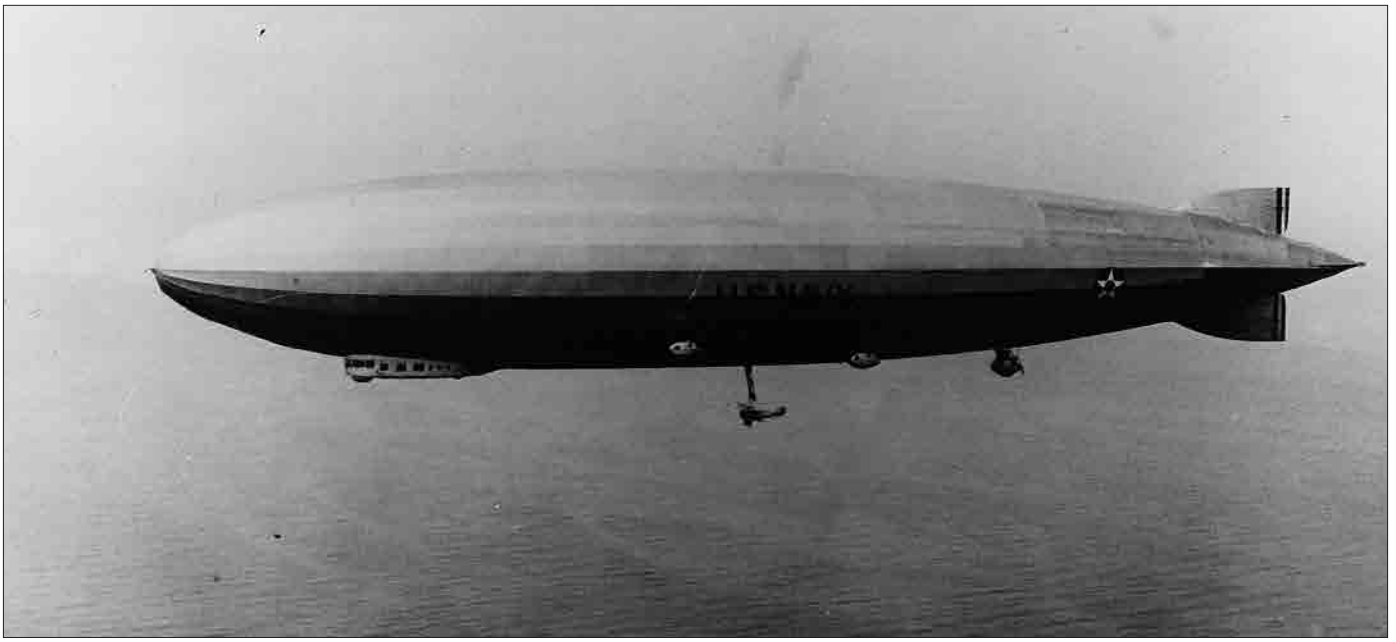
Metal-clad airship ZMC-2 joins the fleet in 1929.

SEPTEMBER • Secretary of the Navy Charles F. Adams authorized the removal of the fore-and-aft wires and associated equipment from carriers. *Langley* (CV 1) became the first carrier to complete this work, during an overhaul at Puget Sound Navy Yard from 13 November 1929 to 24 January 1930.

29 NOVEMBER • Commander and navigator Cmdr. Richard E. Byrd Jr., civilian pilot Bernt Balchen, civilian copilot and radio operator Harold June, and photographer Capt. Ashley C. McKinley, USA, made the first flight over the South Pole in a Ford 4-AT trimotor named *Floyd Bennett*. The plane took off from Little America on McMurdo Sound at 1529 on 28 November, reached the pole at 0114 on this date, stopped briefly for fuel at Axel Heiberg Glacier, and returned to Little America at 1008.

18 DECEMBER • *Lexington* (CV 2), one of a small number of naval ships equipped with turboelectric power plants, sailed from Bremerton, Wash., to a specially dredged berth at Tacoma, Wash., to alleviate the city's shortage of hydroelectric power following a severe drought. The carrier supplied 4,251,160 kilowatt-hours of energy through 16 January.

27 DECEMBER • Based upon scores obtained with the new Norden gyro-stabilized Mk XI bombsight during fleet exercises, the Bureau of Ordnance reported that the device gave about 40 percent more hits than earlier bombsights.



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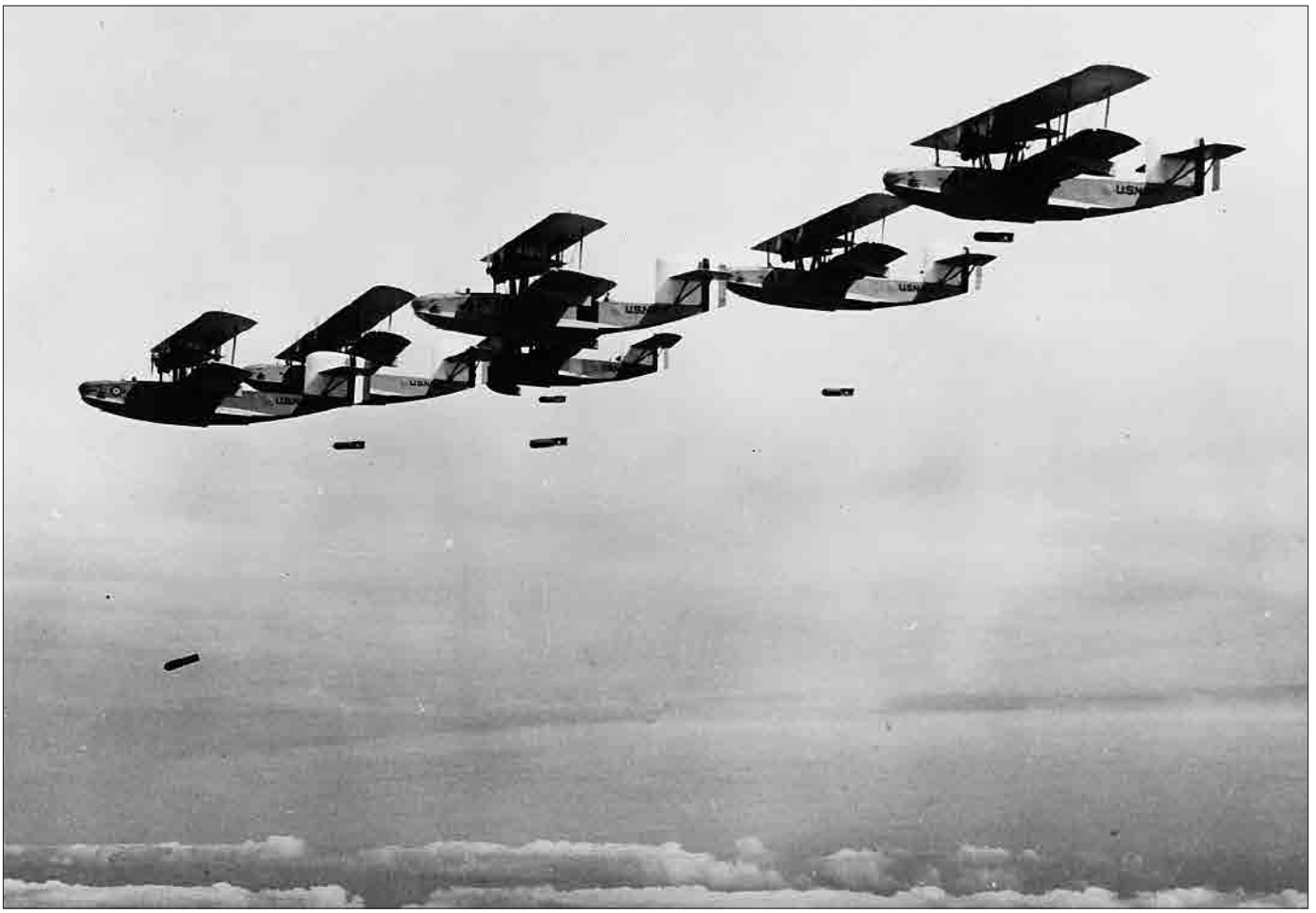
Lt. Adolphus W. Gorton, flying a UO-1 observation biplane, hooks on to rigid airship *Los Angeles* (ZR 3), 20 August 1929.



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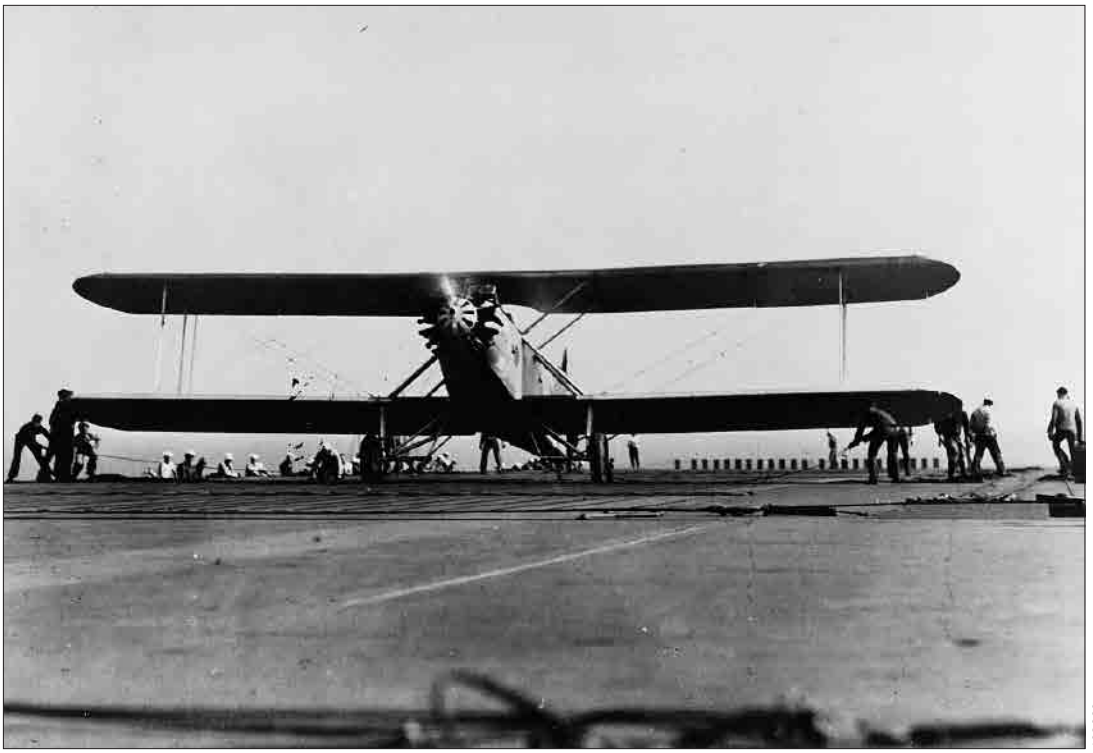
PD-1 patrol planes demonstrate high-altitude horizontal bombing.



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Sailors release a T4M-1 torpedo plane from arresting gear on board *Langley* (CV 1)—the fiddle bridges in the background support the fore and aft wires.

426947

A trio of F4B carrier-borne fighters of VF-1B.

Chapter 4

The Great Depression

1930–1939

The 1930s began quietly with an international treaty that extended previous agreements to reduce naval armaments. As the years passed the peace dissipated, however, and the nations moved inexorably toward global war.

In the United States, the period began with the stock market crash of October 1929, culminating in the Great Depression. Business declined, and unemployment staggered the nation. These circumstances slowed the expansion of naval aviation, aircraft inventory barely sufficed to equip operating commands, and research and development programs suffered. The fleet drastically curtailed operations. When the Republic struggled to recover prosperity through the initiation of public works, money became available for more naval aircraft, new ships, and modernization of naval air stations. Slowly, an upward swing began.

In spite of the hardships the fleet made gains in aviation technology. As engineers and aircraft manufacturers produced more reliable products and aviation equipment, aircraft performance rose. Better and smaller radios, more accurate bombsights, forced induction power plants, controllable-pitch propellers, efficient retractable landing gear, and folding wings all improved aircraft performance, making the airplanes better weapons.

The Navy installed hydraulic arresting gear and catapults on board aircraft carriers and developed better recovery procedures for battleship and cruiser observation planes. Pioneers demonstrated the feasibility of instrument flight ashore and at sea. Dependable radio-controlled planes were put to practical use as targets for antiaircraft guns. Engineers and designers learned more about the value of a streamlined, clean design.

Entire squadrons had begun to turn in the record performances once accomplished by individual pilots. Tactical innovations of the 1920s became fleet doctrine. Three new aircraft carriers enabled the Navy to equip peacetime forces with a respectable seagoing air arm. As it acquired broader respect, naval aviation achieved prominence in both fleet organization and operations and became a truly integrated element of naval power.

Serious setbacks occurred in the field of lighter-than-air, and the crashes of airships *Akron* (ZRS 4) and *Macon* (ZRS 5) sounded the death knell of the Navy's rigid airship program. In spite of favorable reports from investigating committees, continued German successes, and repeated testaments to the value of these airships in specialized operations, the service gradually struck them from its inventory. By association, nonrigid airships almost followed the rigid airships into oblivion.

As the decade drew to a close the ominous rumblings of war echoing across the seas grew louder. The Navy expanded its pilot training program and designed and laid down new ships; aircraft on the drawing boards or rising into the air would soon operate from their decks. The United States proclaimed neutrality as WWII erupted, but the fleet patrolled the seas under conditions that approached war.

1930

29 JANUARY • A Bureau of Aeronautics report revealed that hydraulic arresting gear, a type that eventually proved capable of great refinement to absorb the energy of heavy aircraft landing at high speeds, was under development at NAS Hampton Roads, Va.

31 JANUARY • Lt. Ralph S. Barnaby made a successful air-to-ground flight in a glider from rigid airship *Los Angeles* (ZR 3) at an altitude of 3,000 feet over NAS Lakehurst, N.J.

7 FEBRUARY • The Bureau of Aeronautics initiated action to develop a means of recovering seaplanes by ships

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The XF5B-1, the Navy's first monoplane designed for carrier operations.

underway when it requested that the Naval Aircraft Factory, Philadelphia, Pa., study the problem and work up designs for a system able to recover O2U-3 Corsairs.

14 FEBRUARY • The first monoplane designed for carrier operations, a Boeing Model 205 fighter later purchased by the Navy and designated XF5B-1, arrived for testing at NAS Anacostia, D.C. The Board of Inspection and Survey later reported adversely on the XF5B-1's landing, takeoff, and high-altitude characteristics, but recommended developing the aircraft further to facilitate a rational comparison of monoplane and biplane types.

15 FEBRUARY • The design of retractable landing gear, particularly attractive for its promise to improve performance in fighting planes, had progressed to the point that the Naval Aircraft Factory, Philadelphia, Pa., received authorization to construct working models to establish the practicability of various retracting mechanisms.

10 MARCH • Despite adverse weather during Fleet Problem X in the Caribbean, commanders employed light forces and aircraft in search operation exercises and practiced maneuvers to gain tactical superiority over "enemy" forces. Carriers *Lexington* (CV 2), *Saratoga* (CV 3), and *Langley* (CV 1) and aircraft tenders *Aroostook* (CM 3) and *Wright* (AV 1) participated. The exercises underscored how suddenly airpower could reverse engagements by enabling a fleet to achieve long-range gunnery superiority, enhance the strength of light forces, and assure that torpedo planes could attack the enemy. Observers recognized the shortcomings of the scouting planes in the inventory. In addition, failures in differentiating friend and foe led ships to shoot at friendly planes, and cruiser gunfire damaged *Langley*. The problem concluded on 15 March.

21 MARCH • The XT5M-1, the first prototype dive bomber designed to deliver a l,000-pound bomb, met its strength and performance requirements in diving tests.

14 APRIL • Carriers *Lexington* (CV 2), *Saratoga* (CV 3), and *Langley* (CV 1) and aircraft tenders *Wright* (AV 1) and *Sandpiper* (AM 51) took part in Fleet Problem XI in the Caribbean. The problem focused on scouting and on concentrating dispersed forces, as well as studied how concentrated forces attacked dispersed opponents.

Unfavorable weather and visibility complicated the exercise. Light cruiser *Richmond* (CL 9) briefly fired her 6-inch guns at *Lexington* on 16 April. The umpire ruled that the shots knocked out six planes on the flight deck and evaluated the failure of *Lexington*'s other aircraft to lay smoke as a serious tactical omission. Two nights later "Black" battleships *Tennessee* (BB 43) and *West Virginia* (BB 48) mistakenly identified their carrier *Saratoga* as "Blue" *Lexington* and opened fire at her from a range of 9,000 yards with their respective 14- and 16-inch guns. The umpire subsequently ruled *Saratoga* out of action, but not before her planes dropped eleven 1,000-pound bombs on Blue battleships from an altitude of 10,000 feet before the problem ended on 18 April.

Experience from Fleet Problem X the preceding month and in this exercise led the Bureau of Aeronautics to call for the establishment of several "semi-permanent task groups [each] consisting of carrier, cruisers and destroyers," the equipping of all airplanes with radios, the development of "proper type" scouting planes, the growth of scouting squadrons to 18 aircraft, and an increase in the value of extreme long-range patrol planes.

21 APRIL • The Bureau of Navigation issued a circular letter directing that no more enlisted applicants be recommended for pilot training. When men already in the system or under instruction completed their course in early 1932, this order caused a temporary lull in enlisted pilot training.

22 APRIL • The signatories of the Washington Naval Treaty signed an additional accord at London, England, which carried forward the general limitations of the earlier agreement and provided for further reductions of naval armaments. The signatories broadened the definition of aircraft carriers to include ships of any tonnage designed primarily for aircraft operations; agreed that the installation of landing-on or flying-off platforms on warships designed and used primarily for other purposes were not to make such ships aircraft carriers; and stated no capital ships in existence on 1 April 1930 were to be fitted with such platforms or decks.

31 MAY • Capt. Arthur H. Page Jr., USMC, won the last annual Curtiss Marine Trophy Race for service seaplanes in an F6C-3 Hawk, with a speed of 164.08 mph over the Potomac River at NAS Anacostia, D.C.

4 JUNE • On the first anniversary of the pilot's seaplane altitude record, Lt. Apollo Soucek reached a new height of 43,166 feet in a Wright F3W-1 Apache landplane equipped with a Pratt & Whitney 450-hp engine over NAS Anacostia, D.C., regaining the world altitude record he had held briefly the previous year.

21 JULY • Capt. Arthur H. Page Jr., USMC, from a sealed hooded cockpit of an O2U Corsair completed an instrument flight of about 1,000 miles from Omaha, Neb., to NAS Anacostia, D.C., via Chicago, Ill., and Cleveland, Ohio—the longest blind flight to date. 1st Lt. Vernon M. Guymon, USMC, acted as safety pilot and took over the controls only for the landings after Page brought the plane over the fields at 200 feet.

1 SEPTEMBER • Capt. Arthur H. Page Jr., USMC, comprised the only military entry in the race for the Thompson Trophy in Chicago. The pilot gained and increased an early lead in an XF6C-6 Hawk, but on the 17th of 20 laps Page crashed—in all likelihood from carbon monoxide poisoning—and later died.

5 NOVEMBER • The director of the Naval Research Laboratory reported that researchers Leo C. Young and L. A. Hyland had detected an airplane flying overhead during experiments in the directional effects of radio. Their success led to the formal establishment of a project at the laboratory for "Detection of Enemy Vessels and Aircraft by Radio."

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Capt. Arthur H. Page Jr., USMC, left, and 1st Lt. Vernon M. Guymon, USMC, complete the longest blind flight to date, 21 July 1930.

28 NOVEMBER • Chief of Naval Operations Adm. William V. Pratt issued a naval air policy effective on 1 April 1931 that reorganized naval aviation and established it as an integral part of the Navy under Commander in Chief, U.S. Fleet. Adm. Pratt's guidelines stressed fleet mobility and offensive action to protect against invasion from overseas; assigned the development of the offensive power of the fleet, including advanced base forces, as the primary task of naval aviation; and relegated participation in coastal defense to secondary status. The policy also directed fleet operation of air stations in strategic naval operating areas; only stations necessary for training, test, aircraft repairs, and support functions were to be maintained by shore commands.

2 DECEMBER • Seaplane tender *Aroostook* (CM 3), one utility squadron, and two patrol squadrons of the Battle Fleet reported for duty to Commander Base Force, providing that command with its first aviation organization.

1931

8 JANUARY • The completion of tests at the Naval Proving Ground, Dahlgren, Va., ensured the further development of dive-bombing equipment and tactics. The evaluators discovered that displacing gear eliminated the recently encountered danger of bombs colliding with releasing airplanes.

9 JANUARY • Chief of Naval Operations Adm. William V. Pratt and Army Chief of Staff Gen. Douglas A. MacArthur announced an agreement on the division of their respective air forces' responsibilities for coast defense. The terms of the agreement concentrated naval aviation with mobile operations of the fleet while recognizing the primacy of the Army Air Corps, the land-based air arm of the Army, in the defense of coasts and overseas possessions.

22 JANUARY • The Navy ordered its first rotary-wing aircraft, an XOP-1 autogiro, from Pitcairn Aircraft Co.

15 FEBRUARY • Carriers *Langley* (CV 1), *Lexington* (CV 2), and *Saratoga* (CV 3) together with aircraft tenders *Wright* (AV 1), *Patoka* (AO 9), and *Swan* (AM 34) fought across the Eastern Pacific toward Panamanian waters during Fleet Problem XII, practicing strategic scouting, the employment of carriers and light cruisers, the defense of a coastline, and the attack and defense of a convoy.

The problem pitted one fleet strong in aircraft and weak in battleships against another fleet with reverse strengths. Rigid airship *Los Angeles* (ZR 3) took part in her first problem as a scout, but her "extreme vulnerability" generated controversy. Aircraft checked but did not stop the battleship fleet advance, and despite inferior air support, the battleship fleet defeated the carrier fleet. The limitations of carriers became apparent when their aircraft expended half of their fuel and ammunition in just two days. In addition, many heavy cruisers lacked sufficient stability for catapult and recovery operations. The problem concluded on 21 February.

25 FEBRUARY • The Bureau of Aeronautics issued a new pilot training syllabus, which added advanced seaplane training courses and reinstated bombing and torpedo courses and observation and gunnery courses that were dropped in November 1929. These changes expanded the regular flight course to 258.75 hours or, for those also taking advanced combat, to 282.75 hours. The new syllabus also expanded the ground school course to 386.5 hours, with a short course in photography among the additions.

2 MARCH • The Bureau of Aeronautics awarded a contract for two variable-pitch propellers, suitable for use on combat aircraft, to Hamilton Standard Propeller Co., initiating development of a propeller type the Navy would later adopt and which would help aircraft engines realize their full potential during WWII.

3 MARCH • The Bureau of Aeronautics approved a recommendation of two officers from the postgraduate aeronautical engineering group for study at the California Institute of Technology. As a result, the Navy's practice of assigning postgraduate students to civilian institutions broadened to permit greater specialization, and for the next three academic years students received assignments to either Massachusetts Institute of Technology to study aircraft engines or CalTech to study aircraft structures.

31 MARCH • *Lexington* (CV 2) sailed from NS Guantánamo Bay, Cuba, to Nicaraguan waters to help Marines, hospital ship *Relief* (AH 1), and other vessels assist

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Marine expeditionary aircraft at Marine Corps Field Quantico, Va., 1931.

victims of an earthquake that demolished much of Managua, Nicaragua. Early the next afternoon, *Lexington* inaugurated carrier relief operations when she launched five aircraft carrying medical teams, supplies, and provisions to the stricken capital.

1 APRIL • The U.S. Fleet was reorganized into Battle, Scouting, Submarine, and Base Forces. Effective on this date, General Order No. 211 of 10 December 1930 provided for the appointment of dedicated commanders for aircraft and for each type of ship. Aviation type commands in the Battle, Scouting, and Base Forces were designated Commander Aircraft [name of force].

2 APRIL • Grumman received a contract for a protoype XFF-1 two-seat fighter, BuNo A-8878. This plane marked the first naval aircraft to incorporate retractable landing gear for the purpose of reducing aerodynamic drag and thereby increasing performance.

9 APRIL • Glenn L. Martin Co. received a contract for 12 BM-1s. These planes were further developments of the XT5M-1 and the first dive bombers capable of attacking with heavy (1,000-pound) bombs procured in sufficient numbers to equip a naval squadron.

1 JUNE • The Bureau of Aeronautics issued new specifications for aircraft markings that directed use of 20 inch-wide colored bands around the fuselage of section leader planes, assigning royal red, white, true blue, black, willow green, and lemon yellow for sections 1 through 6 respectively. The same order permitted use of distinguishing colors on the empennage whenever two or more squadrons of the same class operated together.

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A BM-1 dive bomber carrying a 1,000-pound bomb.

215856

C. J. Faulkner lands an XOP-1 autogiro at NAS Anacostia, D.C., 1 June 1931.

1 JUNE • After civilian test pilot C. J. Faulkner arrived at NAS Anacostia, D.C., in an XOP-1 autogiro, Assistant Secretary of the Navy for Aeronautics David S. Ingalls and Assistant Chief of the Bureau of Aeronautics Capt. John H. Towers completed a 30-minute evaluation flight in the plane.

1 JULY • NAS Coco Solo, Panama Canal Zone, and NAS Pearl Harbor, Territory of Hawaii, were redesignated Fleet Air Bases (FABs) to conform with their transfer to the U.S. Fleet and their function of providing mobile air units for fleet operations.

19 JULY • Lts. Thomas G. W. Settle and Wilfred Bushnell received the Litchfield Trophy—awarded to the aeronauts who stayed aloft for the greatest number of hours—when they won the National Elimination Balloon Race in Akron, Ohio, with a distance of 195 miles overnight to Marilla, N.Y., qualifying them for the subsequent international race.

8 AUGUST • Lou Hoover, the wife of President Herbert C. Hoover, christened rigid airship *Akron* (ZRS 4) at the Goodyear-Zeppelin Corp., Akron, Ohio.

10 SEPTEMBER • Chief of the Bureau of Aeronautics Rear Adm. William A. Moffett directed the expedition of the variable-pitch propeller test and evaluation program. The admiral noted that in recent tests at NAS Anacostia, D.C., a variable-pitch propeller on an F6C-4 Hawk had provided a 20 percent reduction in takeoff run and a slight increase in maximum speed.

23 SEPTEMBER • Pilot Lt. Alfred M. Pride and passenger Capt. Kenneth Whiting completed three landings and takeoffs in an XOP-1 autogiro on board *Langley* (CV 1) while the carrier was underway, marking the first such onboard autogiro operations at sea.

23 SEPTEMBER • Rigid airship *Akron* (ZRS 4) made her first trial flight around the Cleveland, Ohio area. The 112 passengers included Secretary of the Navy Charles F. Adams and Chief of the Bureau of Aeronautics Rear Adm. William A. Moffett.

26 SEPTEMBER • The keel for *Ranger* (CV 4), the first U.S. Navy ship designed and constructed as a carrier, was laid at the Newport News Shipbuilding and Dry Dock Co., Va.

30 SEPTEMBER • The Bureau of Aeronautics reported that it was conducting studies for catapulting landplanes on wheels. The investigators visualized the installation of powder catapults on hangar decks. The technology was expanded to include the use of compressed air to launch a plane, and by the end of 1932 the Naval Aircraft Factory, Philadelphia, Pa., used this method to successfully launch an O2U-3 Corsair.

7 OCTOBER • Aircraft obtained 50 percent hits with the newly developed Norden Mk XV bombsight in a bombing demonstration conducted from an altitude of 5,000 feet against anchored target ship *Pittsburgh* (CA 4), compared to slightly more than 20 percent hits with the earlier Mk XI model.

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Lt. Alfred M. Pride and Capt. Kenneth Whiting complete the first XOP-1 autogiro operations on board *Langley* (CV 1), 23 September 1931.

7 OCTOBER • Evaluation of experimental K-class airship K-1 began at NAS Lakehurst, N.J. K-1 featured an enclosed all-metal car and a 320,000-cubic-foot envelope that made her the largest nonrigid airship designed especially for the Navy until that time.

27 OCTOBER • Rigid airship *Akron* (ZRS 4) was commissioned at NAS Lakehurst, N.J., Lt. Cmdr. Charles E. Rosendahl commanding.

2 NOVEMBER • VS-14M and VS-15M, embarked on board *Saratoga* (CV 3) and *Lexington* (CV 2), respectively, began operations as an integral part of Aircraft, Battle Force, and as the first Marine aviation squadrons assigned to carriers. They served as such until late 1934. From then until 1941 other Marine squadrons maintained some carrier proficiency through periodic operations afloat and field carrier landing practice ashore.

3 NOVEMBER • Rigid airship *Akron* (ZRS 4) made a ten-hour flight out of NAS Lakehurst, N.J. She set a new record for the largest number of individuals carried into the air by a single craft—207.

9 DECEMBER • *Langley* (CV 1) completed nine days of operations off the New England coast in which sailors tested the cold-weather operating capabilities of carrier deck gear and aircraft as well as the effectiveness of protective flight clothing.

1932

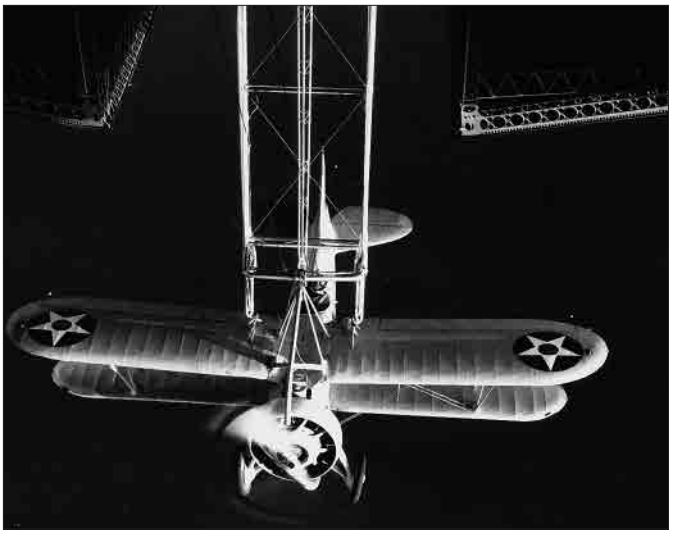
9 JANUARY • Rigid airship *Akron* (ZRS 4) operated with the Scouting Fleet off the Carolinas and northeast of the Bahamas. The airship deployed without her planes because the trapeze had not been installed and the vessel's aircraft storage facilities remained incomplete.

22 FEBRUARY • Rigid airship *Akron* (ZRS 4) incurred damage while being towed from her hangar. The ensuing repairs caused her to miss Fleet Problem XIII.

7 MARCH • Planners envisioned Fleet Problem XIII off the West Coast as the first step in an overseas campaign in which an advanced force moved from a concentration point to a first objective. *Langley* (CV 1), *Lexington* (CV 2), and *Saratoga* (CV 3) took part in the problem, which included scouting and tracking, convoy attack and defense, and attrition attacks by aircraft, light vessels, and submarines. Repairs delayed rigid airship *Akron* (ZRS 4) from participating. Planes from "Blue" carrier *Saratoga* and FAB Pearl Harbor bombed "Black" submarine *Narwhal* (SS 167), rendering her out of action on 10 March, after which *Argonaut* (SM 1) took over command of the Black submarine division. Blue aircraft subsequently sank submarines *Barracuda* (SS 163) and *Bonita* (SS 165). Observers called for increased antiaircraft measures against dive bombers, including .50-caliber shipboard machine guns and six to eight additional carriers to project forces overseas. Evaluators also noted the vulnerability of submarines to aerial attack and the need for better flotation gear on board battleship and cruiser planes. The problem concluded on 18 March.

24 MARCH • The Army Air Corps responded to enthusiastic reports from its observers at the Mk XV Norden bombsight trials against *Pittsburgh* (CA 4) in October 1931. The corps requested that the Navy provide the service with 25 Mk XV sights, marking the Army's first commitment to the Navy-developed sight that became so essential to the high-altitude precision bombing in WWII.

2 APRIL • Torpedo Squadron 5A (ex-VT-20) sailed from the Philippines on board seaplane tender *Jason* (AV 2) for NAS San Diego, Calif. When VS-8A, the single squadron remaining in the area, was disestablished the following June, aviation in the Asiatic Fleet was reduced to the observation aircraft on board cruisers.



441980

Akron (ZRS 4) hoists an F9C-2 Sparrowhawk into the rigid airship's hangar.

2 MAY • The Bureau of Aeronautics directed the installation of hydraulic cylinder-type arresting gear on board *Langley* (CV 1) to replace the weight-type gear. This decision resulted from operational experience with two sets of hydraulic gear installed on board *Langley* in June and September 1931.

8 MAY • Rigid airship *Akron* (ZRS 4) flew across the country from NAS Lakehurst, N.J., arriving on 11 May at Camp Kearny, San Diego, Calif. *Akron* embarked the prototype XF9C-1 Sparrowhawk and an N2Y-1 trainer during the voyage.

18 MAY • With enough qualified students to fill several classes at Pensacola, Fla., the Bureau of Navigation approved a request by the Bureau of Aeronautics to discontinue the practice of waiving the two-year sea duty requirement instituted in 1930. In effect, this marked the beginning of almost a year in which no new prospective aviators enrolled.

1 JUNE • President Herbert C. Hoover accepted the resignation of Assistant Secretary of the Navy for Aeronautics David S. Ingalls. The service announced that it was suspending the appointment of a successor as a cost-saving measure. The office remained vacant until 1941.

1 JUNE • Rigid airship *Akron* (ZRS 4) took part in her second exercise with the Scouting Fleet off the California coast. The airship twice located and tracked the enemy, but seaplanes shot *Akron* down. Commander Scouting Force cited rigid airship vulnerabilities and recommended against further expenditures for the craft.

30 JUNE • *Los Angeles* (ZR 3) was decommissioned for fiscal reasons at NAS Lakehurst, N.J., after eight years of service and more than 5,000 hours in the air.

1 JULY • An amending act became effective that reduced the requirement for the Navy's share of enlisted pilots from 30 percent to 20 percent. The restrictive nature of the requirement was modified to include an exception for when, in the opinion of the Secretary of the Navy, it proved impracticable to obtain the required number of enlisted pilots.

28 JULY • The Bureau of Aeronautics allocated funds to the Bureau of Medicine and Surgery for research into the physiological effects of high acceleration and deceleration that pilots encountered in dive bombing and other violent maneuvers. Lt. Cmdr. John R. Poppen, MC, performed the pioneer research under the direction of Dr. C. K. Drinker at Harvard University School of Public Health, Mass. The results of their studies pointed to the need for anti-G or anti-blackout equipment.

15 AUGUST • NAS Hampton Roads, Va., was redesignated NAS Norfolk, Va.

25 SEPTEMBER • Lts. Thomas G. W. Settle and Wilfred Bushnell won the International Balloon Race at Basel, Switzerland, in a two-day flight that ended on the Polish-Latvian border near Vilna, Poland. Settle and Bushnell established a new world distance record of 963.123 miles for balloons in three categories of volume.

10 NOVEMBER • The Navy issued its first production order for radio equipment suitable for installation in single-seat fighters, with a contract for 125 sets of GF-1 radios to the Aviation Radio Corp.

22 NOVEMBER • Following tests of an XOP-1 with the 2d Marine Brigade in Nicaragua, Maj. Francis P. Mulcahy, USMC, reported the autogiro's chief value in expeditionary duty as inspecting small fields for landing areas, evacuating casualties, and ferrying officers and noncommissioned officers.

1933

4 JANUARY • The Postgraduate School Council approved a new plan for postgraduate work that combined the existing programs for specialists and for the general line and extended the aeronautical engineering program to three years. All of the officers selected for postgraduate work commenced with one year in the School of the Line. Those men who demonstrated ability and interest in an advanced technical specialty studied a second year in that area; in the third year, they detached to civilian institutions for work, leading to master of science degrees in most instances.

25 JANUARY • The Bureau of Navigation announced it would resume assigning naval officers to flight training at NAS Pensacola, Fla., in May or June—almost a year after the last group had received assignments.

10 FEBRUARY • Fleet Problem XIV began off the West Coast to train the fleet for the complex mission of escorting an expeditionary force overseas while enemy forces threatened to raid an outlying possession. The problem consisted of tracking, organizing the coast for defense, repelling a carrier raid, and practicing carrier air group tactics. Both sides achieved surprise attacks. Aircraft from *Saratoga* (CV 3) bombed an oil refinery at Venice, an oil field at El Segundo, and docks at Long Beach, Calif., without encountering antiaircraft fire, but opposing planes surprised and damaged the ship. Overnight on 15–16 February the clouds thickened, precluding flying operations. *Lexington* (CV 2) lost contact with her cruisers and made speed to reach a launching point during the morning watch, but two battleships surprised and sank the carrier from a range of 4,500 yards. The evaluation succinctly summarized the episode: "The LEXINGTON had not launched a plane."

Lessons learned included the "crying" need for planes capable of better performance and the "great handicap" that the slow speeds of patrol, bomber, and torpedo aircraft were causing; the necessity for carriers to attain the treaty strength of three 18,000-ton ships; the superiority of cruisers over destroyers as plane guards; and the need to improve communication procedures and the system of identification.

16 FEBRUARY • President Herbert C. Hoover presented the Distinguished Flying Cross to Col. Nathan D. Ely, USA (Ret.), awarded posthumously to Ely's son Eugene B. Ely for extraordinary achievement as a pioneer aviator and for significant contribution to the development of naval

46266

The XF11C-3, later redesignated the XBF2C-1.

4284422

F9C-2 Sparrowhawks return to their mothership, the rigid airship *Macon* (ZRS 5). Her hangar bay could accomodate five of the little fighters.

aviation as a civilian. The younger Ely had demonstrated the feasibility of operating aircraft from ships in 1910 and 1911.

4 MARCH • Rigid airship *Akron* (ZRS 4) flew over the inauguration ceremonies for President Franklin D. Roosevelt in Washington, D.C.

10 MARCH • Navy ships, including *Langley* (CV 1), provided aid to the victims of an earthquake that occurred in Long Beach, Calif. Many buildings without reinforced masonry walls collapsed and at least 120 people perished.

11 MARCH • Mrs. William A. Moffett, the wife of the Chief of the Bureau of Aeronautics, christened the rigid airship *Macon* (ZRS 5) in Akron, Ohio. *Macon* was the last such airship procured for the Navy.

1 APRIL • Fleet aviation was reorganized and divided between two principal commands: carriers and their aircraft were assigned to Battle Force; tender-based aviation squadrons and FABs Pearl Harbor, Territory of Hawaii, and Coco Solo, Panama Canal Zone, to Base Force. Each of the two commanders exercised type functions within his force. Commander Aircraft, Battle Force, served as type commander for all fleet aircraft, and the reorganization abolished Aircraft, Scouting Force.

4 APRIL • Rigid airship *Akron* (ZRS 4), with Chief of the Bureau of Aeronautics Rear Adm. William A. Moffett embarked, lifted from NAS Lakehurst, N.J., at 1830 to assist in calibrating radio direction finders along the Atlantic coast. Skipper Cmdr. Frank C. McCord left the airship's F9C-2 Sparrowhawks behind. *Akron* encountered fog and then thunderstorms as she neared New York. McCord attempted to elude the storms and then brought her about, but a downdraft violently thrust the ship into the sea at about 0300 on 5 April off Barnegat Light, N.J. The survivors attempted to escape through the fabric fuselage, but the airship lost power and lights when she crashed, and the men who straggled from the wreckage in the darkness faced the cold Atlantic without life vests. Passing German tanker *Phoebus* rescued Cmdr. Herbert V. Wiley and two crewmen but Moffett, McCord, and 71 other sailors perished. The Navy struck *Akron* on 30 April.

18 APRIL • Pilot Lt. George A. Ott and passenger Lt. j.g. Bruce A. Van Voorhis in an O2U Corsair made the first operational test of a device later called the Plane Trap, installed on battleship *Maryland* (BB 46). Lt. Lisle J. Maxson had proposed the device, which consisted of a V-shaped float attached to the stern by a system of struts that permitted the float to ride in the water at an even depth. A seaplane taxied toward the float pushing a knobbed probe on the nose of its pontoon into the V-float, which engaged the probe and held the seaplane in position for hoisting on board. The success of the mechanism led to proposals to install the same gear on five additional battleships.

21 APRIL • *Macon* (ZRS 5) made her first flight. The rigid airship executed preliminary turning and climbing trials as well as a speed run in which she reached 70 knots.

29 APRIL • The Bureau of Aeronautics recommended that postgraduate instruction in aerology resume. Classes had been suspended since 1929. By year's end the bureau completed arrangements for a two-year course at the postgraduate school and a third year at a civilian university.

13 JUNE • The Bureau of Aeronautics issued a contract for the development of special radio equipment for making blind landings on board carriers to the Washington Institute of Technology.

16 JUNE • Under the terms of the National Industrial Recovery Act, President Franklin D. Roosevelt allotted $238 million to the Navy for new ship construction, including two aircraft carriers. In less than two months

contracts were awarded for the Navy's fifth and sixth carrier, which were commissioned as *Yorktown* (CV 5) and *Enterprise* (CV 6), respectively.

22 JUNE • An underway recovery device proposed by Lt. George A. Ott on board battleship *Maryland* (BB 46) was tested off Point Fermin, Calif. The device resembled a cargo net fitted with a wood spreader at its forward edge and canvas underneath which, when towed by the ship, rode the surface forward and remained slightly submerged aft so that seaplanes taxied on and caught the net with a hook on the bottom of its pontoon. Recovery over the stern succeeded on the first attempt. Sailors then attempted an alongside recovery, which was necessary for ships with cranes amidships. With the net trailing from a boom, a seaplane again caught the net but then swung into the ship and crumpled its wing. In spite of the partial failure, the possibilities of the plane net were apparent and later adjustments corrected deficiencies.

23 JUNE • Rigid airship *Macon* (ZRS 5) was commissioned at Akron, Ohio, Cmdr. Alger H. Dresel commanding.

7 JULY • Rigid airship *Macon* (ZRS 5) received her planes on board for the first time, while underway over Long Island Sound. Lt. D. Ward Harrigan tested the trapeze with an N2Y-1 trainer, and then together with Lt. j.g. Frederick N. Kivette checked the apparatus with heavier F9C-2 Sparrowhawks.

8 AUGUST • Commander Aircraft, Battle Force, requested

441982

A trio of F9C-2 Sparrowhawks fitted with airship hook-on gear.

462618

An F4B-4 fighter.

authority to use variable-pitch propellers on six F4B-4 fighters of VF-3, based on board *Langley* (CV 1), and on one F4B-4 of VF-1, operating from *Saratoga* (CV 3), during forthcoming exercises. This request stemmed from the successful trials VF-3 had conducted on board *Langley* and marked the Navy's initial acceptance of variable-pitch propellers.

9 AUGUST • Commander Battle Force, commenting on tests of the plane net made by battleship *Maryland* (BB 46), pointed out that construction of the net and pontoon hook were well within the capacity of the ship's company and directed that all battleships under his command experiment with, and attempt to develop, techniques for underway recoveries.

2 SEPTEMBER • Lt. Cmdr. Thomas G. W. Settle and Lt. Charles H. Kendall took second place in the Gordon Bennett International Balloon Race at Chicago, Ill., with a distance of 776 miles into 4 September. Their 51 hours in the air set new world records for duration in three categories of volume.

7 SEPTEMBER • A flight of six P2Y-1 flying boats, Lt. Cmdr. Herman E. Halland of VP-5F commanding, flew nonstop from NAS Norfolk, Va., to FAB Coco Solo, Panama Canal Zone, into 8 September, completing a record distance formation flight of 2,059 miles in 25 hours 19 minutes.

12 OCTOBER • Rigid airship *Macon* (ZRS 5) departed NAS Lakehurst, N.J., for her new home on the West Coast at NAS Sunnyvale, Calif. The airship followed the Atlantic coast down to Macon, Ga., and turned westward over the southern route. The craft arrived at Sunnyvale on the afternoon of 15 October, completing the 2,500-mile nonstop flight in approximately 70 hours. *Macon* embarked a single N2Y-1 trainer for the voyage.

17 OCTOBER • In order to prevent a pilot shortage as a result of the curtailment in naval aviator training, the Bureau of Navigation approved a request by the Bureau of Aeronautics to authorize additional instruction for specially recommended students who had failed to qualify on their first attempt or whose training had been interrupted. The next month a requalification course for naval aviators and naval aviation pilots who had been on non-flying duty was also authorized.

24 OCTOBER • Initiating development of its anti-blackout equipment, the Navy authorized the Naval Aircraft Factory, Philadelphia, Pa., to develop and manufacture a special abdominal belt according to the specifications prepared by Lt. Cmdr. John R. Poppen, MC, for use by pilots in dive bombing and other violent maneuvers.

28 OCTOBER • A contract was issued to Consolidated Aircraft for the XP3Y-1, which marked the initiation of Navy-sponsored development of the PBY Catalina series of flying boats.

14 NOVEMBER • Rigid airship *Macon* (ZRS 5) participated in fleet exercises. During Exercise D the following day cruiser antiaircraft guns shot the airship down. Thirty-six fighters subsequently downed *Macon* a second time.

17 NOVEMBER • The sum of $7.5 million was allotted to the Navy from National Industrial Recovery Act funds for the procurement of new aircraft and equipment. The decision permitted the Bureau of Aeronautics to maintain its 1,000-plane program, to equip operating aircraft with modern navigation instruments and radios, and to make other improvements in naval aircraft and accessories not possible under the annual appropriation.

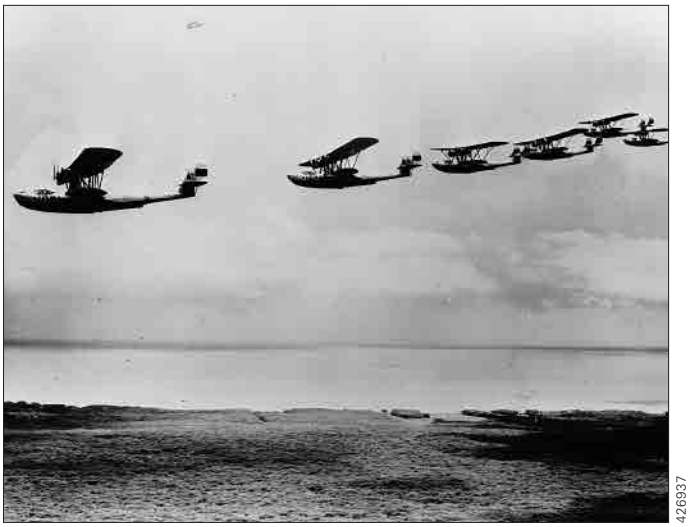
20 NOVEMBER • Lt. Cmdr. Thomas G. W. Settle and Maj. Chester L. Fordney, USMC, set a global altitude record of 61,237 feet in a 600,000-cubic-foot free balloon flying into the stratosphere from Akron, Ohio, and landing near Bridgeton, N.J.

20 DECEMBER • To organize the aviation element of the newly formed Fleet Marine Force, Aircraft Squadrons East Coast Expeditionary Forces was redesignated Aircraft One, Fleet Marine Force and Aircraft Squadrons West Coast Expeditionary Forces became Aircraft Two, Fleet Marine Force.

1934

3 JANUARY • Rigid airship *Macon* (ZRS 5) took part in fleet exercises. The following night she flew over the "enemy" fleet with all her lights lit; antiaircraft guns promptly shot the airship down. On 5 January fighters downed *Macon* a second time.

10 JANUARY • A group of six P2Y-l flying boats, Lt. Cmdr. Knefler McGinnis of VP-10F commanding, made a nonstop formation flight from San Francisco, Calif., to FAB Pearl Harbor, Territory of Hawaii, into the next day, in 24 hours 35 minutes. Their accomplishment bettered the best previous time for the crossing, exceeded the distance of previous mass flights, and broke a nine-day-old Class C seaplane world record for distance in a straight line with a new mark of 2,399 miles.



426937

Six P2Y-l flying boats complete a nonstop formation flight from San Francisco, Calif., to Pearl Harbor, Territory of Hawaii, 11 January 1934.

14 MARCH • Dr. A. Hoyt Taylor, head of the Radio Division, Naval Research Laboratory, authorized the development of pulse radar (as later known) to detect ships and aircraft. Project researcher Leo C. Young had proposed the basic concept involving special sending, receiving, and display equipment—all mounted in close proximity. This equipment was to send out pulses of radio energy of a few microseconds in duration separated by time intervals tens to thousands of times longer than the duration of a pulse. Reception of an echo was to indicate a target; time of travel to the target and back, the distance; and directional sending or receiving antenna, the bearing. Compared to the beat in a continuous radio wave technique under development at NRL for nearly four years, the pulse technique promised much greater utility because it was to provide range and bearing as well as detection, and because the entire apparatus could be installed on board a single ship. Researchers based the feasibility of the pulse technique on new developments by the radio industry, including the cathode ray tube, high-power transmitting tubes, and special receiving tubes.

27 MARCH • An act of Congress, approved by President Franklin D. Roosevelt and popularly known as the Vinson-Trammell Act after the two members of Congress who sponsored the measure, Carl Vinson (D-Ga.) and Park Trammell (D-Fla.), established the composition of the Navy at the limits prescribed by the Washington Naval Treaty of 1922 and the London Naval Treaty of 1930. The act authorized the President to procure naval aircraft for ships and naval purposes in numbers commensurate with a treaty Navy and authorized construction of, among other ships, an aircraft carrier of about 15,000 tons. The fleet comprised 65 percent of its allotted treaty strength at the time of the act's approval; the Japanese, by comparison, had built to 95 percent of their ratios. The treaty designers intended the act to enable U.S. naval strength to expand to these limits within eight years. The bill also provided that not less than 10 percent of the authorized aircraft and engines were to be manufactured in government plants. Under the act, the carrier subsequently named *Wasp* (CV 7) was laid down in 1936.

19 APRIL • Three separate exercises designed to enhance realism comprised Fleet Problem XV in the Caribbean and in Panamanian waters. Aircraft sank *Saratoga* (CV 3) and put *Lexington* (CV 2) out of action. On 6 May six FF-1 fighters from *Lexington* shot down rigid airship *Macon* (ZRS 5)—though she transmitted a sighting report of the carrier. The increased complexity and duration of the fleet problems led umpires to initiate periodic recesses to rest crews. Observers noted the liability of airships in fleet operations and counterbalanced their great cost, slow speed, and vulnerability unfavorably with their value as scouts. The lessons learned included the utility of small carriers in recovering battleship- and cruiser-based planes, the inefficiency of battleship and cruiser plane handling, the necessity of carrier planes capable of carrying 500- and 1,000-pound bombs, and the need for improved aircraft tenders to replace the slow and poorly equipped ships in service. The exercise concluded on 12 May.

20 APRIL • Rigid airship *Macon* (ZRS 5) made a transcontinental flight from Moffett Field, Calif., to Opa-Locka, Fla. The airship encountered severe turbulence en route that caused diagonal and interring girders to buckle, but the crew accomplished temporary repairs and continued. *Macon*'s planes flew cross country independently. *Macon* returned to Moffett Field on 16 May.

1061485

An FF-1 fighter, the first naval aircraft to incorporate retractable landing gear.

28 APRIL • The equipment and techniques of alongside recovery by plane net had developed to the point that Commander Cruisers, Battle Force, issued a directive describing the method that each ship of his command was to use. The success of the method was such that the only plane trap in use, that on board battleship *Maryland* (BB 46), was removed in June, and underway recovery of seaplanes by battleships and cruisers soon became routine.

1 MAY • Lt. Frank Akers made a hooded landing in an OJ-2 observation biplane at College Park, Md., in the first demonstration of the blind landing system intended for carrier use and under development by the Washington Institute of Technology. In subsequent flights Akers took off under a hood from NAS Anacostia, D.C., and landed at College Park without assistance.

428440

Ranger (CV 4), the first Navy ship designed and constructed as a carrier.

22 MAY • The Navy ordered its first single-engine NS-1 biplane trainers from Stearman Aircraft Co., Wichita, Kan.

4 JUNE • *Ranger* (CV 4), the first U.S. ship built from the keel up as a carrier, was commissioned at Pier 7 at NOB Norfolk, Va., Capt. Arthur L. Bristol commanding.

21 JUNE • *Ranger* (CV 4) Air Officer Lt. Cmdr. Arthur C. Davis and MMC H. E. Wallace of the carrier's V-2 division made the first takeoff and landing on board the ship in an O3U-3 Corsair, BuNo 9318. *Ranger* completed normal operations, including the recovery of aircraft over her stern, and then went full speed astern, with aircraft landing using her bow arresting gear. The ship anchored overnight off Virginia Beach, Va., continued flight operations the next day, and hosted a brief visit by Chief of the Bureau of Aeronautics Rear Adm. Ernest J. King. *Ranger* was the first U.S. carrier equipped with bow and stern arresting gear.

30 JUNE • The Navy awarded a contract to Douglas for the XTBD-1 torpedo bomber.

18 JULY • Fourteen Class of 1933 Naval Academy graduates reported to NAS Pensacola, Fla., for special training toward qualification as naval aviators. Their route to designation in January 1935 was circuitous—they received an honorable discharge upon graduation from the academy because of a lack of vacancies in the Navy, enrolled and trained as Flying Cadets in the Army Air Corps, accepted a commission in either the Navy or Marine Corps, and, finally, completed the Pensacola course.

19 JULY • Pilots Lt. Harold B. Miller and Lt. j.g. Frederick N. Kivette launched from the trapeze of rigid airship *Macon* (ZRS 5) in F9C-2 Sparrowhawks without their wheel landing gear and discovered heavy cruisers *Houston* (CA 30) and *New Orleans* (CA 32) when the ships sailed from Panama to the Hawaiian Islands via Clipperton Island. Miller and Kivette dropped bags of newspapers and magazines onto *Houston*'s deck for embarked President Franklin D. Roosevelt. Because of the improved performance of the aircraft on this first flight without landing gear, it became *Macon*'s standard operating procedure to fly planes from the trapeze in this configuration.

1 AUGUST • Lts. j.g. Charles H. Kendall and Howard T. Orville completed a 206.4-mile flight from Birmingham, Ala., to Commerce, Ga., to win the National Elimination Balloon Race and qualify for the international race.

1061904

A TBD-1 Devastator torpedo bomber.

8 AUGUST • During a training flight over the area of San Francisco–Oakland Bay, Calif., rigid airship *Macon* (ZRS 5) streamed her spy-basket in the first attempt since rigid airship *Akron* (ZRS 4) had performed an aborted test in 1932. Crewmembers initially lowered the basket empty; its instability and poor performance validated their caution.

1 NOVEMBER • The Naval Aircraft Factory, Philadelphia, Pa., received authorization to manufacture and test a Type H Mk I flush-deck hydraulic catapult. Planners intended it to launch landplanes from aircraft carriers. This type, the initial step in the Navy's development of hydraulic catapults, proved capable of extensive refinement and eventually attained acceptance as a primary carrier launch system.

7 NOVEMBER • During training with the fleet, rigid airship *Macon* (ZRS 5) sent her planes ahead as scouts, which spotted and shadowed *Saratoga* (CV 3) for several hours. The airship returned to Moffett Field, Calif., two days later.

15 NOVEMBER • Plans to install hydraulic flush-deck catapults on board carriers were formalized in a Bureau of Aeronautics request that *Enterprise* (CV 6) and *Yorktown* (CV 5) reserve space for two bow catapults (each) on their flight decks, and one athwartships on their hangar decks.

1053784

The XBT-1 heavy dive bomber, which preceded the SBD Dauntless.

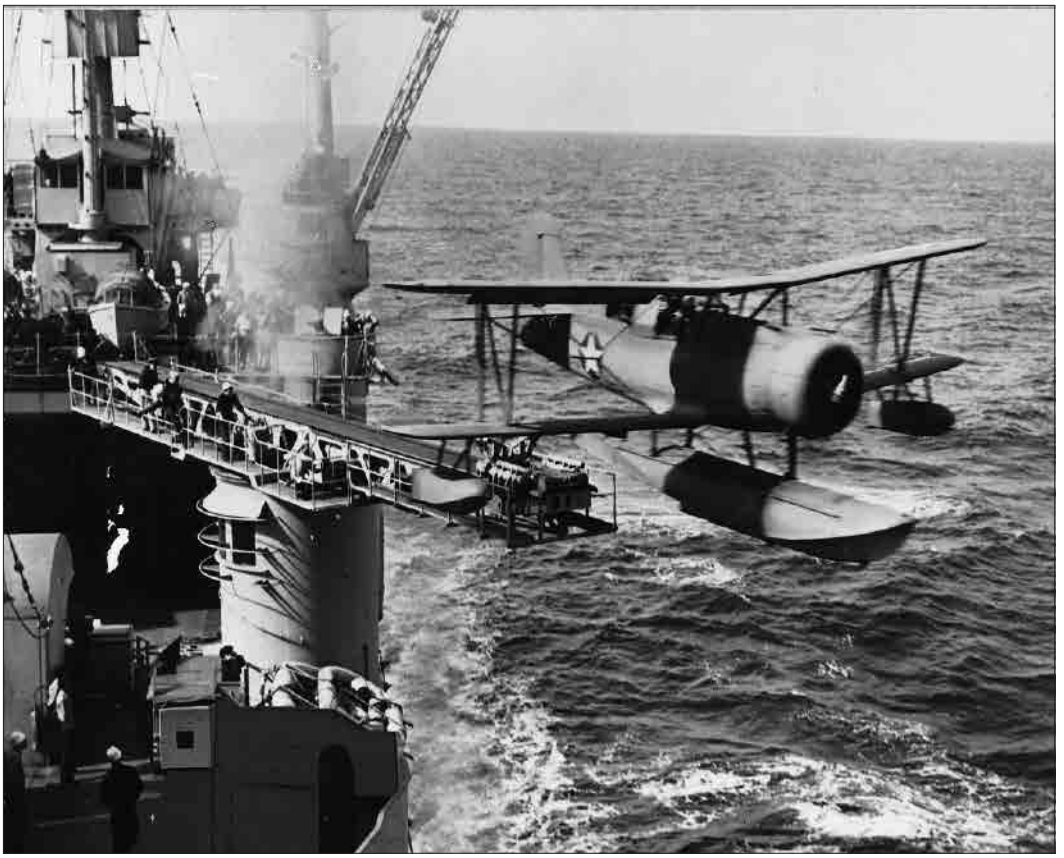
18 NOVEMBER • The Navy issued a contract to Northrop Corp. for the two-seat XBT-1 scout and dive bomber.

5 DECEMBER • Rigid airship *Macon* (ZRS 5) flew from Moffett Field, Calif., to take part in a minor tactical training exercise. Two days later her planes spotted and tracked *Lexington* (CV 2), but dive bombers from the carrier shot the airship down. The exercise suspended on 8 December when a pair of planes failed to return to light cruiser *Cincinnati* (CL 6). *Macon* found the aircraft and hovered over the scene until ships arrived to rescue the pilots.

14 DECEMBER • The reinflation of rigid airship *Los Angeles* (ZR 3) after nearly three years in decommissioned status enabled her to become airborne in the hangar at NAS Lakehurst, N.J. Although *Los Angeles* did not fly again, she continued in use as a test and experimental ship for another five years and was stricken on 29 October 1939. Sailors subsequently dismantled the airship in seven weeks.

458706

The cameraman in an SU-1 Corsair scout takes an oblique photograph, 13 December 1934.



41601

An SOC-1 Seagull observation seaplane launches from the catapult of a heavy cruiser.

observe pilots, conduct their annual physical examinations, and work on hygienic and physiological aspects of research and development projects. Poppen's orders marked the first assignment of a flight surgeon to the factory other than as part of a specific mission.

14 JANUARY • While *Ranger* (CV 4) completed post-trial repairs and alterations at the Norfolk Navy Yard, Va., some of her squadrons made the first of a series of cross-country flights from Norfolk to Hartford, Conn., and Buffalo, N.Y., to test carrier aircraft, special equipment, and flight clothing under the exacting conditions they could encounter in cold weather. The squadrons completed the tests on 2 February, and the lessons learned were used to prepare for experiments on board *Ranger* the next winter.

15 DECEMBER • Secretary of the Navy Claude A. Swanson approved the acceptance of the XO3C-1 single-engine biplane observation seaplane, which was later redesignated XSOC-1.

21 DECEMBER • The flight tests for NS-1 Kaydet biplane trainers concluded at NAS Anacostia, D.C.

1935

2 JANUARY • Rigid airship *Macon* (ZRS 5) conducted visibility tests with carrier *Lexington* (CV 2) to determine how easily ships could sight the airship and who would discover whom first—airships or ships. Judges considered the test a draw. The airship returned the next day to Moffett Field, Calif.

5 JANUARY • The Bureau of Navigation stated that Lt. Cmdr. John R. Poppen, MC, was to be ordered to the Naval Dispensary at the Philadelphia Navy Yard, Pa., with additional duty at the Naval Aircraft Factory in that city to

22 JANUARY • The Federal Aviation Commission, appointed by President Franklin D. Roosevelt as provided in the Air Mail Act of 12 June 1934, submitted a report that in essence set forth a broad policy covering all phases of aviation and the relation of the government thereto. A major share of its recommendations referred to commercial and civil aviation, but some had implications for military aviation: expansion and close coordination of experimental and development work by the National Advisory Committee for Aeronautics, larger appropriations to support the Reserve organizations, and assignment of officers with special engineering ability and industrial experience to continuous related duty.

9 FEBRUARY • The XN3N-1 prototype of the Canary primary trainer was ordered from the Naval Aircraft Factory, Philadelphia, Pa.

1061654

An XN3N-2 "Yellow Peril" trainer built at the Naval Aircraft Factory, Philadelphia, Pa.

11 FEBRUARY • Cmdr. Herbert V. Wiley, commanding rigid airship *Macon* (ZRS 5), imaginatively sent four of her planes on a sortie up to 225 miles distant during a fleet exercise off the Santa Barbara Islands, Calif. The following day the airship came about to return to Moffett Field, Calif., but encountered fog off Cape San Martin.

Wiley turned away from the coast to avoid the fog, but the airship passed through a rainstorm. A severe gust of wind struck *Macon* at about 1705 and carried away her unreinforced upper fin, causing a structural failure. The damage worsened and the loss of gas from the after gas cells placed her at an extreme angle of trim, bow up. The helmsman reported that the wheel felt slack in his hands. Crewmembers dropped excessive ballast and *Macon* shot over pressure height where her automatic gas valves opened, which blew away the small margin of lift that remained.

Twenty-four minutes later *Macon* crashed and sank off Point Sur. Two of the 83 men on board died, and the ship took four of her F9C-2 Sparrowhawks to the bottom. *Macon* was the fourth rigid airship lost, and her fall signaled the demise of the type in the Navy. On 26 February Secretary of the Navy Claude A. Swanson informed all bureaus and divisions of the Chief of Naval Operations that *Macon* had been stricken.

19 FEBRUARY • The initial F2F-1 arrived at VF-2B as the first single-seat Navy fighter with an enclosed cockpit to serve in squadron inventory.

12 MARCH • The Navy issued a contract to Pitcairn Aircraft Co. to remove the fixed wings from an XOP-1 autogiro, thereby converting it to an XOP-2 as the service's first heavier-than-air craft without fixed wings.

15 APRIL • Passage of the Aviation Cadet Act created the grade of Aviation Cadet in the Navy and Marine Corps Reserves. The act set up a new program for pilot training in which qualified college graduates between the ages of 18 and 28 were to be eligible for one year of flight instruction, benefits of pay, and uniform gratuities and insurance. Following three additional years on active duty they were to be commissioned as ensigns or second lieutenants, paid a bonus of $1,500, and returned to inactive duty as members of the Reserves. The program provided many of the aviators who manned cockpits during WWII.

29 APRIL • The five phases of Fleet Problem XVI covered a vast area from the Aleutian Islands to Midway, Territory of Hawaii, and the eastern Pacific. Patrol and Marine aircraft took the major aerial role during landing exercises when combined forces launched a strategic offensive against the enemy. Severe weather hampered the operations in Alaskan waters. During her first fleet problem *Ranger* (CV 4) joined *Langley* (CV 1), *Lexington* (CV 2), and *Saratoga* (CV 3) in the main body of the "White" fleet. The slowness of sending patrols on 30 April enabled "Black" submarine *Bonita* (SS 165) to close within 500 yards and fire six torpedoes at *Ranger* as she recovered planes, and for *Barracuda* (SS 163) to fire four torpedoes from 1,900 yards. Planes pursued the submarines, and a dive bomber caught *Bonita* on the surface and made a pass before she submerged, but the ease with which the boats penetrated the screen boded poorly for the ships. Patrol squadrons marred by casualties subsequently made a mass flight from FAB Pearl Harbor via French Frigate Shoals. The exercise concluded on 10 June.

1 MAY • The Bureau of Navigation issued a new pilot training syllabus that required about 300 hours of flight instruction and 465 hours of ground school in a total time of one year. The new course did not differentiate between student naval aviators and student aviation pilots but specified 90 additional hours of indoctrination courses for reservists.

5 JUNE • An act of Congress authorized the designation of specially qualified officers for the performance of

5206

One of three Douglas RD-2 Dolphins built for the Navy as VIP transports painted in Navy Blue.

aeronautical engineering duty only. Secretary of the Navy Claude A. Swanson appointed a board in September to select the first officers for this designation, and his subsequent approval of the board's report brought about the assignment of 11 officers of the line and 33 members of the Construction Corps to this category.

20 JULY • The first class of Aviation Cadets to report for flight training convened at NAS Pensacola, Fla. Elliott M. West became the first of the group to become a naval aviator when he was designated Naval Aviator No. 4,854 on 12 June 1936.

30 JULY • Lt. Frank Akers made the first blind landing on board a carrier in an OJ-2 observation biplane with a hooded cockpit. Akers took off from NAS San Diego, Calif., located *Langley* (CV 1) underway in an unknown position, and landed on board catching the number four arresting wire. Akers subsequently received the Distinguished Flying Cross.

2 SEPTEMBER • A storm known locally as the "Labor Day Hurricane" devastated the middle Florida Keys, killing at least 423 people, including 258 WWI veterans working on the Federal Emergency Relief Administration Overseas Highway. The hurricane caused additional damage along the Florida panhandle and through Georgia and the Carolinas. Lt. Clemmer, USCG, had dropped more than 100 message blocks from a Coast Guard PJ-1 Flying Lifeboat to warn

1061655

NAS Anacostia, foreground, and the Army's Bolling Field, D.C., prior to the Navy's acquisition of the airfield.

1053771

The XP3Y-1—the prototype Catalina—sets a 3,443-mile record when, under the command of Lt. Cmdr. Knefler McGinnis, shown here with his crew, it lands in Alameda, Calif., on 15 October 1935 after taking off from the Panama Canal Zone.

people of the approaching tempest. Five additional Coast Guard planes flying from CGASs Miami and St. Petersburg in Florida searched for survivors, directed patrol boats toward victims, and carried the injured and recovered bodies to Miami. During one flight Clemmer flew 16 victims to Miami for treatment—the largest number of people carried in that type of plane to date.

26 SEPTEMBER • President Franklin D. Roosevelt approved an Army-Navy proposal for the transfer of air station properties, culminating several years of study and discussion of the joint use of aviation facilities in certain areas. By this approval and a subsequent executive order, the Army agreed to turn the following over to the Navy: Bolling Field at NAS Anacostia, D.C.; Luke Field on Ford Island, Oahu, Hawaiian Islands; and Rockwell Field on North Island, Calif. The Navy agreed to turn over to the Army NAS Sunnyvale, Calif. In this exchange, both parties understood the Army's intention to construct new fields at Bolling (adjoining its previous location) and on Oahu (Hickam Field).

5 OCTOBER • The first G-class airship G-1 arrived at NAS Lakehurst, N.J. The Navy used it, formerly *Defender* of the Goodyear Corporation's commercial fleet of advertising and passenger airships, for training purposes.

14 OCTOBER • Pilot Lt. Cmdr. Knefler McGinnis, Lt. j.g. James K. Averill, naval aviation pilot Thomas P. Wilkinson, and a crew of three completed a flight in the XP3Y-1 patrol plane, powered with two 825-hp Pratt & Whitney engines, from Cristobal Harbor in the Panama Canal Zone to Alameda, Calif., in 34 hours 45 minutes into 15 October.

A late version of the F2A Buffalo, the type that became the Navy's first production monoplane.

They established new world records for Class C seaplanes of 3,281.383 miles airline distance and 3,443.255 miles broken line distance.

15 NOVEMBER • The chief of the Bureau of Aeronautics approved recommendations from a fighter design competition and thereby initiated development of the XF4F-1 biplane and the XF2A-1 monoplane. Although it included subsequent changes and modifications, this developmental sequence provided prototypes of the Navy's first-line fighters in use when the United States entered WWII.

9 DECEMBER • During a second naval disarmament conference in London, England (the first was held in 1930), the Japanese naval delegation walked out following the Americans' refusal to grant the Imperial Japanese Navy parity with the U.S. Navy. The final agreement on 25 March 1936 between the Americans, British, and French—also rejected by the Italians—proved ineffective and spelled the last attempt at disarmament treaties before WWII.

1936

20 JANUARY • The Bureau of Engineering acted on a request from the Bureau of Aeronautics to initiate naval support to the Bureau of Standards for the development of radio meteorographs. These instruments—later renamed radiosondes—were attached to small free balloons and sent aloft to measure pressure, temperature, and humidity of the upper atmosphere, and to transmit this information to ground stations for weather forecasting and flight planning.

1061653

An SBU-1 dive bomber.

18 MARCH • The XN3N-1 prototype of the "Yellow Peril" primary trainer completed flight testing at NAS Pensacola, Fla.

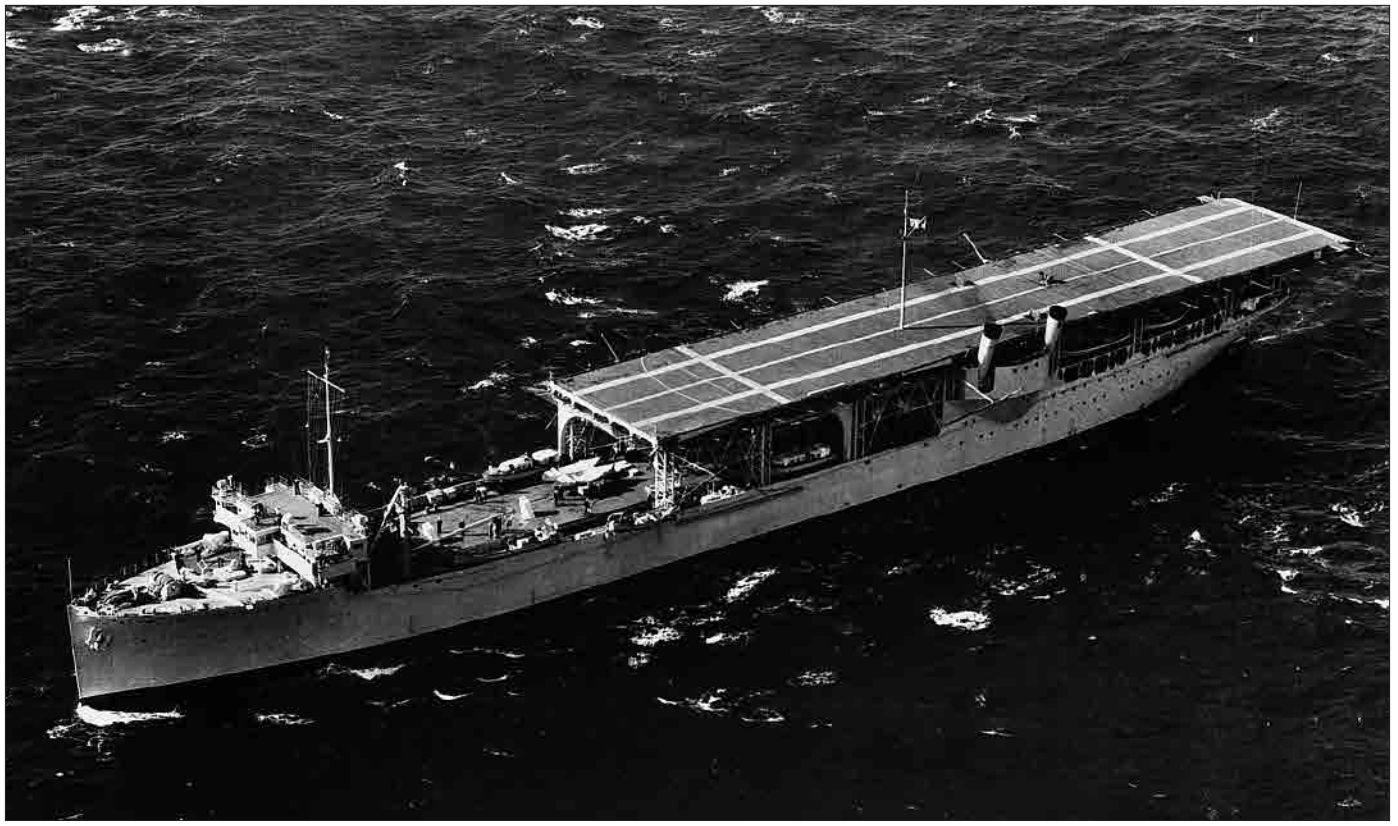
1 APRIL • The Marine Corps Aviation Section, which had been set up independently under the Commandant of the Marine Corps in the previous year, was established as a division. The officer in charge received the title Director of Aviation, and as such continued to serve in the dual capacity of advisor to the commandant on aviation and head of the Marine Corps organization in the Bureau of Aeronautics, under an arrangement that had been in effect since the establishment of that bureau.

22 JANUARY • The nine *Lapwing* (AM 1)-class minesweepers were redesignated small seaplane tenders (AVP).

22 JANUARY • *Ranger* (CV 4), with the Cold Weather Test Detachment and 16 Army, Marine, and civilian observers embarked, arrived in Cook Inlet, Alaska. The detachment comprised six F2F-1 single-seat fighters, three BF2C-1 Goshawks, six BG-1 dive bombers, three SBU-1 dive bombers, three O3U-3 Corsairs, and two JF-1 Ducks. The expedition studied the effects of cold weather on operating efficiency and determined what materials and improvements were necessary to increase carrier capabilities under extreme weather conditions. The next day a "williwaw"—strong, gusty winds that blow down from the mountains and glaciers through passes leading to the water—swept across *Ranger*'s anchorage in the inner arm of Kachemak Bay. The winds reached gale force and stranded a party ashore. *Ranger* encountered additional foul weather and endured a "local squall of considerable violence" on 27 January; snow and icing hindered operations. On 11 February the ship came about for North Island, Calif.

27 APRIL • Fleet Problem XVII consisted of a five-phase exercise to meet a surprise offensive by an enemy fleet at a time when the U.S. Fleet had divided. The forces involved included two carriers to either side and ranged from the West Coast to Panama, and the western coast of Central America. Participants included carriers *Langley* (CV 1), *Lexington* (CV 2), *Saratoga* (CV 3), and *Ranger* (CV 4). Patrol squadrons played a significant role, supported by seaplane tenders *Wright* (AV 1), *Gannet* (AVP 8), *Lapwing* (AVP 1), *Sandpiper* (AVP 9), *Teal* (AVP 5), and *Thrush* (AVP 3). Lessons learned included the requirement for the installation of automatic pilots in all planes, the improvement of optical equipment for patrol planes, and the ineffectiveness of aircraft tenders. The problem concluded on 6 June.

28 APRIL • Researchers R. C. Guthrie and Robert M. Page of the Naval Research Laboratory began testing a laboratory



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Langley (AV 3) following her conversion to a seaplane carrier, including the removal of the forward flight deck.

model of a pulsed radio wave detection device (pulse radar). At one point Guthrie and Page detected planes at distances of up to 25 miles.

6 MAY • Construction of a facility, later named the David W. Taylor Model Basin, was authorized by legislation that provided buildings and appliances for use by the Bureau of Construction and Repair in determining vessel and aircraft shapes and forms.

11 JUNE • In an effort to adapt commercial airplane maintenance techniques to naval use, the Bureau of Aeronautics authorized Commander Aircraft, Base Force, to provide patrol squadrons an extra aircraft as a rotating spare to replace squadron planes undergoing maintenance inspections.

1 JULY • Gunboat *Erie* (PG 50) was commissioned at New York Navy Yard, N.Y., Cmdr. E. W. Hanson commanding. Together with her sister ship *Charleston* (PG 51), commissioned the following week, these gunboats each operated a mix of an average of one to two SOC-1, -2, and -3 Seagulls at times into 1943.

10 JULY • The chief of the Bureau of Aeronautics approved a program of improvements to the XF4F-1 and XF2A-1 fighters under development by Grumman and Brewster, respectively.

21 JULY • Lt. Cmdr. Delmer S. Fahrney received orders to report to the chief of the Bureau of Aeronautics and the director of the Naval Research Laboratory in connection with an experimental project. This marked the implementation of a May recommendation by the Chief of Naval Operations to obtain radio-controlled aircraft for use as aerial targets. In a subsequent report, Fahrney proposed a procedure for developing radio-controlled target planes and also recognized the feasibility of using such aircraft as guided missiles.

23 JULY • The Navy awarded a contract to Consolidated Aircraft for the XPB2Y-1 four-engine flying boat. This aircraft had been selected for development as a result of a design competition held late the previous year.

7 AUGUST • The Bureau of Navigation approved a change in the flight syllabus that emphasized instrument flying. A new instrument flying unit consequently formed at NAS

Pensacola, Fla. The new course, inserted between the service seaplane and fighter courses, included six hours in Link trainers, nine hours of modified acrobatics in NS aircraft, and two hours of radio-range flying under the hood.

19 AUGUST • Pilot Lt. Boynton L. Braun and aircrewman Chief Aviation Ordnanceman W. B. Marvelle completed test bombing in a T4M-1 torpedo bomber scout against submarine ex-*R-8* (SS 85) off the Virginia Capes. Braun and Marvelle flew at an altitude of 2,500 feet and dropped twelve 100-pound bombs over a two-day period, obtaining four near-misses, with a cumulative effect that caused the submarine to sink.

15 SEPTEMBER • Carrier *Langley* (CV 1) detached from Battle Force for duty as a seaplane tender to Commander Aircraft, Base Force. Following a brief period of operation she entered the yard for conversion. The ship emerged early in 1937 with the forward part of her flight deck removed and was redesignated AV 3 on 21 April of that year.

18 SEPTEMBER • Squadron 40-T, Rear Adm. Arthur P. Fairfield commanding, sailed for Spanish waters to evacuate Americans trapped in the fighting during the Spanish Civil War, which had begun in Spanish Morocco on 17 July. At times ships equipped with aircraft, including *Omaha* (CL 4)–class light cruisers, operated with the squadron.

1937

14 JANUARY • Heavy rains generated widespread flooding along the Ohio and Great Miami rivers that devastated the Mississippi River Basin. The flooding killed at least 200 people and rendered more than 230,000 homeless in Louisville, Ky. On 24 January multiple gasoline tanks exploded and spread fires in the area of Cincinnati, Ohio. The Coast Guard reported that 1,848 Coast Guardsmen operating 11 planes and 351 boats rescued 839 people "from imminent peril" and "transported to safety" a total of 67,613 people. The Coast Guardsmen also saved livestock, helped restore communications, carried the mail, and assisted in controlling looting.

27 FEBRUARY • The Secretaries of the War and Navy Departments approved the expansion of the Working Committee of the Aeronautical Board and the extension of its functions to include work in aeronautical standardization. By this decision, interservice efforts in standardization changed from a part-time program of annual conferences to one employing a full-time joint staff of officers and civilians.

15 MARCH • The Bureau of Aeronautics assigned distinguishing colors to aircraft carriers for use as tail markings by all squadrons on board, thereby changing the existing practice of assigning colors to squadrons and eliminating confusion when squadrons transferred between carriers.

4 MAY • During the nine phases of Fleet Problem XVIII an enemy fleet attempted to establish an advance base in the Hawaiian Islands. The problem included a simulated attack on facilities on Oahu. *Lexington* (CV 2) of the Northern Force launched a strike against Wheeler Field (Army Air Corps). *Saratoga* (CV 3) of the Oahu Bombardment Force sent her planes against coastal guns between Pearl Harbor and Diamond Head. *Ranger* (CV 4) of the Hilo Force sent her aircraft against the Pearl Harbor Navy Yard. In addition, "Black" carriers *Lexington* and *Saratoga* and "White" *Ranger* launched strikes against each other. This problem enabled the fleet to assess whether to employ carriers with the main body or as a detached asset and to gain "valuable data" on aircraft-hunting submarines. As a result, the Navy recommended using small carriers to take over scouting and spotting duties. The problem concluded on 9 May.

21 JUNE • Twelve PBY-1 Catalinas of VP-3, Lt. Robert W. Morse commanding, completed a nonstop, 3,292-mile flight overnight in 27 hours 58 minutes from San Diego, Calif., to Coco Solo in the Panama Canal Zone.

30 JUNE • The Navy issued a contract to the Martin Co. for the XPBM-1 two-engine flying boat patrol plane. The aircraft became the prototype in the PBM Mariner series of flying boats used during and after WWII.

1 JULY • The Navy revised its system of aircraft squadron designation numbers. Carrier squadrons were numbered according to the hull numbers of their carriers; battleship and cruiser squadrons, the same numbers as their ship divisions; Marine squadrons, according to their aircraft groups; and patrol squadrons, serially without regard to assignments. The change also abolished the use of suffix letters to indicate organizational assignment, except for Naval

An SB2U-1 Vindicator readies to take off from *Saratoga* (CV 3).

District and Reserve squadrons, and interposed the M for Marine squadrons between the V prefix and mission letters.

2 JULY • The Navy agreed to accept Army airships and lighter-than-air equipment. The transfer included airships TC-13 and TC-14, which flew antisubmarine patrols during the early stages of WWII.

3 JULY • Pilot Amelia Earhart (Putnam) and navigator Fred J. Noonan disappeared in a Lockheed 10E Electra, NR-16020, while attempting to reach Howland Island from Lae, New Guinea. Commander in Chief, U.S. Fleet Adm. Arthur J. Hepburn dispatched *Lexington* (CV 2), Capt. Leigh Noyes commanding, to coordinate the search. An air group from *Lexington*, *Saratoga* (CV 3), and *Ranger* (CV 4) embarked on board *Lexington*: ten BG-1 dive bombers of VB-4 (*Ranger*), eleven SBU-1 dive bombers of VS-2 (*Lexington*), nine SBU-1s of VS-3 (*Saratoga*), fourteen SBU-1s of VS-41 (*Ranger*), nine SU-4 Corsairs of VS-42 (*Ranger*), nine BM-2 biplanes of VT-2 (*Lexington*), and one O3U-3 Corsair of *Lexington* Utility.

4 JULY • *Lexington* (CV 2) sailed from Coronado Roads and initiated the search for Amelia Earhart and Fred J. Noonan from about 100 miles north of Howland Island on the morning of 13 July. The weather worsened

to squall conditions when *Lexington* began the search. Despite several days of winds stronger than expected, the planes passed through or around squalls. Men also contended with equatorial heat. The afternoon flight on 14 July (unintentionally) started at 00° and 180°. The hunt covered 151,556 square miles but failed to locate Earhart and Noonan. Noyes concluded, however, that "the search made was efficient and that the areas covered were the most probable ones, based on the facts and information available." *Lexington* came about during the first dog watch on 18 July.

15 JULY • The Ship Experimental Unit, responsible for the development and testing of equipment and techniques for carrier landings, began operating at the Naval Aircraft Factory, Philadelphia, Pa. Officers and men transferred to the unit from NAS Norfolk, Va., where this function had been performed since 1921.

6 AUGUST • The Navy issued a contract to Goodyear Corp. for two new nonrigid airships, L-1 for training purposes and K-2 for coastal patrols.

9 AUGUST • Contractor demonstration flights of the XOZ-1 rotary-wing aircraft, which included a water takeoff, were completed at the Naval Aircraft Factory, Philadelphia, Pa. Pennsylvania Aircraft Corp. had modified the craft from an N2Y-1 trainer into an experimental gyroplane by installing a new engine and a rotary wing with cyclic control.

9 SEPTEMBER • The XPBS-1 four-engine monoplane flying boat made its first flight. Sikorsky constructed this aircraft as a long-range patrol plane and it later served as a transport.

30 SEPTEMBER • *Yorktown* (CV 5) was commissioned at NOB Norfolk, Va., Capt. Ernest D. McWhorter commanding.

1 OCTOBER • Patrol aviation with its associated tenders was transferred from Base Force to Aircraft, Scouting Force, which was reestablished effective on this date. With the change, five patrol wings numbered 1 through 5 were established as separate administrative commands over their assigned squadrons.

17 DECEMBER • The Navy accepted the XPTBH-2 twin-float seaplane designed for patrol and torpedo attack from Hall Aluminum Aircraft Co., Inc. This was the last twin-float torpedo plane developed for the service.

23 DECEMBER • A JH-1 drone successfully made radio-controlled flight at CGAS Cape May, N.J. The drone took off and landed via a land-based radio set, but control shifted for flight maneuvers to an airborne TG-2.

1938

2 FEBRUARY • Two PBY-2 Catalinas collided in the dark: BuNo 0462, manned by Lt. Elmer G. Cooper, Naval Aviation Observer E. J. Koch, AMCM M. J. Fitzmaurice, AMM1 G. G. Griffin, AMM2s J. E. Walton and W. P. Landgreber, and ARM2 J. Rawles; and BuNo 0463, manned by Lt. Carlton B. Hutchins, AMCMs V. O. Hatfield, D. B. McKay, and M. W. Woodruff, AMM1 J. G. Niedzwiecki, ARM1 J. H. Hester, and AMM2 L. S. Carpenter. The collision occurred when a formation of nine planes on a bombing training run from *Langley* (AV 3) entered a cloud bank without warning. Both Catalinas crashed, burned, and sank within two hours. Hutchins remained at the controls of his flying boat to enable McKay, Hatfield, and Carpenter to escape with injuries and posthumously received the Medal of Honor. All the men on board the other Catalina died.

16 MARCH • Severe weather hampered the 12 phases of Fleet Problem XIX in the Northern Pacific between Alaska and the Hawaiian Islands. The problem emphasized air attacks against enemy shores by several carriers approaching at high speed from separate directions, and the development of fast carrier task forces. During Phase One 36 patrol bombers flew more than 1,000 miles from San Diego, Calif., and bombed several ships, including *Lexington* (CV 2), destroying the planes spotted on her flight deck and damaging the deck beyond repair.

In Phase Five the "Blue" fleet attacked the Hawaiian Islands, which were defended by the "Red" fleet, and mined approaches. An epidemic of tonsillitis on board *Lexington* deleted her from flight operations and *Saratoga* fulfilled the role of *Lexington*. *Saratoga* (CV 3) attacked at 0450 on 29 March from a position about 100 miles north of Oahu, having masked her approach by sailing on the easterly side of a weather front. *Saratoga*'s reconnaissance

13554

Enterprise (CV 6) en route to Pearl Harbor with the planes of her air group arrayed on the flight deck, 8 October 1939.

aircraft spotted light cruiser *Richmond* (CL 9) north of Lahaina Roads, and her attack group bombed FAB Pearl Harbor, Wailupe Radio Station, and Hickam and Wheeler Fields (Army Air Corps), recovering on board by 0835. The carrier launched a second strike that morning against the ships and facilities at Lahaina, but the defenders retaliated and lightly damaged *Saratoga*. The problem concluded on 27 April.

21 APRIL • The delivery of the XF2A-1 to the Langley Memorial Aeronautical Laboratory of the National Advisory Committee for Aeronautics initiated full-scale wind tunnel tests on decreasing aerodynamic drag to increase speed. These tests, recommended by Cmdr. Walter S. Diehl, indicated a potential increase in the speed of the XF2A-1 of 31 mph over the 277 mph already achieved. The data led the Army and the Navy to aim to decrease drag when designing other high-performance aircraft.

12 MAY • *Enterprise* (CV 6) was commissioned at Newport News, Va., Capt. Newton H. White commanding.

17 MAY • Congress passed the Naval Expansion Act, which provided for a 20 percent increase in active naval vessels. Among the provisions for naval aviation the act authorized an increase in the total tonnage of underage naval vessels, amounting to 40,000 tons for aircraft carriers, and also authorized the president to increase the number of naval aircraft to "not less than" 3,000. The carriers built as a result were laid down in 1939 and 1941 and named *Hornet* (CV 8) and *Essex* (CV 9), respectively.

1 JUNE • Researchers initiated the routine use of radiosondes (or radio meteorographs) to obtain data on weather conditions in the upper atmosphere at NAS Anacostia, D.C. By year's end, *Lexington* (CV 2) and battleship *California* (BB 44) received modifications to use radiosondes.

1938 continued

8 JUNE • After more than two years of evaluation by fleet squadrons and naval shore activities, the anti-blackout or abdominal belt for use by pilots in dive bombing and other violent maneuvers returned to developmental status, with a finding by Commander Aircraft, Battle Force, that the belt's advantages did not offset its disadvantages.

8 JUNE • Secretary of the Navy Claude A. Swanson established a policy limiting the provisions for maintenance of aircraft on board carriers and aircraft tenders to those required for upkeep and minor repairs.

1 JULY • Chief of Naval Operations Adm. William D. Leahy authorized new command billets entitled Commander Carrier Air Group, and carrier squadrons organized into groups designated by the name of the carriers to which they were assigned.

23 AUGUST • The Navy issued a contract to Martin for the XPB2M-1 four-engine flying boat. Initially intended as a patrol plane, this craft was later converted to the PB2M-1R Mars transport and served as a prototype for the JRM series of flying boats.

24 AUGUST • In the first U.S. use of a drone target aircraft in antiaircraft exercises, *Ranger* (CV 4) fired upon a radio-controlled JH-1 making a simulated horizontal bombing attack. This event heralded a new departure in antiaircraft practice and indicated the usefulness of radio-controlled aircraft as training devices in the fleet.

14 SEPTEMBER • A radio-controlled N2C-2 target drone engaged in a simulated dive-bombing attack against mobile target/gunnery training ship *Utah* (AG 16) during test firing of her antiaircraft batteries. Observers viewed this as the first demonstration of air-to-surface missiles, and proponents of guided missile development subsequently cited the test as an example of the weapons' efficacy.

15 OCTOBER • The Bureau of Aeronautics issued a new specification prescribing color for naval aircraft. Trainers were to be finished in orange-yellow overall with aluminum-colored floats or landing gear. (The color of service aircraft remained essentially as prescribed in 1925, aluminum overall with orange-yellow on wing and tail surfaces visible from above.)

1053773

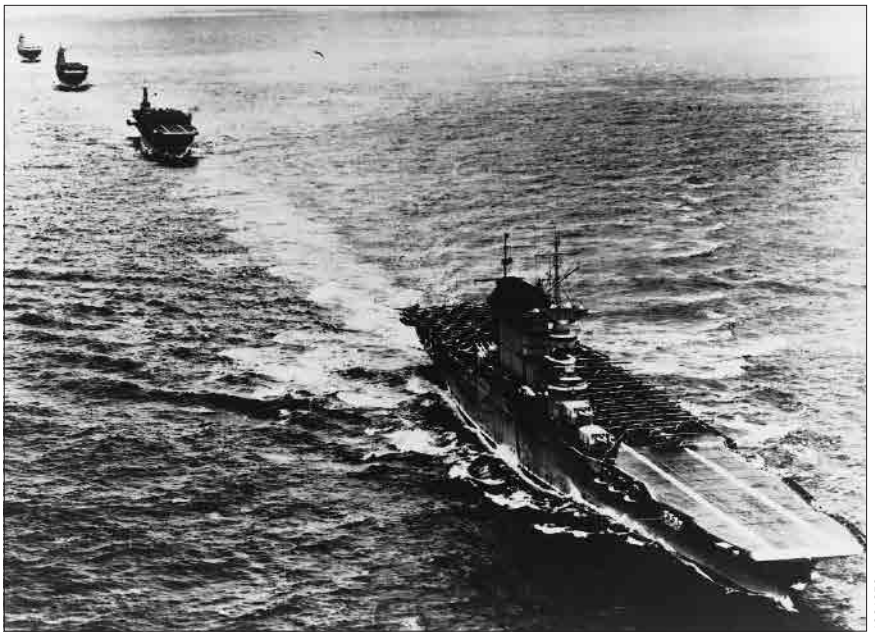
Nonrigid airship K-2, the prototype for the airships of WWII.

2 NOVEMBER • A revision of the pilot training syllabus instituted minor adjustments in the flight program and changes of greater significance in the ground program. Additions included a special course for flight surgeons, celestial navigation for enlisted students, and game board problems as a practical approach to instruction in scouting and search.

1 DECEMBER • The Hepburn Board, appointed by Secretary of the Navy Claude A. Swanson in accordance with the Naval Expansion Act of 17 May and named after its senior

member Rear Adm. Arthur J. Hepburn, reported on its survey of aviation shore establishments. The board recognized the demands that were to be met if the approach of war precipitated a great expansion, and that the existing shore stations "had failed to keep pace with the requirements of the number of planes authorized by the act of 1936."

The principal considerations that determined the locations of shore establishments included the total number of planes to be maintained, the requirements of training, and strategic considerations. The board recommended enlarging 11 stations and building 16 new ones, including Oahu (Kaneohe Bay), Midway Island, Wake Island, Guam, and five other Pacific Islands. The facilities at San Diego, Calif., were to be expanded to accommodate four carrier groups; those at FAB Pearl Harbor, Territory of Hawaii, to support two carrier groups.



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Lexington (CV 2) leads, right to left, *Ranger* (CV 4), *Yorktown* (CV 5), and *Enterprise* (CV 6) from Limon Bay, Panama Canal Zone, 19 January 1939.

9 DECEMBER • Battleship *New York* (BB 34) received prototype shipboard radar designed by the Naval Research Laboratory.

16 DECEMBER • Airship K-2 arrived for trials at NAS Lakehurst, N.J. She was the archetype for the WWII K-class patrol airships, of which the Navy was to procure 135.

1939

20 FEBRUARY • Fleet Problem XX ranged the Caribbean and the northeast coast of South America and included *Enterprise* (CV 6) and *Yorktown* (CV 5) for the first time. The problem tested the use of planes and carriers in a convoy escort, the coordination of antisubmarine measures between aircraft and destroyers, and the trial of evasive tactics against attacking planes and submarines. Controversy arose over the efficacy of patrol planes taking part in attacks on carriers and other ships instead of adhering to their principal role as scouts. Evaluators also recommended fast battleships to supplement cruisers in carrier task forces. The problem concluded on 27 February.

27 MARCH • Following the successful experimental refueling of patrol planes by submarine *Nautilus* (SS 168), Commander in Chief, U.S. Fleet, directed that Submarine Division 4 and Patrol Wing 2 were to conduct refueling tests at frequent intervals and carry out an advanced base problem each quarter to develop the possibilities for refueling patrol planes under a variety of conditions.

7 APRIL • The Navy ordered an amphibian version of PBY Catalina flying boats from Consolidated Aircraft. This was the prototype for the Navy's first successful amphibian patrol plane procured by the service, the PBY-5A.

15 MAY • The Navy issued a contract to Curtiss-Wright for the XSB2C-1 dive bomber, thereby completing action on a 1938 design competition. The month before, Brewster received a contract for the XSB2A-1. As part of the mobilization in ensuing years, large production orders were placed for both bombers, but serious managerial and developmental problems eventually contributed to discarding SB2A Buccaneers and prolonged preoperational development of SB2C Helldivers.

27 MAY • The first Marine Aviator, Lt. Col. Alfred A. Cunningham, died at his home in Sarasota, Fla. Cunningham had reported for flight training at Annapolis, Md., on 22 May

16455

A Marine SBC-4 Helldiver dive bomber.

1912, a day subsequently celebrated as the birthday of Marine Corps aviation. During WWI Cunningham organized and commanded the first Marine aviation command, was among the men who proposed operations, and was later assigned to the Northern Bombing Group to lead its Day Wing. During the postwar period he served as the first administrative head of Marine Corps aviation and then commanded the First Air Squadron in Santo Domingo.

13 JUNE • *Saratoga* (CV 3) and oiler *Kanawha* (AO 1) completed a two-day underway refueling evaluation off southern California, confirming the feasibility of refueling carriers at sea.

13 JUNE • The revised Aviation Cadet Act of 1935 provided for the immediate commissioning as ensigns or second lieutenants of all cadets on active service and for the future commissioning of others upon completion of flight training. The law also extended the service limitation to seven years following training, of which the first four were to be required, and provided for promotion to the next higher grade on the basis of examination after three years of service. The bonus payment upon release to inactive duty was reduced, but aviation cadets already serving in the fleet would choose either to remain on the old pay scale with the $1,500 bonus, or accept commissioned pay and the new $500 discharge payment.

1 JULY • The Navy adopted a standard system of numbering patrol squadrons in reference to patrol wings, by which the first digit of a squadron designation number became the same as the wing to which the squadron was attached.

1 JULY • By Executive Order the Aeronautical Board, Joint Board, Joint Economy Board, and Munitions Board commenced functioning under the direction and supervision of the president as commander in chief of the Army and Navy. These boards all previously functioned by understanding between the Secretaries of War and Navy.

13 JULY • The Chief of Naval Operations authorized a Fleet Air Tactical Unit to provide research and advisory activities related to operational use of new aircraft.

4 AUGUST • *Enterprise* (CV 6) and *Yorktown* (CV 5) launched SBC-3 Helldivers and O3U-3 Corsairs from flight deck and hangar deck catapults in the first practical demonstration of launching planes from carriers by means of hydraulic flush-deck catapults. The event also marked the first demonstrations of catapulting aircraft from hangar decks.

24 AUGUST • The acting Secretary of the Navy approved the detailing of a medical officer to the Bureau of Aeronautics to establish an aviation medical research unit.

30 AUGUST • Lt. Cmdr. Thurston B. Clark made 11 landings and takeoffs in a twin-engine XJO-3 equipped with tricycle landing gear while operating with *Lexington* (CV 2) off Coronado Roads, Calif. Clark demonstrated the basic adaptability of twin-engine aircraft and of tricycle landing gear to carrier operations.

5 SEPTEMBER • President Franklin D. Roosevelt proclaimed the neutrality of the United States in WWII and directed the Navy to organize the Neutrality Patrol. In compliance, the Chief of Naval Operations ordered Commander Atlantic Squadron to establish combined air and ship reconnaissance of the sea approaches to the United States and the West Indies to report and track belligerent air, surface, or underwater threats in the area. The first ships sailed to enforce the patrol the following day.

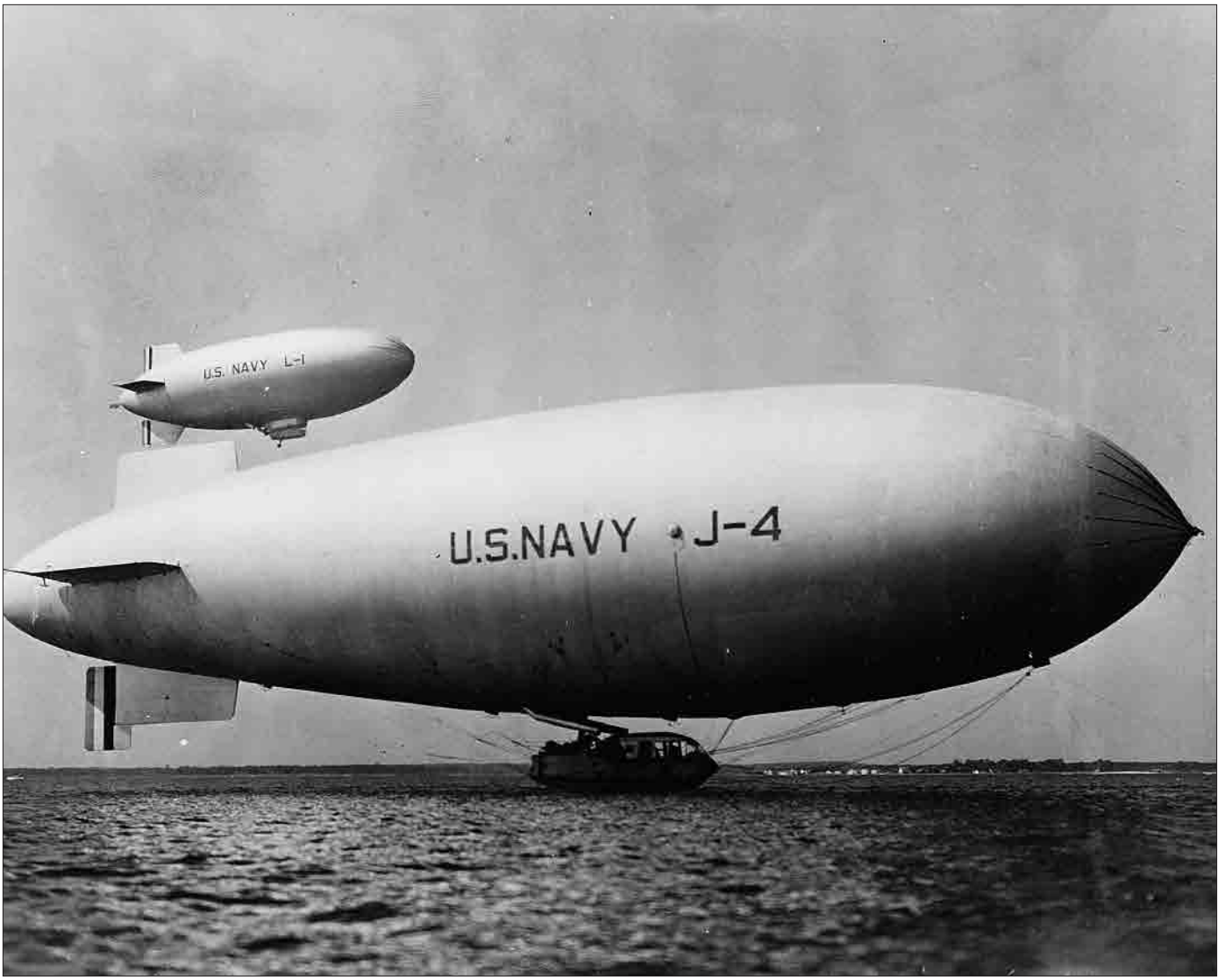
8 SEPTEMBER • President Franklin D. Roosevelt proclaimed a limited national emergency and directed measures to strengthen national defenses within the limits of peacetime authorizations, including an increase in the Navy's enlisted strength from 110,813 to 145,000 and the recall of retired officers, enlisted men, and nurses.

11 SEPTEMBER • In the first redeployment of patrol squadrons for the Neutrality Patrol, PBY-3 Catalinas of VP-33 transferred from the Panama Canal Zone to NS Guantánamo Bay, Cuba, for operations over the Caribbean. Two days later PBY-1s of VP-51 arrived at San Juan, P.R., from Norfolk, Va., to patrol the southern approaches to the Caribbean through the Lesser Antilles.

14 SEPTEMBER • The principal Atlantic Squadron naval aviation commands deployed for the Neutrality Patrol were PBY-2 Catalinas of VP-54 and minesweeper (seaplane tender) *Owl* (AM 2) from Narragansett Bay, R.I.; P2Y-2 flying boats of VP-52 and -53 from Chesapeake Bay; and PBY-3s of VP-33 and PBY-1s of VP-51, together with small seaplane tenders *Gannet* (AVP 8), *Lapwing* (AVP 1), and *Thrush* (AVP 3), in the Caribbean. *Ranger* (CV 4), with VB-4, VF-4, and VS-41 and -42 embarked, formed the core of a reserve striking force at Hampton Roads, Va.

21 SEPTEMBER • Fourteen PBY-4s of VP-21 took off from Pearl Harbor in the Territory of Hawaii for the Philippines via Midway, Wake—where seaplane tender *Childs* (AVD 1) provided support—and Guam. The squadron encountered a typhoon between Guam and the Philippines but arrived in Manila on 25 September as the first patrol unit in the Asiatic Fleet since 1932. Meanwhile, *Langley* (AV 3), the only "carrier" (she had been converted into a seaplane tender) in the Asiatic Fleet, reached Manila the preceding day. The following June VP-26 flew to Sangley Point, also in the Philippines, traded its reconditioned PBY-4s with those of VP-21 and returned to the Hawaiian Islands to overhaul VP-21's Catalinas. The squadron returned the aircraft to the Philippines in December 1940 and joined with VP-21 to form the nucleus of Patrol Wing 10. VP-21 and -26 were redesignated 101 and 102, respectively, before the Japanese attack on Pearl Harbor.

28 SEPTEMBER • The establishment of the Hawaiian Detachment, U.S. Fleet, including *Enterprise* (CV 6), expanded the naval presence at Pearl Harbor, Territory of Hawaii, to counter Japanese aggression during the Second



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The airships J-4 and L-1 conduct training exercises at Barnegat Bay, N.J., c.1939.

Sino-Japanese War. The detachment sailed for Pearl Harbor on 5 October.

1 OCTOBER • In order to expand pilot training immediately, Naval Air Training Base Pensacola, Fla., set up a program of concentrated instruction that reduced the training period from 12 to 6 months. The new program provided a primary course in landplanes and a basic phase in service landplanes and instrument flying for all students. It also restricted advanced program students to specialization in observation planes, carrier aircraft, or patrol and utility aircraft. Ground school was similarly compressed from 33 to 18 weeks.

14 OCTOBER • The Naval Aircraft Factory, Philadelphia, Pa., received authorization to develop radio control equipment for use in remote-controlled flight testing so test pilots could perform dives, pullouts, and other maneuvers within the aircraft's designed strength without risking their lives.

16 OCTOBER • The Germans dispatched tanker *Emmy Friedrich* from Tampico, Mexico, to deliver refrigerants for magazine cooling systems to the armored ship *Admiral Graf Spee*, which hunted Allied merchantmen across the Atlantic and Indian oceans during this period. Neutrality Patrol ships sailed to trail the tanker, including *Ranger* (CV 4). British light cruiser *Orion* and Canadian destroyer *Saguenay* located the blockade runner in the Yucatán Channel, and on 24 October

463683

By the end of the decade, the rotund F3F biplane with fabric-covered wings was decidedly obsolete. First delivered to the Navy in 1936, all were phased out of squadron service by the end of 1941. The Marines of VMF-2 flew this F3F-2 variant, February 1938.

British light cruiser *Caradoc* intercepted *Emmy Friedrich*, but the Germans scuttled the ship to avoid her capture.

23 OCTOBER • Chief of Naval Operations Adm. Harold R. Stark directed the modification of decommissioned and Reserve destroyer *Noa* (DD 343) to operate the XSOC-1 or SON-1 Seagull. *Noa* underwent the removal of her aft torpedo tubes and the fitting of a seaplane before her aft deckhouse at the Philadelphia Navy Yard, Pa. She was recommissioned on 1 April 1940 and nine days later the XSOC-1, BuNo 9413, was assigned to the destroyer, and on 10 May an SOC-1 arrived on board. While anchored for seaplane handling trials on 15 May at Harbor of Refuge, Del., *Noa* hoisted Lt. George L. Heap and the XSOC-1 over the side to make an emergency flight to transfer a sick seaman from *Noa* to the Naval Hospital in Philadelphia. Heap accomplished additional underway takeoffs and, on 20 May *Noa* commanding officer Cmdr. Ernest S. L. Goodwin reported to navy yard CO Capt. Rufus W. Mathewson on the success of these operations. Mathewson forwarded Goodwin's conclusions to CNO, and the report influenced Secretary of the Navy Charles Edison to direct, on 27 May 1940, the outfitting of six destroyers of the DD-445 class with planes, catapults, and plane handling gear.

4 NOVEMBER • President Franklin D. Roosevelt signed the Neutrality Act into law. The measure repealed the arms embargo, prohibited U.S. vessels from entering combat zones, and established a National Munitions Control Board. The chief executive also declared the waters surrounding the British Isles a combat zone.

1 DECEMBER • Ens. Albert L. Terwilleger was designated a Master Horizontal Bomber, becoming the first naval aviator in a fleet squadron to so qualify.

8 DECEMBER • To effect a higher degree of coordination in research, the Secretary of the Navy directed the Bureaus of Aeronautics and Ordnance (acting separately) and the Bureaus of Engineering and Construction and Repair (acting as one unit) to designate an officer to head a section in their respective bureaus devoted to science and technology, act as a liaison officer with the Naval Research Laboratory, and serve as a member of the Navy Department Council for Research. The same order transferred the research and invention duties performed in the Office of the Chief of Naval Operations to the secretary's office and placed them under the administration of the director of the laboratory.

1939 continued

20 DECEMBER • The Navy issued a contract to Consolidated Aircraft for 200 PBY Catalina-type aircraft to support an increase in patrol plane squadrons that resulted from Neutrality Patrol requirements. The contract comprised the largest single U.S. order for naval aircraft since the end of WWI.

Chapter 5

World War II

1940–1945

The fleet faced the supreme test of war only 30 years after acquiring its first airplane and just 19 years after commissioning its first aircraft carrier. Naval aviation carried the fight to the enemy and forged ahead to become the backbone of fleet striking power.

In one swift, skillfully executed stroke at Pearl Harbor, Japanese carrier planes temporarily crippled the Navy's battle line. The handful of carriers in the Pacific filled the ensuing void and demonstrated the potency of naval airpower when they struck a retaliatory blow against the Japanese home islands in 1942.

Although the geographic position of the United States provided the strategic advantage of the ability to move ships between the Atlantic and Pacific fleets via the Panama Canal, it also placed the nation squarely between two wars with few commonalities.

Air operations in the Atlantic consisted of a blockade and campaign to protect convoys of ships that delivered raw materials, munitions, and reinforcements to the Allies. The convoys' safe arrivals enabled a series of amphibious operations that liberated the European continent from Axis hegemony.

In the Pacific, Allied strategy focused first on stopping Japan's alarmingly rapid advance, and then on the bitterly contested task of driving the enemy forces back over a broad expanse.

The United States entered World War II unprepared to execute either Allied strategy—Atlantic or Pacific. The Navy and Marine Corps air arms mustered only one small and seven large commissioned aircraft carriers, five patrol wings, and two Marine aircraft wings, about 5,900 pilots and 21,678 enlisted men, 5,233 aircraft of all types, including trainers, and a few advanced air bases.

Distance from the enemy and tremendous industrial power, however, enabled the United States to build the ships, planes, and equipment necessary for victory. American armed forces drove the Axis from strategically located bases, cut off its raw materials, and placed the Allies in position to launch the final air and amphibious offensives. These late efforts would be rendered unnecessary by the destructive power of the atom unleashed upon the Japanese cities of Hiroshima and Nagasaki, but the fleet's liberation of Japanese-held islands in the Central Pacific made the atomic attacks possible.

For the first time in naval history the opponents engaged each other entirely in the air without sighting enemy ships. Radar pierced the night, giving the fleet new eyes, as technological progress improved the defense and added power to the offense. Scientists contributed to the war effort by developing specialized equipment and applying scientific principles to operational tactics. Logistics assumed new importance, and advances in replenishment at sea increased naval mobility.

In the course of the war, Navy and Marine pilots claimed the destruction of more than 15,000 enemy aircraft in the air and on the ground; sank 174 Japanese warships, including 13 submarines totaling 746,000 tons; destroyed 447 Japanese merchant ships totaling 1,600,000 tons; and sank 63 U-boats in the Atlantic. In combination with other agents, Navy and Marine air forces helped sink another 157,000 tons of warships and 200,000 tons of merchant ships, and another 6 Japanese and 20 German submarines.

Although World War II contributed significantly to the development of aviation, experience proved some prewar theories on the role of airpower to naval operations to be misconceived. The bombing tests of the 1920s had persuaded some airpower proponents of the obsolescence of navies, but carrier task force operations in the war gave little credence to such conclusions. Those who questioned the importance of airplanes to navies were equally off the mark. Advocates of independent airpower had also doubted the possibility and usefulness of close air support for troops; battle experience

validated such support as indispensable. The disappointment of naval officers who visualized decisive fleet engagements in the tradition of Trafalgar and Jutland matched that of airpower theorists who saw their predictions go awry. By the test of war it became exceedingly clear that neither armies nor navies could achieve objectives in war without first achieving air superiority, and that neither could exert as much force alone as with the aid of air striking power.

1940

4 JANUARY • The establishment of Project Baker in Patrol Wing 1 expanded experiments with blind landing equipment.

15 FEBRUARY • Commander in Chief, U.S. Fleet, noting that reports on air operations in the European war stressed the problem of aircraft vulnerability, recommended equipping naval aircraft with leak-proof or self-sealing fuel tanks, and pilots and observers with armor. The Bureaus of Aeronautics and Ordnance had investigated these forms of protection for two years, but this formal statement of need accelerated procurement and installation of both.

24 FEBRUARY • The Bureau of Aeronautics issued a contract for television equipment, including a camera, transmitter, and receiver capable of airborne operation. Researchers used this equipment to transmit instrument readings obtained from radio-controlled structural flight tests and to provide target and guidance information for the conversion of radio-controlled aircraft to offensive weapons.

27 FEBRUARY • The Navy awarded a contract to Vought-Sikorsky Aircraft for the design of a full-scale flying model (as distinguished from a military prototype) of a "Flying Flapjack" fighter, designated VS-173, with an almost circular wing. This design, which produced a potential high speed of nearly 500 mph combined with a very low takeoff speed, originated in the research of former National Advisory Committee for Aeronautics engineer Charles H. Zimmerman.

29 FEBRUARY • The Bureau of Aeronautics initiated action that led to a contract with University of Iowa professor H. O. Croft to investigate the possibilities of a turbojet propulsion unit for aircraft.

19 MARCH • The Navy authorized fleet activities to apply additional national star insignia on the sides of the fuselages or hulls of Neutrality Patrol aircraft to assist in their identification.

22 MARCH • The Navy initiated guided missile development at the Naval Aircraft Factory, Philadelphia, Pa., with the establishment of a project for adapting radio controls to a torpedo-carrying TG-2 airplane.

APRIL • Fleet Problem XXI, consisting of two phases and lasting into May, involved coordination of commands, protection of a convoy, and seizure of advanced bases around the Hawaiian Islands and eastern Pacific. Observers noted the tendency of commanders to overlook carrier limitations and assign them excessive tasks, the need for reliefs for flight and carrier crews under simulated war conditions, the success of high-altitude tracking by patrol aircraft, and the ineffectiveness of low-level horizontal bombing attacks. The war compelled the cancellation of Fleet Problem XXII in 1941.

23 APRIL • Cmdr. Donald Royce was designated to represent the Navy on an Army Air Corps evaluation board for rotary-wing aircraft. The board was incidental to legislation directing the War Department to undertake rotary-wing aircraft development.

25 APRIL • *Wasp* (CV 7) was commissioned at Boston, Mass., Capt. John W. Reeves Jr. commanding.

7 MAY • President Franklin D. Roosevelt ordered fleet ships to remain in Hawaiian waters indefinitely as a signal of American resolve to deter Japanese aggression. Subsequently, Commander in Chief, U.S. Fleet Adm. James O. Richardson asserted that the facilities at Pearl Harbor were inadequate to support the fleet and protect against attack. Richardson's stance contributed to his relief on 1 February 1941 by Adm. Husband E. Kimmel.

16 MAY • President Franklin D. Roosevelt requested a congressional appropriation of $1.18 billion to strengthen national defense, including $250 million for the Navy and Marine Corps.

27 MAY • Secretary of the Navy Charles Edison directed the equipment of six DD-445–class destroyers with planes,

catapults, and plane handling gear. *Halford* (DD 480), *Hutchins* (DD 476), *Leutze* (DD 481), *Pringle* (DD 477), *Stanly* (DD 478), and *Stevens* (DD 479) were subsequently selected. On 23 December 1942 *Pringle* received the first aircraft, an OS2U-3 Kingfisher, BuNo 5870. Just before the new year, BuNo 01505, an OS2N-1, was assigned to *Hutchins*. Before these two ships and *Stanly* joined the fleet in early 1943, however, shortcomings in the plane hoisting gear led to removal of the aviation equipment. *Halford* and *Stevens* performed limited aircraft operations, but in October 1943, the Navy ordered the equipment removed from both ships and cancelled its installation on *Leutze*.

14 JUNE • The Naval Expansion Act of 1940 was signed into law. The measure authorized an 11 percent increase in the size of the fleet, approved a 79,500-ton augmentation of aircraft carrier tonnage over the limits set by the 1938 expansion act, and sought to increase the number of naval aircraft by instituting a cap of 48 airships and 4,500 planes. The next day, President Franklin D. Roosevelt approved an Act of Congress to raise the total number of planes to 10,000, including 850 for the Naval Reserve.

17 JUNE • Chief of Naval Operations Adm. Harold R. Stark requested $4 billion from Congress to increase the authorized strength of the Navy by 70 percent. This measure was subsequently known as "The Two Ocean Navy Act" and signed into law on 19 July.

20 JUNE • The Bureau of Construction and Repair merged with the Bureau of Engineering to form the Bureau of Ships. In addition, the Office of the Undersecretary of the Navy was established, with naval aviator James V. Forrestal of World War I service assuming the position on 22 August.

25 JUNE • The Navy abolished the aeronautical engineering duty only designation, resulting in the designation of all men subsequently appointed to that group as engineering duty only.

25 JUNE • Chief of Naval Operations Adm. Harold R. Stark promulgated plans to expand the flight training program. They called for the assignment of 150 students per month beginning on 1 July, and a regular increase to an entry rate of 300 per month within a year.

27 JUNE • President Franklin D. Roosevelt established a National Defense Research Committee to correlate and support scientific research on the mechanisms and devices of war. Among its members were officers of the War and Navy departments appointed by the respective secretaries. Although the committee's functions specifically excluded research on the problems of flight, the organization made substantial contributions in various fields important to naval aviation, including airborne radar.

14 JULY • Scientists E. L. Bowles, Ralph Bowen, Alfred L. Loomis, and Hugh H. Willis attended the initial meeting of what became the National Defense Research Committee's Division 14, or Radar Division. During this and subsequent meetings with other researchers, the group defined its mission: "to obtain the most effective military application of microwaves in minimum time." In carrying out this mission, Division 14 developed airborne radar the Navy used for aircraft interception, airborne early warning, and other specialized applications.

19 JULY • Another expansion of the Navy authorized an increase of 200,000 tons over the aircraft carrier limits of the Two Ocean Navy Act and a new aircraft ceiling of 15,000 planes. This act also allowed further increases in aircraft strength upon presidential approval.

5 AUGUST • Chief of Naval Operations Adm. Harold R. Stark established ground rules for the exchange of scientific and technical information with the British Tizard Mission, named after its senior member, Sir Henry T. Tizard. In general, the rules provided for the expected free exchange of information on matters concerning aviation, including the field later known as radar. On 12 August, following reports of British progress, the Bureau of Ordnance requested that the National Defense Research Committee sponsor development of the proximity fuze, which had already been under consideration, on a priority basis and with emphasis on its antiaircraft use.

17 AUGUST • A team known as Section T after its chairman, Dr. Merle A. Tuve of Division A of the National Defense Research Committee, was established to examine the feasibility of various approaches to developing the proximity fuze. Eight days later, the Navy issued a contract to the Department of Terrestrial Magnetism at the Carnegie

Institution, Washington, D.C., for research culminating in the radio VT fuze for antiaircraft guns as well as radio and photoelectric VT fuzes for bombs and rockets.

22 AUGUST • Former naval aviator James V. Forrestal assumed his duties as the first Undersecretary of the Navy.

29 AUGUST • The exchange of radar development information with the British Tizard Mission began at a conference attended by Sir Henry T. Tizard, two of his associates, and representatives of the U.S. Army and Navy, including Lt. John A. Moreno of the Bureau of Aeronautics. The conference dealt primarily with British techniques for detecting German bombers, but also touched on means of identifying friendly aircraft. Later meetings focused on British development of shipboard and airborne radar. A British disclosure of particular importance for airborne radar application was the cavity magnetron, a tube capable of generating high-power radio waves of a few centimeters in length.

2 SEPTEMBER • The Americans and the British made an agreement in which the United States exchanged 50 overage World War I Emergency Program destroyers for 99-year leases of sites for naval and air bases in Antigua, the Bahamas, British Guiana (Guyana), Jamaica, St. Lucia, and Trinidad, and similar rights without consideration for bases in Bermuda and Newfoundland. The acquisition of these sites advanced the sea frontiers of the United States and provided bases from which ships and aircraft covered the strategically important sea approaches to the East Coast and Panama Canal. The British received 44 of the destroyers and the Canadians the remaining six. British Prime Minister Winston S. Churchill had appealed to President Franklin D. Roosevelt for the reinforcements as a matter of "life and death" during the Battle of the Atlantic.

3 OCTOBER • Chief of Naval Operations Adm. Harold R. Stark requested that the naval attaché in London obtain samples of British radio echo equipment (radar), including aircraft installations for interception (AI), surface vessel detection (ASV), and aircraft identification (IFF).

5 OCTOBER • Secretary of the Navy William F. Knox placed all organized reserve divisions and aviation squadrons on short notice for call to active duty and granted authority to call fleet reservists as necessary—Naval Reserve sailors had hitherto been ordered to active duty on a voluntary basis. On 24 October, the Bureau of Navigation announced plans for mobilizing aviation squadrons that called for ordering to active duty one-third the number of squadrons by 7 November, and the remainder by 1 January 1941.

9 OCTOBER • Secretary of the Navy William F. Knox approved a recommendation by the General Board to equip 24 submarines authorized for construction with gasoline for delivery to seaplanes on the water. This move followed a demonstration in which submarine *Nautilus* (SS 168) refueled patrol planes and conducted a successful test dive to 300 feet with aviation gasoline on board; it also came after the Navy made plans to prepare *Argonaut* (SS 166) and *Narwhal* (SS 167) to carry 19,000 gallons of aviation gasoline.

11 OCTOBER • Rear Adm. Harold G. Bowen, the technical aide to the Secretary of the Navy, proposed a program for the development of radio ranging equipment (radar). This formed the basis for the Navy's prewar radar development effort, which included an airborne radar for surface search in addition to identification equipment and shipbased radar.

12 OCTOBER • *Wasp* (CV 7) launched 24 Army Curtiss P-40 Warhawks of the 8th Pursuit Group and 9 North American O-47s of the 3rd Observation Squadron off the Virginia Capes, marking the first launches of Army aircraft from a U.S. carrier. The participants gathered data on the comparative takeoff runs of Army and Navy planes.

23 OCTOBER • The Navy set up an administrative command for carrier aviation within the Atlantic Squadron, entitling it Aircraft, Atlantic Squadron.

24 OCTOBER • An administrative command for patrol aviation in the Atlantic Squadron was established under the title Patrol Wings, Atlantic Squadron.

28 OCTOBER • The Chief of Naval Operations reported the entrance into service of planes with armor and fuel protection, and announced the addition of such protection to all fleet aircraft—except those assigned to Patrol Wing 2—within a year.

1 NOVEMBER • A fleet reorganization divided aviation forces administratively between the Atlantic and Pacific oceans and marked the beginning of the independent development of forces according to strategic requirements. In the Atlantic, aviation was transferred from Scouting Force to Patrol Force, which replaced the Atlantic Squadron as a fleet command parallel to Scouting Force. The Pacific patrol wings remained attached to Scouting Force under the combined command Commander Patrol Wings, U.S. Fleet, and Commander Aircraft, Scouting Force.

11 NOVEMBER • The first general meeting of the Radiation Laboratory occurred at the Massachusetts Institute of Technology. The laboratory served as the principal scientific and developmental agency of Division 14 of the National Defense Research Committee and became instrumental in airborne radar development.

15 NOVEMBER • Seaplane tender *Curtiss* (AV 4), Cmdr. Samuel P. Ginder commanding, was commissioned in Philadelphia, Pa., as the first of two ships of her class.

15 NOVEMBER • PBY-2 Catalinas of VP-54 began the first U.S. naval air operations from Bermuda, supported by seaplane tender *George E. Badger* (AVD 3).

16 NOVEMBER • The Bureau of Aeronautics established a catapult procurement program for *Essex* (CV 9)-class carriers, providing for the installation of one flight deck catapult and one athwartships hangar deck catapult on each of the 11 projected ships of the class.

18 NOVEMBER • The Chief of Naval Operations authorized use of the abbreviation "RADAR" in unclassified correspondence and conversation, and directed the use of the phrase "radio detection and ranging equipment" in lieu of various terms used before, including radio ranging equipment, radio detection equipment, radio echo equipment, and pulse radio equipment.

30 DECEMBER • The Bureau of Aeronautics directed the painting of fleet aircraft in nonspecular colors. Ship-based aircraft were to be Light Gray all over. Patrol planes were to be Light Gray except for surfaces seen from above, which were to be Blue Gray.

1941

9 JANUARY • The first group of contractors arrived on Wake Island to construct an air station.

1 FEBRUARY • The establishment of the Atlantic and Pacific Fleets completed the transition that began in November 1940 to divide aviation between the two oceans. The titles of the Atlantic Fleet aviation commands became Aircraft, Atlantic Fleet, and Patrol Wings, Atlantic Fleet. No change was made in the aviation organization of the Pacific Fleet.

10 FEBRUARY • A one-month instruction course began under Project Baker to train patrol plane pilots to make blind landings using radio instrument landing equipment, which the Navy was procuring for all patrol aircraft and their bases. One pilot from each of 13 squadrons, one radioman from each of five patrol wings, and two radiomen from each of five naval air stations attended the course.

26 FEBRUARY • An extensive modification of aircraft markings added the national star insignia to both sides of the fuselage or hull and eliminated those markings on the upper right and lower left wings; discontinued colored tail markings, fuselage bands, and cowl markings; mandated removal of red, white, and blue rudder stripes; and changed the color of all markings except the national star insignia to those of least contrast to the background.

1 MARCH • Support Force, Atlantic Fleet, Rear Adm. Arthur L. Bristol commanding, was established for operations on the convoy routes across the North Atlantic. The directive placed the component patrol squadrons under a patrol wing that was established at the same time.

11 MARCH • An act of Congress empowered President Franklin D. Roosevelt to provide goods and services to those nations whose defense he deemed vital to that of the United States. Isolationists criticized the Lend-Lease program for drawing the country close to war, but the act allowed the United States to provide the Allied belligerents with war material, food, and financial aid without joining in combat. The "cash and carry" provisions of the Neutrality Act of 1939 were also changed to permit the transfer of munitions, and on 17 November, *Archer*

(BAVG 1) became the first of 38 aircraft escort vessels (escort carriers) transferred to the British under the program during World War II.

17 MARCH • The chief of the Bureau of Aeronautics approved a proposal for establishing a special subcommittee of the National Advisory Committee for Aeronautics to promptly review the status of jet propulsion and to recommend plans for its application to flight and assisted takeoff.

27 MARCH • The Americans, British, and Canadians signed the ABC-1 Staff Agreement in Washington, D.C. The accord established a Combined Chiefs of Staff, outlined a framework for strategic cooperation between the Allies, and directed the Atlantic Fleet to reinforce the British in convoying ships to Britain as soon as possible.

28 MARCH • Capt. Elliott Buckmaster, *Yorktown* (CV 5) commanding officer, reported that during five months of operational experience with the CXAM radar the ship had tracked planes at a distance of 100 miles. Buckmaster recommended equipping aircraft with electronic identification devices, and carriers with separate and complete facilities for tracking and plotting all radar targets.

19 APRIL • The development of a guided glider bomb (GLOMB) began at the Naval Aircraft Factory, Philadelphia, Pa. The prototype was designed to be towed long distances by a powered aircraft, released in the vicinity of a target, and guided by radio control in an attack. A television camera enabled the GLOMB to transmit a view of the target to a control plane.

20 APRIL • The first successful test of electronic components of radio-proximity fuzes occurred at a farm in Vienna, Va. A 37mm pack howitzer fired a radio oscillator, or sonde, that made radio transmissions during its flight, demonstrating that radio tubes and batteries could be constructed ruggedly enough to withstand firing from a gun. The presentation led Section T of the National Defense Research Committee to concentrate on the development of radio-proximity fuzes for antiaircraft guns.

26 APRIL • The project officer of the Naval Aircraft Factory, Philadelphia, Pa., reported the successful flight test of an unmanned Vought O3U-6 Corsair under radio control beyond the safe bounds of piloted flight. The information obtained proved valuable in overcoming flutter encountered at various speeds and accelerations.

30 APRIL • The Bureau of Aeronautics directed the preliminary design of a transport glider, an initial step toward a glider development program, at the Naval Aircraft Factory, Philadelphia, Pa. As the program progressed, requirements were clarified, leading to the construction of 12- and 24-place wooden or plastic amphibian gliders by firms not already engaged in building military aircraft.

30 APRIL • The commanding officer of NAS Lakehurst, N.J., ordered the salvage of metal-clad airship ZMC-2 and its assignment, complete with engines, instruments, and appurtenances, to the Lighter-Than-Air Ground School at Lakehurst. ZMC-2 had flown more than 2,250 hours since August 1929.

2 MAY • Fleet Air Photographic Unit, Pacific, was established under Commander Aircraft, Battle Force. The move preceded by one day the establishment of a similar unit in the Atlantic Fleet under Commander Patrol Wings, Atlantic.

3 MAY • Project Roger was established at the Naval Aircraft Factory, Philadelphia, Pa., to install and test airborne radar equipment. Its principal assignment was to support the Radiation Laboratory at the Massachusetts Institute of Technology and the Naval Research Laboratory in various radar applications, including search and blind bombing, and radio control of aircraft.

8 MAY • The Bureau of Aeronautics directed the establishment of Aviation Repair Units 1 and 2 to provide a nucleus of aircraft repair and maintenance people ready for overseas deployment as advanced bases were constructed.

10 MAY • The Naval Aircraft Factory, Philadelphia, Pa., reported to the Bureau of Aeronautics that it was in the midst of negotiations with the Radio Corporation of America for the development of a radio altimeter suitable for use in radio-controlled assault drones.

15 MAY • Seaplane tender *Albemarle* (AV 5) arrived at Argentia, Newfoundland, to establish a base for Patrol Wing,

Support Force operations and to prepare for the imminent arrival of the first squadron, VP-52, to fly patrols over the North Atlantic convoy routes.

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A PBM Mariner launches using jet-assisted takeoff (JATO) rockets.

19 MAY • German battleship *Bismarck* sailed from Gotenhafen (Gdynia) in German-occupied Poland for *Rheinübung* (Exercise Rhine)—a sortie into the North Atlantic to raid Allied convoys. The battleship rendezvoused with heavy cruiser *Prinz Eugen,* and the two ships broke into the shipping lanes and then detached to maraud independently. On 24 May, PBY-5 Catalinas from VP-52 battled strong gales during an unsuccessful search for *Bismarck* from Argentia, Newfoundland. On 26 May, British Pilot Officer Dennis A. Briggs, Royal Air Force, of Coastal Command's No. 209 Squadron, and U.S. Navy observer and copilot Ens. Leonard B. Smith in AH545A, an RAF PBY-5 Catalina from Lough Erne in Northern Ireland, spotted *Bismarck* as she made for Brest, France. Briggs transferred the controls to Smith while he sent a sighting report. The Catalina broke through the clouds on the port beam of the battleship and received minor damage from antiaircraft fire. American observer Lt. James E. Johnson served on board the British Catalina from No. 240 Squadron that subsequently relieved AH545A, maintained contact with the quarry, and assisted in directing the pursuers toward *Bismarck*. Ships of the British Home Fleet sank the German battleship on 27 May.

21 MAY • The Bureau of Aeronautics requested the Engineering Experiment Station at Annapolis, Md., to develop a liquid-fueled assisted takeoff unit for patrol planes. This marked the Navy's entry into the field of designated jet-assisted takeoff and its first program, outside of research into jet exhaust from reciprocating engines, directed toward utilizing jet reaction for aircraft propulsion.

27 MAY • President Franklin D. Roosevelt proclaimed an unlimited national emergency and a need to ready military, naval, air, and civilian defenses to repel aggressive acts or threats directed toward any part of the Western Hemisphere.

2 JUNE • *Long Island* (AVG 1), Cmdr. Donald B. Duncan commanding, was commissioned as the first aircraft escort vessel of the U.S. Navy at Newport News, Va. The flush-deck carrier was converted in 67 working days from cargo ship *Mormacmail*.

4 JUNE • The Naval Aircraft Factory, Philadelphia, Pa., reported to the Bureau of Aeronautics that its development of airborne television had progressed to the point that signals thus transmitted could be used to direct the pilot of the transmitting plane to alter its course.

11 JUNE • An aircraft armament unit was formed at NAS Norfolk, Va., with Lt. Cmdr. William V. Davis as the officer-in-charge, to test and evaluate armament installations of increasing complexity.

26567

The first U.S. aircraft escort vessel, *Long Island* (AVG 1), steams at sea with two Brewster F2A fighters parked at the forward end of her flight deck, 8 July 1941.

28 JUNE • To strengthen the provisions for using science in war, President Franklin D. Roosevelt created the Office of Scientific Research and Development. He included in its organization both the National Defense Research Committee and the newly established Committee on Medical Research.

30 JUNE • Initiating an Army-Navy turboprop engine development project, the Navy awarded a contract to Northrop Aircraft for the design of an aircraft gas turbine developing 2,500 horsepower at a weight of less than 3,215 pounds.

1 JULY • VS-201 commanding officer Lt. Cmdr. William D. Anderson completed the first U.S. Navy landing, takeoff, and catapult launch from an aircraft escort vessel when he flew from *Long Island* (AVG 1).

1 JULY • Commander in Chief, Atlantic Fleet Adm. Ernest J. King organized ten task forces to support the defense of Iceland and to escort convoys between the island nation and the United States. The two countries had agreed for U.S. forces to occupy and defend Iceland.

1 JULY • The test, acceptance, and indoctrination units—which had been established in May in San Diego, Calif., and Norfolk, Va., to fit out new patrol aircraft and to indoctrinate new crews in their use—were expanded and set up as separate commands. The San Diego unit retained its description and was placed under Commander Aircraft, Scouting Force. The Norfolk unit was named the Operational Training Squadron and moved under Commander Patrol Wings, Atlantic.

1 JULY • Patrol Wing, Support Force, was redesignated Patrol Wing 7, Capt. Henry M. Mullinnix commanding.

3 JULY • Seaplane tender *Barnegat* (AVP 10) was commissioned at Puget Sound Navy Yard Bremerton, Wash., Cmdr. Felix L. Baker commanding. *Barnegat* became the first of 26 ships of her class.

4 JULY • PBY-5 Catalinas of VP-72 flew protective patrols until 17 July from Reykjavik, Iceland, to cover the arrival of a Marine garrison from the United States. Seaplane tender *Goldsborough* (AVD 5) supported the squadron.

7 JULY • The 1st Marine Aircraft Wing (MAW), consisting of a headquarters squadron and Marine Aircraft Group 1, was organized at Quantico, Va., Lt. Col. Louis E. Woods, USMC, commanding. The wing became the first of its type in the Marine Corps, and the first of five MAWs organized during World War II.

8 JULY • Patrol Wing 8 was established at Norfolk, Va., Cmdr. John D. Price commanding.

12 JULY • The Naval Research Laboratory was transferred to the Bureau of Ships from the Office of the Secretary of the Navy, where the Naval Research and Development Board was established. The board members, led by a civilian scientist with the title Coordinator of Research and Development, represented the Chief of Naval Operations

and the Bureaus of Aeronautics, Ordnance, Ships, and Yards and Docks. Dr. Jerome C. Hunsaker served as coordinator until his relief in December by Rear Adm. Julius A. Furer.

17 JULY • The realignment of Section T for proximity fuze development enabled the organization to devote its entire effort to radio-proximity fuzes for antiaircraft projectiles. The responsibility for photoelectric and radio fuzes for bombs and rockets shifted to Section E of the National Defense Research Committee at the National Bureau of Standards.

18 JULY • Senior Support Force staff officer Cmdr. James V. Carney reported the installation of British-type ASV radar in one PBY-5 Catalina each of VP-71, -72, and -73, and in two PBM-1 Mariners of VP-74. Identification equipment was first installed at about the same time in various planes. In mid-September, the Navy issued radar to five additional PBM-1s of VP-74 and one PBY-5 of VP-71, and, shortly thereafter, other aircraft in Patrol Wing 7 squadrons, making that wing the first operational naval command to receive radar-equipped aircraft. Its squadrons operated from Norfolk, Va., Quonset Point, R.I., and advance bases on Greenland, Newfoundland, and Iceland during the final months of the Neutrality Patrol.

18 JULY • *Pocomoke* (AV 9), Cmdr. Lester T. Hundt commanding, was commissioned as the first of two seaplane tenders of her class at Portsmouth, Va.

18 JULY • The Joint Board membership was revised to include the Deputy Chief of Staff for Air and the chief of the Bureau of Aeronautics, giving aviation representation on the highest of the Army and Navy boards.

21 JULY • The Navy abolished the requirement that all students assigned to the carrier phase of flight training were to train in each of the three basic aircraft types, and it began the practice of assigning students to specialized training in either fighters, scout bombers, or torpedo planes.

25 JULY • *Wasp* (CV 7) loaded 30 Army Curtiss P-40C Warhawks and three Stearman PT-13 primary trainers of the 33rd Pursuit Squadron at Norfolk, Va., for transport to Reykjavik, Iceland. The carrier sailed with Task Force 16, Rear Adm. William R. Monroe commanding, for the 6 August delivery of Army reinforcements to Iceland's Allied garrison.

28 JULY • The Chief of Naval Operations directed additional gunnery and tactical training in the pilot training program. He also confirmed the establishment of advanced carrier training groups within both the Atlantic and Pacific Fleets, at Norfolk, Va., and San Diego, Calif., to teach newly designated naval aviators how to operate current-model carrier aircraft. Last, the CNO assigned a number of patrol squadrons in each fleet to provide familiarization, indoctrination, advanced gunnery, and tactical training for new flight crews.

28 JULY • The Navy redesignated the Operational Training Squadron of the Atlantic Fleet and the Test, Acceptance, and Indoctrination Unit of the Pacific Fleet as transition training squadrons.

29 JULY • The Secretary of the Navy approved the installation of a radar plot on board carriers.

1 AUGUST • A microwave radar (AI-10) developed by the Radiation Laboratory at the Massachusetts Institute of Technology, which featured a plan position indicator, underwent its initial test in the Lockheed XJO-3 twin-engine test plane, BuNo 1267, at Boston Airport, Mass. During the test flights, scientists operated the radar and devised modifications while Project Roger sailors (most frequently, Chief Aviation Pilot Cecil L. Kullberg) flew the aircraft. The operators detected ships up to 40 miles away and achieved radar-guided approaches to simulated enemy aircraft at ranges of up to 3.5 miles. Operational radars developed from this equipment, including the ASG for K-class airships and the AN/APS-2 for patrol planes, were capable of searching a circular area—a tactically important feature for search-and-rescue operations and finding submarines. The evaluations continued until 16 October.

1 AUGUST • The Bureau of Aeronautics requested the Naval Research Laboratory to develop radar guidance equipment for assault drones to relay target information to a control operator and to serve as automatic homing equipment, initiating radar application to guided missiles.

5 AUGUST • As President Franklin D. Roosevelt traveled to Placentia Bay, Newfoundland, for a conference with British Prime Minister Winston S. Churchill, the president's flag still flew from presidential yacht *Potomac* (AG 25) to conceal his departure with heavy cruisers *Augusta* (CA 31) and

Tuscaloosa (CA 37) and five destroyers. *Augusta* embarked three SOC-1 Seagulls and one SOC-2 of her aviation unit, while *Tuscaloosa* operated one SOC-3 and three SON-1 Seagulls of VCS-7. On 7 August, the U.S. ships reached Placentia Bay, and on 9 August British battleship *Prince of Wales* arrived at nearby NAS Argentia with Prime Minister Churchill and senior leaders embarked. Also present were Chief of Naval Operations Adm. Harold R. Stark and the president's son, Ens. Franklin D. Roosevelt Jr., USNR, temporarily detached from destroyer *Mayrant* (DD 403). Discussion included a forthcoming joint declaration, subsequently known as the Atlantic Charter, which outlined the Allied obligation to the "final destruction of Nazi tyranny." The chief executive also offered planes and warships to escort British merchant ships between the United States and Iceland (Prime Minister Naval Plan 4). The conference concluded on 12 August. Prime Minister Churchill departed on board *Prince of Wales,* and the president sailed with *Augusta* to *Potomac* at Blue Hill Bay, Maine.

6 AUGUST • VP-73 and VP-74 initiated air patrols over North Atlantic convoy routes from Reykjavik, Iceland.

6 AUGUST • The Chief of Naval Operations issued *Tentative Doctrine for Fighter Direction from Aircraft Carriers*, recognizing the anticipated impact of radar on fighter operations, and directed the immediate organization of fighter direction centers on board radar-equipped carriers and other ships.

7 AUGUST • The Chief of the Bureau of Aeronautics issued a preliminary plan to install long-range search radar (British ASV or American ASA) in patrol planes, as well as short-range search radar (British Mk II ASV modified for Fleet Air Arm or American ASB) in one torpedo plane in each section—starting with TBF-1 Avengers. Space needed for search radar was to be reserved in new scout-dive-bombers and scout-observation planes. The plan also called for British AI Mk IV radar in an SBD Dauntless, with a view to the radar's use as an interim interceptor; interception equipment in some F4U Corsairs as available; appropriate radio altimeters in patrol and torpedo planes; and recognition equipment in all service airplanes.

1 SEPTEMBER • The Navy assumed responsibility for transatlantic merchant convoys from a point off Argentia, Newfoundland, to the Mid-Ocean Meeting Point south of Iceland. Seventeen days later, U.S. destroyers rendezvoused with Canadian-escorted convoy HX-150 south of Newfoundland for the first such voyage.

5 SEPTEMBER • Artemus L. Gates (Naval Aviator No. 65), who was discharged from the Naval Reserve in 1928, took the oath of office as Assistant Secretary of the Navy for Aeronautics, the first person to hold the post since David S. Ingalls resigned on 1 June 1932.

9 SEPTEMBER • The Bureau of Aeronautics requested that the National Defense Research Committee and the Naval Research Laboratory develop an interceptor radar suitable for installation in single-engine, single-seat fighters, such as F4U Corsairs.

1 OCTOBER • Secretary of the Navy William F. Knox approved popular names for 17 projected or in-service naval aircraft: F2A Buffalo, F4F Wildcat, F4U Corsair, J2F Duck, OS2U/OS2N Kingfisher, PBB Sea Ranger, PBM Mariner, PBY Catalina, PB2Y Coronado, SB2A Buccaneer, SB2C Helldiver, SB2U Vindicator, SBD Dauntless, SO3C Seagull (subsequently renamed Seamew), SOC Seagull, TBD Devastator, and TBF Avenger.

1 OCTOBER • The Navy established the Aviation Supply Office in Philadelphia, Pa., under the joint cognizance of the Bureaus of Aeronautics and Supplies and Accounts. The office provided centralized control over the procurement and distribution of all aeronautical materials regularly maintained in the general stock.

8 OCTOBER • The Navy established Special Project Dog within VJ-5 to test radio-controlled offensive weapons and to train people in their use. VJ-5 was also directed to develop a radio-controlled fighter plane as an "aerial ram," or aerial torpedo, to be flown into enemy bomber formations and exploded.

13 OCTOBER • The Bureau of Aeronautics directed the painting of all fleet aircraft nonspecular Light Gray, except for surfaces seen from above, which were to be Blue Gray. Beginning in late December, this color scheme extended to shore-based airplanes, except trainers.

20 OCTOBER • *Hornet* (CV 8) was commissioned at Norfolk, Va., Capt. Marc A. Mitscher commanding.

21 OCTOBER • In tests with magnetic airborne detector (later magnetic anomaly detector) gear carried out in cooperation with the National Defense Research Committee, a PBY Catalina from NAS Quonset Point, R.I., located submarine *S-48* (SS 159).

29 OCTOBER • VP-82 received the first Lockheed PBO-1 of a planned full complement of Hudsons at NAS Norfolk, Va., marking the beginning of patrol squadrons' extensive use of land planes during World War II. These aircraft were painted with British markings because they were originally destined for the Royal Air Force's Coastal Command.

1 NOVEMBER • President Franklin D. Roosevelt placed the Coast Guard under the operational control of the Navy for the duration of the national emergency.

4 NOVEMBER • British oiler *Olwen* reported a German raider in Atlantic equatorial waters. Two days later, SOC-1 and -3 Seagulls of VCS-2 operating from light cruiser *Omaha* (CL 4) en route to Recife, Brazil, screened *Omaha* and destroyer *Somers* (DD 381) during the capture of blockade runner *Odenwald*, disguised as U.S. freighter *Willmoto*. The Germans attempted to scuttle *Odenwald*, but a boarding party from *Omaha* saved the ship.

18 NOVEMBER • Dr. L. A. DuBridge of the Radiation Laboratory reported complete the initial design of a 3cm aircraft intercept radar.

26 NOVEMBER • *Kitty Hawk* (AVP 1) was commissioned at the New York Navy Yard, N.Y., Cmdr. E. C. Rogers commanding. She was converted from merchant ship *Seatrain New York* as the first of two aircraft ferries.

27 NOVEMBER • Chief of Naval Operations Adm. Harold R. Stark—persuaded by intercepted and decrypted Japanese messages; Allied intelligence information, including aerial reconnaissance that identified the movements of key Japanese ships; and the apparent failure of negotiations to find a diplomatic solution to Japanese expansionism—sent a "war warning" message to the commanders of the Atlantic and Pacific Fleets. The previous day, the *Dai-ichi Kidō Butai* (1st Mobile Striking Force) had departed Japanese waters to attack Oahu in the Hawaiian Islands.

28 NOVEMBER • In response to the war warning message the Chief of Naval Operations issued the previous day, Task Force 8, Vice Adm. William F. Halsey Jr. commanding, formed around *Enterprise* (CV 6), sailed from Pearl Harbor, Territory of Hawaii, to deliver 12 F4F-3 Wildcats from VMF-211 to augment Wake Island's defenses. Halsey approved Battle Order No. 1 stating that *Enterprise* steamed "under war conditions." The Wildcats launched during the morning of 4 December, and the carrier returned to Hawaiian waters. The ship's mission and heavy seas that delayed her return ensured *Enterprise* eluded the Japanese attack on 7 December.

1 DECEMBER • Patrol Wing 9 began to form at NAS Quonset Point, R.I., with the appointment of Lt. Cmdr. Thomas U. Sisson as the wing's acting commanding officer.

5 DECEMBER • In a response to the war warning message of 27 November, Task Force 12, Rear Adm. John H. Newton commanding, including *Lexington* (CV 2), sailed from Pearl Harbor in the Territory of Hawaii to deliver 18 SB2U-3 Vindicators from VMSB-231 to reinforce the defenders of Midway Atoll. *Lexington* thereby escaped Japan's 7 December attack.

6 DECEMBER • On the eve of the Japanese attack, the U.S. Navy possessed 790 vessels manned by approximately 380,000 sailors.

7 DECEMBER • The Japanese *Dai-ichi Kidō Butai* (1st Mobile Striking Force), Vice Adm. Nagumo Chūichi commanding, including carriers *Akagi*, *Kaga*, *Hiryū*, *Sōryū*, *Shōkaku*, and *Zuikaku*, launched a morning attack by 353 aircraft in two waves against military installations on Oahu in the Hawaiian Islands. Destroyer *Ward* (DD 139) sighted and sank—with assistance from pilot Ens. William P. Tanner of VP-14 in a PBY-5 Catalina designated 14-P-1—Japanese midget submarine *I-22tou* when the vessel attempted to infiltrate Pearl Harbor. The Japanese nonetheless attained surprise.

The ships struck included seaplane tenders *Curtiss* (AV 4) and *Tangier* (AV 8). An Aichi D3A1 Type 99 carrier bomber also crashed *Curtiss*. The attackers destroyed

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Two sailors, next to the wing and float of a destroyed PBY Catalina flying boat, watch as destroyer *Shaw* (DD 373) explodes in the center background during the Japanese 7 December 1941 attack on Pearl Harbor.

188 planes at NASs Ford Island and Kaneohe Bay, Ewa Mooring Mast Field (USMC), and the Army's Bellows, Hickam, and Wheeler Fields. Many planes were easily lost because they had been parked wingtip to wingtip as a security precaution. Despite his wounds, AOMC John W. Finn of VP-14 mounted a machine gun on an instruction stand and shot down one of the three Japanese planes downed at Kaneohe Bay. Finn subsequently received the Medal of Honor.

The attack killed 2,403 servicemembers, including 2,008 sailors and 109 Marines; it wounded 1,143, including 710 sailors and 69 Marines. In addition, 68 civilians died and 35 were wounded. The Japanese lost 29 planes, 5 midget submarines (U.S. forces recovered one), and fewer than 100 men. Concluding that he had inflicted a devastating victory and suffered minimal casualties, Nagumo turned back to Japan, sparing the fuel tank farms and ship repair facilities that later helped the counterattack of the Pacific Fleet's three carriers, which had been absent.

Task Force 8, Vice Adm. William F. Halsey Jr. commanding, formed around *Enterprise* (CV 6), sailed about 200 miles west of Pearl Harbor. A VS-6 search flight launched in two-plane sections of SBD-3 Dauntlesses and arrived off Oahu during the raid. The Japanese shot down some of them, and others succumbed to friendly fire. The first U.S. naval night recovery during World

War II occurred that evening when *Enterprise* turned on her searchlights to aid returning F4F-3 Wildcats of VF-6, SBD-2s and SBD-3s of VB-6 and VS-6, and TBD-1 Devastators of VT-6, that launched at dusk to locate Japanese ships erroneously reported off Oahu. Friendly fire downed four of the Wildcats that attempted to land at Ford Island. Some Dauntlesses landed at Kaneohe Bay in spite of automobiles and construction equipment parked on the ramp to prevent landings.

Lexington (CV 2), steaming with Task Force 12, 425 miles southeast of Midway Island, launched planes to search for the attackers and changed course with the SB2U-3 Vindicators she had set out to deliver to Midway still on board. Rendezvousing about 120 miles west of Kauai, *Lexington* and *Enterprise* joined Task Force 3, Vice Adm. Wilson Brown Jr. commanding, and searched southwest of Oahu before returning to Pearl Harbor on 13 December. *Saratoga* (CV 3) had completed overhaul and on 7 December reached San Diego, Calif.

7 DECEMBER • Japanese destroyers *Sazanami* and *Ushio* shelled Midway Island. The 6th Marine Defense Battalion returned fire and claimed damage to both ships, which retired. The Japanese carriers that attacked the Hawaiian Islands considered launching a raid against Midway during their return to Japan, but rough weather spared the bastion from an attack.

8 DECEMBER • The national emergency forced the Navy to dispatch reinforcements on board *Saratoga* (CV 3) during her voyage to the Hawaiian Islands, totaling 103 planes—4 additional F4F-3 and -3A Wildcats of VF-3, 14 F2A-3 Buffaloes of VMF-221, and 15 miscellaneous aircraft.

8 DECEMBER • Thirty-four Japanese Mitsubishi G3M2 Type 96 land-attack planes of the Chitose *Kōkūtai* (Air Group) from Roi, Kwajalein, reached Wake Island undetected because the island lacked radar, and a rain squall cloaked their approach. The attackers bombed the airfield and installations, knocked out eight F4F-3 Wildcats of VMF-211, and killed 25 servicemembers and wounded 30. They also killed five Pan American Airways employees and wounded one, and slightly damaged the airline's Martin 130 *Philippine Clipper* with bullets. The plane left the island with the company's 39 surviving Caucasian employees and passengers, abandoning the Chamorro staff. The enemy eluded patrolling Marine Corps Wildcats, but ground fire slightly holed eight bombers and killed one crewman. The Japanese bombed the island almost daily during the ensuing two weeks.

9 DECEMBER • The Secretary of the Navy authorized the Bureau of Ships to contract with RCA Manufacturing Company for 25 sets of ASB airborne search radar. The Naval Research Laboratory had developed this radar (under the designation XAT) for dive bombers and torpedo planes.

10 DECEMBER • An SBD-3 Dauntless of VS-6, embarked on board *Enterprise* (CV 6), sank Japanese fleet submarine *I-70* north of the Hawaiian Islands. *I-70*, the first Japanese warship sunk by U.S. aircraft during World War II, had scouted the Hawaiian area during the attack on Oahu.

10 DECEMBER • Japanese aircraft bombed the Cavite Navy Yard in the Philippines. As American planes raced to escape, three Japanese Mitsubishi A6M Type 0 carrier fighters of the 3rd *Kōkūtai* (Air Group) pounced on a PBY-4, Aircraft No. P-5, piloted by Lt. Harmon T. Utter of VP-101. Bow gunner ABMC Earl D. Payne shot down one of the fighters with his .30-caliber machine gun to claim the Navy's first verifiable air-to-air kill of World War II. Despite extensive damage, the Catalina survived because the Japanese apparently believed that they shot down the flying boat. On 7 April 1945, Utter coordinated carrier air strikes that led to the destruction of Japanese battleship *Yamato*.

10 DECEMBER • PBY-5 Catalinas of VP-52 initiated antisubmarine patrols over the South Atlantic from Natal, Brazil.

11 DECEMBER • The garrison of Wake Island repulsed a Japanese attack. Marine Corps 5-inch coast-defense guns sank or damaged several Japanese ships, and four F4F-3 Wildcats from VMF-211 bombed and strafed the invaders. Capt. Henry T. Elrod, USMC, flew Wildcat 211-F-11, BuNo 4019, and bombed and strafed Japanese destroyer *Kisaragi*, touching off a catastrophic explosion on board, probably attributed to her depth charges. The ship sank with all hands. Elrod returned to Wake, but antiaircraft fire had perforated an oil line so Marines cannibalized his plane. Strafing runs also damaged light cruiser *Tenryu* and armed merchant cruiser *Kongo Maru*. Wildcat pilot 2d Lt. David D. Kliewer, USMCR, spotted Japanese submarine *RO-66* on the surface

south of the island. He strafed and bombed the boat three times before she submerged. On 17 December, *RO-66* sank in a collision with *RO-62*.

12 DECEMBER • The Naval Air Transport Service was established under the Chief of Naval Operations to provide rapid air delivery of equipment, spare parts, and specialists to the fleet.

14 DECEMBER • Patrol Wing 10 began its withdrawal from the Philippines when it departed Cavite Island. Before reaching Australia, the wing's two patrol squadrons and four seaplane tenders operated from various bases, including Balikpapan, Soerabaja and Ambon, Netherlands East Indies (Indonesia).

15 DECEMBER • Patrol Wing 8 transferred from Norfolk, Va., to NAS Alameda, Calif.

16 DECEMBER • Task Force 14, Rear Adm. Frank J. Fletcher commanding and formed around *Saratoga* (CV 3), sailed from Pearl Harbor, Hawaiian Islands, to relieve the garrison on Wake Island. Embarked reinforcements included 18 F2A-2 and -3 Buffaloes of VMF-221 on board *Saratoga* and Marines on board seaplane tender *Tangier* (AV 8). Task Force 11, Vice Adm. Wilson Brown Jr. commanding and formed around *Lexington* (CV 2), intended to launch a diversionary raid on Jaluit Island. Revised intelligence, however, persuaded Brown to first attack Makin Island in the Gilberts and then divert to Wake. *Enterprise* (CV 6) supported the other two carriers at a distance. Meanwhile, *Saratoga* and *Tangier* encountered delays owing to the slower speed of oiler *Neches* (AO 5), and doubt concerning the movements and number of Japanese carriers. Also, reports of the enemy landings on Wake Island persuaded Commander Battle Force Vice Adm. William S. Pye, temporarily in command of the Pacific Fleet, to avoid risking his carriers and order the retirement of the Task Force 14 relief expedition. Fletcher, who had been refueling some of his destroyers, continued to do so and returned to Hawaiian waters. The Japanese, despite heavy seas and determined resistance from the garrison, overran Wake Island on 23 December.

16 DECEMBER • The Secretary of the Navy approved an expansion of the pilot training program from 800 students to 2,500 per month. The action led to a production of 20,000 pilots annually by mid-1943.

17 DECEMBER • The Naval Research Laboratory reported satisfactory flight test results in a PBY Catalina of radar using a duplexing antenna switch, which made it possible to use a single antenna for both transmission of the radar pulse and reception of its echo. This development eliminated the cumbersome "yagi" antenna and contributed to the reliability and effectiveness of World War II airborne radar.

17 DECEMBER • A PBY-3 Catalina of VP-21 led the arrival of 17 SB2U-3 Vindicators of VMSB-231 at Midway Island from Oahu, Territory of Hawaii. The planes completed the longest mass flight by single-engine aircraft on record in 9 hours 45 minutes. VMSB-231 had been on board *Lexington* (CV 2) en route to Midway on 7 December when the carrier turned around.

18 DECEMBER • Two-plane detachments from Patrol Wings 1 and 2 based in the Territory of Hawaii began scouting patrols from Johnston Island.

18 DECEMBER • The operational loss of an American Volunteer Group Curtiss P-40B Tomahawk and a confrontation between its flight leader, Eriksen Shilling, and Chinese mountaineers, who mistook him for a Japanese pilot, marked the beginning of "blood chit" use. (Maj. Gen. Claire L. Chennault, USAAF, had formed the American Volunteer Group—nicknamed the Flying Tigers, some of the group had naval aviation experience—to battle the Japanese over the China-Burma-India Theater. He arranged for the diversion of 100 Tomahawk IIBs [P-40Bs] from a British order.) On this date, Chinese intelligence printed on silk the first blood chits to be stitched on the back of the Americans' flight jackets, displaying the Stars and Stripes and offering in several languages a reward for assisting the bearer. Blood chits in various forms continued in use into Operation Desert Storm in 1991.

20 DECEMBER • Ten Japanese Army Kawasaki Ki-48-Is of the 21st *Hikōsentai* (regiment) raided Kunming, China. During the first battle of the American Volunteer Group, Curtiss P-40Bs of the Flying Tigers' 1st Squadron downed three of the bombers and damaged three of the surviving Ki-48-Is—one of which may have fallen—without combat

loss. Ens. Edward F. Rector, USNR, who had resigned and transferred from VS-41 on board *Ranger* (CV 4) to the Flying Tigers, crash-landed his Tomahawk because of fuel exhaustion. Through the winter, Japanese aircraft indiscriminately bombed and strafed the British colonial capital of Rangoon. The Flying Tigers at times coordinated their efforts with British Brewster Buffalo Is (F2A-2s exported as B-339Es) of No. 221 Group of the Royal Air Force, shooting down a number of enemy planes. Following the Japanese capture of Rangoon, Allied aircraft desperately strove to stem the enemy advance in repeated aerial battles until May 1942, when the Japanese conquered Burma.

25 DECEMBER • Two-plane detachments from various squadrons at Pearl Harbor and Kaneohe in the Territory of Hawaii began patrols across the Central and South Pacific from Palmyra Island, a principal staging base to the South Pacific.

30 DECEMBER • Naval aviator Adm. Ernest J. King assumed duties as Commander in Chief, U.S. Fleet.

1942

2 JANUARY • The first organized naval lighter-than-air units of World War II, Airship Patrol Group 1, Cmdr. George H. Mills commanding, and ZP-12, Lt. Cmdr. Raymond F. Tyler commanding, were established at NAS Lakehurst, N.J.

3 JANUARY • Twelve PBY-5 Catalinas of VP-22, Lt. Cmdr. Frank O'Beirne commanding, in two groups of six planes joined Patrol Wing 10 as the first aviation reinforcements from the central Pacific to reach Southwest Pacific forces. O'Beirne led the first group from Pearl Harbor on this date and, on 8 January, reached Townsville, Australia. Two days later, the Catalinas landed at Darwin, Australia, and began to load on board seaplane tender *Langley* (AV 3). Squadron executive officer Lt. Doyle G. Donaho led the second group along the same route and, on 11 January, arrived at Darwin. The deteriorating situation, however, precluded VP-22's deployment as a concentrated squadron, and the planes operated in small detachments at Soerabaja, Java and Ambon, Netherlands East Indies (Indonesia).

5 JANUARY • A change in regulations covering the display of the national star insignia on aircraft returned the star to the upper right and lower left wing surfaces and revised rudder striping to thirteen red and white horizontal stripes.

7 JANUARY • President Franklin D. Roosevelt approved the expansion of naval aviation to 27,500 useful planes.

11 JANUARY • Japanese submarine *I-6* fired a deep-running torpedo into the port side amidships of *Saratoga* (CV 3) about 500 miles southwest of Oahu, Territory of Hawaii. Six men died, water poured into three firerooms, and the ship listed to port. *Saratoga* made for Oahu, where her 8-inch guns were removed, and then to Puget Sound Navy Yard at Bremerton, Wash. for repairs and modernization that included improved watertight integrity and antiaircraft armament. The departure of *Saratoga* temporarily reduced U.S. fleet carrier strength in the Pacific to three ships, and led to the distribution of her air group among the other carriers.

13 JANUARY • German submarines *U-66*, *U-123*, and *U-125* commenced Operation *Paukenschlag* (Drumbeat), an attack against Allied shipping off the East Coast of North America and in the West Indies. Through 31 August 1942, U-boats sank a staggering total of 609 ships of 3.1 million tons—one fourth of the Allied merchant ships lost to submarine attacks in the Battle of the Atlantic. The reasons for these casualties included: the delay of the introduction of a network of interlocking coastal and transatlantic convoys, the lack of planes and escorts following the transfer of 50 destroyers and ten *Lake*-class cutters to the British and Canadians, insufficient training and expertise in antisubmarine warfare, resistance to the deployment of planes from hunter-killer operations to convoys, diversion of reinforcements to the Pacific, opposition by the Army for doctrinal and political reasons to naval control of aircraft that operated from ashore, and Allied ULTRA signals intelligence failure to decipher the German Triton (Shark) Enigma naval key in February 1942, which obscured the extent of the enemy offensive. U.S. naval planes shepherded convoys, however, detected U-boats, and searched for survivors of attacks, and during this period, the Allies extended a coastal convoy system across American and Caribbean waters and convoyed about 157,000 U.S. troops to the British Isles.

14 JANUARY • The formation of four carrier aircraft service units from four small service units that had been previously established in the Hawaiian area, was approved.

15 JANUARY • The American-British-Dutch-Australian Command (ABDA) was established at Batavia, Java in the Netherlands East Indies (Indonesia). The command coordinated Allied defense across a huge area with limited forces. Adm. Thomas C. Hart initially commanded the ABDA naval forces in addition to the Asiatic Fleet.

16 JANUARY • To protect the advance of Task Force 8, Vice Adm. William F. Halsey Jr. commanding, including *Enterprise* (CV 6), for its strike against the Marshall and Gilbert Islands, PBY-5 Catalinas of VP-23 began daily searches of the waters between their temporary base at Canton Island and Suva in the Fiji Islands as the first combat patrols by aircraft in the South Pacific.

16 JANUARY • During a routine search from *Enterprise* (CV 6), pilot AMMC F. Dixon of VT-6 crashed at sea in a Douglas TBD-1 Devastator because of fuel starvation. Dixon and his two crewmen subsisted on occasional fish speared with a pocketknife, two birds, and rainwater during a 34-day journey in their raft to the Danger Islands on 19 February. The straight-line distance of their voyage measured 450 miles, but their estimated track was 1,200 miles. Dixon received the Navy Cross for this epic of survival.

23 JANUARY • OS2U-3 Kingfishers of VS-1 Detachment 14 arrived in Samoa with Marine reinforcements from San Diego, Calif., as the first naval aircraft to operate there during the war. *Yorktown* (CV 5) passed through the Panama Canal from the Atlantic Fleet and rendezvoused with and escorted the convoy during part of its voyage. *Enterprise* (CV 6) covered the ships during the final portion of their journey.

23 JANUARY • During the Battle of the Points, the Japanese made amphibious landings on the west coast of the Bataan Peninsula in the Philippines to outflank U.S. and Filipino troops. One assault deployed men of the 2nd Battalion, 20th Regiment to Longoskawayan Point on southwestern Bataan. Through 1 February, U.S. and Filipino soldiers defeated the invaders at Longoskawayan. In addition, a provisional naval battalion, Cmdr. Francis J. Bridget of Patrol Wing 10 commanding, consisting of stranded naval aviation sailors of the wing and ships and of the 4th Marines, advanced from nearby Mariveles. Despite the lack of training in infantry tactics, the battalion sailors cleared the summit of Mt. Pucot of the enemy on the first day of action. The fighting for the observation post raged for days but the sailors and Marines regained the peak.

29 JANUARY • Five-inch projectiles containing radio-proximity fuzes were test fired at the Naval Proving Ground, Dahlgren, Va. Fifty-two percent of the fuzes functioned satisfactorily by proximity to water at the end of a five-mile trajectory. Researchers obtained this performance with samples selected to simulate a production lot and the results led to immediate small-scale production of the devices.

30 JANUARY • The Secretary of the Navy authorized a glider program for the Marine Corps consisting of small and large types in sufficient numbers for the training and transportation of two battalions of 900 men each.

1 FEBRUARY • The Secretary of the Navy announced that all prospective naval aviators were to begin their training with a three-month course emphasizing physical conditioning conducted by pre-flight schools to be established at universities. The training began at the Universities of North Carolina and Iowa in May; the University of Georgia and St. Mary's College, Calif., in June; and at Del Monte, Calif., in January 1943.

1 FEBRUARY • Task Forces 8, Vice Adm. William F. Halsey commanding, and 17, Rear Adm. Frank J. Fletcher commanding, including *Enterprise* (CV 6) and *Yorktown* (CV 5), respectively, launched the first carrier counterattack against the Japanese occupied Gilbert and Marshall Islands. Task Force 8 attacked Kwajalein and Wotje and Task Force 17 struck Jaluit, Makin, and Mili. Task Force 11, Vice Adm. Wilson Brown Jr. commanding, including *Lexington* (CV 2), supported the raid from the vicinity of Christmas Island. The attackers sank three vessels and damaged 11 more including light cruiser *Katori* and submarine *I-23*. A crashing land attack plane from the Japanese Chitose *Kōkūtai* (Air Group) narrowly missed *Enterprise*. A Mitsubishi A5M4 Type 96 carrier fighter damaged heavy cruiser *Chester* (CA 27) and killed eight men and wounded 38. A TBD-1 Devastator from VT-5 disappeared, and a Japanese reconnaissance flying boat of

the Yokohama *Kōkūtai* unsuccessfully attacked destroyer *Sims* (DD 409) as she searched for the missing aircrew. Two F4F-3 Wildcats of VF-42 shot down the intruder, but the searchers failed to locate the Devastator crew in the heavy seas.

10 FEBRUARY • Japanese submarine *I-69* shelled Midway Island, but Brewster F2A-3 Buffaloes of VMF-221 bombed and damaged the boat.

12 FEBRUARY • The Chief of Naval Operations promulgated an advanced base program using the code names "Lion" and "Cub" to designate major and minor bases, respectively, and in July added "Oaks" and "Acorns" for aviation facilities. The move marked the beginning of a concept of functional components that provided planners and commanders with a means of ordering standardized units of people, equipment, and material to meet special needs in any area.

16 FEBRUARY • The Germans began Operation *Neuland* (New Land) to cut the Allied flow of oil and bauxite from South America to North America by attacks on Dutch and Venezuelan oil ports. Despite supply problems, submarines *U-67*, *U-129*, *U-156*, *U-161*, and *U-502* wreaked havoc on poorly guarded ships and tankers sailing independently. Additional U-boats and Italian submarines subsequently reinforced these boats. Allied aircraft, including U.S. Navy PBY Catalinas, intelligence breakthroughs in ULTRA decryptions of Axis messages and high frequency direction-finder (Huff-Duff) receivers that detected U-boat radio transmissions, and Axis failure to concentrate their effort contained the menace in Caribbean waters.

16 FEBRUARY • A Navy developed air-track blind landing system reached daily use in Iceland for landing flying boats. Other blind-landing systems were in various phases of development, including work on the ground controlled approach system, and sailors had accomplished talk-down landings at the East Boston (Commonwealth) Airport in Massachusetts.

17 FEBRUARY • Commander in Chief U.S. Fleet authorized the removal of athwartships hangar deck catapults from *Yorktown* (CV 5), *Enterprise* (CV 6), *Wasp* (CV 7), and *Hornet* (CV 8).

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An amphibious PBY-5A Catalina of VP-63, based out of Port Lyautey, Morocco, carries antisubmarine retro-rockets while on patrol of the Strait of Gibraltar.

19 FEBRUARY • One hundred eighty-nine aircraft from the Japanese carriers *Akagi*, *Kaga*, *Hiryū*, and *Sōryū*, and 54 Mitsubishi G4M1 Type 1 land attack planes from the Kanoya and 1st *Kōkūtais* (groups) attacked Darwin, Australia. The ships in the harbor included USS *William B. Preston* (AVD 7) after the seaplane tender's escape from the Philippines. Despite damage, a temporarily loss of steering control, and 11 dead, two missing, and three wounded, *William B. Preston* defiantly reached the open sea. Nine Mitsubishi A6M Type 0 carrier fighters shot down Lt. Thomas H. Moorer of VP-22 while he piloted a PBY-5 Catalina, BuNo 2306, off northern Australia. Freighter *Florence D* under charter with the Army rescued the survivors, only to be sunk by enemy carrier planes. One of Moorer's crew and three of the 37 men on board *Florence D* died, but Moorer survived to become the 18th Chief of Naval Operations and later Chairman of the Joint Chiefs.

20 FEBRUARY • A Japanese Kawanishi H6K4 Type 97 flying boat of the Yokohama *Kōkūtai* (Air Group) spotted Task Force 11, Vice Adm. Wilson Brown Jr. commanding, en route to attack Japanese forces at Rabaul, New Britain. Brown cancelled the strike and two waves of 17 Japanese Mitsubishi G4M1 Type 1 land attack planes of the 4th *Kōkūtai* attacked the Americans off Bougainville, Solomon Islands. F4F-3 Wildcats from VF-3 and SBD-3 Dauntlesses from VS-2, embarked on board *Lexington* (CV 2), broke up the attackers. The carrier avoided damage from bombs and from two

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Barely two months after he shot down four Japanese planes and damaged two others on 20 February 1942, Lt. Edward H. O'Hare of VF-3 smiles from the cockpit of his F4F Wildcat for photographers during a publicity break at Kaneohe Naval Air Station on 10 April. He later received the Medal of Honor for his actions.

bombers that attempted *taiatari* (body-crashing) suicide dives. Fifteen Japanese bombers, three flying boats, and an Aichi E13A1 Type 0 floatplane failed to return; most had been shot down. Wildcat pilot Lt. Edward H. O'Hare claimed four of the attackers and damaged two more, an exploit for which he received the Medal of Honor. Lt. Cmdr. John S. Thach shot down a bomber and assisted in downing a second one and a H6K4 Type 97 flying boat. Two Wildcats fell to the enemy with the loss of Ens. John W. Wilson, and seven fighters received damage, some caused by *Lexington*'s guns.

21 FEBRUARY • Seaplane tender *Curtiss* (AV 4) and VP-14 arrived at Nouméa, New Caledonia, to begin operations from what developed into a principal Navy base in the South Pacific.

23 FEBRUARY • BUAER outlined a comprehensive program, which became the basis for the wartime expansion of pilot training. In place of the existing seven-month course, the new program required 11 1/2 months for pilots of single- or twin-engine aircraft, and 12 1/2 months for four-engine pilots. The curriculum consisted of three months at induction centers, three months in primary, three and one-half months in intermediate, and two or three months in operational training, depending on the types of aircraft used.

24 FEBRUARY • Task Force 16, Vice Adm. William F. Halsey Jr. commanding, raided the Japanese garrison at Wake Island. Thirty-six SBD-2 and -3 Dauntlesses from VB-6 and VS-6, respectively, and TBD-1 Devastators from VT-6 launched from *Enterprise* (CV 6) bombed and strafed ships and installations, supported by a bombardment from cruisers and destroyers. The raiders caused minimal damage and sank only two guardboats, but U.S. Marines, sailors, and construction workers captured by the Japanese during the seizure of the island survived the raid unscathed. The enemy shot down one Dauntless.

26 FEBRUARY • The Navy's coordinator of Research and Development requested the development by the National Defense Research Committee of an expendable radio sonobuoy for use by lighter-than-air craft to hunt submarines.

27 FEBRUARY • Allied attempts to reinforce the Netherlands East Indies (Indonesia) included convoy MS-5 among which was seaplane tender *Langley* (AV 3) and four freighters transporting 65 Curtiss P-40Es of the Army's 35th and 51st Pursuit Groups embarked from Melbourne, Australia. *Langley* ferried 32 of the Warhawks. Planners considered rerouting the convoy to India, but the Dutch requested aid and thus *Langley* and several ships made for Tjilatjap, Java. Nine Japanese two-engine naval land attack planes and six fighters irreparably damaged *Langley* 74 miles from Tjilatjap. Destroyer *Whipple* (DD 217) shelled and torpedoed the tender but the possibility of renewed attacks compelled the flight of the survivors and they did not record her sinking. Some survivors were transferred to oiler *Pecos* (AO 6) and, on 1 March, endured the demise of another ship when Japanese Aichi D3A1 Type 99 carrier bombers from carriers *Akagi*, *Kaga*, *Hiryū*, and *Sōryū* sank *Pecos* south of Christmas Island. Sixteen men from *Langley* died. Freighter *Sea Witch* delivered 27 crated Warhawks to Tjilatjap, but on 2 March they were destroyed to prevent their capture, and *Sea Witch* escaped.

1 MARCH • With the impending fall of Java in the Netherlands East Indies (Indonesia), the Allies dissolved the American-British-Dutch-Australian Command.

1 MARCH • Ens. William Tepuni, USNR, of VP-82, piloted a PBO-1 Hudson from Argentia, Newfoundland, and spotted German submarine *U-656* inbound to North

American waters on the surface about 60 miles southeast of Cape Race, Newfoundland. The Hudson sank *U-656* with all hands—the first U-boat confirmed sunk by the United States during World War II. Tepuni received the Distinguished Flying Cross.

1 MARCH • Carrier Replacement Air Group 9 was established at NAS Norfolk, Va., Cmdr. William D. Anderson commanding. The action marked the first numbered air group in the Navy and the end of the practice of naming air groups for the carriers to which they were assigned.

2 MARCH • The Naval Air Transport Service inaugurated regularly scheduled operations with a Douglas R4D Skytrain flight from NAS Norfolk, Va., to Squantum, Mass.

4 MARCH • Task Force 16, Vice Adm. William F. Halsey Jr. commanding, raided Marcus Island. *Enterprise* (CV 6) moved to within 1,000 miles of Japan and just before sunrise launched six F4F-3A Wildcats of VF-6 and 32 SBD-2 and -3 Dauntlesses of VB-6 and VS-6, respectively. The carrier's radar directed the planes to their attack. Japanese antiaircraft fire shot down one of the Dauntlesses but both crewmen survived captivity.

7 MARCH • Patrol Wing 10 completed its withdrawal from the Philippines and the Netherlands East Indies (Indonesia) and patrolled along the west coast of Australia from its newly established headquarters in Perth. The command lost 41 of its 45 planes during the first several months of the war including 14 shot down. More than half of its men captured by the Japanese in the Philippines died in captivity.

7 MARCH • Blimp K-5 and submarine *S-20* (SS 125) demonstrated the practicability of using a radio sonobuoy in aerial antisubmarine warfare during an exercise off New London, Conn. The buoy detected the sound of the submerged submarine's propellers at distances of up to three miles, and radio reception on board the blimp proved satisfactory up to five miles.

8 MARCH • VS-2 Detachment 14 inaugurated air operations from the Society Islands. The squadron arrived at Bora Bora on 17 February.

9 MARCH • Air transport squadron VR-1, Cmdr. Cyril K. Wildman commanding, was established as the first of 13 such squadrons created under the Naval Air Transport Service during World War II at NAS Norfolk, Va.

10 MARCH • Task Force 11, Vice Adm. Wilson Brown Jr. commanding, and elements of Task Force 17, Rear Adm. Frank J. Fletcher commanding, attacked Japanese ships landing troops and supplies at Lae and Salamaua, New Guinea. *Lexington* (CV 2) and *Yorktown* (CV 5) launched F4F-3 Wildcats of VF-3 and -42, SBD-2 Dauntlesses of VB-2, SBD-3s of VB-5 and VS-2 and -5, and TBD-1 Devastators of VT-2 and -5. The planes flew over the Owen Stanley Mountains and sank armed merchant cruiser *Kongō Maru*; auxiliary minelayer *Tenyō Maru*; and transport *Yokohama Maru*; and damaged seaplane carrier *Kiyokama Maru*; light cruiser *Yūbari*; destroyers *Asanagi*, *Asakaze*, *Oite*, *Yakaze*, and *Yūnagi*; minelayer *Tsugaru*; transport *Kokai Maru*; and minesweeper *No. 2 Tama Maru*. One VS-2 Dauntless was shot down. A following raid by USAAF Boeing B-17 Flying Fortresses and Royal Australian Air Force Lockheed Hudsons failed to inflict appreciable damage. The raid helped convince the Japanese of their need for additional carrier support to complete their conquest of the region, and thus indirectly set the stage for the Battle of the Coral Sea.

10 MARCH • The Office of Scientific Research and Development at Johns Hopkins University signed a Navy contract to operate a laboratory. The facility became known as the Applied Physics Laboratory and proved one of several important steps in the transition of the radio-proximity fuze from development to large-scale production. Some of the other steps taken within the following six weeks included the organizational transfer of Section T from the National Defense Research Committee directly to the Office of Scientific Research and Development, and the relocation of most of the Section T staff from the Carnegie Institution of Washington to the Applied Physics Laboratory at Silver Spring, Md.

26 MARCH • Naval aviator Adm. Ernest J. King relieved Adm. Harold R. Stark as Chief of Naval Operations under the provisions of an executive order that combined the duties of Commander in Chief U.S. Fleet and CNO.

26 MARCH • The Navy and Army Air Forces agreed to vest unity of command to the Navy for aircraft operating over the sea to protect shipping and hunt submarines.

26 MARCH • Task Force 39, Rear Adm. John W. Wilcox Jr. commanding, including *Wasp* (CV 7), sailed from Portland, Maine, to reinforce the British Home Fleet at Scapa Flow in the Orkney Islands during the bitterly contested Arctic convoys to aid the Soviets. The next day, Wilcox was lost overboard from battleship *Washington* (BB 56) during heavy seas, and the command of the force devolved upon Rear Adm. Robert C. Giffen. *Wasp* participated in the Arctic convoys during the succeeding months.

29 MARCH • The forward echelon of VMF-212 arrived at Efaté, New Hebrides (Vanuatu), to construct an air strip from which, on 27 May, the squadron initiated operations.

3 APRIL • Commander in Chief Pacific Fleet Adm. Chester W. Nimitz assumed additional duties as Commander in Chief Pacific Ocean Areas—the North, Central, and South Pacific. Gen. Douglas A. MacArthur, USA, was named as Commander, Southwest Pacific Area.

6 APRIL • Aircraft, Atlantic Fleet, was redesignated Carriers, Atlantic Fleet.

7 APRIL • Aircraft Repair Units 1 and 2 merged to form the Advanced Base Aviation Training Unit at NAS Norfolk, Va. The merger provided aviation maintenance sailors with the specialized training required to support air operations at advanced bases.

9 APRIL • Control pilot Lt. Moulton B. Taylor of Project Fox directed a radio controlled Great Lakes TG-2 drone in a torpedo attack on destroyer *Aaron Ward* (DD 483) as she steamed at 15 knots in Narragansett Bay, R.I. Taylor used a view of the target obtained by a television camera mounted in the drone, and guided the attack to release the torpedo about 300 feet directly astern of the target. The weapon passed beneath the destroyer as planned.

10 APRIL • A reorganization of the Pacific Fleet abolished the Battle and Scouting Forces and set up new type commands for ships and aviation. With the change, the titles of the aviation type commands became Aircraft Carriers, Vice Adm. William F. Halsey Jr. commanding, and Patrol Wings, Rear Adm. John S. McCain commanding.

13 APRIL • German and Italian aerial attacks on Malta threatened to overwhelm the British defenders of the embattled island without the arrival of reinforcements. The exigencies of the war temporarily deprived the British of available carriers, and Prime Minister Winston S. Churchill appealed to President Franklin D. Roosevelt to provide *Wasp* (CV 7). On this date, *Wasp* embarked 47 Royal Air Force Supermarine Spitfire Mk Vs at King George Dock at Glasgow, Scotland, during Operation Calendar—the aerial reinforcement of Malta. The next day, *Wasp* sailed to rendezvous with British Force W and make for the Mediterranean. On 20 April the ship launched the Spitfires toward Malta. Axis air raids, however, reduced the operational Spitfires to six in four days, which necessitated a second operation the following month. On 26 April, *Wasp* returned to Scapa Flow in the Orkney Islands.

18 APRIL • The Doolittle Raid struck Japan. Lt. j.g. Henry L. Miller had trained the North American B-25B Mitchell crews of the Army's 17th Bombardment Group, Lt. Col. James H. Doolittle, USAAF, commanding, in carrier procedures at Eglin Field, Fla. On 1 April, *Hornet* (CV 8) embarked 16 Mitchells at NAS Alameda, Calif.

Hornet set out the following day and subsequently rendezvoused with Task Force 16, Vice Adm. William F. Halsey Jr. commanding, including *Enterprise* (CV 6), north of the Hawaiian Islands. On this date, Japanese guardboat *No. 23 Nitto Maru* discovered the approach of the force 668 miles from Tōkyō. The Americans had intended to close the Japanese homeland to shorten the flying range but the discovery compelled Halsey to launch the raid earlier than planned. The attackers bombed military and oil installations and factories at Kōbe, Nagoya, Tōkyō, Yokohama, and Yokosuka. A bomb struck Japanese carrier *Ryūhō* at Yokosuka but the strike inflicted negligible damage. All the Mitchells were lost—15 crashed in China and one was interned at Vladivostok in the Soviet Union. The Japanese retaliated with reprisals against the areas in China where people succored the aviators, captured eight of the fliers, and later executed three of them.

F4F-3A Wildcats of VF-6 with SBD-3 Dauntlesses of VB-3 and SBD-2s of VB-6 flying from *Enterprise* coordinated with surface attacks and damaged armed merchant cruiser

Awata Maru and ten guardboats, four of which sank. The Japanese downed a Dauntless, but the force escaped. Despite the infinitesimal material damage inflicted, the psychological impact of an aerial threat to Japan and to the emperor ended debate within the Japanese high command concerning a decisive thrust against the U.S. Pacific Fleet. Reporters later queried President Franklin D. Roosevelt for the location from which the bombers launched and he replied, "Shangri-La."

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Hornet (CV 8) launches Lt. Col. James H. Doolittle, USAAF, and 16 Army B-25B Mitchells against the Japanese homeland, 18 April 1942.

18 APRIL • A night fighter development unit named Project Argus was established at NAS Quonset Point, R.I. It was renamed Project Affirm to avoid confusion with the electronic element (Argus Unit) of an advanced base. Its official purpose was the development and testing of night fighter equipment for naval aircraft, but it also developed tactics and trained officers and men for early night fighter squadrons and as night fighter directors.

19 APRIL • Two tests of the feasibility of using drone aircraft as guided missiles were conducted in Chesapeake Bay. In one evaluation, VJ-5 used visual direction to crash-dive a Great Lakes BG-1 drone into the water beyond the wreck of target ship *San Marcos* (former battleship *Texas*). Project Fox carried out the second successful test from a Civil Aeronautics Administration intermediate field at Lively, Va., using a television camera fitted to the XB2G-1 drone, BuNo 9722, to view the target. Lt. Moulton B. Taylor flew a control plane 11 miles distant to direct the drone's crash dive into a raft under tow at a speed of eight knots.

22 APRIL • *Ranger* (CV 4) sailed from NAS Quonset Point, R.I., to West African waters with 68 embarked Curtiss P-40Es of the USAAF 33rd Pursuit Squadron. On 10 May, she launched the Warhawks 82 miles off Accra, Gold Coast (Ghana). From Accra, the fighters were flown in a series of hops to Karachi, India (Pakistan), to operate in the China-Burma-India Theater. The ship turned for Port of Spain in Trinidad. This event marked the first of four ferry trips that *Ranger* made to deliver Army fighters across the Atlantic, accomplishing the subsequent launches on 19 July 1942, and 19 January and 24 February 1943.

24 APRIL • A new specification for the color of naval aircraft went into effect. Service aircraft remained nonspecular Light Gray with nonspecular Blue Gray on surfaces visible from above. Advanced trainers were to be finished in glossy Aircraft Gray with glossy Orange Yellow on wing and aileron surfaces visible from above, while primary trainers were to be finished glossy Orange Yellow with glossy Aircraft Gray landing gear.

27 APRIL • Operation Gridiron—the evacuation of Americans including radio interception specialists from the Philippines—began. Pilot Lt. Cmdr. Edgar T. Neale, copilot Lt. j.g. Thomas F. Pollack, and aircrewmen AMMCs David W. Bounds and Mario Ferrara, AMM1 W. F. Drexl, ARM1 L. Gassett, and ARM2 H. F. Donahue, and pilot Lt. j.g. Leroy C. Deede, copilot Lt. j.g. William V. Gough Jr., aircrewmen AMMC W. D. Eddy, AMM1s M. H. Crain and M. C. Lohr, ARM1 Edward W. Bedford, and ARM3 W. F. Kelley of Patrol Wing 10, manned two PBY-5s. The Catalinas took off from Perth, Australia,

refueled en route and, on 29 April, landed off Caballo Island. They dropped off parts and medical supplies, embarked passengers, and returned to Lake Lanão on Mindanão. While being towed away from shore to attempt takeoff on 30 April, the first Catalina struck a reef and could not take off. The second continued on to Perth. After cursory repairs, the first was able to get airborne, although some of the evacuees including Cmdr. Francis J. Bridget of the wing remained behind and were later captured. By 3 May the Catalinas returned to Perth after the completion of flights of almost 7,000 miles. Gridiron saved 36 evacuees, and all 14 flight crewmembers received the Silver Star.

30 APRIL • The Air Operational Training Command was established with headquarters at NAS Jacksonville, Fla. Four days later the new command assumed authority over the naval air stations and their satellite fields at Banana River, Jacksonville, Key West, and Miami, Fla.

2 MAY • SBD-3 Dauntlesses of VS-5 and TBD-1 Devastators of VT-5, embarked on board *Yorktown* (CV 5), bombed Japanese submarine *I-21* in the Coral Sea. *I-21* escaped and reported the attack but failed to identify the aircraft as carrier-based. The error enabled Task Force 17, Rear Adm. Frank J. Fletcher commanding, to approach the Solomon Islands undetected.

3 MAY • After Axis aerial attacks on Malta nearly annihilated the British fighters on the island, Prime Minister Winston S. Churchill asked President Franklin D. Roosevelt to provide *Wasp* (CV 7) for "another good sting." On this date, *Wasp* embarked 47 British Royal Air Force Supermarine Spitfire Mk Vs and sailed with British Force W for the Mediterranean during Operation Bowery—the aerial reinforcement of Malta. The ships rendezvoused with British carrier *Eagle* (D 94), which embarked 17 Spitfires. On 9 May, *Wasp* and *Eagle* launched their planes to Malta. Two days later the Prime Minister signaled the carrier, "Who said a wasp couldn't sting twice?" On 15 May, *Wasp* arrived at Scapa Flow in the Orkneys.

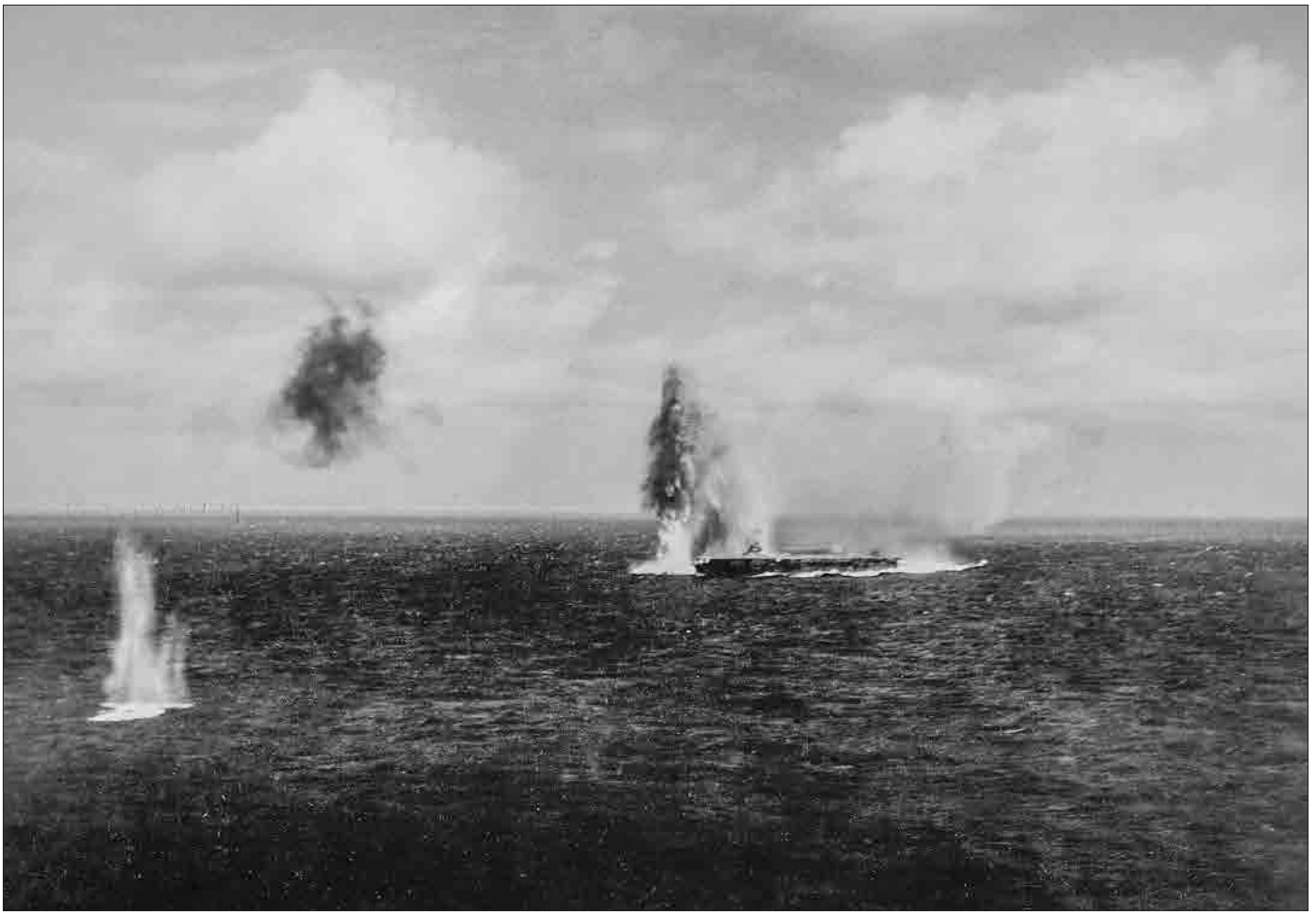
4 MAY • The Battle of the Coral Sea began, the first naval engagement fought without opposing ships making contact. The Japanese launched Operation MO—the seizure of Port Moresby, New Guinea, and points in the Solomon Islands, Nauru, and the Ocean Islands—preparatory to the neutralization of Australia as an Allied bastion. Task Force 17, Rear Adm. Frank J. Fletcher commanding, attacked the invading Japanese at Gavutu and Tulagi in the Solomons. F4F-3 Wildcats of VF-42, SBD-3 Dauntlesses of VB-5 and VS-5, and TBD-1 Devastators of VT-5 from *Yorktown* (CV 5), sank destroyer *Kikuzuki*, minesweeper *Tama Maru*, and auxiliary minesweepers *Wa 1* and *Wa 2*, and damaged destroyer *Yuzuki*, minelayer *Okinoshima*, transport *Azumasan Maru*, and cargo ship *Kozui Maru*.

Japanese transports sailed from Rabaul for Port Moresby. On 7 May, Task Force 17, which had been joined by Task Force 11, Rear Adm. Aubrey W. Fitch commanding, including *Lexington* (CV 2), turned north to engage the Japanese Carrier Strike Force, Vice Adm. Takagi Takeo commanding, including carriers *Shōkaku* and *Zuikaku*. SBD-2s from VB-2, SBD-3s of VS-2, and TBD-1s from VT-2, embarked on board *Lexington*, and Dauntlesses of VB-5 and VS-5 and Devastators of VT-5, flying from *Yorktown*, sank light carrier *Shōhō* of the Close Support Force, Rear Adm. Goto Aritomo commanding, in the Coral Sea. Japanese planes sank destroyer *Sims* (DD 409) and damaged oiler *Neosho* (AO 23), which was later scuttled.

The battle concluded the following day. Dauntlesses from *Lexington* and *Yorktown* damaged *Shōkaku* and forced her retirement. Pilot Lt. John J. Powers of VB-5 pressed an attack in an SBD-3 on *Shōkaku* but failed to recover from his dive. He received the Medal of Honor posthumously.

Japanese carrier bombers and attack planes struck Task Force 17. The few available U.S. fighters compelled the continuation of the use of Dauntlesses as an anti-torpedo plane patrol. Pilot Lt. William E. Hall, USNR, of VS-2 in an SBD-2 defended *Lexington*. Although wounded, Hall returned in his damaged Dauntless after participating in the destruction of at least three carrier attack planes and later received the Medal of Honor. The Japanese bombed and torpedoed *Lexington* and bombed *Yorktown*. Gasoline vapors flowing through *Lexington* ignited and triggered massive explosions that led to her abandonment, and destroyer *Phelps* (DD 360) scuttled the carrier at 15°12′S, 155°27′E.

The Americans sustained heavy casualties including the loss of at least 69 planes while the Japanese lost approximately 92 aircraft. The damage to *Shōkaku* and the aerial losses temporarily denied the Japanese the availability of *Shōkaku* and *Zuikaku*. The United States achieved a strategic victory by halting the push southward



SBD Dauntlesses from *Yorktown* (CV 5) attack Japanese carrier *Shōkaku* during the Battle of the Coral Sea on the morning of 8 May 1942.

and blunting the seaborne thrust toward Port Moresby. The Japanese deferred and then abandoned their occupation of Port Moresby by sea and shifted their advance overland across the Owen Stanley Mountains.

10 MAY • An experiment at the Naval Aircraft Factory at Philadelphia, Pa. demonstrated the possibility of increasing the range of small aircraft by operating them as towed gliders. Lt. Cdrs. William H. McClure and Robert W. Denbo piloted F4Fs attached to tow lines streamed behind a twin-engine Douglas BD-1 (A-20A Havoc), BuNo 4251, and, with their engines off underwent tows for an hour at 180 knots at 7,000 feet.

10 MAY • A base construction and garrison convoy, with VS-4 Detachment 14 embarked, arrived in the Tonga Islands and set up facilities to conduct antisubmarine patrols from Nukualofa Harbor, Tongatabu.

11 MAY • President Franklin D. Roosevelt ordered the establishment of the Air Medal for award to any persons who, while serving in any capacity in or with the Army, Navy, Marine Corps, or Coast Guard after 8 September 1939, distinguished or had distinguished themselves by meritorious achievement while participating in aerial flight.

15 MAY • The design of the national star insignia was revised by the elimination of the red disc in the center of the star, and the discontinuance of the use of horizontal red and white rudder striping.

15 MAY • The Chief of Naval Operations ordered the establishment of an Assistant Chief of Naval Operations (Air) to deal with aviation matters directly under the VCNO, and for the chief of BUAER to fill the new office as additional duty. The VCNO subsequently concentrated the aviation

functions already performed in his office into a new Division of Aviation. The office was abolished in mid-June 1942.

15 MAY • VR-2, with a flight from NAS Alameda, Calif., to Honolulu, Hawaiian Islands, initiated air transport service in the Pacific during the first transoceanic flight by planes of the Naval Air Transport Service.

20 MAY • Rear Adm. John S. McCain reported as Commander Air Force, South Pacific, a new command established to direct the operations of tender and shore-based aviation in the South Pacific area.

26 MAY • Lt. j.g. C. Fink Fischer demonstrated the feasibility of rocket-assisted takeoff during a test flight in a Brewster F2A-3 Buffalo using five British antiaircraft solid propellant rocket motors at NAS Anacostia, D.C. The takeoff distance was reduced by 49 percent.

26 MAY • Aircraft ferry *Kitty Hawk* (AVP 1) disembarked reinforcements for Marine Aircraft Group 22, including seven F4F-3 Wildcats and 19 SBD-2 Dauntlesses, at Midway Island. The ship returned to Pearl Harbor in the Hawaiian Islands on 1 June.

27 MAY • The transfer of Patrol Wing 4 from Seattle, Wash., to the North Pacific began with the arrival of Commander, Kodiak, Alaska.

3 JUNE • The Japanese *Dai-ni Kidō Butai* (2nd Mobile Striking Force), Rear Adm. Kakuta Kikuji commanding, including carriers *Junyō* and *Ryūjō*, attacked Dutch Harbor in the Aleutians, Alaska. PBY-5A Catalinas of VP-41 and -42 of Patrol Wing 4 supported by seaplane tenders *Casco* (AVP 12), *Gillis* (AVD 12), and *Williamson* (AVD 2) patrolled the likely approaches. Harsh weather cloaked the raiders and they eluded discovery and surprised the defenders. The Japanese inflicted light damage and destroyed a Catalina in the harbor. They cancelled a second strike because of the weather, but their fighters shot down three patrolling PBYs.

The next day, the raiders again achieved surprise and shot down a Catalina and began bombing and strafing runs. Fighters downed another Catalina separately and a PBY-5A disappeared. Patrol Wing 4 lost six Catalinas and, the Eleventh Air Force, five planes. The Japanese lost a Mitsubishi A6M Type 0 carrier fighter, five Aichi D3A1 Type 99 carrier bombers, a Nakajima B5N2 Type 97 carrier attack plane, and two Nakajima E8N2 Type 95 floatplanes. Despite this, the Japanese failed to lure strong U.S. forces from Hawaiian waters.

Pilot PO Koga Tadayoshi flew the A6M from *Ryūjō* but ground fire damaged the plane and it nosed over during a forced landing on Akutan Island, killing Koga. On 10 July pilot Lt. William N. Thies of VP-41 in a PBY-5A spotted the wreckage, and afterward led a party to retrieve the aircraft. This provided an example of the foremost Japanese naval fighter to the Allies for study.

3 JUNE • The threat posed by the carriers of the U.S. Pacific Fleet convinced the Japanese to occupy Midway Island to lure the Pacific Fleet into a decisive battle. Japanese Commander in Chief Combined Fleet Adm. Yamamoto Isoroku developed Operation MI—a comprehensive plan that emphasized surprise. U.S. cryptanalysts, however, deciphered some enemy messages through ULTRA, and the Japanese also failed to deploy their submarines in time to discover the movements of the U.S. carriers. On 27 May, *Dai-ichi Kidō Butai* (1st Mobile Striking Force), Vice Adm. Nagumo Chūichi commanding, including carriers *Akagi*, *Kaga*, *Sōryū*, and *Hiryū* sailed from Japanese waters.

Commander in Chief Pacific Fleet Adm. Chester W. Nimitz deployed Task Forces 16, Rear Adm. Raymond A. Spruance commanding, including *Enterprise* (CV 6) and *Hornet* (CV 8); and 17, Rear Adm. Frank J. Fletcher commanding, including *Yorktown* (CV 5). On 3 June, planes from Midway located the Japanese Second Fleet Escort Force about 600 miles west of the island. The next day, 108 Japanese aircraft attacked Midway and F2A-3 Buffaloes and F4F-3 Wildcats of VMF-221 intercepted the raiders. Mitsubishi A6M Type 0 carrier fighters brushed aside the Marines, but the Japanese failed to suppress Midway. Nagumo thus decided upon a second raid.

SBD-2 Dauntlesses and SB2U-3 Vindicators of VMSB-241, TBF-1 Avengers—their introduction to combat—from a detachment of VT-8, and Army Martin B-26 Marauders equipped with torpedoes and Boeing B-17 Flying Fortresses from Midway struck the Japanese ships separately but suffered grim losses. TBD-1 Devastators of VT-3, -6, and -8 gallantly but futilely assailed the enemy carriers as fighters and antiaircraft fire virtually wiped-out all three squadrons. The multiple attacks drew off the Japanese fighters and threw their

ships' formation into disarray. The arrival of Dauntlesses from VB-6 and VS-6, embarked on board *Enterprise*, thus caught the Japanese unprepared and resulted in the ensuing loss of *Kaga* and damage to *Akagi*. Dauntlesses of VB-3 from *Yorktown* sank *Sōryū*.

Hiryū launched dive bombers that damaged *Yorktown*. Fletcher transferred his flag to heavy cruiser *Astoria* (CA 34) and turned over tactical command to Spruance, but torpedo bombers from *Hiryū* further damaged *Yorktown* during a second attack. Dauntlesses of VB-3 operating from *Enterprise* in lieu of stricken *Yorktown* and from VS-6 damaged *Hiryū*. The loss of the carriers and the irretrievable failure to control the air compelled Yamamoto to retire.

On 5 June, Japanese destroyers scuttled *Akagi* and *Hiryū*. Heavy cruisers *Mikuma* and *Mogami* collided, and, on the 6th, Dauntlesses from *Enterprise* and *Hornet* sank *Mikuma* and damaged destroyers *Arashio* and *Asashio* by near misses. *Enterprise* and *Hornet* recovered their planes and turned around to refuel. The same day, Japanese submarine *I-168* damaged *Yorktown* and sank destroyer *Hammann* (DD 412). The submarine escaped and *Yorktown* foundered the next day. Planes searched for downed aviators and on 21 June, a PBY-5A Catalina of VP-24 made the final rescue 360 miles north of Midway of a two-man crew from a VT-6 Devastator that ditched on 4 June. In addition to the ships, the Japanese lost 258 aircraft plus experienced aircrew and mechanics. While the Americans lost at least 92 carrier and 40 shore-based planes in addition to *Yorktown* and *Hamman*, their decisive victory accelerated the attrition that led to the demise of Japanese naval offensive power.

6 JUNE • *Saratoga* (CV 3) arrived at Pearl Harbor, Territory of Hawaii, after repairs from torpedo damage that she sustained on 11 January. The ship thus missed participation in the Battles of Coral Sea and Midway.

6 JUNE • The Japanese landed on Kiska in the Aleutians, and the following day on Attu. Lt. Litsey of VP-41 piloted a PBY-5A and spotted the enemy there. On 11 June, Commander in Chief Pacific Adm. Chester W. Nimitz directed Patrol Wing 4 to "bomb the enemy out of Kiska." From 11 to 14 June, about 20 Catalinas from VP-41, -42, -43, and -51, supported by seaplane tender *Gillis* (AVD 12) at Nazan Bay, Atka Island, and USAAF Consolidated B-24 Liberators and Boeing B-17 Flying Fortresses, bombed the

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TBF-1 Avengers in flight off Ft. Lauderdale, Florida, January 1943.

Japanese at Kiska in what was dubbed the "Kiska Blitz." The strikes interfered with Japanese efforts to consolidate their gains until *Gillis* expended her supplies of bombs and fuel, and failed to drive the invaders from the island. Lt. William N. Thies of VP-41 and Ens. James T. Hildebrand Jr. of VP-40, each received the Navy Cross for their separate actions in the fighting. In addition, B-17s, B-24s, and an LB-30 of the Eleventh Air Force damaged Japanese destroyer *Hibiki* on 12 June and sank fleet tanker *Nissan Maru*, on 18 June.

10 JUNE • Project Sail was established to conduct airborne testing and associated work on magnetic anomaly detection (MAD) gear at NAS Quonset Point, R.I. Researchers intended this device to reveal submarines by the change they induced in the earth's magnetic field. The Naval Ordnance Laboratory and the National Defense Research Committee undertook the principal developmental efforts. The promising results of the early trials made with airships and a USAAF Douglas B-18 Bolo led to the procurement of 200 sets of MAD gear.

13 JUNE • The first airborne test of long-range radio navigation (LORAN for LOng RAnge Navigation equipment) occurred. A receiver mounted in airship K-2 accurately determined its position when the airship flew over various identifiable objects during a flight from NAS Lakehurst, N.J. The test culminated with the first LORAN homing from a distance 50 to 75 miles offshore during which operator Dr. J. A. Pierce issued instructions to the airship's commanding officer that brought them over the shoreline near Lakehurst on a course that caused the skipper to remark, "We weren't [just] headed for the hangar. We were headed for the middle of the hangar." The success of these tests led to immediate action to obtain operational LORAN equipment.

15 JUNE • *Copahee* (AVG 12), Capt. John G. Farrell commanding, was commissioned at Puget Sound Navy Yard, Bremerton, Wash. She was the first of ten escort carriers of the *Bogue* class converted from Maritime Commission hulls.

16 JUNE • Congress authorized an increase in the Navy's airship strength to 200 lighter-than-air craft.

17 JUNE • The National Defense Research Committee began the development of the Pelican antisubmarine guided missile with Bureau of Ordnance sponsorship. The device consisted of a glide bomb capable of automatically homing on a radar beam reflected from the target.

17 JUNE • Following the abolition of the newly created office of the Assistant Chief of Naval Operations (Air), the revision of an earlier order that had established an aviation organization in the Office of CNO made the Director of the Aviation Division responsible directly to VCNO.

17 JUNE • A contract was awarded to Goodyear Aircraft Corporation for the design and construction of a prototype M-class scouting and patrol airship with 50 percent greater range and volume (625,000 cubic feet) than the K class. Four M-class airships were built and served during World War II.

25 JUNE • The preliminary investigation of early warning radar had proceeded to the point that the coordinator for research and development requested the development of airborne early warning radar including automatic airborne relay and associated shipboard processing and display equipment. Interest in early warning radar arose when Adm. Ernest J. King observed to Head, Office of Scientific Research and Development Dr. Vannevar Bush the requirement of Navy ships to "see" beyond the line of sight.

26 JUNE • VR-2 initiated scheduled Naval Air Transport Service operations between the West Coast and Alaska.

26 JUNE • Lt. Cmdr. Frank A. Erickson, USCG, inspected Igor I. Sikorsky's VS-300 helicopter, and three days later, recommended their acquisition for antisubmarine convoy and life-saving duty.

27 JUNE • The Naval Aircraft Factory, Philadelphia, Pa., received directions to participate in the development of high-altitude pressure suits with particular emphasis on testing existing types and obtaining information to facilitate the tailoring and fitting of them for flight use. The Navy thus joined the Army in its sponsorship of work on pressure suits. The factory expanded its use of high-altitude equipment, including the design of a pressure cabin airplane and construction of an altitude test chamber.

1 JULY • *Ranger* (CV 4) sailed from NAS Quonset Point, R.I., to West Africa with 72 embarked Curtiss P-40Fs of the USAAF 57th Fighter Group. On 19 July, she launched the Warhawks to Accra, Gold Coast (Ghana), from where the planes were shipped to the China-Burma-India Theater. The ship turned for Port of Spain, Trinidad.

3 JULY • In the first successful firing of an American rocket from a plane in flight, gunnery officer of Transition Training Squadron, Pacific Fleet Lt. Cmdr. James H. Hean launched a rearward-firing antisubmarine rocket (retrorocket ASR) from a PBY-5A Catalina at Goldstone Lake, Calif. The rocket had been designed at the California Institute of Technology to be fired aft with a velocity equal to the forward velocity of the airplane and thus to fall vertically. After successful tests, the retrorocket became a weapon complementary to magnetic anomaly detection gear. In February 1943, VP-63 received the first service installation.

7 JULY • The Army agreed to deliver to the Navy a specified number of B-24 Liberators, B-25 Mitchells, and Lockheed B-34 Venturas to meet the Navy's requirement for long-range landplanes. The Navy was to relinquish its production

cognizance of the Renton, Wash., Boeing plant to the Army for expanded B-29 Superfortress production, and to limit its orders for PBY Catalinas to avoid interference with the production of Liberators.

12 JULY • Patrol wings were reorganized to increase the mobility and flexibility of patrol aviation. The authorization of headquarters squadrons for each wing furnished administrative and maintenance services to the attached squadrons. Each wing was assigned geographic areas of responsibility, and the discontinuance of permanent squadron assignments facilitated requirements.

19 JULY • Seaplane tender *Casco* (AVP 12) established an advanced base in Nazan Bay, Atka Island, in the Aleutian Islands. The station supported seaplane antishipping searches, bombing of Japanese positions, and cover for ship bombardments against Kiska.

24 JULY • BUAER issued a planning directive calling for the procurement of four Sikorsky helicopters for study and development by the Navy and Coast Guard.

30 JULY • The Women Accepted for Volunteer Emergency Service (WAVES) was established and, on 2 August, Lt. Cmdr. Mildred H. McAfee assumed duties as the first commandant. By the end of the year the WAVES reached a strength of 3,879 officers and enlisted, and by 31 July 1945 their numbers grew to 86,291 women.

1 AUGUST • Ens. Henry C. White, USCG, of Coast Guard Squadron 212, piloted a Grumman J4F-1 Widgeon from Houma, La., and scored the first Coast Guard kill of a German submarine with the sinking of surfaced *U-166* off the passes of the Mississippi. White received the Distinguished Flying Cross.

7 AUGUST • Marine Aircraft Wings, Pacific, Maj. Gen. Ross E. Rowell, USMC, commanding, was organized at San Diego, Calif., for administrative control and logistic support of Marine Corps aviation units assigned to the Pacific Fleet. In September 1944, this command was renamed Aircraft, Fleet Marine Force, Pacific.

7 AUGUST • The Americans landed on Japanese-held Guadalcanal, Florida, Gavutu, Tanambogo, and Tulagi in the Solomon Islands during Operation Watchtower—the first U.S. land offensive of World War II. Task Force 61, Vice Adm. Frank J. Fletcher commanding, included Task Group 61.1, Rear Adm. Leigh Noyes commanding, with *Saratoga* (CV 3), *Enterprise* (CV 6), and *Wasp* (CV 7). Task Force 63, Rear Adm. John S. McCain commanding, provided Navy, Marine, and USAAF planes flying from New Caledonia and the New Hebrides (Vanuatu). The Marines wrestled control of the neighboring islands from the Japanese, and simultaneously moved inland on Guadalcanal. The next day, the Marines captured the unfinished Japanese airstrip and redesignated it Henderson Field in honor of Maj. Lofton R. Henderson, USMC, who had been shot down while leading VMSB-241 on an unsuccessful attack on Japanese carrier *Hiryū* at the Battle of Midway.

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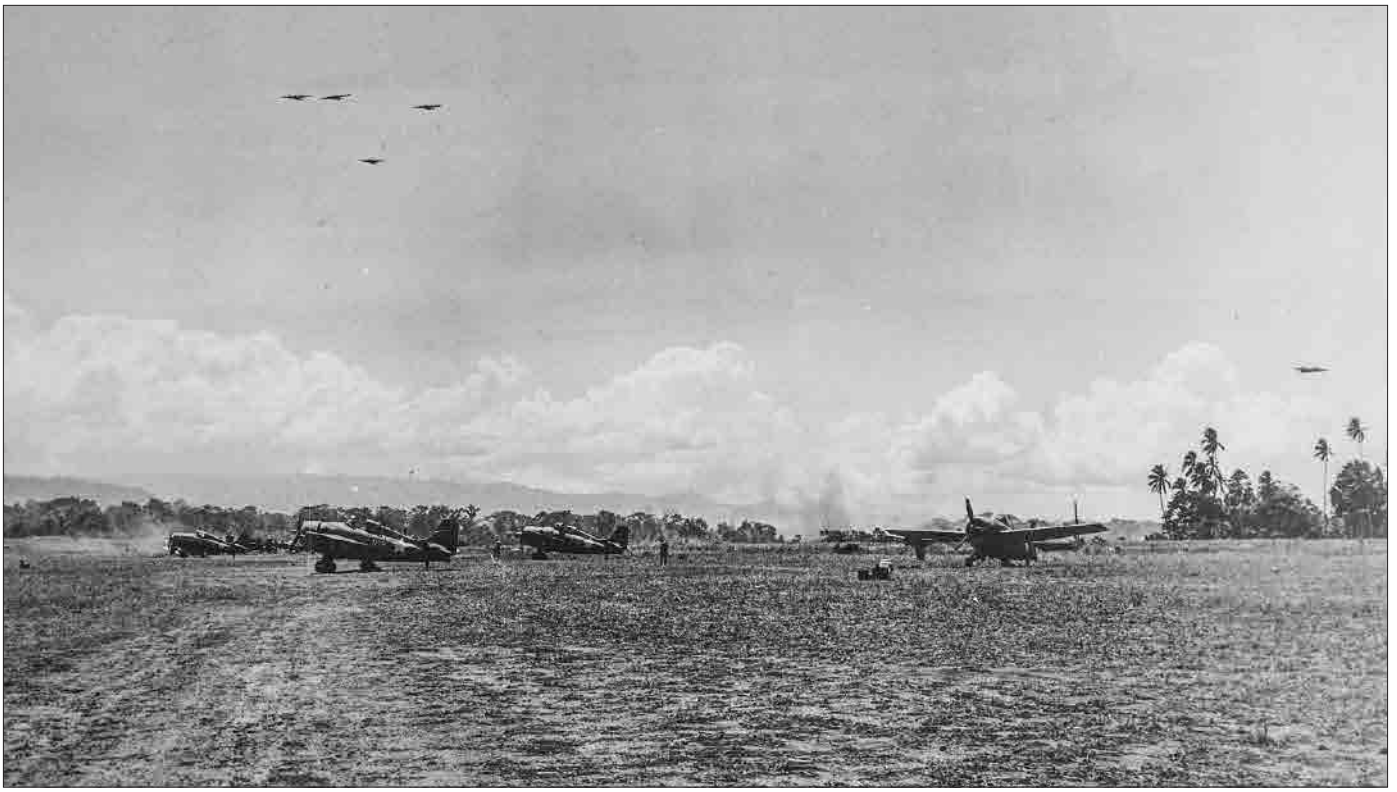
Vice Adm. John S. McCain.

9 AUGUST • During the Battle of Savo Island, a Japanese force, Vice Adm. Mikawa Gunichi commanding, slipped undetected to the west of the island in the Solomons and inflicted a singularly devastating defeat upon the U.S. Navy. Heavy cruisers *Astoria* (CA 34), *Quincy* (CA 39), *Vincennes*



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Marine F4F Wildcats line Henderson Field during the battle for the control of Guadalcanal as a formation of Army Air Forces B-17 Flying Fortresses approaches, August 1942.

(CA 44), and Australian *Canberra* were sunk, and heavy cruiser *Chicago* (CA 29) and destroyers *Patterson* (DD 392) and *Ralph Talbot* (DD 390) sustained damage. The Americans lightly damaged four Japanese ships. Japanese gunfire set some of the SOC Seagulls embarked on board the cruisers alight, and the ensuing conflagrations spread flaming gasoline that further illuminated the ships for enemy spotters. Despite the overwhelming victory, Mikawa sought to escape aerial retaliation by clearing the area before sunrise, and consequently failed to attack the nearby transports. The defeat prompted the withdrawal of the U.S. carriers and the transports before they had unloaded all their cargoes, but the limited amount of supplies, which had been landed combined with those the Marines seized from the Japanese, enabled the Leathernecks to maintain their tenuous hold on Guadalcanal.

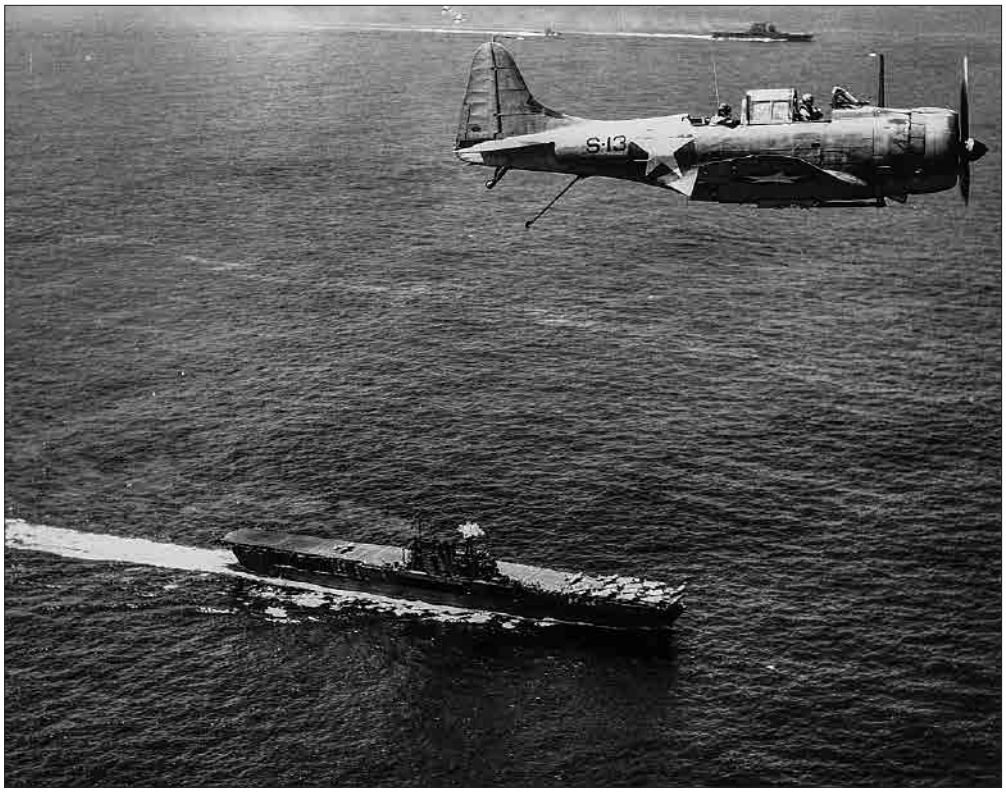
10 AUGUST • The headquarters of Patrol Wing 3 was shifted within the Panama Canal Zone from NAS Coco Solo to Albrook Field for closer coordination with the Army.

12 AUGUST • Light cruiser *Cleveland* (CL 55) operating in Chesapeake Bay tested the effectiveness of radio-proximity fuzes against planes during simulated combat conditions by destroying three radio-controlled drones with four proximity bursts from her 5-inch guns. This demonstration led to the mass production of the fuzes.

12 AUGUST • *Wolverine* (IX 64), Cmdr. George R. Fairlamb Jr. commanding, was commissioned at Buffalo, N.Y. This ship and *Sable* (IX 81)—which was commissioned on 8 May 1943—were Great Lakes excursion ships *Seeandbee* and *Greater Buffalo*, respectively, converted for aviation training. *Sable* and *Wolverine* operated for the remainder of World War II on Lake Michigan providing flight decks upon which student naval aviators qualified for carrier landings and flight deck crews received practical experience in handling aircraft on board ships.

13 AUGUST • Commander in Chief U.S. Fleet directed the establishment on about 30 September 1942 of an aircraft experimental and developmental squadron at NAS Anacostia, D.C. This squadron replaced the Fleet Air Tactical Unit to conduct experiments with new aircraft and equipment to determine their practical application and tactical employment.

15 AUGUST • Patrol Wing 11, Cmdr. Stanley J. Michael commanding, was established at Norfolk, Va. Five days later, the wing moved to operate within the Caribbean Sea Frontier from San Juan, P.R.



An SBD Dauntless flies over *Enterprise* (CV 6), foreground, and *Saratoga* (CV 3), near Guadalcanal in December 1942.

16 AUGUST • Blimp L-8 of ZP-32 departed Treasure Island for a routine patrol off the coast of San Francisco, Calif., but crashed several hours later in Dale City. Despite adequate fuel, her engines ceased operation, and crewmembers Lt. j.g. Ernest D. Cody and Ens. Charles E. Adams disappeared. The lighter-than-air craft apparently drifted with the wind toward land, exceeded her pressure height, and deflated and returned to earth. Local residents referred to the mysterious tragedy as the "Ghost Blimp." The Navy salvaged L-8, the former advertising airship *Ranger* of the Goodyear Aircraft Corporation, and after the war returned the blimp to the company.

20 AUGUST • The escort carrier designation was changed from Aircraft Escort Vessel (AVG) to Auxiliary Aircraft Carrier (ACV).

20 AUGUST • *Long Island* (ACV 1) launched the first Marine planes to arrive at Henderson Field on Guadalcanal, Solomon Islands—19 F4F-4 Wildcats of VMF-223 and 12 SBD-1 Dauntlesses of VMSB-232. A Japanese flying boat from the Shortland Islands sighted *Long Island*, but the ship retired beyond the range of enemy land-based aircraft. On 22 August, Bell P-400 Airacobras of the USAAF 67th Fighter Squadron joined the Marines, followed two days later by SBD-3s of VB-6 and VS-5 from *Enterprise* (CV 6). Marine planes carried the major air support burden during the campaign, and also flew 2,117 sorties against Japanese planes, losing 118 aircraft in battle and 30 operationally, while claiming the destruction of 427 enemy aircraft.

24 AUGUST • *Santee* (ACV 29), Capt. William D. Sample commanding, was commissioned at the Norfolk Navy Yard, Va. *Santee* was the first commissioned of four *Sangamon*-class auxiliary aircraft carriers converted from *Cimarron*-class fleet oilers.

24 AUGUST • During the Battle of the Eastern Solomons, Task Force 61, Vice Adm. Frank J. Fletcher commanding, including *Saratoga* (CV 3), *Enterprise* (CV 6), and *Wasp* (CV 7), supported by Marine and USAAF planes from Henderson Field on Guadalcanal, turned back a Japanese attempt to recapture Guadalcanal and Tulagi. The enemy deployed multiple forces including one of carriers *Shōkaku* and *Zuikaku* to cover a group of four transports, and a diversionary force formed around light carrier *Ryūjō*.

SBD-3 Dauntlesses of VB-3 and VS-3 and TBF-1 Avengers of VT-8 from *Saratoga* sank *Ryūjō* and damaged seaplane carrier *Chitose*. A Dauntless of VMSB-232 damaged light cruiser *Jintsū* north of Malaita Island, and planes from ashore sank armed merchant cruiser *Kinryu Maru* and destroyer *Mitsuki*, and damaged destroyer *Uzuki*. *Enterprise* fought off Japanese torpedo bombers but enemy

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A PBY-5A Catalina of VP-61 hunts for Japanese over the Aleutians near Adak, Alaska, in March 1943.

dive bombers made three direct bomb hits and four near misses that killed 74 men and wounded 95. Her crew controlled the fires and *Enterprise* made for Pearl Harbor, Hawaiian Islands. The Japanese lost fewer than 90 aircraft compared to U.S. casualties of 20 planes.

28 AUGUST • Marine and Navy SBD Dauntlesses from Henderson Field on Guadalcanal in the Solomon Islands defeated a Japanese attempt to land reinforcements from destroyers onto the island, sinking destroyer *Asagiri* and damaging *Amagiri*, *Shirakumo*, and *Yugiri*.

30 AUGUST • The Americans landed on Adak, Alaska, and established an advanced seaplane anchorage there based upon seaplane tender *Teal* (AVP 5). The operation placed Allied forces within 250 miles of Japanese-occupied Kiska and in a position to monitor enemy shipping lanes there and to Attu in the Aleutians. Japanese submarine *RO-61* torpedoed seaplane tender *Casco* (AVP 12) as she supported the landings from Nazan Bay. *Casco* was beached and subsequently salved.

31 AUGUST • Japanese submarine *I-26* torpedoed *Saratoga* (CV 3) about 260 miles southeast of Guadalcanal in the Solomon Islands, forcing the carrier to retire for repairs.

1 SEPTEMBER • Naval Air Forces, Pacific, Rear Adm. Aubrey W. Fitch commanding, was established for the administrative control of all air and air service units under Commander in Chief Pacific Fleet. This move replaced Commander Carriers, Pacific, and Commander Patrol Wings, Pacific. The establishment of the subordinate commands Fleet Air West Coast, Fleet Air Seattle, Wash., and Fleet Air Alameda, Calif., occurred simultaneously.

6 SEPTEMBER • The first Naval Air Transport Service flight to Argentia, Newfoundland, marked the beginning of air transport expansion along the eastern seaboard of North America. During September, the flights extended briefly to Iceland and reached southward to the Panama Canal Zone and to Rio de Janeiro, Brazil.

7 SEPTEMBER • VR-2, based at NAS Alameda, Calif., established a detachment at Pearl Harbor, Territory of Hawaii, and initiated a survey flight to the South Pacific preliminary to establishing routes between San Francisco, Calif., and Brisbane, Australia.

15 SEPTEMBER • Japanese submarine *I-19* attacked Task Force 18, Rear Adm. Leigh Noyes commanding, south of San Cristobal Island while the force covered a reinforcement convoy from Espíritu Santo, New Hebrides (Vanuatu), bound for Guadalcanal, Solomons. Two of the torpedoes struck *Wasp* (CV 7) in her starboard side near aviation gasoline tanks and magazines, and her commanding officer, Capt. Forrest P. Sherman, ordered the ship abandoned. Destroyer *Lansdowne* (DD 486) scuttled *Wasp*. Battleship *North Carolina* (BB 55) and destroyer *O'Brien* (DD 415) also received damage but the battleship subsequently completed repairs at Pearl Harbor, Hawaiian Islands. On 19 October, *O'Brien* sank northwest of Tutuila, Samoa while en route to the United States for repairs. Naval aviator Sherman survived to become the 12th Chief of Naval Operations.

16 SEPTEMBER • Patrol Wing 12, Capt. William G. Tomlinson commanding, was established at NAS Key West, Fla., from where it conducted operations within the Gulf Sea Frontier.

19 SEPTEMBER • Commander, Patrol Wing 1 departed NAS Kaneohe Bay, Hawaiian Islands, for the South Pacific to direct the operations of patrol squadrons already in the

area. The headquarters was initially established at Nouméa, New Caledonia, and subsequently at Espíritu Santo, New Hebrides (Vanuatu), and on Guadalcanal and Munda in the Solomons.

1 OCTOBER • Airship Patrol Group 3, Capt. Scott E. Peck commanding, was established at NAS Moffett Field, Calif., to serve as the administrative command for airship squadrons operating on the West Coast.

1 OCTOBER • Three functional training commands—Air Technical Training, Air Primary Training, and Air Intermediate Training—were established with their headquarters initially at Chicago, Ill., Kansas City, Mo., and NAS Pensacola, Fla., respectively.

5 OCTOBER • Planes from *Hornet* (CV 8) attacked Japanese staging areas at Buin-Tonolei and Faisi on Bougainville in the Solomon Islands to disrupt enemy reinforcements from reaching Guadalcanal.

11 OCTOBER • Japanese transports proceeded down New Georgia Sound amid the Solomon Islands to disembark reinforcing elements of the 2nd Division for Japanese troops on Guadalcanal. A surface force, Rear Adm. Goto Aritomo commanding, was to cover their movement by shelling Henderson Field. During the ensuing Battle of Cape Esperance, Task Group 64.2, Rear Adm. Norman Scott commanding, maneuvered into a blocking position against Goto. The Japanese landed their reinforcements, but the following morning planes struck the retiring enemy ships. An SBD-3 Dauntless of VS-71 sank Japanese destroyer *Natsugumo* off Savo Island, and a TBF-1 Avenger of VT-8, SBD-3s of VS-3 and -71 and VMSB-141, and F4F-4 Wildcats of VMF-121, -212, and -224 damaged destroyer *Murakumo* off New Georgia. Destroyer *Shirayuki* scuttled *Murakumo*.

12 OCTOBER • The establishment of Naval Air Centers Hampton Roads, Va.; San Diego, Calif.; Seattle, Wash.; and Hawaiian Islands, and Naval Air Training Centers Pensacola, Fla., and Corpus Christi, Texas, consolidated under single commands various naval aviation facilities that had become operational in the vicinity of the large air stations.

14 OCTOBER • SBD-3 Dauntlesses of VS-3 flying from Guadalcanal, Solomon Islands, attacked the six ships of a Japanese convoy escorted by eight destroyers steaming toward Guadalcanal between Santa Isabel and Florida Islands, but failed to inflict damage. Overnight a Japanese force, Vice Adm. Mikawa Gunichi commanding, bombarded Henderson Field on Guadalcanal to cover the movement of six destroyers and 11 transports to Tassafaronga. Planes from Henderson Field including SBD-3s of VB-6 and VMSB-141, F4F-4 Wildcats of VF-5, a PBY Catalina that operated as the personal "flag" plane of Commanding General 1st Marine Aircraft Wing, and USAAF Boeing B-17s and Bell P-39/P-400 Airacobras attacked the Japanese ships off Tassafaronga. Transport *Azumasan Maru* and cargo ship *Kyushu Maru* were run aground and fires destroyed both ships. The strikes also sank *Sasago Maru* and damaged destroyer *Samidare*. Japanese planes from carrier *Zuikaku* eluded the Wildcats and sank destroyer *Meredith* (DD 434) off San Cristobal.

15 OCTOBER • Patrol Wing 14, Capt. William M. McDade commanding, was established at San Diego, Calif. The wing operated within the Western Sea Frontier to form, establish, and equip patrol squadrons.

16 OCTOBER • Task Force 17, Rear Adm. George D. Murray commanding, including *Hornet* (CV 8), struck Japanese troops on Guadalcanal and a seaplane base at Rekata Bay, Santa Isabel, in the Solomon Islands.

16 OCTOBER • Nine Japanese dive bombers damaged seaplane tender *McFarland* (AVD 14) as she unloaded cargo and evacuated wounded off Lunga Roads on Guadalcanal, Solomon Islands. The tender shot down one of the attackers, but the Japanese also hit a gasoline barge moored alongside her. The crew cut the blazing vessel loose, and *McFarland* was towed to Florida Island for temporary repairs before she moved for additional work.

17 OCTOBER • Inshore patrol squadrons (VS) were transferred to patrol wings for administrative control. This facilitated the operations of squadrons engaged in coastal antisubmarine reconnaissance and convoy duty within the sea frontiers.

18 OCTOBER • Vice Adm. William F. Halsey Jr. relieved Vice Adm. Robert L. Ghormley as Commander South Pacific Area and South Pacific Force on board auxiliary *Argonne* (AG 31) at Nouméa, New Caledonia.

19 OCTOBER • BUAER reported the initial installation and deployment of the ASB-3 airborne search radar. The Naval Research Laboratory developed the radar for carrier-based aircraft and had installed the system in five TBF-1 Avengers and five SBD-3 Dauntlesses at NASs New York and San Pedro, Calif., respectively. One plane of each type was assigned to Air Group 11 on board *Saratoga* (CV 3) and the others were shipped to Pearl Harbor, Hawaii. The remaining sets of the initial contract for 25 were used for spare parts and training.

21 OCTOBER • Eight men including World War I ace Capt. Edward V. Rickenbacker, USAAC (Ret.), crashed in a B-17D Flying Fortress, Serial 40-3089, in the Central Pacific as a result of a navigational error while Rickenbacker toured Allied forces in the Pacific. At one point, Sgt. Alexander Kaczmarczyk, USAAF, died and the castaways buried him at sea. On 12 November, Lt. j.g. F. E. Woodward and ARM2 L. H. Boutte flying a Vought OS2U-3 Kingfisher of VS-1 Detachment 14, spotted a life raft containing the pilot of the Flying Fortress, Capt. William T. Cherry Jr., USAAF. A patrol torpedo boat rescued him. The next day, Lt. William F. Eadie and Boutte crewed the same Kingfisher and spotted the raft carrying Rickenbacker; Capt. Hans C. Adamson, USAAF; and Pvt. John F. Bartek, USAAF; off Nukufetau in the Ellice Islands (Tuvalu). Eadie landed the Kingfisher, rescued the three men, and taxied 40 miles to the nearest land. The Navy later rescued the other three survivors.

22 OCTOBER • An amendment to a design study contract authorized Westinghouse Electric and Manufacturing Co. to construct two 19A axial-flow turbojet powerplants. The move initiated the fabrication of the first jet engine of wholly U.S. design.

25 OCTOBER • Japanese destroyers *Akatsuki*, *Ikazuchi*, and *Shiratsuyu* sank tug *Seminole* (AT 65) and district patrol craft *YP-284* off Guadalcanal in the Solomon Islands, and damaged minesweeper *Zane* (DMS 14) in Sealark Channel. Marine shore batteries and F4F-4 Wildcats of VMF-121 damaged *Akatsuki* off Lunga Point and damaged *Ikazuchi* while USAAF Bell P-39 Airacobras damaged destroyers *Akizuki* and *Samidare*. An SBD-3 Dauntless of VS-71 and USAAF aircraft damaged Japanese light cruiser *Yura* off Santa Isabel. Destroyers *Harusame* and *Yudachi* scuttled *Yura*.

26 OCTOBER • The Battle of the Santa Cruz Islands began. Task Forces 16 and 17, Rear Adms. Thomas C. Kinkaid and George D. Murray commanding, including *Enterprise* (CV 6) and *Hornet* (CV 8), respectively, fought Japanese forces, Vice Adm. Nagumo Chūichi commanding, including carriers *Shōkaku* and *Zuikaku* and light carriers *Junyō* and *Zuihō* that supported an overland thrust on Guadalcanal, Solomon Islands. *Hornet* launched SBD-3 Dauntlesses of VB-8 and VS-8 that damaged *Shōkaku* and destroyer *Terutsuki*, and TBF-1 Avengers of VT-6 that damaged heavy cruiser *Chikuma*. Dauntlesses of VS-10 from *Enterprise* damaged *Zuihō*. Planes from *Shōkaku* and *Junyō* twice damaged *Enterprise*, killing 44 men and wounding 75. Aircraft from *Shōkaku, Zuikaku*, and *Junyō* left *Hornet* ablaze from a total of three torpedoes, four bombs, and two crashing Aichi D3A1 Type 99 carrier bombers. Destroyers *Anderson* (DD 411) and *Mustin* (DD 413) attempted to scuttle *Hornet*, but the following day Japanese destroyers *Akigumo* and *Makigumo* sank the carrier. The Japanese lost 99 planes and the Americans 80. The Japanese attained a tactical naval victory, but Marines and soldiers repulsed the enemy's land offensive on Guadalcanal, thus conferring a strategic victory to the Allies.

28 OCTOBER • The procurement of an expendable radio sonobuoy for use in antisubmarine warfare began when Commander in Chief U.S. Fleet directed the Bureau of Ships to procure 1,000 sonobuoys and 100 associated receivers.

31 OCTOBER • Air Transport Squadrons Pacific was established over the Naval Air Transport Service squadrons based in the Pacific and those on the West Coast that flew the routes from the mainland United States to the Hawaiian Islands.

1 NOVEMBER • The War Department designated Japanese aircraft with human names to provide a uniform identification system, initially with fighter types receiving male names and all others female. The 16 major frontline naval types identified to date: Aichi D3A1 Type 99 carrier bomber "Val," Aichi E13A1 Type 0 reconnaissance floatplane "Jake," Kawanishi E7K2 Type 94 reconnaissance floatplane "Alf," Kawanishi H6K4 Type 97 flying boat "Mavis," Kawanishi H8K2 Type 2 flying boat "Emily," Mitsubishi A5M4 Type 96 carrier fighter "Claude," Mitsubishi A6M Type 0 carrier fighter "Zeke," Mitsubishi F1M2 Type 0

observation floatplane "Pete," Mitsubishi G3M3 Type 96 land attack plane "Nell," Mitsubishi G4M1 Type 1 attack plane "Betty," Nakajima A6M2-N Type 2 fighter seaplane "Rufe," Nakajima B5N2 Type 97 carrier attack plane "Kate," Nakajima B6N1 carrier attack plane "Jill," Nakajima E8N2 Type 95 reconnaissance floatplane "Dave," Yokosuka D4Y1 Type 2 carrier bomber "Judy," and Yokosuka E14Y1 Type 0 small reconnaissance seaplane "Glen." The Allies adopted additional names for succeeding Japanese aircraft.

1 NOVEMBER • Patrol wings were redesignated fleet air wings. To permit the organization of patrol aviation on the task force principle, the practice of assigning a standard number of squadrons to each of the wings shifted to provide for the assignment of all types of aircraft required by the wings to perform their missions.

1 NOVEMBER • Airship Patrol Group 1 was redesignated Fleet Airship Group 1 at NAS Lakehurst, N.J.

2 NOVEMBER • NAS Patuxent River, Md., was established to serve as a facility for testing experimental airplanes and equipment, and as a Naval Air Transport Service base. The station eventually assumed the role of the Navy's principal flight testing and of the Naval Test Pilot School in place of NAS Anacostia, D.C.

2 NOVEMBER • Fleet Air Wing 6, Capt. Douglass P. Johnson commanding, was established for multi-engine aircraft training at NAS Seattle, Wash.

8 NOVEMBER • Task Group 34.2, Rear Adm. Ernest D. McWhorter commanding, including *Ranger* (CV 4), *Suwannee* (AVG 27), *Sangamon* (AVG 26), and *Santee* (ACV 29), covered landings near Casablanca and Fedala in Morocco during Operation Torch, the Allied invasion of North Africa.

The French *2ème Escadre Légère* (2nd Light Squadron), Contre-Amiral Raymond Gervais de Lafonde commanding, attempted to disrupt the landings off Casablanca. Naval spotting planes reported the French sortie and naval gunfire and bombing and strafing attacks including F4F-4 Wildcats from VF-9 and -41 and SBD-3 Dauntlesses from VS-41 from *Ranger* overwhelmed the French. Air attacks sank four submarines and damaged light cruiser *Primaguet*, three destroyers, and one submarine. Wildcats from VF-41 fought French Dewoitine D.520s and Curtiss Hawk 75As of *Groupes de Chasse* I/5 and II/5. Planes spotted the fall of shot for ships against coastal emplacements. Battleship *Massachusetts* (BB 59) and bombing and strafing runs by naval aircraft including Wildcats from VF-41 damaged French battleship *Jean Bart*.

The next day, 14 French light tanks counterattacked along the road to Rabat. Gunfire from light cruiser *Savannah* (CL 42) and aerial runs defeated the armored thrust. The invaders then repulsed a second armored counterattack. On 10 November, scout planes from *Savannah* bombed and strafed French light tanks. *Chenango* (ACV 28) accompanied the assault forces and launched 78 USAAF Curtiss P-40 Warhawks to operate from Port Lyautey. Through 11 November and the Vichy French capitulation, 172 carrier aircraft flew 1,078 combat sorties. Forty-four planes were lost but most of their crewmembers survived. These aircraft claimed the destruction of 20 of the estimated 168 French planes deployed to Morocco.

12 NOVEMBER • The Naval Battle of Guadalcanal began when Japanese land attack planes assaulted ships of Task Force 67 in Lunga Roads at Guadalcanal in the Solomon Islands. During a savage nocturnal action, U.S. ships repulsed the Japanese from an intended bombardment of Guadalcanal's Henderson Field. The next morning, Task Force 16, Rear Adm. Thomas C. Kinkaid commanding, including *Enterprise* (CV 6)—the last operational fleet carrier in the Pacific and still completing repairs—launched aerial attacks at the retiring Japanese. TBF-1 Avengers of VT-8 from *Enterprise* and of VMSB-131 and SBD-3 Dauntlesses of VMSB-142 from Henderson sank Japanese battleship *Hiei*. Planes also damaged two destroyers.

On 14 November, the failed Japanese bombardment prompted the postponement of landings, and SBD-3s of VMSB-132 sank heavy cruiser *Kinugasa*. Planes damaged heavy cruisers *Chōkai* and *Maya*, light cruisers *Isuzu* and *Tenryu*, and a destroyer. Dauntlesses of VS-10 and VMSB-130 and -141 and Avengers of VT-10 from Henderson Field sank seven transports/cargo ships and damaged a cargo ship. Overnight, the Americans repelled a Japanese force off the island. The following afternoon, Dauntlesses from VS-10 and VMSB-132 and Avengers of VT-10, together with Marine and Army coastal guns and destroyer *Meade* (DD 602), sank four Japanese transports/cargo ships off northern Guadalcanal. The United States suffered the

greater loss of warships during this series of engagements, but the Japanese withdrew and the battle marked their final attempt to dispatch large naval forces into the waters around Guadalcanal.

13 NOVEMBER • PBY-5 Catalinas of VP-73 arrived at Craw Field at Port Lyautey, Morocco, from Iceland via Bally Kelly, Ireland, and Lyncham, England. Seaplane tender *Barnegat* (AVP 10) supported the squadron during antisubmarine operations over the western Mediterranean and the Strait of Gibraltar and its approaches. During these patrols, the Catalinas encountered Spanish Fiat CR.32s over the Canary Islands and German Focke-Wulf Fw 200C Condors near Gibraltar. In addition, a detachment operated from Ben Sergao Field near Agadir. VP-92 arrived at Les Cazes at Port Lyautey via Cuba, Brazil, Ascension Island, and West Africa.

13 NOVEMBER • Two PBY-5As of VP-92 spotted a submarine on the surface that refused to answer recognition signals about 700 miles off Casablanca, Morocco. Because of the communications error, pilot Lt. H. S. Blake and the crew of his Catalina sank Vichy French boat *Le Conquerant* without sighting survivors.

16 NOVEMBER • Marine Night Fighter Squadron (VMF[N])-531, Lt. Col. Frank H. Schwable, USMC, commanding, was established at MCAS Cherry Point, N.C. This first naval aviation night fighter squadron trained initially with SNJ Texans and SB2A4 Buccaneers, and then received twin-engine PV-1 Venturas equipped with British Mark IV type radar.

23 NOVEMBER • The VS-173 full-scale model of the "Flying Flapjack" fighter with an almost circular wing made its first flight at the Vought-Sikorsky plant, Stratford, Conn. A subsequent military version of this aircraft designated XF5U-1 never flew.

1 DECEMBER • Fleet Air Wing 15, Capt. George A. Seitz commanding, was established at Norfolk, Va. to conduct operations within the Moroccan Sea Frontier.

1 DECEMBER • Fleet Airship Wing 30, Capt. George H. Mills commanding, was established at NAS Lakehurst, N.J. The wing administered Atlantic Fleet airship groups and their squadrons.

1 DECEMBER • Airship Patrol Group 3 was redesignated Fleet Airship Wing 31 at NAS Moffett Field, Calif.

15 DECEMBER • As a result of the matte-black paint schemes of the PBY-5A Catalinas of VP-12 and the night-time bombing operations conducted by the squadron from Nandi in the Fiji Islands around Guadalcanal in the Solomon Islands, VP-12 became known as a "Black Cat" squadron. Other squadrons that subsequently received the appellation included VP-11, -51, and -91.

26 DECEMBER • The Chief of Naval Operations approved the merger of the Service Force Aviation Repair Unit and Advanced Cruiser Aircraft Training Unit, which had been established in October 1941 and June 1942, respectively, to form a scout observation service unit (SOSU) to maintain battleship and cruiser aircraft and indoctrinate pilots in their specific operations. This SOSU was established on 1 January 1943 as the first of three created during World War II.

27 DECEMBER • *Santee* (ACV 29), with Air Group 29 embarked, sailed from NOB Norfolk, Va. *Santee* became the first of 11 auxiliary aircraft carriers to wage free-roving hunter-killer antisubmarine and antiraider operations in the South Atlantic.

31 DECEMBER • The chief of BUAER noted to the Naval Research Laboratory the urgent need for airborne radar that obviated the slower peacetime methods of procurement and fleet introduction, and requested the continuance of the provision of people capable of assisting the fleet in the operation and maintenance of radar equipment until the assembly of a specially trained group. Within a few months, this team evolved into the Airborne Coordination Group that provided trained civilian electronics specialists to the fleet throughout World War II and post-war.

31 DECEMBER • *Essex* (CV 9), Capt. Donald B. Duncan commanding, was commissioned at Norfolk, Va. She was the first of 17 ships of her class commissioned during World War II.

31 DECEMBER • The Japanese decided to evacuate Guadalcanal, Solomon Islands.

1943

1 JANUARY • Naval Reserve aviation bases (NRAB) engaged in primary flight training were redesignated naval air stations (NAS) without a change of mission. There were two exceptions. On 7 July 1943, NRAB Anacostia, D.C., was abolished, and on 1 September 1943, Squantum, Mass., was redesignated as a naval air station.

1 JANUARY • Air Force, Atlantic Fleet, was established, Rear Adm. Alva D. Bernhard commanding. The command provided administrative, material, and logistic services for Atlantic Fleet aviation in place of the separate commands Fleet Air Wings, Atlantic, and Carriers, Atlantic, which were abolished. The same order established Fleet Air, Quonset, R.I., as a subordinate command.

1 JANUARY • The Navy recorded its first emergency use of ground-controlled approach (GCA) equipment when a half hour before the scheduled arrival of a flight of PBYs, a snowstorm closed the field at NAS Quonset Point, R.I. The GCA crew located the incoming Catalinas on their search radar and, using the control tower as a relay station, "talked" one of the planes into position for a landing. This recovery occurred nine days after the first successful experimental demonstration of GCA.

5 JANUARY • Ships of Task Force 67 bombarded Japanese positions in Munda on New Georgia, Solomon Islands. Japanese planes counterattacked, and in the first combat use of a proximity-fuzed projectile, light cruiser *Helena* (CL 50) destroyed a Japanese dive bomber with the second salvo from her 5-inch guns off the south coast of Guadalcanal.

7 JANUARY • The opening of flight preparatory schools in 20 colleges and universities across the United States implemented a change in the pilot training program. Under the new program, students began their training at these schools with three months of academic work fundamental to ground school subjects, then proceeded to War Training Service courses conducted by the Civil Aeronautics Administration at universities for two months' training in ground subjects and elementary flight under civilian instructors, then to the pre-flight schools for three months of physical conditioning, and finally to Navy flight training beginning at one of the primary training bases.

7 JANUARY • The development of the first naval aircraft to be equipped with a turbojet engine began with the issuance of a letter of intent for engineering, development, and tooling for two fighters to McDonnell Aircraft Corporation. The agreements later specified two Westinghouse 19-B turbojet engines and the aircraft received the designation XFD-1, which became the prototypes for the FH-1 Phantom.

8 JANUARY • *Ranger* (CV 4) sailed from NOB Norfolk, Va., to west African waters with 75 embarked Curtiss P-40Es of the USAAF 325th Fighter Group. On 19 January, she launched the Warhawks from a position off Accra, Gold Coast (Ghana), for shipment to the North African Theater, and then returned to Norfolk.

10 JANUARY • Fleet Air Wing 15 headquarters was transferred from Norfolk, Va., to Port Lyautey, French Morocco, to direct patrol plane operations in the Mediterranean and Strait of Gibraltar area.

12 JANUARY • The chief of Naval Air Operational Training directed the marking of aircraft operating from stations under his command for identification purposes with letters and numerals in three groups separated by dashes. The first group provided a letter identification of the station, the second a letter identifying the unit type, and the third the number of the aircraft in the unit. The order also provided for the addition of a number to the station letter during the operations of more than one unit on board the station. Thus J2-F-22 identified a plane from NAS Jacksonville, Fla., OTU No. 2 Fighter Training Unit, aircraft No. 22.

14 JANUARY • *Independence* (CVL 22) was commissioned at Philadelphia, Pa., Capt. George R. Fairlamb Jr. commanding. She was the first of nine light carriers of her class constructed on the hulls of *Cleveland* (CL 55)-class light cruisers.

15 JANUARY • Head of the Flight Statistics Desk of the Bureau of Aeronautics, Capt. Spencer H. Warner, introduced Grampaw Pettibone in the *BUAER News Letter*. Artist Lt. Robert Osborn drew the cartoon character as a safety feature to help reduce pilot-error accidents. After Osborn's discharge from the Navy, he contributed Pettibone to *Naval Aviation News* magazine.

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A carrier's landing signal officer guides an F4U Corsair to land.

17 JANUARY • After tests conducted by six experienced pilots flying F4U-1 Corsairs at NAS San Diego, Calif., VF-12 commanding officer Cmdr. Joseph C. Clifton reported that antiblackout suits had raised pilot tolerance to accelerations encountered in gunnery runs and other maneuvers by three to four Gs.

24 JANUARY • Ships of Task Force 67 shelled Japanese ammunition and fuel dumps on Kolombangara, Solomon Islands. Later that day, aircraft operating from Guadalcanal's Henderson Field bombed the targets.

28 JANUARY • *Barnegat* (AVP 10)-class seaplane tender *Absecon* (AVP 23), Cmdr. Robert S. Purvis commanding, was commissioned at Puget Sound Navy Yard at Bremerton, Wash. *Absecon* had undergone the unique fitting of a catapult and two cranes to facilitate training in catapult launches and sled net recoveries. Her embarked aviation unit consisted initially of one SO3C-1 Seamew and two OS2U-3 Kingfishers. The ship completed 3,733 catapult launches during World War II, and also operated as a mobile target for torpedo planes training from NASs Ft. Lauderdale and Miami, Fla.

31 JANUARY • 1st Lt. Jefferson J. DeBlanc, USMC, of VMF-112 piloted an F4F-4 Wildcat as part of an escort for SBD Dauntlesses and TBF-1 Avengers that bombed Japanese ships in Vella Gulf in the Solomons. The Japanese intercepted the Marines, but DeBlanc shot down two Mitsubishi A6M Type 0 carrier fighters and three floatplanes

over Kolombangara Island. His efforts disrupted the Japanese attacks, but the aviator bailed out from his damaged Wildcat over the enemy-held island. A coastwatcher on Kolombangara rescued DeBlanc and SSgt. James A. Feliton, USMC, who had also parachuted. Thirteen days later a J2F-5 Duck returned both men. DeBlanc received the Medal of Honor.

1 FEBRUARY • VB-127, Lt. Cmdr. William K. Gentner commanding, was established at NAS Deland, Fla., equipped with PV-1 Venturas. Although it was not the first Navy landplane patrol squadron, it was the first to receive the VB designation.

1 FEBRUARY • A new specification prescribing the color and marking of naval aircraft became effective. The basic camouflage color scheme for use on fleet aircraft was a pattern of four colors ranging from semigloss Sea Blue on surfaces viewed from above with intermediary blues to nonspecular Insignia White on surfaces viewed from below. It also involved complex countershading paint application. The terms "basic non-camouflage" and "maximum visibility" were introduced for the color schemes described in April 1942 for use on intermediate and primary trainers.

1 FEBRUARY • The revision of regulations governing the display of the national star insignia on aircraft removed those markings from the upper right and lower left wing surfaces.

9 FEBRUARY • Organized Japanese resistance ended on Guadalcanal in the Solomon Islands after the evacuation of their main forces. In addition to the desperately waged carrier battles of the campaign, Allied aircraft operating from ashore had directly supported the hard-pressed soldiers and Marines, and Navy patrol squadrons had flown search, rescue, and offensive missions from sheltered coves and harbors.

11 FEBRUARY • The Navy issued a contract for the XFR-1 to Ryan Aeronautical Corp. This fighter incorporated a conventional reciprocating engine for use in normal operations and a turbojet for use as a booster during takeoffs and maximum performance flight. The development and production were to be handled on a crash basis to equip escort carrier squadrons at the earliest possible date, but design and production problems prevented the plane from entering battle.

11 FEBRUARY • An SON-1 Seagull of VCS-9, embarked on board light cruiser *Helena* (CL 50), operated in a rare coordinated attack with destroyer *Fletcher* (DD 445) to sink Japanese submarine *I-18* in the Coral Sea.

12 FEBRUARY • Vought F4U-1s flew their first combat mission when 12 Corsairs of VMF-124, Maj. William E. Gise, USMC, commanding, based on Guadalcanal escorted a PB2Y-2 Coronado to Vella Lavella in the Solomon Islands to rescue downed pilots. Two days later, the first combat action for Corsairs occurred when the squadron encountered Mitsubishi A6M Type 0 carrier fighters while escorting VP-51 PB4Y-1 Liberators on a daylight strike in the Kahili area of Bougainville. The Japanese downed 10 aircraft, including two Corsairs, while losing three Zeros.

13 FEBRUARY • The reorganization of the Naval Air Transport Service took place and the Navy directed the establishment of wings for the Atlantic and West Coast squadrons.

14 FEBRUARY • *Ranger* (CV 4) sailed from NOB Norfolk, Va., to west African waters with 75 embarked USAAF Curtiss P-40Ls. On 24 February, she launched the Warhawks from a position off Accra, Gold Coast (Ghana), for shipment to the North African Theater. The ship returned to Hampton Roads, Va.

15 FEBRUARY • Commander in Chief, U.S. Fleet assigned the responsibility for the seagoing development of helicopters and their operation in convoys to the Coast Guard, and directed testing to determine their value when operating from merchant ships to fight submarines.

16 FEBRUARY • Fleet Air Wing 16, Capt. Rossmore D. Lyon commanding, was established at NAS Norfolk, Va.

17 FEBRUARY • Airship K-17 of ZP-51 initiated lighter-than-air operations over the Caribbean from Edinburgh Field, Trinidad.

19 FEBRUARY • A letter of intent was issued for two XP2V-1 patrol planes to Vega Airplane Co. The action initiated the development of the Lockheed Neptune.

21 FEBRUARY • Marines and soldiers made unopposed landings in the Russell Islands during Operation Cleanslate—the inaugural movement of Allied forces through the central Solomon Islands. Navy, Marine, and USAAF planes from Aircraft, South Pacific, and Aircraft, Solomons, Central Pacific Forces, including those operating from *Saratoga* (CV 3) and Henderson Field, Guadalcanal, covered the landings. The Allies leapfrogged across the islands and established bases and airfields to support their advance against the Japanese stronghold at Rabaul, New Britain. The Japanese failure to defeat the counteroffensive in the air and by sea enabled the Allies to reduce or bypass enemy garrisons piecemeal.

24 FEBRUARY • The Naval Photographic Science Laboratory was established at NAS Anacostia, D.C. The Bureau of Aeronautics oversaw the laboratory to provide photographic services to the Navy, and to develop equipment and techniques suitable for fleet use.

1 MARCH • Air Transport Squadrons, West Coast, was established at NAAS Oakland, Calif. The command controlled all Naval Air Transport Service squadrons operating west of the Mississippi River, except those that operated from the mainland to Honolulu, Hawaiian Islands.

1 MARCH • A revision of the squadron designation system changed inshore patrol squadrons to scouting squadrons (VS), escort fighting squadrons (VGF) to fighting squadrons (VF), escort scouting squadrons (VGS) to composite squadrons (VC), and patrol squadrons (VP) operating land type planes to bombing squadrons (VB). The revision also redesignated carrier scouting squadrons (VS) as VB and VC, and as a result, the types of squadrons on board *Essex* (CV 9)-class carriers fell to three. In spite of this change, the aircraft complement of their air groups remained at the previous level of 21 fighters, 36 scout bombers, and 18 torpedo bombers.

1 MARCH • Fleet Airship Group 2, Capt. Walter E. Zimmerman commanding, was established at NAS Richmond, Fla. The group oversaw lighter-than-air operations in the Gulf Sea Frontier.

4 MARCH • Secretary of the Navy William F. Knox authorized changes to the characteristics of *Essex* (CV 9)-class carriers, including the installation of a combat information center and fighter director station, additional antiaircraft batteries, and a second flight deck catapult in lieu of one athwartships on the hangar deck.

4 MARCH • Damage to U.S. carriers in early 1943 reduced the number available in the South Pacific, and the British responded to a request for reinforcements by dispatching their carrier *Victorious* (38). On this date, she reached Pearl Harbor, Hawaiian Islands. The ship embarked Martlet IVs (Grumman F4F-4Bs) of 882, 896, and 898 Squadrons, and Tarpon Is (Grumman TBF-1 Avengers) of 832 Squadron. On 8 May, she sailed for Nouméa, New Caledonia, and into the summer operated with Task Group 36.3, including *Saratoga* (CV 3), in the Solomon Islands. At one point, some of the Tarpons embarked briefly on board *Saratoga* in a rare instance during World War II of British planes operating from a U.S. carrier.

5 MARCH • *Bogue* (ACV 9), with VC-9 embarked, joined Task Group 24.4 at Argentia, Newfoundland, to begin the escort of convoys to mid-ocean and return. *Santee* (ACV 29) previously operated on hunter-killer duty, but *Bogue* became the center of the first of the hunter-killer groups assigned to convoy escort. Through 14 March the ship supported convoy HX-228.

15 MARCH • The headquarters of Fleet Air Wing 4 shifted westward on the Aleutian chain from Kodiak to Adak, Alaska.

15 MARCH • The Navy initiated a system of numbering fleets with those in the Pacific receiving odd numbers and those in the Atlantic even numbers.

20 MARCH • Maj. John W. Sapp, USMC, of VMTB-143, led 42 Navy and Marine TBF-1 Avengers on a night flight from Guadalcanal's Henderson Field in the Solomon Islands, to mine Kahili Harbor, Bougainville. A coordinated attack on the Kahili airfield by USAAF heavy bombers contributed to the success of this first aerial mining mission in the South Pacific.

23 MARCH • The Training Task Force Command was established with its headquarters at NAS Clinton, Okla. The command formed, outfitted, and trained special units for the operational employment of assault drone aircraft.

29 MARCH • Testing of forward firing rocket projectiles from naval aircraft concluded with evaluation of an SB2A-4 Buccaneer at the Naval Proving Ground, Dahlgren, Va.

29 MARCH • Air Transport Squadrons, Atlantic, was established at NAS Norfolk, Va. The command supervised and directed the operations of Naval Air Transport Service squadrons based on the Atlantic seaboard.

30 MARCH • TBF-1 Avengers laid mines near Buin, Bougainville, in the Solomon Islands. On 17 April, Japanese transport *Shinnan Maru* blundered into one of the mines and sank.

1 APRIL • Aircraft Antisubmarine Development Detachment, Cmdr. Aurelius B. Vosseller commanding, was established at NAS Quonset Point, R.I., to develop tactical training programs and techniques to make use of newly developed countermeasures equipment.

1 APRIL • Night Fighting Squadron (VF[N]) 75, Cmdr. William J. Widhelm commanding, was established at NAS Quonset Point, R.I., as the first Navy night fighter squadron.

4 APRIL • The Naval Aircraft Factory, Philadelphia, Pa., reported that during tests of an automatic flying device for use on towed gliders, a Taylorcraft LNT-1 had been towed automatically without assistance from the safety pilot.

9 APRIL • The Navy reestablished the rank of commodore.

14 APRIL • Fleet Air Wing 16 was transferred from NAS Norfolk, Va., to Natal, Brazil, to direct patrol plane antisubmarine operations within the Fourth Fleet in the South Atlantic.

16 APRIL • The Navy changed the color of the working uniform to slate grey. The change proved unpopular among officers and, on 15 October 1946, the service reinstated khakis.

21 APRIL • Capt. Frederick M. Trapnell made the first jet flight by a U.S. naval aviator in the Bell XP-59A Airacomet at Muroc, Calif.

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Aviation ordnancemen mount 4.5-inch high-velocity rockets onto a plane.

MAY • Lt. j.g. Richard M. Nixon, USNR, reported to Commander, Naval Air Forces Pacific as officer in charge of the South Pacific Combat Air Transport Command at Guadalcanal, Solomon Islands. Nixon had completed naval aviation indoctrination training at NAS Quonset Point, R.I. While in the South Pacific, he served in the development and maintenance of the aerial supply routes, and afterward on the Green Islands and in Fleet Air Wing 8. On 1 June 1966, Cmdr. Nixon retired from the Naval Reserve, and he subsequently became the 37th president of the United States.

3 MAY • VR-1 extended the area of its operations with a flight from NAS Norfolk, Va., via Reykjavik, Iceland, to Prestwick, Scotland. The event completed the first R5D-1 Skymaster operation of the Naval Air Transport Service.

4 MAY • Fleet Air Wing 4 commenced regular aerial patrols from Amchitka in the Aleutian Islands that extended the search coverage beyond Attu toward the Kurile Islands.

4 MAY • To expedite the evaluation of helicopters in antisubmarine operations, Commander in Chief, U.S. Fleet directed the formation of a joint board with representatives of the Commander in Chief, U.S. Fleet, the Bureau of Aeronautics, the Coast Guard, and the British Admiralty and Royal Air Force. The resulting Combined Board for the Evaluation of the Ship-Based Helicopter in Antisubmarine Warfare later underwent expansion to include representatives of the USAAF, the War Shipping Administration, and the National Advisory Committee for Aeronautics.

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A PV-1 Ventura hunts for enemy submarines, c. 1943.

7 MAY • Navy representatives witnessed landing trials of the XR-4 helicopter on board merchant tanker *Bunker Hill* in Long Island Sound. Col. R. F. Gregory, USAAF, made 15 flights, and in some of these, he landed on the water before returning to the platform on the ship's deck. The Maritime Commission sponsored the demonstration.

8 MAY • Navy and Marine aircraft sank destroyers *Oyashio* and *Kagero*, respectively, after mines damaged both warships off Rendova in the Solomons. Meanwhile, destroyer *Kuroshio* struck a mine laid the previous day and sank in the Blackett Strait, and planes damaged destroyer *Michisio* in the strait.

8 MAY • *Sable* (IX 81) was commissioned at Buffalo, N.Y, Capt. William A. Schoech commanding.

11 MAY • Task Forces 16 and 51 supported landings of the Army's 7th Division on Attu Island, Alaska. Navy and Marine aircraft flew close air support missions from *Nassau* (ACV 16), marking the first use of this type of direct air support from an escort carrier of amphibious operations. Planes from Fleet Air Wing 4 also took part—PV-1 Venturas from VB-136, PBY-5A Catalinas of VP-43 and -62, and PBY-5s from VP-45 flew from Adak, and Venturas from VB-135 and PBY-5As of VP-61 operated from Amchitka. The seizure of Attu was the debut of a support air commander afloat on board battleship *Pennsylvania* (BB 38), whose team consisted of three officers and a radioman led by experienced Aleutian pilot Col. W. O. Eareckson, USA. Despite extensive naval gunfire and air support the soldiers suffered disproportionately high casualties dislodging the tenacious Japanese defenders.

14 MAY • Lt. P. A. Bodinet of VP-84 piloted a PBY-5A Catalina that sank the German *U-640* using a Mk 24 airborne acoustic homing torpedo dubbed "Fido" off Iceland, east of Cape Farewell, Greenland.

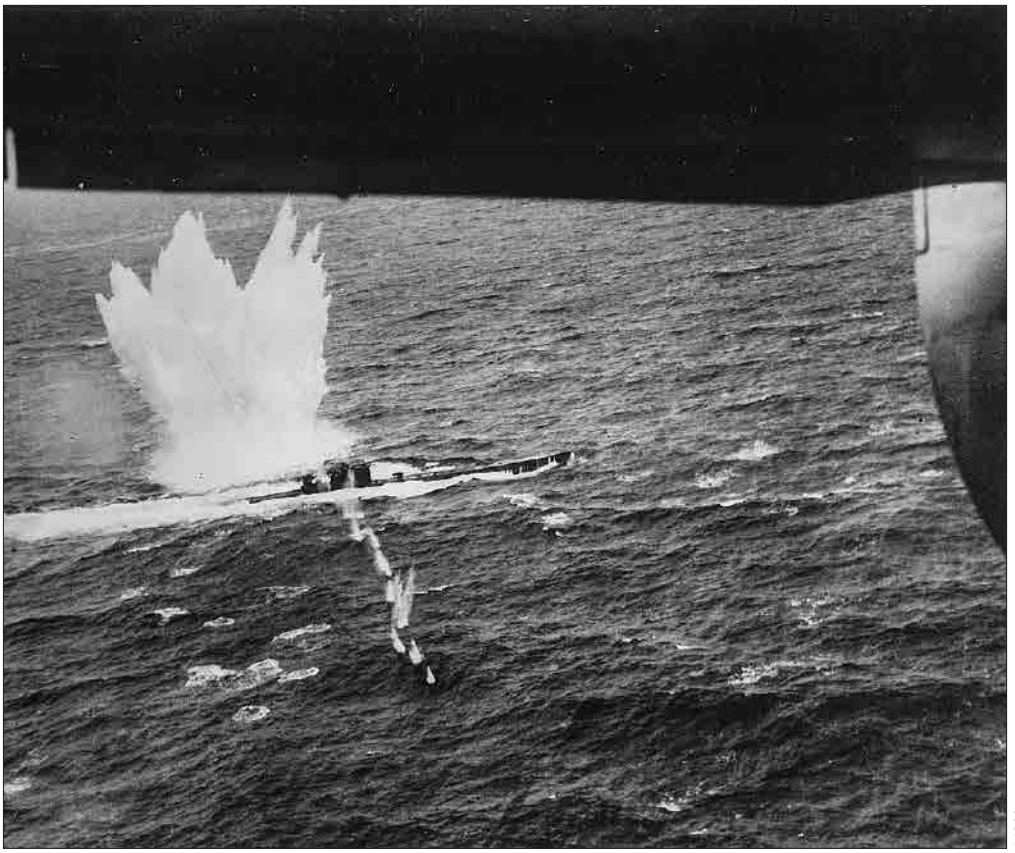
15 MAY • The Naval Airship Training Command was established at Lakehurst, N.J. The command administered and directed lighter-than-air training programs at the naval air centers at Lakehurst and NAS Moffett Field, Calif., and directed Lakehurst's Experimental and Flight Test Department.

15 MAY • OS2U-3 and OS2N-1 Kingfishers of VS-62 and Cuban submarine chaser *SC-13* sank the German *U-176* northeast of Havana, Cuba.

18 MAY • The cancellation of the program for the use of gliders as transports for Marine combat troops returned the Navy's glider development to an experimental basis.

20 MAY • The Navy established the Tenth Fleet with its headquarters in Washington, D.C., to direct antisubmarine warfare efforts in the Atlantic.

22 MAY • During a running battle to protect convoy ON-184 in the North Atlantic, TBF-1 Avengers of VC-9, embarked on board *Bogue* (ACV 9), sank *U-569* to score the first U-boat sinking in World War II by U.S. auxiliary aircraft carriers on hunter-killer patrols. The Germans maintained that the crew scuttled their boat. Avengers also damaged *U-305*. *Bogue* claimed the destruction of 13 U-boats by her planes and escorts during the Battle of the Atlantic.



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One of four PB4Y-1 Liberator bombers of VB-107 out of Ascension Island drops Mk 47 depth bombs on *U-848* during the submarine's sinking on 5 November 1943.

24 MAY • Special Project Unit Cast was organized at Squantum, Mass., to provide (under Bureau of Aeronautics direction) the services required to flight test electronic equipment under development at the Radiation and Radio Research Laboratories.

5 JUNE • TBF-1s of VC-9, embarked on board *Bogue* (ACV 9), damaged German submarines *U-228*, *U-603*, and *U-641* in the mid-Atlantic. The next day, Avengers from the ship sank *U-217* off the Canary Islands. On 12 June, *Bogue* and her Avengers sank *U-118* near those islands.

7 JUNE • The establishment of NAF Attu within a week of the capture of the island from the Japanese brought Fleet Air Wing 4 bases to the tip of the Aleutian chain, nearly 1,000 miles from the Alaskan mainland and 750 miles from Japanese territory in the Kurile Islands.

7 JUNE • Commander in Chief, U.S. Fleet established a project for the airborne testing by Commander Fleet Air, West Coast of high velocity, "forward shooting" rockets. These had nearly double the velocity of those that had been tested earlier at the Dahlgren, Va., Naval Proving Ground. A rocket section led by Dr. C. C. Lauritsen developed the rockets at the California Institute of Technology under National Defense Research Committee auspices and with Navy support. This test project was established in part on the basis of reports of the effectiveness in service of a similar British rocket. On 14 July, the first airborne firing from a TBF-1 Avenger of a British rocket was followed on 20 August by launching of the CalTech round. The favorable results of these evaluations led to the equipping of operational squadrons with forward firing rockets by the end of the year.

10 JUNE • Lt. Cmdr. Frank A. Erickson, USCG, proposed the development of helicopters for antisubmarine warfare, "not as a killer craft but as the eyes and ears of the convoy escorts." To this end he recommended their equipping with radar and dunking sonar.

15 JUNE • President Franklin D. Roosevelt approved a ceiling of 31,447 planes for the Navy.

17 JUNE • *Monterey* (CVL 26), Capt. Lester T. Hundt commanding, was commissioned at New York Shipbuilding Corp., Camden, N.J. The ship's company included assistant navigator Lt. Gerald R. Ford Jr., USNR. On 28 June 1963, Lt. Cmdr. Ford was discharged from the Naval Reserve, and afterward became the 38th president of the United States.

20 JUNE • Lt. E. W. Wood of VP-84 piloted a PBY-5A Catalina that sank German submarine *U-388* and damaged *U-420* in Icelandic waters. The battle marked the second combat use of Mk 24 Fido acoustic torpedoes.

20 JUNE • African American Ens. Oscar Holmes was designated a naval aviator. Navy officials apparently were unaware of Holmes' race and he thus became the first documented man of color to receive Navy wings. Holmes had attained experience as a civilian pilot and received the designation after completion of an instructor's course, rather than the entire Navy flight syllabus.

21 JUNE • Navy, Marine, and USAAF aircraft supported the move of the 4th Marine Raider Battalion into Segi of the New Georgia Group in the Solomon Islands.

28 JUNE • A change in the design of the national star insignia added white rectangles on the left and right sides of the blue circular field to form a horizontal bar, and a red border stripe around the entire design. The substitution of Insignia Blue for the red followed in September.

29 JUNE • NAS Patuxent River, Md., began functioning as an aircraft test organization with the arrival of the flight test unit from NAS Anacostia, D.C.

29 JUNE • Elements of VP-101 arrived at Brisbane from Perth, Australia, thereby extending the patrol coverage of Fleet Air Wing 10 to the east coast of Australia and marking the beginning of a northward advance of patrol operations toward the Papuan Peninsula, New Guinea.

30 JUNE • Land-based Navy, Marine, and USAAF aircraft of Task Force 33, Vice Adm. Aubrey W. Fitch commanding, supported Operation Toenails—U.S. landings on Rendova and other islands in the New Georgia area of the Solomon Islands, including Kiriwini, Onaivisi, Wickham Anchorage, and Woodlark. Rear Adm. Marc A. Mitscher held tactical command of the planes, which operated primarily from airfields on Guadalcanal and the Russell Islands. The forward echelon of the 2d Marine Aircraft Wing of Headquarters, New Georgia Air Force provided the principal intrinsic air support ashore. Fierce fighting occurred offshore when the Japanese repeatedly attacked the landing forces from the air.

2 JULY • Land-based Navy, Marine, and USAAF aircraft of Task Force 33, Vice Adm. Aubrey W. Fitch commanding, supported soldiers of the 43rd Division and Marines who stormed Viru and Zanana, Solomon Islands. A flight of Japanese Mitsubishi G4M1 Type 1 attack planes escorted by A6M Type 0 carrier fighters disrupted the landings. This is variously attributed to Japanese interception of Allied radio traffic that revealed retiring fighter cover, or the temporary maintenance of the only operating radar set on Rendova. The Bettys and Zeros killed 59 men and wounded 77. The ensuing recriminations between the Army and Navy led to enhanced combat air patrols over the beachhead that protected the landings from continual Japanese aerial counterattacks. Three days later, Allied troops landed at Rice Anchorage.

5 JULY • The first Westinghouse l9A turbojet engine developed for the Navy completed its 100-hour endurance test.

6 JULY • Commanding officer and pilot Lt. Cmdr. Bruce A. Van Voorhis of VB-102 made a daring solitary low-level attack in a PB4Y-1 Liberator against Japanese installations on Greenwich Island (Kapingamarangi). After a flight of almost 700 miles, Van Voorhis made six bombing runs on a radio station and several strafing passes against three Mitsubishi F1M2 Type 0 observation floatplanes (Petes) of the 902d *Kōkūtai* (Air Group) and vessels in the lagoon. The squadron reported that Van Voorhis flew "too low and too slow" on the last run, and that a bomb blast caught the Liberator and the bomber crashed in the lagoon. The Japanese, however, claimed that their floatplanes downed the Liberator. Van

Voorhis received the Medal of Honor, copilot Lt. j.g. Herschel A. Oehlert Jr. was awarded the Navy Cross, and each of the other crewmembers received the Distinguished Flying Cross, all posthumously.

6 JULY • The Army, Navy, and Coast Guard carried out a demonstration of helicopter operations on board Army transport *James Parker* (AP 46) while she sailed from New York City to Virginia. Two YR-4B (HNS-1) Hoverflys landed on a platform fitted to the ship that measured 60 feet long by 50 feet wide forward, tapering aft to 40 feet in width. Through 7 July, the pilots completed 98 landings and takeoffs in winds ranging from 5 to 25 knots, and while the ship pitched up to 6½ degrees.

8 JULY • *Casablanca* (ACV 55), Capt. Steven W. Callaway commanding, was commissioned at Astoria, Ore., as the first of her class and the first auxiliary aircraft carrier designed and built as such.

10 JULY • Light cruisers *Philadelphia* (CL 41) and *Savannah* (CL 42) operated with gunfire support ships during Operation Husky—the Allied invasion of Sicily. *Philadelphia* and *Savannah* launched their SOC-3 and -3A and SON-1 Seagulls to spot the fall of shot. German Messerschmitt Bf 109s shot down three of *Savannah*'s four scout planes. The pilot of one, Lt. C. A. Anderson, was killed, but ARM Edward J. True landed the riddled plane and escaped before it sank. The next day, Allied naval gunfire destroyed 13 Axis tanks and continued support over the succeeding days. On 13 July, the Army's 1st Division thanked *Savannah* for "crushing three infantry attacks and silencing four artillery batteries."

12 JULY • Light cruisers *Birmingham* (CL 62) and *Brooklyn* (CL 40) commenced coverage from off Porto Empédocle of the left flank of the advance of American forces across Sicily. A German minefield compelled the cruisers to maneuver out to sea but their scouting planes spotted the fall of 6-inch supporting fire for more than a week, afterward augmented by additional Allied ships, including light cruiser *Philadelphia* (CL 41).

13 JULY • F4F-4 Wildcats and TBF-1 Avengers of VC-13, embarked on board *Core* (ACV 13), began a month of successful assaults on U-boats during two of the carrier's patrols. Pilot Lt. Robert P. Williams, USNR, and aircrewmen ARM1 Morris C. Grinstead and AMM2 Melvin H. Paden sank surfaced *U-487* with depth charges from their Avenger about 720 miles south-southwest of Fayal, Azores. The U-boat shot down Lt. j.g. Earl H. Steiger, USNR, during a strafing run in a Wildcat, BuNo 12112, killing him. Three days later, Avengers from *Core* (which was redesignated CVE-13 the previous day) destroyed *U-67* in the mid-Atlantic, and on 24 August sank *U-84* and *U-185* at two different locations southwest of the Azores.

14 JULY • The Secretary of the Navy issued a General Order forming the Naval Air Material Center, consisting of the separate commands of the Naval Aircraft Factory, the Naval Aircraft Modification Unit, the Naval Air Experimental Station, and the Naval Auxiliary Air Station. This action became effective on 20 July and consolidated in distinct activities the production, modification, experimental, and air station facilities of the former Naval Aircraft Factory organization at Philadelphia, Pa.

15 JULY • The establishment of new designations for carriers limited the previous broadly applied CV symbol to *Saratoga* (CV 3), *Ranger* (CV 4), *Enterprise* (CV 6), and to *Essex* (CV 9)-class carriers, and added CVB (Aircraft Carrier, Large) for the 45,000-ton *Midway* (CVB 41)-class under construction and CVL (Aircraft Carrier, Small) for the nine 10,000-ton *Independence* (CVL 22)-class ships built on the hulls of *Cleveland* (CL 55)-class light cruisers. The same directive reclassified escort carriers as warships and changed their symbol from ACV to CVE.

15 JULY • The Navy modified its airship organization. Fleet Airship Wings 30 and 31 were redesignated Fleet Airships, Atlantic, and Pacific, respectively. Airship patrol groups became airship wings, airship patrol squadrons were redesignated blimp squadrons, and the addition of two more wings and the establishment of blimp headquarters squadrons within each wing was authorized.

17 JULY • SBD Dauntlesses from VB-11 and VMSB-132 and TBF-1 Avengers from VT-11 and -21, escorted by F4U-1s, including Corsairs, from VMF-122, -211, and -221, along with USAAF Consolidated B-24 Liberators escorted by Bell P-39 Airacobras and Curtiss P-40 Warhawks, and Royal New Zealand Air Force Curtiss Kittyhawks of No. 14 Squadron,

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Two ships of Task Group 38.2, *Intrepid* (CV 11) and *Independence* (CVL 22) (left and right, respectively) are seen from *Enterprise* (CV 6) around the time of the Battle of Leyte Gulf, October 1944. The two types formed the basis for the fast carrier task forces at sea.

attacked Japanese ships at Buin, Bougainville, in the Solomon Islands into the following day. In the face of heavy fighter opposition, the attacks sank destroyer *Hatsuyuki* and damaged destroyers *Hatsukaze* and *Yūnagi*, and auxiliary minesweeper *W. 15*.

18 JULY • Lt. N. G. Grills of ZP-21 piloted airship K-74 on a patrol off southeastern Florida from NAS Richmond, Fla. The airship's radar detected a contact at a range of eight miles and ten minutes later the blimp discovered surfaced *U-134* off the port bow. K-74 fired a .50-caliber machine gun and unsuccessfully attempted to drop depth bombs. The U-boat's deck gun and machine gun fire hit the engine and the airship bag, K-74's controls failed to respond, and it fell tail first. The wreck remained afloat until 19 July but then sank, the only U.S. airship lost to enemy action in World War II. One man died from a shark attack before a J4F-2 Widgeon from ZP-21 directed destroyer *Dahlgren* (DD 187) to the area to rescue Grills and the other eight survivors. Despite damage to her ballast and diving tanks, *U-134* escaped, but the following month British bombers sank her in the Bay of Biscay.

19 JULY • The Naval Aircraft Factory, Philadelphia, Pa., received authorization to develop the Gorgon aerial ram or air-to-air missile powered by a turbojet engine and equipped with radio controls and a homing device. The Gorgon program later underwent expansion embracing turbojet, ramjet, pulsejet, and rocket power; straight wing, swept wing, and canard (tail first) air frames; and visual, television, heat-homing, and three types of radar guidance

for use as air-to-air, air-to-surface, and surface-to-surface guided missiles, and as target drones.

22 JULY • The Vice Chief of Naval Operations approved the removal of arresting gear and related equipment for landing over the bow of aircraft carriers because experience had failed to demonstrate its operational value.

23 JULY • The first of 15 VP-63 PBY-5s reached Pembroke Dock, England. Their arrival marked the initial U.S. Navy squadron operations from the United Kingdom during World War II. The Catalinas supported the British in antisubmarine patrols over the Bay of Biscay.

2 AUGUST • Fleet Air Wing 4, Capt. Walter E. Zimmerman commanding, was established at Maceio, Brazil, and Fleet Air Wing 5, Cmdr. John D. Reppy commanding, was established at Edinburgh Field, Trinidad, to conduct antisubmarine and convoy patrols in the South Atlantic and the southern approaches to the Caribbean.

4 AUGUST • The chief of Naval Air Intermediate Training directed the establishment of aviation safety boards at each training center under his command.

5 AUGUST • Commander in Chief, U.S. Fleet Adm. Ernest J. King directed the use of fleet air wing commanders in the subordinate commands of sea frontiers, and suggested their assignment as deputy chiefs of staff for air.

9 AUGUST • Allied aircraft, including planes from *Ranger* (CV 4), covered the arrival of British liner *Queen Mary* at Halifax, Nova Scotia. The ship had embarked British Prime Minister Winston S. Churchill for his participation in the conference at Québec, Canada, codenamed Quadrant, with President Franklin D. Roosevelt and key Allied leaders.

15 AUGUST • The arrival of Aircraft Experimental and Development Squadron (later Tactical Test) from NAS Anacostia, D.C., to NAS Patuxent River, Md., completed the transfer of the Navy's aircraft test activities.

15 AUGUST • The landing of Army and Canadian troops on Kiska in the Aleutian Islands marked the first use in the Pacific of air liaison parties with forces ashore. The Japanese had deserted the island but the landing provided the opportunity to prove the soundness of the principle and demonstrated the operational application of rapid and reliable voice communications between frontline commanders and the support air control unit afloat.

15 AUGUST • Navy, Marine, and USAAF aircraft supported landings on Vella Lavella that bypassed Japanese garrisons on Kolombangara in the Solomon Islands. The initial combat air patrol over the beaches included F4U-1 Corsairs of VMF-123 and -124 operating from Munda. The Japanese counterattacked vigorously during more than 100 sorties, but continual air cover over the landings and bombing raids against the enemy fields at Ballale, Buin, and Kahili secured the success of the operation. After 2d Lt. Kenneth A. Walsh, USMC, piloting a Corsair of VMF-124 shot down a Mitsubishi A6M Type 0 carrier fighter and two Aichi D3A1 Type 99 carrier bombers, he returned to Munda in a plane so battered that it was stricken. Fifteen days later, Walsh repeated his exploit by downing four Japanese aircraft near Kahili. He later received the Medal of Honor.

18 AUGUST • To provide naval aviation authority commensurate with its World War II responsibility, the Secretary of the Navy established the Office of the Deputy Chief of Naval Operations (Air) and charged it with "the preparation, readiness and logistic support of the naval aeronautic operating forces." By other orders issued the same day, five divisions were transferred from the Bureau of Aeronautics to form the nucleus of the new office. Vice Adm. John S. McCain assumed command as the first DCNO (Air).

21 AUGUST • The headquarters of Fleet Air Wing 7 was established at Plymouth, England. It directed patrol plane operations against German submarines in the Bay of Biscay, the English Channel, and the southwest approaches to England.

27 AUGUST • Navy, Marine, and USAAF aircraft supported landings of the Army's 172nd Regimental Combat Team on Arundel Island, Solomon Islands.

27 AUGUST • F4F-4 Wildcats and TBF-1 Avengers from VC-1, embarked on board *Card* (CVE 11), sank German submarine *U-847* in the mid-Atlantic. *U-508* escaped during a separate battle.

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An F6F Hellcat laden with rockets and a droppable fuel tank launches from *Hancock* (CV 19).

29 AUGUST • The formation of combat units for the employment of assault drone aircraft began within the Training Task Force Command with the establishment of the first of three special task air groups. The component squadrons were designated VK and began to establish on 23 October.

30 AUGUST • Task Force 15, Rear Adm. Charles A. Pownall commanding, including *Essex* (CV 9), *Yorktown* (CV 10), and *Independence* (CVL 22), launched nine strike groups in a day-long attack on Japanese installations on Marcus Island in the prototype fast carrier strike. TBF-1 Avengers from *Independence* sank three small Japanese vessels. This second raid against Marcus marked the first attack by *Essex*- and *Independence*-class carriers and the combat debut of the F6F-3 Hellcat.

1 SEPTEMBER • The Navy assumed full responsibility for airborne antisubmarine warfare by U.S. forces in the Atlantic.

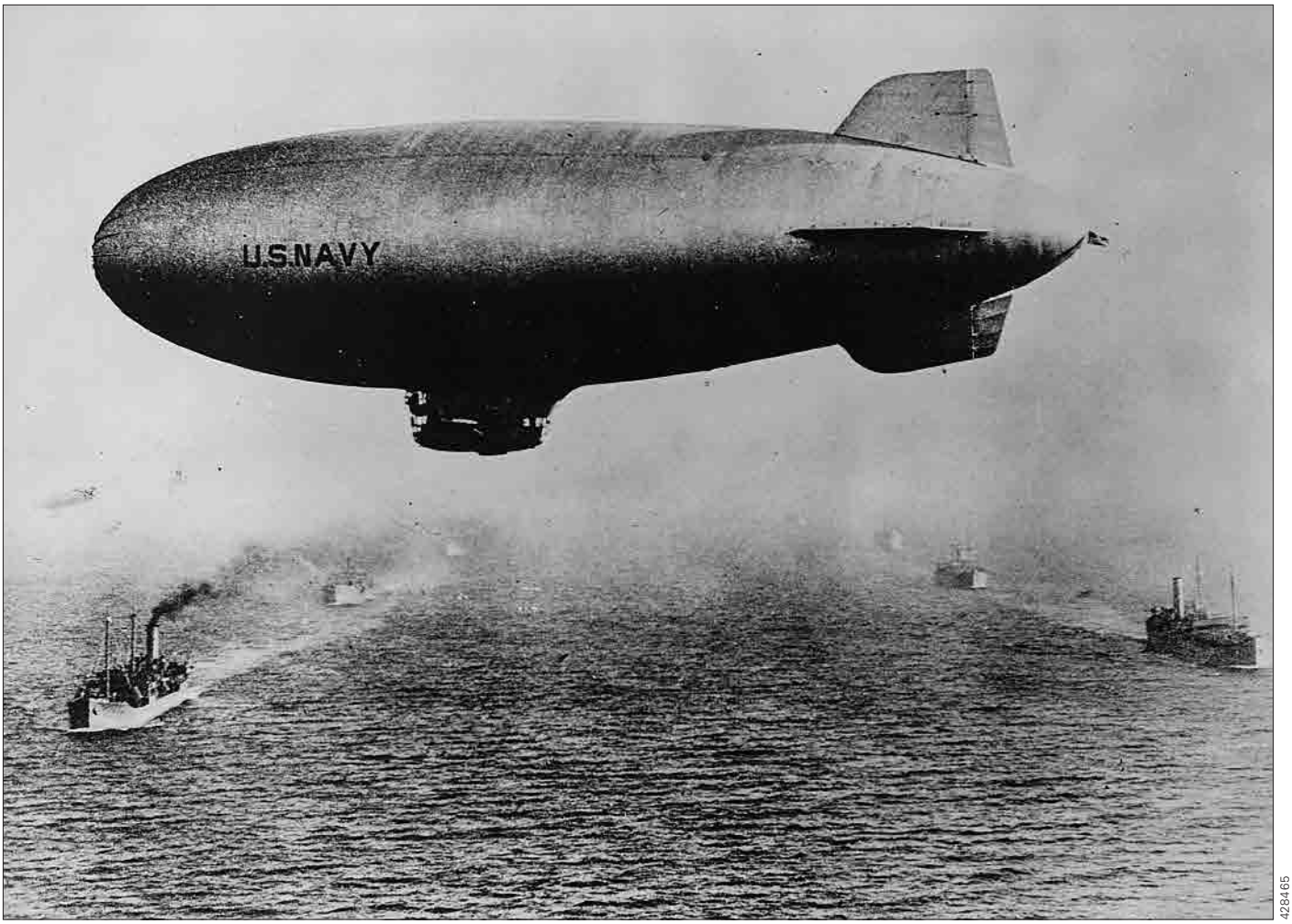
1 SEPTEMBER • Task Group 11.2, Rear Adm. Arthur W. Radford commanding, including *Belleau Wood* (CVL 24) and *Princeton* (CVL 23), and Navy patrol bombers from Canton Island, furnished day and night air cover for the landing of occupation forces on Baker Island, east of the Gilbert Islands.

9 SEPTEMBER • Operation Avalanche—an assault by the Anglo-American troops of the U.S. Fifth Army on the Gulf of Salerno, Italy—began. Allied naval gunfire proved instrumental in halting German counterattacks. SOC-3 and SON-1 Seagulls from VCS-8, embarked on board light cruisers *Philadelphia* (CL 41) and *Savannah* (CL 42), spotted the fall of shot from the cruisers' 6-inch guns. A Seagull operating from *Philadelphia* discovered 35 German *panzers* (tanks) concealed in a thicket adjacent to Red Beach. Salvoes from the cruiser knocked out seven tanks before the survivors dashed to the rear. *Savannah* silenced a railway battery and broke up an enemy armored thrust. The cruisers covered the landings until 11 September, when German Dornier Do 217E-5s damaged both ships with FX 1400 radio-controlled glide bombs. *Philadelphia* suffered minor damage and continued the battle, but *Savannah* turned for repairs at Malta.

15 SEPTEMBER • Fleet Air Wing 17, Commodore Thomas S. Combs commanding, was established for operations in the Southwest Pacific Area from Brisbane, Australia.

15 SEPTEMBER • VFP-1 was established at NAS Norfolk, Va. Through the remainder of the year, Free French sailors under U.S. Navy control manned the patrol squadron with varying numbers of PBM-3S Mariners and PBY-5A Catalinas.

18 SEPTEMBER • Task Force 15, Rear Adm. Charles A. Pownall commanding, attacked Japanese-occupied Abemama, Makin, and Tarawa Atolls in the Gilbert Islands.



428465

A K-class airship protects a convoy of merchant ships from German submarines in the Atlantic.

18 SEPTEMBER • Fleet Air Wing 5 at NAS Norfolk, Va., was assigned a primary mission of training. Fleet Air Wing 9 assumed responsibility for all patrol plane operations within the Eastern Sea Frontier.

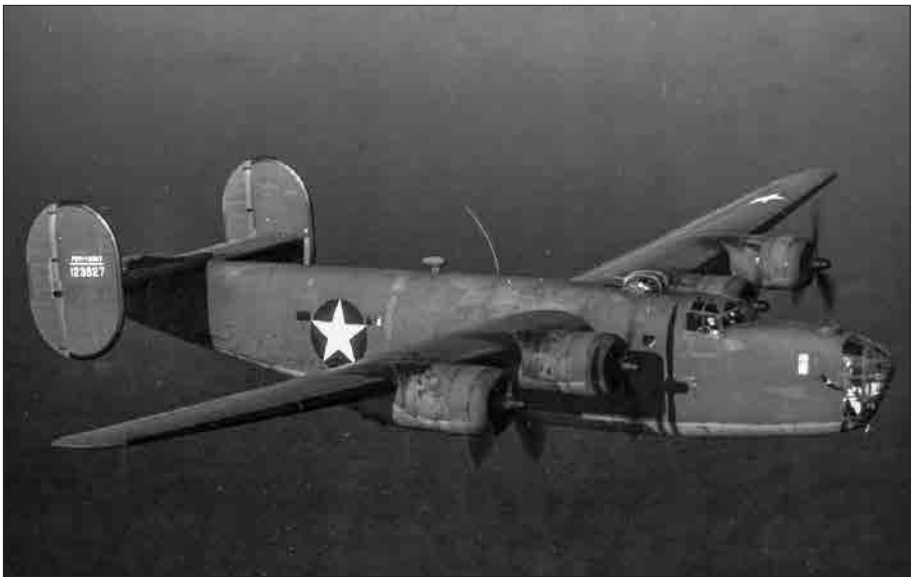
19 SEPTEMBER • *Ranger* (CV 4) anchored in Scapa Flow, Orkney Islands. The ship had provided air cover over British battlecruiser *Renown* while she returned Prime Minister Winston S. Churchill from the Quadrant conference, a series of strategy meetings, with President Franklin D. Roosevelt and Allied leaders at Québec, Canada.

27 SEPTEMBER • Naval airship operations over the South Atlantic began with the arrival of blimp K-84 of ZP-41 at Fortaleza, Brazil.

30 SEPTEMBER • An advance detachment of VB-107 PB4Y-1 Liberators joined USAAF planes flying antisubmarine barrier patrols and sweeps from Ascension Island over the South Atlantic.

1 OCTOBER • Air Force, Atlantic Fleet, was reorganized and Fleet Air, Norfolk, and Fleet Airships, Atlantic, were established as additional subordinate commands.

1 OCTOBER • The increase of the authorized complement of fighters in *Essex* (CV 9)-class carrier air groups raised the number of planes normally embarked on board to 36 fighters, 36 bombers, and 18 torpedo bombers. The authorized complement for CVL groups was established as 12 fighters, 9 bombers, and 9 torpedo bombers, revised the following month to 24 fighters and 9 torpedo bombers, and remained at that level through the end of World War II.



The first of the Navy's PB4Y Liberator bombers came from the U.S. Army Air Forces and included the Army's serial number. This B-24D, 41-23827, was the second to join the Navy and became BuNo 31937.

4 OCTOBER • In September, British X-craft midget submarines had temporarily immobilized German battleship *Tirpitz*. *Ranger* (CV 4) carried out the only U.S. carrier operation in Northern European waters during World War II in Operation Leader—a raid against German forces in Norway made possible by the removal of the threat posed by *Tirpitz*. On this date, *Ranger* launched a strike against German ships at Bodø and a second raid along the coast from Alter Fjord to Kunna Head. F4F-4 Wildcats of VF-4, TBF-1 Avengers of VT-4, and SBD-5 Dauntlesses of VB-4 sank German steamers *Kaguir*, *La Plata*, and *Rabat*, transport *Skramstad*, and Norwegian steamer *Vaagan*, and damaged two tankers, three steamers, and a ferry. Antiaircraft fire downed two Dauntlesses of VB-4 and an Avenger, and damaged several aircraft. Wildcats shot down two German planes that approached the task force—a Junkers Ju 88D-1 of *Fernaufklarungs Gruppe* (Long Range Reconnaissance Group) 22, and a Heinkel He 115B of *Küstenflieger Gruppe* (Coastal Patrol Group) 406. A Wildcat crashed upon landing, but British destroyer *Scourge* recovered the pilot. The *Ranger* air group, CVG-4, later requested additional training and newer aircraft.

4 OCTOBER • F4F-4 Wildcats and TBF-1C Avengers from VC-9, embarked on board *Card* (CVE 11), discovered German *U-264*, *U-422*, and *U-455* while they rendezvoused with *Milchkühe* (milk cow) refueling boat *U-460* north of the Azores, and sank *U-422* and *U-460*. This action allowed convoy UGS-19 to pass through the vicinity unmolested by the enemy.

5 OCTOBER • Coast Guard Patrol Squadron 6, Cmdr. D. B. MacDiarmid, USCG, commanding, was established at Argentia, Newfoundland. The Coast Guardsmen assumed rescue duties that had been performed by naval planes operating from Greenland and Labrador.

5 OCTOBER • Task Force 14, Rear Adm. Alfred E. Montgomery commanding, including *Essex* (CV 9), *Yorktown* (CV 10), *Lexington* (CV 16), *Independence* (CVL 22), *Belleau Wood* (CVL 24), and *Cowpens* (CVL 25), attacked Japanese installations during the second carrier raid on Wake Island. In the course of the two-day battle, the ships launched six strike groups totaling 738 combat sorties and lost 12 planes shot down and 14 from accidents. The raiders tested ship handling techniques for a multicarrier force devised by the staff of Rear Adm. Frederick C. Sherman on the basis of experience gained in the South Pacific. The lessons learned from operating the carriers as a single group of six, as two groups of three, and as three groups of two provided the basis for some of the tactics that afterward characterized carrier task force operations. The island's Japanese commander, Rear Adm. Sakaibara Shigematsu, feared the strikes portended a landing and ordered the execution of the remaining 98 U.S. civilians held captive on the island.

6 OCTOBER • The Naval Airship Training Command at NAS Lakehurst, N.J., was redesignated the Naval Airship Training and Experimental Command.

12 OCTOBER • The Bureau of Ordnance established a production program for 3,000 Pelican guided missiles at a delivery rate of 300 per month.

16 OCTOBER • The Navy accepted its first helicopter, a YR-4B (HNS-1) Hoverfly, following a one-hour acceptance test flight by Lt. Cmdr. Frank A. Erickson, USCG, at Bridgeport, Conn.

18 OCTOBER • *Cowpens* (CVL 25) and destroyer *Abbot* (DD 629) collided during maneuvers in Hawaiian waters. *Abbot* required three months of repairs at the Pearl Harbor Navy Yard.

19 OCTOBER • An Allied force, including *Ranger* (CV 4), covered the transport of Norwegian troops to Spitzbergen, Svarlbard Archipelago, to reestablish bases destroyed by the Germans during Operation *Zitronella*—a raid on 8 September 1943 on the islands by battleships *Tirpitz* and *Scharnhorst*. The Allies also embarked the survivors of the original garrison.

27 OCTOBER • Navy, Marine, USAAF, and New Zealand aircraft from the South Pacific Air Force supported landings of the 8th New Zealand Brigade Group on Mono and Stirling Islands in the Treasury Island Group of the Solomon Islands, together with a divisionary landing by the 2d Marine Parachute Battalion on the west coast of Choiseul Island.

31 OCTOBER • Lt. Hugh D. O'Neil of VF(N)-75 piloted an F4U-2 Corsair from Munda, New Georgia, and destroyed a Japanese Mitsubishi G4M1 Type 1 Betty during a night attack off Vella Lavella. O'Neil thus scored the first kill by a radar-equipped night fighter of the Pacific Fleet. Maj. Thomas E. Hicks, USMC, and TSgt. Gleason, USMC, of VMF(N)-531 provided ground-based fighter direction.

31 OCTOBER • Airship K-94 caught fire while en route from NS Guantánamo Bay, Cuba, to San Juan, P.R., and crashed 35 miles north of Cape Borinquen, P.R. Its eight-man crew was reported missing.

1 NOVEMBER • Task Force 31 landed the I Marine Amphibious Corps at Cape Torokina, Bougainville, in the Solomon Islands. Task Force 38, Rear Adm. Frederick C. Sherman commanding, including *Saratoga* (CV 3) and *Princeton* (CVL 23), launched preliminary strikes against Japanese airfields and installations in the Buka-Bonis area. SBD Dauntlesses and TBF-1 Avengers of VC-38, VMSB-144, and VMTB-143, -232, and -233, covered by F4U-1 Corsairs of VF-17 and VMF-215 and -221, bombed and strafed the Japanese defenders five minutes before the Marines landed. A combat air patrol averaging 38 fighters rotated over the beaches and disrupted major Japanese aerial counterattacks.

1 NOVEMBER • A detachment of VB-145 PV-1 Venturas began operations from Fernando Noronha Island, extending the area of Fleet Air Wing 16 antisubmarine patrols over the South Atlantic toward Ascension Island.

2 NOVEMBER • During the nighttime Battle of Empress Augusta Bay, surface Task Force 39 intercepted and turned back a Japanese force en route to attack transports off Bougainville in the Solomon Islands. Japanese planes attacked the task force during its retirement after dawn but the preliminary air strikes against enemy airfields in the Buka-Bonis area the previous day prevented a decisive counterattack.

5 NOVEMBER • Task Force 38, Rear Adm. Frederick C. Sherman commanding, launched an aerial attack on the Japanese fortress of Rabaul on New Britain. Planes from *Saratoga* (CV 3) and *Princeton* (CVL 23) damaged heavy cruisers *Atago*, *Chikuma*, *Maya*, *Mogami*, and *Takao*; light cruisers *Agano* and *Noshiro*; and destroyers *Amagiri* and *Fujinami* of the Second Japanese Fleet, Rear Adm. Takagi Takeo commanding.

8 NOVEMBER • The Chief of Naval Operations directed the establishment of aviation safety boards in the Intermediate Training Command similar to those in the Primary and Operational Training Commands.

8 NOVEMBER • Naval Ordnance Test Station, Inyokern, Calif., was established for the research, development, and testing of weapons, and to provide primary training in their use. The facility initially supported the California Institute of Technology, which developed and tested rockets, propellants, and launchers through the Office of Scientific Research and Development.

11 NOVEMBER • Task Groups 50.3, Rear Adm. Alfred E. Montgomery commanding, including *Saratoga* (CV 3) and *Princeton* (CVL 23), and 50.4, Rear Adm. Frederick C. Sherman commanding, including *Essex* (CV 9), *Bunker Hill* (CV 17), and *Independence* (CVL 22), launched the second strike on the Japanese fortress of Rabaul, New Britain. Planes sank destroyer *Suzunami*, and damaged light cruisers *Agano* and *Yūbari*, and destroyers *Naganami*, *Urakaze*, and *Wakatsuki*. This attack witnessed the introduction to combat of SB2C-1 Helldivers, embarked with VB-17 on board

469432

An SB2C Helldiver lands on board a carrier while flight deck crewmen race to free the bomber to clear the deck for an approaching plane, c. 1945.

Bunker Hill. Lt. j.g. Eugene A. Valencia, USNR, of VF-9, embarked on board *Essex*, flew an F6F-3 Hellcat and shot down a Japanese Mitsubishi A6M Type 0 carrier fighter over Rabaul. Valencia scored 23 confirmed victories during World War II and his decorations include the Distinguished Flying Cross.

13 NOVEMBER • Navy and USAAF planes of Task Force 57, Rear Adm. John H. Hoover commanding, conducted long-range night bombing attacks through 19 November from islands of the Ellice, Phoenix, and Samoan groups and on Baker Island against Japanese bases in the Gilbert and Marshall Islands as a preliminary to the invasion of the Gilberts.

18 NOVEMBER • Task Force 50, Rear Adm. Charles A. Pownall commanding, began a two-day air attack on the Japanese during Operation Galvanic—the occupation of the Gilbert Islands. Task Group 50.4, Rear Adm. Frederick C. Sherman commanding, attacked Nauru in support. *Saratoga* (CV 3), *Enterprise* (CV 6), *Essex* (CV 9), *Yorktown* (CV 10), *Lexington* (CV 16), *Bunker Hill* (CV 17), *Independence* (CVL 22), *Princeton* (CVL 23), *Belleau Wood* (CVL 24), *Cowpens* (CVL 25), and *Monterey* (CVL 26) comprised the main force. Eight escort carriers covered the approach of assault shipping and supported the V Amphibious Corps against bitter resistance on Tarawa, and the landings on Abemama and Makin Atolls. On 20 November, a Japanese aerial torpedo damaged *Independence*.

Through 24 November, planes flew 2,278 close support, combat air patrol, and antisubmarine sorties. On 24 November, Japanese submarine *I-175* escaped after torpedoing and sinking *Liscome Bay* (CVE 56) 20 miles southwest of Butaritari Island, killing 645 men; 272 survived. On 25 November, F6F-3 Hellcats of VF-1 from *Barnes* (CVE 20) and *Nassau* (CVE 16) landed on the airstrip at Tarawa as the first planes of the garrison air force. Once the Marines secured the islands, one carrier group remained in the area for an additional week as a protective measure.

Galvanic included the first attempts at night interception from carriers. Air Group Commander Lt. Cmdr. Edward H. O'Hare led two F6F-3s and one radar-equipped TBF-1 of VT-6 from *Enterprise* for the purpose. The fighters flew wing on the Avenger and after being vectored to the vicinity of enemy aircraft by the *Enterprise* fighter director, relied on the Avenger's radar to close to visual range. The Hellcats failed to intercept on the first occasion but two days later disrupted an enemy attack during the first air battle of its type.

27 NOVEMBER • VR-8 received the first Martin XPB2M-1R Mars flying boat at NAS Patuxent River, Md.

29 NOVEMBER • TBF-1C Avengers of VC-9, embarked on board *Bogue* (CVE 9) during the ship's eighth and most successful patrol, sank German submarine *U-86* about 385 miles east of Terceira, Azores. *U-238* and *U-764* escaped. The following day, *Bogue*'s Avengers damaged *U-238* east of the Azores, on 12 December damaged *U-172* south-southwest of the Canary Islands despite the escape of *U-219*, the next day took part in sinking *U-172* 660 miles west-southwest of the Canary Islands, and on 21 December, sank *U-850* some 530 miles southwest of Fayal in the Azores.

1053796

Sailors haul torpedoes, each weighing more than a ton, toward a waiting SB2C Helldiver during strike preparations on *Hornet* (CV 12), c. fall 1944.

30 NOVEMBER • Lt. Cmdr. W. E. Coney piloted the Martin Mars from NAS Patuxent River, Md., during the first operational assignment of the aircraft. The plane delivered 13,000 pounds of cargo during a nonstop flight of 4,375 miles in 28 hours 25 minutes to Natal, Brazil.

30 NOVEMBER • The Navy authorized a department of aviation medicine and physiological research at the Naval Air Material Center to study physiological factors related to the design of high-speed and high-altitude aircraft.

1 DECEMBER • Aircraft, Central Pacific, Rear Adm. John H. Hoover commanding, was established under Commander, Central Pacific for the operational control of defense forces and shore-based air forces in the area.

1 DECEMBER • The Naval Air Ferry Command was established as a wing of the Naval Air Transport Service. The command assumed the functions previously performed by aircraft delivery units in ferrying new planes from contractor plants and modification centers to embarkation points for ultimate delivery to the fleet.

4 DECEMBER • Two groups of Task Force 50, Rear Adm. Charles A. Pownall commanding, including *Enterprise* (CV 6), *Essex* (CV 9), *Yorktown* (CV 10), *Lexington* (CV 16), *Belleau Wood* (CVL 24), and *Cowpens* (CVL 25), bombed the Japanese at Kwajalein and Wotje Atolls in the Marshall Islands at the close of Operation Galvanic—the occupation of the Gilbert Islands. About 50 Japanese fighters intercepted the attackers and heavy antiaircraft fire at 8,500 feet obliged

1061487

Marine ace Maj. Gregory Boyington briefs his pilots on an upcoming mission at VMF-214's base on Espíritu Santo.

1061902

An HNS-1 Hoverfly, BuNo 39040—the Navy's first helicopter type—from Coast Guard Air Station Brooklyn, N.Y., demonstrates its search and rescue capabilities in Jamaica Bay on 25 August 1944.

the U.S. planes to drop to 5,000 feet, and in combination with the garrison's determined achievement at camouflage reduced the effectiveness of the raid. The Americans lost five planes and claimed the destruction of 55 enemy aircraft, cargo ship *Tateyama Maru*, auxiliary submarine chaser *No. 7 Takunan Maru*, guardboat *No. 5 Mikuni Maru*, and collier *Asakaze Maru*, and damaged light cruisers *Isuzu* and *Nagara*, a stores ship, an auxiliary vessel, and three transports. During the U.S. retirement, a gale delayed escape beyond the range of Japanese shore-based bombers, and the next night, retaliatory strikes damaged three ships, including an aerial torpedo that struck *Lexington* and killed nine men and wounded 35.

8 DECEMBER • A striking force, Rear Adm. Willis A. Lee commanding, including *Bunker Hill* (CV 17) and *Monterey* (CVL 26), attacked Japanese installations on Nauru to the west of the Gilberts. The Japanese deployed few aircraft on the island and the raiders achieved meager results, claiming the destruction of at least eight planes while losing four. OS2U-3 and OS2N-1 Kingfishers from VO-6 and -9, embarked on board battleships *North Carolina* (BB 55), *Washington* (BB 56), *South Dakota* (BB 57), and *Alabama* (BB 60), strafed and photographed the area around the barracks when the ships ceased fire.

15 DECEMBER • VOF-1, Lt. Cmdr. William F. Bringle commanding, was established at NAS Atlantic City, N.J., as the first of three observation fighter squadrons raised during World War II.

17 DECEMBER • Commander Aircraft, Solomons, dispatched a fighter sweep of Navy, Marine, and New Zealand planes led by Maj. Gregory Boyington, USMC, against the Japanese naval fortress at Rabaul on New Britain. Boyington subsequently received the Medal of Honor and credit for shooting down 26 Japanese aircraft during the war. Intensive follow-up attacks through February 1944 assisted in the establishment of Allied bases that encircled the stronghold. The Allies bypassed the Japanese garrison at Rabaul but continually subjected the fortress to aerial attacks. On 9 August 1945, Marine PBJ-1 Mitchells launched the final strike.

18 DECEMBER • On the basis of his belief that experimentation had indicated the practicability of ship-based helicopters, the Chief of Naval Operations separated pilot training from test and development functions in the helicopter program. He directed that, effective on 1 January 1944, the Coast Guard was to conduct a helicopter pilot training program under the direction of the Deputy CNO (Air) at CGAS Floyd Bennett Field, N.Y. Lt. Cmdr. Frank A. Erickson, USCG, subsequently attained the designation of Coast Guard Helicopter Pilot No. 1 and oversaw the training of a total of 125 helicopter pilots during the war, including 96 Coast Guardsmen, 12 sailors, two soldiers, 11 members of the Royal Air Force, and four civilians.

20 DECEMBER • The Naval Air Training Command, under the Chief of Naval Operations, was established to coordinate and direct all naval aviation training in the

activities of the Primary, Intermediate, and Operational Training Commands at NAS Pensacola, Fla.

20 DECEMBER • Two VP-43 PBY-5A Catalinas flew the first Navy photoreconnaissance and bombing mission from Attu, Aleutians, over the Japanese-held Kuriles.

20 DECEMBER • Cmdr. Frank A. Erickson, USCG, reported to the Bureau of Aeronautics concerning experiments with a helicopter used as an airborne ambulance at CGAS Floyd Bennett Field, N.Y. An HNS-1 Hoverfly made flights carrying, in addition to its normal crew of a pilot and a mechanic, a weight of 200 pounds in a stretcher suspended approximately four feet beneath the float landing gear. Early the following year, a Hoverfly made landings at the steps of the dispensary with a stretcher attached to the side of the helicopter's fuselage.

35197

Marine ace Capt. Joseph J. Foss, USMC, recounts one of his victories to his pilots.

25 DECEMBER • Task Group 50.2, Rear Adm. Frederick C. Sherman commanding, including *Bunker Hill* (CV 17) and *Monterey* (CVL 26), attacked Japanese shipping at Kavieng on New Ireland as a covering operation for landings the following day by Marines in the Borgen Bay area of New Britain. Planes sank Japanese transport *Tenryu Maru*, and damaged minesweepers *W.21* and *W.22* and transport (ex-armed merchant cruiser) *Kiyozumi Maru*.

27 DECEMBER • From 24 September to 6 November, the Navy gradually relieved the Army of antisubmarine patrols over British waters. During this period, VB-103, -105, and -110 participated in British Operation Stonewall—the interception of Axis blockade runners. On this date, the Germans attempted to rendezvous with blockade runner *Alsterufer,* but a British Royal Air Force Liberator sank the ship. The next day, a VB-105 PB4Y-1 flying from a British station at Dunkeswell, England, sighted German destroyers *Z23*, *Z24*, *Z27*, *Z32*, and *Z37*, and torpedo boats *T22*, *T23*, *T24*, *T25*, *T26*, and *T27* in the Bay of Biscay. Six of the 15 U.S. Liberators dispatched—one from VB-103 and five from VB-105—found and attacked the Germans. A Liberator shot down a Focke-Wulf Fw 200C Condor, but flak downed one U.S. bomber and the crew spent several months interned in

Spain. These planes directed British light cruisers *Enterprise* and *Glasgow* to the scene and they sank *Z27*, *T25*, and *T26*. The British subsequently transferred the station and, on 23 March 1944, it was redesignated NAF Dunkeswell.

31 DECEMBER • Fleet Air Wing 17 departed Australia to set up its headquarters at Samarai on the tip of the Papuan Peninsula, New Guinea.

1944

1 JANUARY • Task Group 37.2, Rear Adm. Frederick C. Sherman commanding, attacked a Japanese convoy off Kavieng, New Ireland. Planes from *Bunker Hill* (CV 17) and *Monterey* (CVL 26) damaged light cruiser *Noshiro*.

1 JANUARY • Lt. M. G. Taylor of VB-107 piloting Aircraft No. 107-B-9, a PB4Y-1 Liberator, sighted and tracked German blockade runner *Weserland*, 595 miles south-southwest of Ascension Island. The ship, disguised as British freighter *Glenbank*, was smuggling a load of crude rubber from Japanese waters. *Weserland* opened fire and knocked out the bomber's number three engine and wounded AOM2 Robert E. MacGregor. The plane returned to Ascension Island. The following day, pilot Lt. Robert T. Johnson attacked in Aircraft No. 107-B-12, BuNo 32065.The blockade runner returned fire and damaged the aircraft, which ditched en route to Ascension and was lost with all its crew. Destroyer *Somers* (DD 381) sank *Weserland* just after midnight. Five Germans died in these battles but *Somers* rescued 134 survivors.

3 JANUARY • During the early morning, a series of internal explosions sank destroyer *Turner* (DD 648) while she lay anchored off Ambrose Light, N.J., killing 15 officers and 123 enlisted men. Pilot Cmdr. Frank A. Erickson, USCG, and copilot Ens. Walter C. Bolton took off in an HNS-1 from CGAS Floyd Bennett Field, N.Y., and flew to Battery Park on Manhattan Island to pick up an emergency delivery of two cases of 40 units of blood plasma. With the supplies lashed to the floats of the Hoverfly, it continued to Sandy Hook, N.J., where responders administered the plasma to the survivors. Erickson and Bolton accomplished this first recorded helicopter lifesaving operation through snow squalls, sleet, and winds reaching 20 to 25 knots that grounded all other aircraft.

704377

Enterprise (CV 6), which experiences almost continuous action during World War II, carries a splinter camouflage scheme, c. mid-1944.

4 JANUARY • An accidental gasoline fire damaged *Tripoli* (CVE 64) at Naval Repair Base, San Diego, Calif.

4 JANUARY • Light cruiser *Omaha* (CL 4) and destroyer *Jouett* (DD 396) intercepted German blockade runner *Rio Grande* about 55 miles northeast of the coast of Brazil. Gunfire and scuttling charges sank the smuggler. The following day, Lt. Stanley V. Brown of VP-203 piloted a PBM-3S that sighted German blockade runner *Burgenland*. The Mariner crew summoned *Omaha* and *Jouett*, but gunfire and scuttling charges sank *Burgenland*. Through 8 January, light cruiser *Marblehead* (CL 12) rescued 72 survivors from *Rio Grande*, and destroyers *Winslow* (DD 359) and *Davis* (DD 395) recovered 56 men from *Burgenland*.

7 JANUARY • *Belleau Wood* (CVL 24) and destroyer *Dunlap* (DD 384) collided and both ships sustained minor damage during exercises off Oahu in the Hawaiian Islands.

11 JANUARY • Two TBF-1Cs of VC-58, embarked on board *Block Island* (CVE 21), during an attack against German submarine *U-758,* made the first U.S. use of forward-firing rockets. The Avengers damaged the boat and compelled her return to German-occupied St. Nazaire, France.

16 JANUARY • Lt. j.g. Stewart R. Graham, USCG, made a 30-minute flight in an R-4B (HNS-1) Hoverfly from a 60- by 80-foot flight deck fitted to British freighter *Daghestan* while en route from New York City to Liverpool, England. Graham made his flight in spite of 20-knot winds and the ship rolling 10 to 20 degrees. The harsh weather during the mid-winter North Atlantic crossing permitted only two additional flights. The sponsoring Combined Board for Evaluation of the Ship-based Helicopter in Antisubmarine Warfare decided that the marginal performance of the underpowered helicopters precluded their operations from ships in convoy, and recommended their confinement to coastal waters until the availability of models with improved performance.

18 JANUARY • PBY-5As of VP-63, operating from NAS Port Lyautey—established on 12 January—in Morocco began two-plane barrier patrols of the Strait of Gibraltar and its approaches with magnetic anomaly detection gear. The Catalinas typically flew at an altitude of 55 feet from dawn to dusk. Antiaircraft batteries in Spanish Morocco frequently shot at the patrolling planes whenever they flew close to the three-mile limit but, until the end of the war, their patrols effectively closed the strait to the transit of U-boats during daylight hours.

22 JANUARY • Operation Shingle—landings by the Anglo-American troops of the U.S. VI Corps at Anzio and Nettuno to outflank German defensive positions across the Italian peninsula—began. The Allies failed to advance inland decisively, and their inaction enabled the German forces in the area to counterattack vigorously to deter further landings in Italy and France. Allied planes proved unable to prevent *Luftwaffe* (German air force) raids on the beachhead or on the ships offshore, but air power and naval gunfire support proved essential in the efforts to hold the perimeter. SOC-1, -3, and SON-1 Seagulls of VCS-8, embarked on board light cruisers *Brooklyn* (CL 40) and *Philadelphia* (CL 41), directed the fall of the cruisers' 6-inch shot at times. By May, the Allies broke out of the beachhead, linked up with troops that pierced German defensive lines inland, and on 4 June liberated Rome.

25 JANUARY • A fire damaged *Sangamon* (CVE 26) after a barrier crash by a TBM-1C Avenger of VC-37 while the ship sailed en route to the Marshall Islands. The crew contained the conflagration within eight minutes but seven men died, two of the 15 who jumped overboard to escape the flames were lost, and seven were injured. *Sangamon* made temporary repairs at sea and took part in the fighting at the Marshalls.

29 JANUARY • Task Force 58, Rear Adm. Marc A. Mitscher commanding, including *Saratoga* (CV 3), *Enterprise* (CV 6), *Essex* (CV 9), *Yorktown* (CV 10), *Intrepid* (CV 11), *Bunker Hill* (CV 17), *Princeton* (CVL 23), *Belleau Wood* (CVL 24), *Cowpens* (CVL 25), *Monterey* (CVL 26), *Langley* (CVL 27), and *Cabot* (CVL 28), attacked the Japanese garrisons of Kwajalein, Maloelap, and Wotje during Operation Flintlock—the occupation of the Marshall Islands. Land-based planes of Task Force 57, Rear Adm. John H. Hoover commanding, also supported the landings.

These raids destroyed the Japanese air strength on the islands. Aircraft from eight escort carriers flew cover and antisubmarine patrols, and scout planes assisted naval bombardments. On 31 January, Marines and soldiers landed on islands at Kwajalein and Majuro. Into the first three days of February, planes from Task Group 58.3, Rear Adm. Frederick C. Sherman commanding, bombed Japanese aircraft and airfields at Engebi Island at Eniwetok Atoll. Through 7 February, Task Group 58.4, Rear Adm. Samuel P. Ginder commanding, supplemented Sherman. On 1 February, additional landings occurred on Kwajalein, Namur, and Roi.

Commander Task Force 51 Rear Adm. Richmond K. Turner led the joint expeditionary force from amphibious force command ship *Rocky Mount* (AGC 3). The increasing complexity of amphibious operations necessitated the use of command ships and the Marshalls marked their introduction to battle. *Rocky Mount* provided improved facilities for Commander Support Aircraft Capt. H. B. Sallada, who assumed control of target combat air patrol—a task previously vested in carriers. A force fighter director on Sallada's staff coordinated fighter direction.

428460

A carrier's fighter direction control team sends the planes of a combat air patrol against Japanese attackers.

30 JANUARY • PB2Y-3 Coronados of VP-13 and -102 flew more than 2,100 miles from Midway Island on a nocturnal bombing raid against the Japanese airfield and installations on Wake Island to prevent the garrison of Wake from threatening U.S. operations in the Marshall Islands. Previous raids on Wake had resulted in casualties because of poor navigation and radio silence breaks that alerted the Japanese. The strike marked the first employment of Coronados as bombers. They repeated the raids on the nights of 4, 8, and 9 February and completed 50 sorties without losing a plane. Commander Fleet Air Wing 2 Rear Adm. John D. Price considered the neutralization of Wake of such importance that he twice accompanied the bombers.

2 FEBRUARY • President Franklin D. Roosevelt approved the last of the World War II ceilings for Navy aircraft, which called for an increase to 37,735 useful planes.

3 FEBRUARY • The Deputy Chief of Naval Operations (Air) and the Chief of BUAER jointly issued Flight Safety Bulletin No. 1, which announced the intention to issue consecutive numbered bulletins concerning the safe operation of naval aircraft.

4 FEBRUARY • Blimp K-29 of ZP-31 made the first carrier landing by a nonrigid airship during a test of refueling operations on board *Altamaha* (CVE 18) off San Diego, Calif.

221248

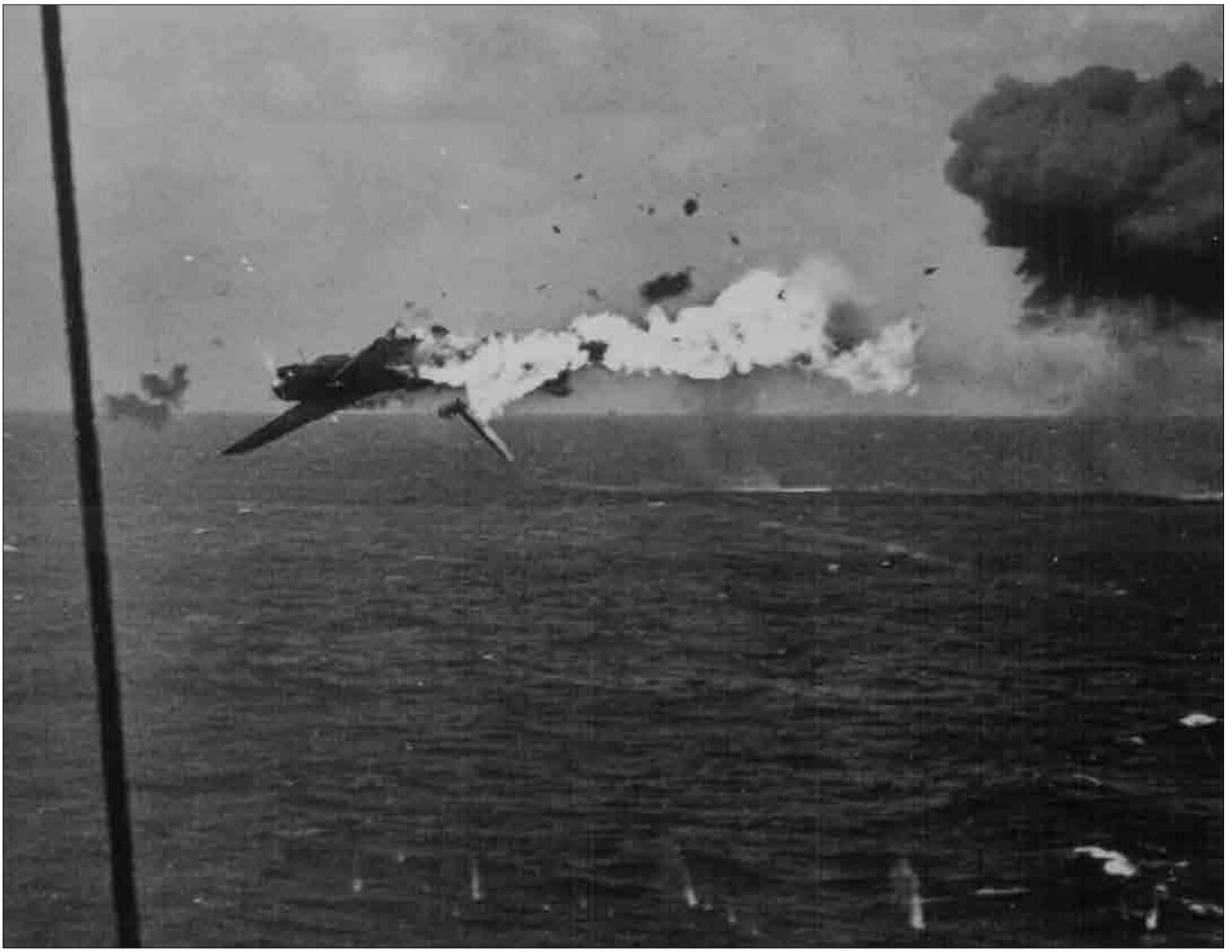
The wreckage of at least four Japanese bombers litter the end a runway at Engebi in the Marshall Islands during an attack by U.S. carrier planes in late 1943 or early 1944.

4 FEBRUARY • Two PB4Y-1 Liberators of VMD-254 made the first photographic reconnaissance of Truk Lagoon, Caroline Islands, during a 12-hour night flight from the Solomon Islands. Cloud cover prevented complete coverage but the information acquired proved useful in planning a subsequent carrier strike on 17 February.

10 FEBRUARY • Planes from Task Group 58.4, Rear Adm. Samuel P. Ginder commanding, bombed Japanese installations on Eniwetok Atoll, Marshall Islands. The strikes continued to 12 February.

14 FEBRUARY • Forward Area, Central Pacific was established, Rear Adm. John H. Hoover commanding. He broke his flag in seaplane tender *Curtiss* (AV 4) and controlled the operations of shore-based planes and ships assigned to the Ellice, Gilbert, and Marshall Islands.

15 FEBRUARY • Lt. j.g. Nathan G. Gordon (Naval Aviator No. 11421) piloted a PBY-5 of VP-34 and defied close-range Japanese fire during three full-stall landings in the harbor of Kavieng, New Ireland, and rescued nine survivors from three downed Fifth Air Force bombers. Despite heavy swells, Gordon took off each time but received another report of a raft with survivors. The pilot swung the Catalina about and under intense fire brought six more men on board, and escaped with the 15 survivors to seaplane tender *San Pablo* (AVP 30) at



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A Japanese Nakajima B6N carrier attack plane is hit by a 5-inch shell from *Yorktown* (CV 10) off Kwajalein, 4 December 1943.

Wewak, New Guinea. Gordon received the Medal of Honor and each of his crewmembers the Silver Star.

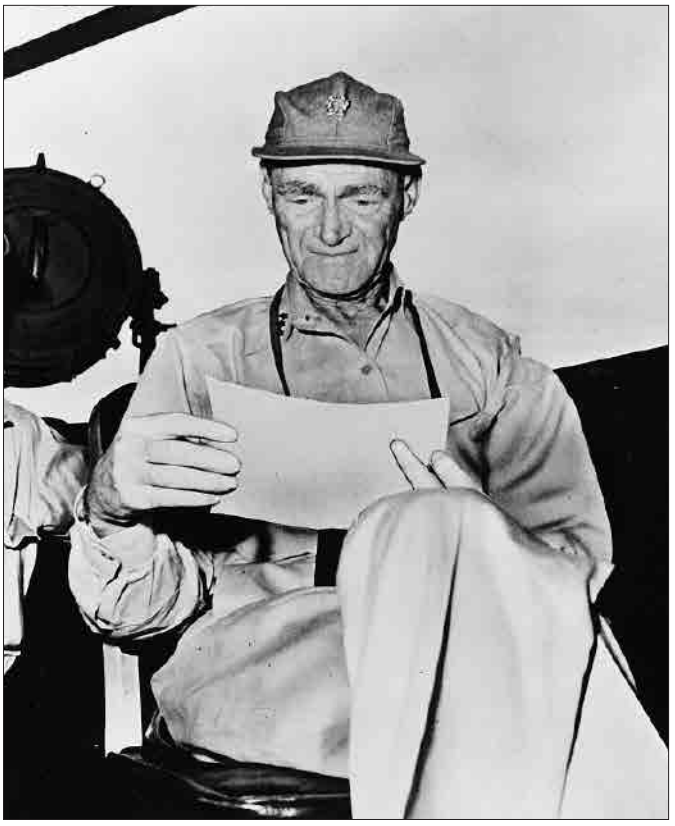
17 FEBRUARY • Two fast carrier groups had operated to the west of Eniwetok and neutralized Japanese air and naval forces capable of defending the atoll. These operations permitted the second phase of the Marshall Islands campaign earlier than the planned date of 10 May during Operation Catchpole—the seizure of Eniwetok. On this date, planes from Task Groups 58.4 including *Saratoga* (CV 3), *Princeton* (CVL 23), and *Langley* (CVL 27), and 53.6 including *Sangamon* (CVE 26), *Suwannee* (CVE 27), and *Chenango* (CVE 28), supported landings on Engebi Island, and on 19 and 22 February landings on Eniwetok and Parry Islands, respectively.

17 FEBRUARY • The covering operations for the liberation of the Marshall Islands included Operation Hailstone—a strike on the Japanese naval anchorage at Truk Lagoon, Caroline Islands. During a two-day attack, Vice Adm. Raymond A. Spruance, whose forces included Task Force 58, Rear Adm. Marc A. Mitscher commanding, with *Enterprise* (CV 6), *Essex* (CV 9), *Yorktown* (CV 10), *Intrepid* (CV 11), *Bunker Hill* (CV 17), *Belleau Wood* (CVL 24), *Cowpens* (CVL 25), *Monterey* (CVL 26), and *Cabot* (CVL 28), launched 1,250 combat sorties that dropped 400 tons of bombs and torpedoes and sank 37 Japanese ships aggregating 200,000 tons and damaged installations.

The vessels sunk included light cruiser *Naka*; training cruiser *Katori*; destroyers *Fumizuki*, *Maikaze*, *Oite*, and *Tachikaze*; armed merchant cruiser *Akagi Maru*;

auxiliary submarine depot ship *Heian Maru*; submarine chasers *Ch 24* and *Ch 29*; aircraft transport *Fujikawa Maru*; transports *Aikoku Maru, Amagisan Maru, Gosei Maru, Hanakawa Maru, Hokuyo Maru, Kensho Maru, Kiyozumi Maru, Matsutani Maru, Momokawa Maru, No. 6 Unkai Maru, Reiyo Maru, Rio de Janeiro Maru, San Francisco Maru, Seiko Maru, Taihō Maru, Yamagiri Maru,* and *Zukai Maru*; fleet tankers *Fujisan Maru, Hoyo Maru, No. 3 Tonan Maru,* and *Shinkoku Maru*; water carrier *Nippo Maru*; auxiliary vessel *Yamakisan Maru*; army cargo ships *Nagano Maru* and *Yubai Maru*; merchant cargo ship *Taikichi Maru*; and motor torpedo boat *Gyoraitei No. 10*.

Twelve radar-equipped TBF-1C Avengers from VT-10, embarked on board *Enterprise,* carried out the first U.S. carrier-launched night bombing raid and scored several hits on ships in the lagoon. Night fighter detachments of F6F-3 Hellcats and F4U-2 Corsairs fitted with AIA radar from VF(N)-76 and -101 operated from five carriers and on occasion were vectored against enemy night raiders. The first night, however, a Japanese aerial torpedo struck *Intrepid,* but despite steering problems she returned for repairs to Pearl Harbor in the Hawaiian Islands.



Vice Adm. Marc A. Mitscher.

17 FEBRUARY • Navy SBD Dauntlesses and TBF Avengers bombed Japanese shipping in Keravia Bay near Rabaul, New Britain.

20 FEBRUARY • Upon completion of the strike on Truk Lagoon in the Caroline Islands, a small force, Rear Adm. John W. Reeves Jr. commanding, including *Enterprise* (CV 6) separated from the main force and launched two air strikes on Jaluit.

22 FEBRUARY • Two carrier groups of Task Force 58, Rear Adm. Marc A. Mitscher commanding, launched raids against the Japanese garrisons on Guam, Rota, Saipan, and Tinian in the Mariana Islands for the dual purpose of reducing enemy air strength and to gather photographic intelligence for the impending invasion. The attackers claimed the destruction of 67 Japanese aircraft in the air and 101 on the ground through 23 February.

24 FEBRUARY • Lts. Howard Baker and T. R. Woolley of VP-63 piloted two PBY-5A Catalinas on a magnetic anomaly detection (MAD) barrier patrol of the approaches to the Strait of Gibraltar. Their patrol marked the first operational employment of MAD gear for tracking a submerged submarine. Baker and Woolley joined Lt. P. L. Holmes of VB-127 flying a PV-1 Ventura and a British Catalina of the Royal Air Force's No. 202 Squadron in an attack on German submarine *U-761* as it attempted to slip through the strait from the Mediterranean to the Atlantic. The U.S. Catalinas damaged *U-761* with retrorockets and the Ventura depth-charged the boat. The Germans scuttled the submarine near Tangier, Morocco.

4 MARCH • The Navy reported a reduction in flight training and fixed the total outputs for 1944, 1945, and 1946 at 20,500, 15,000, and 10,000 pilots, respectively.

6 MARCH • A new specification for the color of naval aircraft went into effect. A modification of the basic camouflage scheme for use with fleet aircraft required nonspecular Sea Blue on upper fuselage surfaces, the retention of semigloss Sea Blue on airfoil surfaces visible from above, and semigloss Insignia White on surfaces visible from below. A new basic non-camouflage color scheme, all

Aluminum, applied for general use on aircraft not in combat theaters. The maximum visibility color scheme used on primary trainers became glossy Orange Yellow overall.

15 MARCH • PBJ-1 Mitchells received their baptism of fire in naval service during an attack by VMB-413 on the Japanese garrison at Rabaul, New Britain.

18 MARCH • Task Group 50.10, Rear Adm. Willis A. Lee commanding, including *Lexington* (CV 16), bombed and shelled the Japanese garrison on Mili in the Marshall Islands.

20 MARCH • Planes from two escort carriers provided cover and air spotting for a battleship and destroyer bombardment of Japanese installations on Kavieng, New Ireland, and nearby airfields in a covering action for the occupation of Emirau.

22 MARCH • A new specification for the color of fighter aircraft went into effect that directed they be painted glossy Sea Blue on all exposed surfaces.

26 MARCH • F4U-1 Corsairs of VMF-113 operating from Engebi Island at Eniwetok Atoll in the Marshall Islands escorted USAAF B-25 Mitchells on a 360-mile bombing mission against the Japanese garrison on Ponape. The Corsairs' effectively destroyed the enemy interceptors and thus ensured that Allied aircraft carried out their subsequent missions over the island unmolested.

27 MARCH • *Saratoga* (CV 3), Capt. John H. Cassady commanding, rendezvoused with ships of the British Eastern Fleet for temporary operations in the Indian Ocean approximately 1,000 miles south of Ceylon (Sri Lanka).

30 MARCH • Task Force 58, Vice Adm. Marc A. Mitscher commanding, including 11 carriers, launched a series of attacks on Japanese garrisons and vessels at Palau, Ulithi, Woleai, and Yap in the Western Caroline Islands. Planners intended these strikes to eliminate Japanese opposition to landings at Hollandia on northern New Guinea and to gather photographic intelligence for future battles. TBF-1C and TBM-1C Avengers from VT-8, -2, and -16, embarked on board *Hornet* (CV 12), *Bunker Hill* (CV 17), and *Lexington* (CV 16), respectively, sowed extensive minefields in the approaches to the Palau Islands in the first U.S. large-scale daylight tactical use of mines by carrier aircraft. These raids continued until 1 April and claimed the destruction of 157 Japanese aircraft, sank destroyer *Wakatake*, repair ship *Akashi*, aircraft transport *Goshu Maru*, and 38 other vessels, damaged four ships, and denied the harbor to the enemy for an estimated six weeks.

1 APRIL • The Coast Guard christened helicopter training platform *Mal de Mer* (sea sickness) at CGAS Brooklyn, N.Y. The 40-by-60–foot platform simulated landing conditions on board ships by rolling five to ten degrees within a period of ten seconds.

15 APRIL • The formation of air-sea rescue squadrons (VH) in the Pacific Fleet provided rescue and emergency services as necessary in the forward areas. Before this, regularly operating patrol squadrons performed rescue functions as an additional duty.

16 APRIL • Carrier Transport Squadron, Pacific, was established for administrative and operational control over escort carriers assigned to deliver planes, spare parts, and naval aviation servicemembers in direct support of Pacific Fleet operations.

18 APRIL • Photographic-equipped PB4Y-1 Liberators of VD-3 obtained coverage of Aguijan, Saipan, and Tinian in preparation for the campaign to occupy the Mariana Islands. During the 13-hour flight from Eniwetok, USAAF B-24 Liberators escorted the image-gathering planes and bombed the islands in a diversionary action. This operation marked the first mission by shore-based planes over the Marianas.

19 APRIL • The British Eastern Fleet, Adm. Sir James F. Somerville, RN, commanding, including British carrier *Illustrious* (87), and U.S. Task Group 58.5 with *Saratoga* (CV 3), struck Sabang off northern Sumatra, Netherlands East Indies (Indonesia), during Operation Cockpit. In the first operation in which the Pacific Fleet operated alongside the British in offensive action in the Indian Ocean, the Allies achieved poor results because of the limited number of Japanese ships in the area. Twenty-four F6F-3 Hellcats from VF-12, 18 SBD-5 Dauntlesses from VB-12, and 11 TBF-1C and TBM-1C Avengers of VT-12, together with 13 British Corsair IIs of Nos. 1830 and 1833 Squadrons, and 17 Fairey Barracuda IIs of Nos. 810 and 847 Squadrons,

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Escort carriers turn toward their stations to support an amphibious landing against the Japanese.

sank Japanese minelayer *Hatsutaka*, transport *Kunitsu Maru*, and army transport *Haruno Maru*. Allied planes claimed the destruction of 24 Japanese planes on the ground and damaged oil storage tanks and installations. Antiaircraft fire shot down a VF-12 Hellcat but British submarine *Tactician* rescued the pilot. Japanese Mitsubishi G4M1 Type 1 bombers counterattacked the ships during their retirement, but Hellcats shot down three of the Bettys. On 17 May 1944 the Anglo-American force launched a similar strike against Soerabaja, Sumatra.

21 APRIL • Task Force 58, Vice Adm. Marc A. Mitscher commanding, supported the assault of the Army's I Corps at Aitape and Tanahmerah Bay (Operation Persecution) and at Humboldt Bay on Hollandia (Operation Reckless) on the north coast of New Guinea. On this date, five heavy and seven light carriers launched preliminary strikes on Japanese airfields around Hollandia, Sawar, and Wakde; the next day covered landings at Aitape, Tanahmerah Bay, and Humboldt Bay; and into 24 April, supported troop movements ashore. Planes from *Sangamon* (CVE 26), *Suwannee* (CVE 27), *Chenango* (CVE 28), *Santee* (CVE 29), *Coral Sea* (CVE 57), *Corregidor* (CVE 58), *Manila Bay* (CVE 61), and *Natoma Bay* (CVE 62), flew cover and antisubmarine patrols over ships of the attack group during the approach, and supported the amphibious assault at Aitape. Carrier aircraft claimed the destruction of 30 Japanese planes in the air and 103 on the ground.

23 APRIL • VR-3 operated the first regularly scheduled Naval Air Transport Service transcontinental hospital flight between Washington, D.C., and March Field, Calif.

26 APRIL • The headquarters of Fleet Air Wing 4 was established on Attu in the Aleutians of Alaska.

29 APRIL • While Task Force 58, Vice Adm. Marc A. Mitscher commanding, returned to Majuro following landings at Hollandia on New Guinea, Mitscher launched a

two-day attack on Japanese installations and supply dumps at Truk Lagoon in the Caroline Islands. The previous strike on 17 February had wreaked havoc on the Japanese, but on 30 April aircraft reported a paucity of vessels in the area and sank only two ships and claimed the destruction of 145 enemy aircraft. Task Group 58.1, Rear Adm. Joseph J. Clark commanding, detached on the second day, launched planes for protective cover of a cruiser bombardment of Satawan, and on 1 May supported the bombardment of Ponape with air cover and bombing and strafing runs.

1 MAY • Aircraft, Central Pacific, was dissolved and Commander, Marshalls Sub-Area assumed its functions.

4 MAY • The eponymous board headed by Rear Adm. Arthur W. Radford submitted a report that impacted aviation planning into the immediate post-war period. The Integrated Aeronautic Program for Maintenance, Material and Supply evolved from these recommendations and involved the assignment of new planes to combat units, the return of aircraft to the United States for reconditioning and reassignment after specified combat tours, the retirement of second tour aircraft before maintenance became costly, and the support of the aeronautical organization through the use of factors and allowances for pools, pipelines, and reconditioning. Frequent appraisal by inspectors realistically maintained the program.

8 MAY • Seaplane tender *Kenneth Whiting* (AV 14) was commissioned as the first of four ships of the class at Tacoma, Wash., Cmdr. Raymond R. Lyons commanding.

8 MAY • Commander, Naval Forces, Northwest African Waters approved the assignment of an initial nine naval aviators from VCS-8 to the 111th Tactical Reconnaissance Squadron, Twelfth Air Force, for flight training and combat operations in North American P-51C Mustangs. Previous combat experience with SOC Seagulls and OS2U Kingfishers used in aerial spotting and reconnaissance missions had demonstrated the vulnerability of both types to enemy fighters and antiaircraft fire. Planners expected the higher performance of the Mustangs to result in a reduction of casualties on these missions. Eleven naval aviators eventually participated in combat operations in Mustangs in support of the fighting in Italy and the invasion of Southern France. On 2 September the Navy directed all of these men to return to their ships.

13 MAY • The abolition of the helicopter class designation VH plus a mission letter (i.e., VHO for observation and VHN for training) and establishment of helicopters as a separate type H helped distinguish between fixed- and rotary-wing heavier-than-air craft. The previous mission letters became classes O, N, and R for observation, training, and transport, respectively.

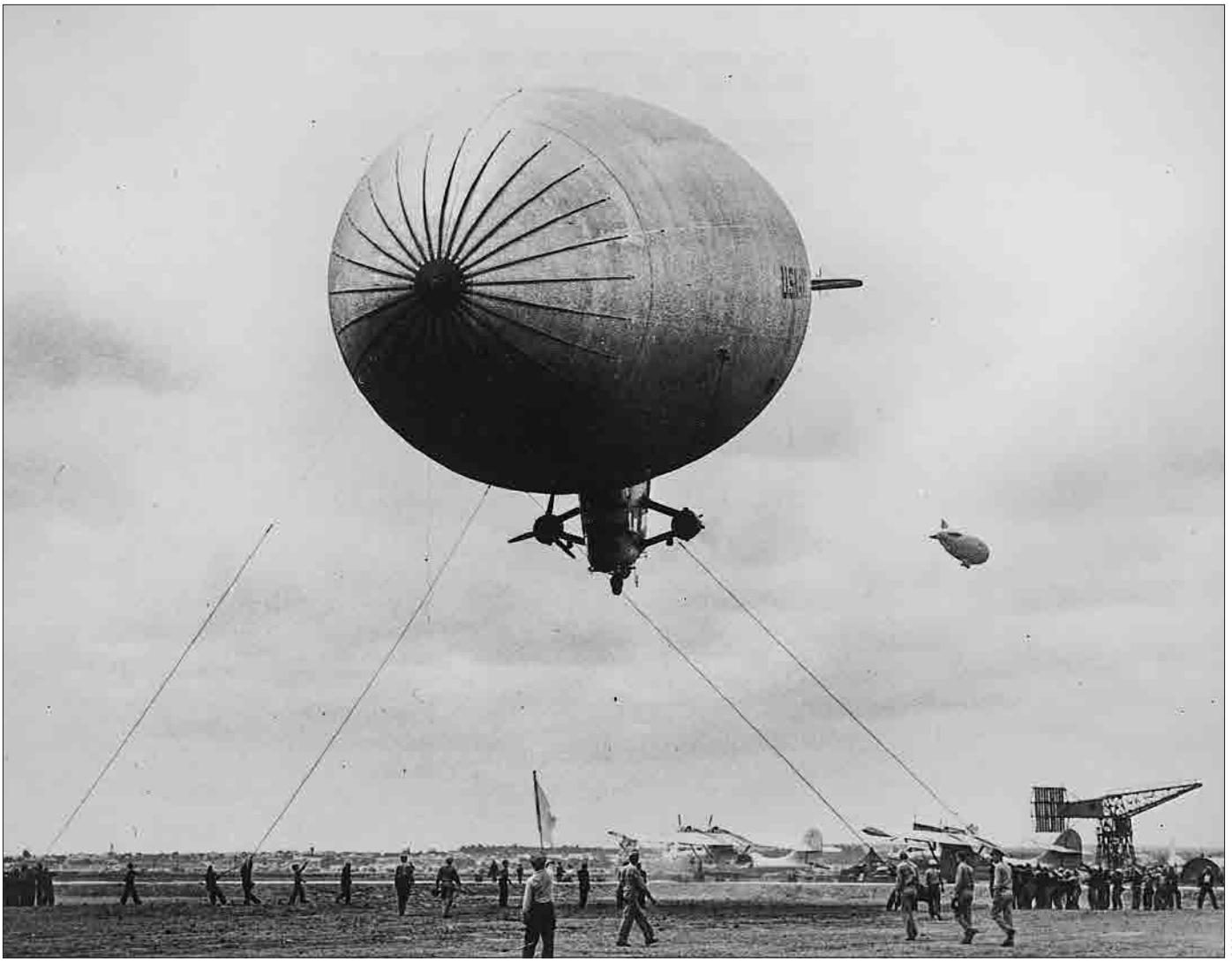
13 MAY • To meet the needs of the fleet for people trained in the use of electronic countermeasures equipment, the Chief of Naval Operations directed the establishment on 1 June by the chief of Naval Air Technical Training of the Special Projects School for Air, located initially at NAAS San Clemente Island, Calif.

15 MAY • Naval Air Transport Service planes made the first of 16 transatlantic flights through 23 May to the United Kingdom to deliver 165,000-pounds of minesweeping gear for the D-Day landings in Normandy, France.

17 MAY • BUAER authorized CGAS Floyd Bennett Field, N.Y., to collaborate in the installation of an automatic pilot in an HNS-1 helicopter with the Sperry Gyroscope Company.

17 MAY • During Operation Transom, the Allies attacked Japanese shipping and installations in the Netherlands East Indies (Indonesia) timed to coincide with Operation Straightline—landings in the Wakde-Toem area of New Guinea. Planes from the British Eastern Fleet, Adm. James F. Somerville, RN, commanding, including British carrier *Illustrious* (87) and U.S. Task Group 58.5, with *Saratoga* (CV 3), raided Soerabaja, Java. Twenty-four F6F-3 Hellcats from VF-12, 18 SBD-5 Dauntlesses from VB-12, and 12 TBF-1C and TBM-1C Avengers of VT-12, embarked on board *Saratoga*, and 16 British Corsair IIs of Nos. 1830 and 1833 Squadrons, and 18 Avenger IIs of Nos. 832 and 845 Squadrons, operating from *Illustrious*, sank Japanese transport *Shinrei Maru* and damaged six vessels and oil stores. One U.S. Avenger was shot down and the crew captured, and two British Avengers crashed on take-off but their crewmembers survived. *Saratoga* had delayed her departure for repairs at Puget Sound Navy Yard at Bremerton, Wash., to participate during her eastward passage. The next day the ship detached.

19 MAY • Planes from Task Group 58.6, Rear Adm. Alfred E. Montgomery commanding, attacked Marcus Island with a predawn fighter sweep, strafing and bombing Japanese



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Airships of ZP-14 from NAS South Weymouth, Mass., arrive at NAS Port Lyautey, Morocco, 1 June 1944.

installations for two consecutive days during the third raid on the island. On 23 May, Montgomery shifted from Marcus to attack Wake Island with five composite bombing, strafing, and rocket strikes during the third carrier raid on the atoll since the Japanese overran it.

29 MAY • Six days before, *Block Island* (CVE 21) had sailed from Casablanca, Morocco, to relieve *Bogue* (CVE 9) during hunter-killer operations around Madeira and the Cape Verde Islands. At 2013 on this date, three torpedoes from German submarine *U-549* struck the carrier in rapid succession northwest of the Canary Islands. *Block Island* sank by the stern. The U-boat then damaged destroyer escort *Barr* (DE 576) with an acoustic torpedo, but destroyer escorts *Ahrens* (DE 575) and *Eugene E. Elmore* (DE 686) sank the attacker.

31 MAY • Commander, Training Task Force was directed to establish on 1 June, within his command at NAS Traverse City, Mich., a detachment designated Special Weapons Test and Tactical Evaluation Unit to research special weapons and other airborne equipment.

1 JUNE • Blimps of ZP-14 assigned to antisubmarine operations around Gibraltar reached NAS Port Lyautey, Morocco, completing the first crossing of the Atlantic by nonrigid airships after lifting off from NAS South Weymouth, Mass., on 29 May. In 58 hours the blimps covered 3,145 nautical miles and—including time for stopovers at Argentia, Newfoundland, and the Azores—in 80 hours moved their area of operations across the ocean.

1 JUNE • VR-9 was formed at NAS Patuxent River, Md., and VR-12 at Honolulu, Territory of Hawaii, to function as headquarters and maintenance squadrons for their commands, Naval Air Transport Service Atlantic and Pacific, respectively.

4 JUNE • Task Group 22.3, Capt. Daniel V. Gallery commanding, a hunter-killer group including *Guadalcanal* (CVE 60), with FM-2 Wildcats and TBM-1C Avengers of VC-8 embarked, and destroyer escorts *Pillsbury* (DE 133), *Pope* (DE 134), *Flaherty* (DE 135), *Chatelain* (DE 149), and *Jenks* (DE 665) forced German submarine *U-505* to the surface 150 miles off Cape Blanco, Rio de Oro, Africa. During salvage operations, *Pillsbury* collided with *U-505*, but Lt. j.g. Albert L. David led a boarding party from *Pillsbury* that saved the submarine despite the dangers posed by scuttling charges. David later received the Medal of Honor. The U-boat is on display in Chicago, Ill.

5 JUNE • The Deputy Chief of Naval Operations (Air) reported that aviation safety boards that had been established in one large command had reduced the fatal accident rate by 47 percent during one quarter of operation. He thus directed the establishment of similar boards in other commands outside advanced combat areas, and the appointment of a flight safety officer to each squadron.

6 JUNE • Seventeen naval aviators from aviation detachments on board battleships and cruisers served in bombardment duty with VCS-7 during Operation Overlord—the Allied landings in German-occupied Normandy, France. From D-Day through 26 June, the squadron operated with the British Fleet Air Arm and Royal Air Force, flying gunfire-spotting missions in Supermarine Spitfires over the Normandy beaches.

10 JUNE • PB4Y-1s of VB-108 and -109 swept ahead of Task Force 58, Vice Adm. Marc A. Mitscher commanding, to intercept and destroy Japanese planes in the path of the carriers as they approached the Mariana Islands. The Liberators repeated the sweeps the next day. One bomber from each of the squadrons shot down a Japanese plane. Planners chose to use the Liberators as a diversion from the carriers because the Japanese routinely sighted the long-range planes in that region.

11 JUNE • Task Force 58, Vice Adm. Marc A. Mitscher commanding, including seven heavy and eight light carriers opened the campaign to occupy the Mariana Islands with a fighter sweep that destroyed one-third of the defending Japanese air force. Sixteen F6F Hellcats from each carrier and 12 from each small carrier, accompanied by a TBF Avenger or SB2C Helldiver from each task group to lead and navigate for the fighters, attained tactical surprise and assured control of the air over the islands. In bombing and strafing attacks on shore installations and shipping over the succeeding days, Mitscher's force prepared the way for the 15 June amphibious assault on Saipan. Carrier planes supported operations ashore with daily offensive missions on 15, 16, and 24 June; 3 and 4 July; and 4 and 5 August; isolated the area with attacks on airfields and shipping in the Bonin and Volcano Islands; and on 19 and 20 June successfully defended the landings against a Japanese counterattack during the Battle of the Philippine Sea.

12 JUNE • Planes from Task Group 58.4, including *Essex* (CV 9) and small carriers *Cowpens* (CVL 25) and *Langley* (CVL 27), destroyed a Japanese convoy northwest of Saipan en route from Tanapag, Saipan to Japan.

12 JUNE • Elements of Special Task Air Group (STAG 1) arrived in the Russell Islands in the South Pacific in the first deployment of a guided missile unit into a combat theater.

13 JUNE • Task Force 58, Vice Adm. Marc A. Mitscher commanding, launched additional strikes against the Japanese garrison on Saipan in the Mariana Islands. Carrier planes destroyed a convoy of five small cargo vessels and sank other ships separately. The Japanese shot down Cmdr. William I. Martin, commanding officer of VT-10 embarked on board *Enterprise* (CV 6), flying a TBM-1C Avenger over Saipan. The pilot parachuted into the sea off Red Beach Three and, prior to his rescue, observed that the Japanese had marked ranges to the reef offshore with red and white pennants. This valuable intelligence was given to the approaching amphibious forces.

15 JUNE • Carrier aircraft from Task Groups 58.1 and 58.4, Rear Adms. Joseph J. Clark and William K. Harrill commanding, respectively, bombed Japanese installations on Chichi Jima and Haha Jima in the Bonin Islands and Iwo Jima in the Volcano Islands. The following day, the planes

repeated the attack on Iwo Jima. These raids disrupted the staging areas for Japanese aircraft en route to the Mariana Islands and contributed to the U.S. victory in the Battle of the Philippine Sea.

15 JUNE • American landings on Saipan in the Mariana Islands during Operation Forager penetrated the inner defensive perimeter of the Japanese Empire and thus triggered A-Go—a Japanese counterattack that led to the Battle of the Philippine Sea. Task Force 58, Vice Adm. Marc A. Mitscher commanding, included *Enterprise* (CV 6), *Essex* (CV 9), *Yorktown* (CV 10), *Hornet* (CV 12), *Lexington* (CV 16), *Bunker Hill* (CV 17), *Wasp* (CV 18), *Princeton* (CVL 23), *Belleau Wood* (CVL 24), *Cowpens* (CVL 25), *Monterey* (CVL 26), *Langley* (CVL 27), *Cabot* (CVL 28), *Bataan* (CVL 29), and *San Jacinto* (CVL 30).

The Japanese 1st Mobile Fleet, Vice Adm. Ozawa Jisaburō commanding, included *Taihō*, *Shōkaku*, *Zuikaku*, *Chitose*, *Chiyōda*, *Hiyō*, *Junyō*, *Ryūhō*, and *Zuihō*. The enemy intended for its shore-based planes to cripple Mitscher's air power to facilitate Ozawa's strikes, which were to refuel and rearm on Guam. Japanese fuel shortages and inadequate training bedeviled A-Go, however, and U.S. signal decryption breakthroughs enabled attacks on Japanese submarines that deprived the enemy of intelligence, raids on the Bonin and Volcano Islands disrupted Japanese aerial staging en route to the Marianas, and their main attacks passed through heavy U.S. antiaircraft fire to reach the carriers.

On 17 June, five PBM-3D Mariners of VP-16 commenced operations from seaplane tender *Ballard* (AVD 10) within range of Saipan's guns. Throughout the day Task Force 58 repelled Japanese air attacks and destroyed at least 300 planes in what Navy pilots called the "Great Marianas Turkey Shoot." Commander CVG-15, Cmdr. David S. McCampbell, flew an F6F-3 Hellcat from *Essex* and shot down at least seven Japanese planes. Submarines *Albacore* (SS 218) and *Cavalla* (SS 244) sank *Taihō* and *Shōkaku* in separate attacks, respectively, and Japanese suicide planes narrowly missed *Bunker Hill* and *Wasp*.

The following afternoon, Mitscher launched an air attack at extreme range on the retreating Japanese ships that sank *Hiyō* and two fleet oilers, and damaged *Zuikaku*, *Chiyōda*, and *Junyō*. That night, despite the risk of submarine attacks, Mitscher ordered his ships to show their lights to guide returning aircraft low on fuel, thus saving

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Cmdr. David S. McCampbell is the Navy's highest scoring ace with 34 kills.

lives. The Japanese lost 395 carrier planes and an estimated 50 land-based aircraft from Guam. The Americans lost 130 planes and 76 pilots and aircrewmen.

Planes from an initial force of 11 escort carriers covered the landings. *Manila Bay* (CVE 61) and *Natoma Bay* (CVE 62) ferried aircraft to operate from captured airfields. On 17 June OY-1 Sentinels of VMO-4 arrived ashore, followed on 22 and 24 June by USAAF Republic P-47 Thunderbolts and Northrop P-61 Black Widows, and on 12 July by F4U-2 Corsairs of VMF(N)-532. On 9 July, organized resistance ended on Saipan; on 21 July, the Americans landed on Guam, and three days later on Tinian.

24 JUNE • A TBM-1C Avenger from VC-69, embarked on board *Bogue* (CVE 9), sank Japanese submarine *I-52* about 800 miles southwest of Fayal, Azores, near 15°16'N, 39°55'W. The submarine sailed from Kure, Japan, reputedly carrying two tons of gold ingots valued at $25 million as the balance of a payment owed by the Japanese to the Germans for technical information and war materials. *I-52* rendezvoused with German submarine *U-530* for the transfer of three Germans and some radio equipment to the Japanese boat prior to continuing to Lorient, France, but

Allied intelligence had identified the meeting. The Avenger dropped sonobuoys to assist in locating and destroying the blockade runner.

24 JUNE • To reduce the pilot training program the Chief of Naval Operations promulgated plans that required the transfer of some students already in pre-flight and prior stages of training, and the retention of enough people to maintain a course in pre-flight schools expanded to 25 weeks. Early the next month, the chief of Naval Air Training instituted the program of "deselection" and voluntary withdrawal of surplus students. The resulting reductions proved responsible in August for the discontinuance of the War Training Service Program, and in September for the closure of the flight preparatory schools and the release of training stations.

24 JUNE • Aircraft from two carrier task groups, Rear Adms. Joseph J. Clark and Alfred E. Montgomery commanding, struck Japanese airfields and facilities on Iwo Jima in the Volcano Islands and Pagan Island in the Marianas.

26 JUNE • Seaplane tender *Currituck* (AV 7) was commissioned as the first of four ships of her class at Philadelphia, Pa., Capt. William A. Evans commanding.

29 JUNE • The Parachute Experimental Division was established for the research, development, and testing of parachutes and survival gear at NAS Lakehurst, N.J.

29 JUNE • The standardization of carrier air groups took place for all commands: CVBG, large carrier air group; CVG, medium carrier air group; CVLG, small carrier air group; CVEG, escort carrier air group—*Sangamon* (CVE 26) class; and VC, escort carrier air group—*Long Island* (CVE 1), *Bogue* (CVE 9), *Charger* (CVE 30), and *Casablanca* (CVE 55) classes.

30 JUNE • The Naval Aircraft Modification Unit of the Naval Air Material Center at Philadelphia, Pa., was relocated to Johnsville, Pa. This was prompted by Johnsville's facilities for intensified efforts in guided missile development and quantity modification of service aircraft.

4 JULY • Carrier-based aircraft and naval gunfire from two task groups, Rear Adms. Joseph J. Clark and Ralph E. Davison, commanding, attacked Japanese installations on Chichi Jima and Haha Jima in the Bonin Islands and Iwo Jima in the Volcano Islands.

6 JULY • As part of USAAF and British attempts to counter German *Vergeltungswaffen* (retaliation weapons) attacks by V-1 flying bombs (and subsequently V-2 rockets) against the United Kingdom, the Navy experimented with drones in Project Anvil. On this date, Special Air Unit 1 with Cmdr. James A. Smith, officer in charge, was formed under Commander, Air Force, Atlantic Fleet, for transfer to Commander Fleet Air Wing 7 in Europe to assail German V-weapon sites with PB4Y-1 Liberators converted to assault drones.

6 JULY • BUAER authorized Douglas to proceed with the design and manufacture of 15 XBT2D dive and torpedo bombers, jointly designed by both. Through subsequent development and model redesignation these became the prototypes for the AD Skyraider.

14 JULY • Joint action by the Deputy Chief of Naval Operations (Air) and the Chief of BUAER established the Flight Safety Council to plan, coordinate, and execute flight safety programs by coordinating all safety functions through a central organization.

14 JULY • PB4Y-1 Liberators of VB-109 flying from Saipan in the Mariana Islands made the first strike by shore-based planes on the Japanese garrison on Iwo Jima, Volcano Islands.

21 JULY • Task Force 53, Rear Adm. Richard L. Conolly commanding, including *Sangamon* (CVE 26), *Suwannee* (CVE 27), *Chenango* (CVE 28), *Coral Sea* (CVE 57), and *Corregidor* (CVE 58), supported Operation Stevedore—landings by the 3d Marine Division, 1st Provisional Marine Brigade, and the Army's 77th Division on Guam.

25 JULY • Task Force 58, Vice Adm. Marc A. Mitscher commanding, attacked Japanese installations and shipping in the Western Caroline Islands at Fais, Ngulu, Palau, Sorol, Ulithi, and Yap. Air strikes continued until 28 July and included photographic flights to obtain intelligence of enemy

defenses. The ships then steamed north to attack the Bonin and Volcano Islands. By the time Guam was declared secured on 10 August, carrier aircraft claimed the destruction of 1,223 Japanese aircraft and the sinking of 110,000 tons of shipping. During this fighting, groups of the fast carrier force retired in turn to advanced fleet bases for brief periods of rest and replenishment, thus initiating a practice that continued during all future extended fighting.

27 JULY • The headquarters of Fleet Air Wing 17 was moved to Manus, Admiralty Islands.

29 JULY • In the first successful test of a Pelican guided missile, two of the four launched struck target ship *James Longstreet* 44 miles offshore of NAS New York, N.Y.

29 JULY • A detachment of PB4Y-1 Liberators of VB-114 from NAS Port Lyautey, Morocco, was established under British command for antisubmarine operations at Lajes, Azores Islands.

31 JULY • The Accelerated Field Service Test Unit was redesignated Service Test and established as a separate department at NAS Patuxent River, Md.

4 AUGUST • Task Group 58.1, Rear Adm. Joseph J. Clark commanding, savaged Japanese Convoy 4804 about 25 miles northwest of Muko Jima, Bonin Islands, sinking destroyer *Matsu*, landing ship *T 133*, a collier, four transports, and a cargo ship. Meanwhile, planes from Task Group 58.3, Rear Adm. Alfred E. Montgomery commanding, bombed Japanese airfields on Iwo Jima, Volcano Islands.

5 AUGUST • The Fast Carrier Task Force was reorganized into the First and Second Fast Carrier Task Forces, Pacific, Vice Adms. Marc A. Mitscher and John S. McCain commanding, respectively.

7 AUGUST • Carrier Division 11 was established, Rear Adm. Matthias B. Gardner commanding, at Pearl Harbor, Hawaiian Islands. The division consisted of *Saratoga* (CV 3) and *Ranger* (CV 4) and comprised the first U.S. carrier command specifically established for night operations.

9 AUGUST • A PB4Y-1 Liberator of VB-116 crashed on takeoff from Stickell Field, Eniwetok, Marshall Islands, and burned amid 340 planes in the carrier aircraft replacement pool area, resulting in the destruction of 106 aircraft—primarily FM Wildcats, F6F Hellcats, SB2C Helldivers, and TBM Avengers.

10 AUGUST • Naval air bases commands were established within each Naval District, the Training Command, and within Marine Corps bases. These received authorization for the military direction and administrative coordination of matters affecting the development and operational readiness of aviation facilities in their respective areas.

10 AUGUST • The operating aircraft complement of carrier air groups underwent a revision to 54 fighters, 24 bombers, and 18 torpedo planes, with the provision that four night fighters and two photographic planes were to be included among the 54 fighters.

11 AUGUST • An electric-powered rescue hoist was installed on an HNS-1 Hoverfly, BuNo 39040, at CGAS Floyd Bennett Field, N.Y. During the ensuing four-day test period, flights conducted over Jamaica Bay demonstrated the feasibility of rescuing victims from the water and of transferring people and equipment to and from underway boats. Six weeks later, the installation and successful testing of a hydraulic hoist led to the adoption of the device for service use because it overcame the basic disadvantages of the electric hoist. Also on this date Dr. M. F. Bates of the Sperry Gyroscope Company, submitted a brief report of the trial installation and flight test of a helicopter automatic pilot (cyclic pitch control) in a Hoverfly at Floyd Bennett Field.

12 AUGUST • Lt. Joseph P. Kennedy Jr., USNR, of VPB-110, temporarily assigned to Special Air Unit 1, and Lt. Wilford J. Willy participated in a mission in a PB4Y-1 Liberator, BuNo 32271, against a German V-1 flying bomb launching site in German-occupied France. The weight of the Liberator—which carried 21,170-pounds of high explosives—precluded take off by remote control, so Kennedy and Willy voluntarily made the takeoff from Winfarthing (Fersfield), England. The men remained with the drone to ensure the assumption of control by two "mother" planes—one used as insurance against potential equipment failure in the primary—and were then to bail out over England. At 1820, the Liberator suddenly exploded killing Kennedy and Willy. No cause

was ever determined. The two each received the Navy Cross posthumously and destroyer *Joseph P. Kennedy Jr.* (DD 850) was named in his honor.

15 AUGUST • Allied carriers of the Naval Attack Force, Rear Adm. Sir Thomas H. Troubridge, RN, commanding, devastated columns of German troops, motor transport, and railway rolling stock during Operation Dragoon—landings by the U.S. VI and Free French II Corps in southern France. F6F-3N and F6F-5 Hellcats of VF-74, embarked on board *Kasaan Bay* (CVE 69), and F6F-5s of VOF-1 flying from *Tulagi* (CVE 72), together with British planes from escort carriers *Attacker* (D 02), *Searcher* (D 40), *Khedive* (D 62), *Pursuer* (D 73), *Hunter* (D 80), *Stalker* (D 91), and *Emperor* (D 98), flew defensive fighter cover over the shipping area, spotted naval gunfire, flew close air support missions, attacked enemy concentrations and lines of communication, and assisted Allied troops during their advance up the Rhône Valley. Hellcats from *Kasaan Bay* bombed and strafed enemy positions, vehicles, and tanks, and shot down two German planes over the invasion beaches. On *Tulagi*'s last day to support the landings, 21 August, her Hellcats shot down three German Junkers Ju 52s, and wreaked havoc with a German convoy retreating northward, snarling roads for miles around Remouline. The Allied carriers launched more than 1,500 sorties through 29 August.

20 AUGUST • Nonrigid airship K-111, Lt. Cmdr. Frederick N. Klein commanding, demonstrated the feasibility of refueling and replenishing airships from aircraft carriers during 72.5 hours of operations into 23 August with *Makassar Strait* (CVE 91) off San Diego, Calif. The airship's crew was relieved every 12 hours and her engines operated continuously. The airship remained on the flight deck for 32 minutes during one evolution.

24 AUGUST • CVLG(N)-43 was established as the first night carrier air group at Charlestown, R.I., along with its component squadrons VF(N)-43 and VT(N)-43.

24 AUGUST • Fleet Air Wing 10 moved forward from Perth, Australia, to Los Negros, Admiralty Islands, to support the advance of Southwest Pacific forces on the Philippines.

31 AUGUST • Task Group 38.4, Rear Adm. Ralph E. Davison commanding, opened the campaign for the occupation of Morotai and Palau with three days of attacks on Chichi Jima in the Bonin Islands and Iwo Jima in the Volcano Islands. Davison intended the raids to neutralize Japanese installations as a diversion in advance of the landings in the Morotai, Palau, and Philippine areas. Off Iwo Jima, F6F Hellcats from *Franklin* (CV 13) sank an auxiliary minesweeper and cargo ship.

During an attack on 2 September against a Japanese radio station on Chichi Jima, ground fire struck TBM-1C, BuNo 46214, of a division of four Avengers from VT-51, embarked on board *San Jacinto* (CVL 30). Lt. j.g. George H. W. Bush, USNR, (Naval Aviator No. C5907); Lt. j.g. William G. White, USNR; and ARM2 John L. Delaney manned the bomber. Despite the smoke and flames, Bush continued his dive and scored damaging hits before the Avenger crashed. Submarine *Finback* (SS 230) rescued the pilot after he spent four hours in the water, however, White and Delaney perished. Bush received the Distinguished Flying Cross for the attack, was discharged on 18 September 1945, and on 24 October 1955 resigned with the rank of lieutenant. He subsequently became the 41st President of the United States. *George H. W. Bush* (CVN 77) was named in his honor.

1 SEPTEMBER • The Bureau of Ordnance reported the beginning of an investigation by a group of scientists from Section T of the Office of Scientific Research and Development (OSRD) into the practicability of developing a guided jet-propelled antiaircraft weapon. The project subsequently was designated Bumblebee. In December, the scientists completed their preliminary analysis and the Chief of Naval Operations approved a developmental program. That month, the OSRD and the Applied Physics Laboratory of Johns Hopkins University completed their withdrawal from the proximity fuze program to concentrate upon the guided missile phase of the antiaircraft problem. The fuze endeavor thus fell completely within the Bureau of Ordnance.

3 SEPTEMBER • Pilot Lt. Ralph D. Spaulding Jr., of Special Air Unit 1 assigned to Fleet Air Wing 7, lifted off in a PB4Y-1 Liberator for a drone mission from Winfarthing (Fersfield), England. The raid involved the drone, two control planes, and fighters along with navigational, frequency search

monitor, and photo aircraft. Spaulding set the radio control on the torpex-laden Liberator and parachuted to safety. Ens. James M. Simpson in a PV-1 Ventura controlled the Liberator's flight and attacked German U-boat pens on Heligoland Island. Simpson lost momentary view of the plane in a rain shower during the final alignment, and relying only upon the drone's television picture, aimed the plane into barracks near fuel dumps and shops on an airfield on Dune Island. The attackers lost reception just before impact when flak apparently struck the camera in the nose of the drone and thus proved unable to assess the damage.

3 SEPTEMBER • Task Group 12.5, Rear Adm. Allen E. Smith commanding, including *Monterey* (CVL 26), attacked Japanese installations on Wake Island. This was the fourth carrier raid on the atoll since the Japanese overran it.

6 SEPTEMBER • A contract was awarded to McDonnell Aircraft Corporation, for development of the LBD-1 Gargoyle radio-controlled low-wing glide bomb fitted with a rocket booster and designed for launching from carrier-based dive bombers and torpedo planes against enemy ships.

6 SEPTEMBER • The establishment of a Flight Safety Section in the Office of the Deputy Chief of Naval Operations (Air) expanded the scope of the aviation safety program. The section assumed responsibility for direction and supervision of the program.

6 SEPTEMBER • After wide-flung sweeps by Task Force 38, Vice Adm. Marc A. Mitscher commanding, the force arrived off Palau and began attacks against Japanese airfields and installations in the Western Caroline Islands. An unopposed fighter sweep disclosed extensive damage inflicted by earlier raids. *Independence* (CVL 22) commenced operations of an air group specifically trained for night work, marking the first time that a fully equipped night carrier operated with the fast carriers. Meanwhile, Task Group 38.4, Rear Adm. Ralph E. Davison commanding, launched a fighter sweep over Yap and continued the neutralization of Palau while Mitscher moved against the Philippines with strikes at airfields on Mindanão and in the Visayas.

9 SEPTEMBER • Task Force 38, Vice Adm. Marc A. Mitscher commanding, sent two days of fighter sweeps against Japanese airfields and port facilities on Mindanão, Philippines. Planes sank a transport in the Sulu Sea and two transports and a cargo ship in the Mindanão Sea, and aircraft from *Langley* (CVL 27) covered a surface group that decimated a Japanese coastal convoy off the west coast of Mindanão.

9 SEPTEMBER • Fleet Air Wing 17 moved forward to the Schouten Islands to direct patrol plane operations supporting the occupation by Southwest Pacific forces of Morotai in the Netherlands East Indies (Indonesia).

11 SEPTEMBER • The shift of the fighting in the South Pacific drove the transfer of Commander Fleet Air Wing 1 based on seaplane tender *Hamlin* (AV 15) from Espíritu Santo in the New Hebrides (Vanuatu) to Guam, to direct the operations of patrol squadrons in the Central Pacific.

11 SEPTEMBER • President Franklin D. Roosevelt and British Prime Minister Winston S. Churchill led a meeting named Octagon of the Allied combined chiefs of staff at Québec, Canada. The chiefs cancelled a planned attack on Yap, approved the advance of the date for the invasion of the Philippines from 20 December to 20 October, and the shifting of the assault from southern Mindanão to Leyte. Their decision occurred in large part because of the recommendation of Commander Third Fleet Adm. William F. Halsey Jr., who based his proposal on intelligence that indicated Japanese weakness in the central Philippines corroborated by a lack of aerial opposition—the Japanese preserved their forces to repel the landings. Ens. Thomas C. Tillar, USNR, of VF-2 from Carrier Air Group 2 embarked on board *Hornet* (CV 12), had crashed in an F6F-3 Hellcat near Apit Island off southwestern Leyte. Filipino freedom fighters rescued him and revealed to the pilot the vulnerable state of the Japanese defenses before his return via an SOC Seagull from heavy cruiser *Wichita* (CA 45). Octagon concluded on 16 September.

12 SEPTEMBER • Task Force 38, Vice Adm. Marc A. Mitscher commanding, launched strikes into 14 September against Japanese airfields and ports on Cebu, Negros, and Panay in the Visayas and Legaspi, Luzon in the Philippines, claiming the destruction of 26 enemy vessels.

12 SEPTEMBER • Task Group 38.4 and four escort carriers of Carrier Unit One, Rear Adm. William D. Sample commanding, began three days of preparatory aerial attacks for the occupation of Peleliu.

USMC 97976

A Marine F4U Corsair drops napalm against determined Japanese forces defending Peleliu in fall, 1944.

14 SEPTEMBER • Task Group 38.1, Vice Adm. John S. McCain commanding, detached from the main forces to attack Mindanão, Philippines, and to support Operation Trade Wind—landings the following day by the Army's 41st Division on Morotai, Netherlands East Indies (Indonesia).

15 SEPTEMBER • Aircraft of Task Group 38.4 and four escort carriers of Carrier Unit One, Rear Adm. William D. Sample commanding, supported Operation Stalemate II—the landing of the 1st Marine Division on Peleliu. The Japanese had prepared the main line of resistance inland from the beaches to escape naval bombardment, and three days of preliminary carrier air attacks in combination with intense naval gunfire failed to suppress the tenacious defenders. Through 18 September, the fleet carriers supported the landings and until the end of the month a total of ten escort carriers fought as Task Group 32.7, Rear Adm. Ralph A. Ofstie commanding. The Army's 81st Division later reinforced the Marines and, on 1 February 1945, the final Japanese forces surrendered. On 17 September, carriers also supported landings on Angaur, on 23 September at Ulithi, and on 28 September a shore-to-shore movement from Peleliu to Ngesebus assisted by Marine planes from Peleliu. On 24 September, VMF(N)-541 became the first squadron to arrive ashore.

18 SEPTEMBER • The Navy terminated the Pelican guided missile production program and returned the project to developmental status. Despite some success during the preceding six weeks, the decision stemmed from tactical, logistic, and technical problems.

21 SEPTEMBER • After the fighting at Morotai in the Netherlands East Indies (Indonesia), Task Group 38.1 rejoined the main body of fast carriers. The combined force launched two days of strikes on Clark and Nichols Fields on Luzon, shipping around Manila and Subic Bays and Cavite Island, and on a convoy off Luzon, followed on 24 September by additional raids on airfields, military installations, and shipping in the central Philippines. Planes sank 39 Japanese vessels including destroyer *Satsuki*.

27 SEPTEMBER • Special Task Air Group (STAG) 1 began a combat demonstration of TDR-1 assault drones from Stirling, Treasury Islands, during the first use of guided missiles in action in the Pacific. Ships had delivered the drones to the Russell Islands and they were then flown 45 miles to the Northern Solomons, stripped for pilotless flight, and armed with bombs of up to 2,000-pounds. At least one control operator in an accompanying TBM Avenger guided the pilotless aircraft by radio during attacks against heavily defended targets and directed the final assault by means of pictures received from the drones' nose-mounted television cameras. In the initial assault against Japanese antiaircraft guns emplaced in a beached freighter defending Kahili airstrip on South Bougainville in the Solomons, two of four TDR-1s struck the target ship.

30 SEPTEMBER • During September, carrier planes claimed the destruction of 893 Japanese aircraft and 67 ships totaling 224,000 tons.

1 OCTOBER • Patrol Squadrons (VP) and multi-engine bombing squadrons (VB) were redesignated patrol bombing squadrons (VPB).

2 OCTOBER • Lt. j.g. Stewart R. Graham, USCG, made the first Coast Guard demonstration of a helicopter rescue from the open sea off Manasquan Inlet, N.J. Graham, in an HNS-1 Hoverfly, hoisted aloft four men from two life rafts and lowered them safely to a 38- by 63-foot flight deck fitted to Coast Guard cutter *Governor Cobb* (WPG 181). Chief of BUAER Rear Adm. DeWitt C. Ramsey observed and expressed his approval of the demonstration.

7 OCTOBER • A new BUAER color specification went into effect, which provided seven different color schemes for aircraft depending upon their design and use. The most basic change concerned the use of overall glossy Sea Blue on carrier-based aircraft and seaplane transports, trainers, and utility planes. The basic nonspecular camouflage, semigloss Sea Blue above and nonspecular Insignia White below, was to be applied to patrol and patrol bombing types and to helicopters. The prescription regarding antisubmarine warfare identified two special camouflage schemes, Gull Gray on top and sides and Insignia White on bottom, or Insignia White all over (the selection depended upon the prevailing weather conditions and, since 19 July 1943, had been used by AirLant). Overall Aluminum was to be applied to landplane transports and trainers and landplane and amphibian utility aircraft, Orange Yellow on target-towing planes and primary trainers, and glossy Insignia Red on target drones. Provision allowed for the optional use by tactical commanders of special identification markings on combat aircraft, preferably with temporary paint.

10 OCTOBER • Task Force 38, Vice Adm. Marc A. Mitscher commanding, struck Japanese reinforcement staging areas in the opening blow of the campaign to liberate Leyte, Philippines. Aircraft from 17 carriers bombed airfields on Okinawa and other islands of the Ryūkyūs and sank 29 vessels. The following day, planes struck airfields on northern Luzon in preparation for raids on the Japanese bastion of Formosa (Taiwan). From 12 to 14 October the force then attacked ships, aerodromes, and industrial plants on Formosa and sank 22 vessels. These raids drew heavy Japanese aerial counterattacks and, on 13 October, a *kamikaze* suicide plane crashed *Franklin* (CV 13), and the next day *Hancock* (CV 19) received damage from bombs, but both ships continued. The destruction of Japanese air power on Formosa paved the way on 14 and 16 October for USAAF Boeing B-29 Superfortress raids on island aircraft plant and airfield facilities. On 14 October, the carriers launched a second raid on northern Luzon, and the next day, a sweep over the Manila area. These strikes in total destroyed an estimated 438 Japanese aircraft in the air and 366 on the ground and, in combination with other battles, effectively cleared the skies for landings on Leyte.

14 OCTOBER • The Navy directed Amphibious Forces Training Command, Pacific to form mobile air support training units to train carrier air groups and Marine squadrons in the techniques of close air support operations.

47012

Navy SB2C Helldivers from *Hancock* (CV 19) attack *Kumano* in Tablas Strait, off Mindoro Island, during the Battle of Leyte Gulf, 26 October 1944. The Japanese cruiser escaped despite three hits.

15 OCTOBER • Special Task Air Group (STAG) 1 launched four TDR-1 assault drones against Matupi Bridge near Simpson Harbor, Rabaul, New Britain. The drones took part in a coordinated attack by aircraft from Green Island including PBJ-1D Mitchells of VMB-423, F4U-1 and FG-1 Corsairs of VMF-218 and -222, and SBD-5 Dauntlesses of VMSB-244 and -341. The raid failed to hit the targets because of poor picture reception and pilot error.

17 OCTOBER • Commander Fleet Air Wing 10 arrived in Philippine waters on board seaplane tender *Currituck* (AVP 7) to direct patrol plane operations in support of landings on Leyte.

17 OCTOBER • Task Group 38.4, Rear Adm. Ralph E. Davison commanding, attacked Japanese installations at Legaspi and Clark Field, Luzon, in the Philippines.

17 OCTOBER • The Army's 6th Ranger Battalion landed on Dinagat and Suluan Islands at the entrance to Leyte Gulf to destroy Japanese installations capable of providing early warning of a U.S. attack. The Suluan garrison transmitted an alert that prompted Japanese Commander in Chief Combined Fleet Adm. Toyoda Soemu to order SHO-1—an operation to defend the Philippines. The raid thus helped to bring about the Battle of Leyte Gulf.

19 OCTOBER • Commander Fleet Air Wing 17 moved to Morotai in the Netherlands East Indies (Indonesia) to support operations against Japanese forces in the Philippines.

19 OCTOBER • President Franklin D. Roosevelt approved a plan providing for the acceptance of African American women in the women's Navy Reserves. The plan called for the immediate commissioning of a limited number of black women as administrative officers, and the subsequent enlistment of additional African American women.

20 OCTOBER • The Seventh Fleet, Vice Adm. Thomas C. Kinkaid commanding, landed four divisions of the

Sixth Army on Leyte, Philippines. Eighteen escort carriers organized in Task Units 77.4.1, 77.4.2, and 77.4.3 but known as Taffy 1, 2, and 3, respectively, supplemented the fast carriers by operations. Taffy 1 sailed southward off northern Mindanão, Taffy 2 off the entrance to Leyte Gulf, and Taffy 3 to the north off Samar. Japanese planes counterattacked the ships and a bomb damaged *Sangamon* (CVE 26) but she continued the fight.

20 OCTOBER • Special Task Air Group (STAG) 1 launched three TDR-1 assault drones against Japanese gun positions west of Ballale, Bougainville, in the Solomon Islands. One drone was lost, one made a hit with its bomb but crashed before striking a beached Japanese freighter—christened by the men involved "Kahili Maru"—equipped with antiaircraft guns off the airstrip at Kahili, and the final drone bombed and crashed the freighter.

21 OCTOBER • Task Group 38.2, Rear Adm. Gerald F. Bogan commanding, attacked Japanese ships and installations near Cebu, Masbate, Negros, and Panay in the Philippines.

21 OCTOBER • Marine Carrier Air Groups was established under Aircraft, Fleet Marine Force, Pacific, to direct the formation and training of Marine squadrons earmarked to operate from escort carriers. Plans called for the formation of six such groups, each composed of a fighter and a torpedo squadron. Four were to be assigned to ships and the remaining two to function as replacement and training groups.

23 OCTOBER • The Battle of Leyte Gulf began when Japanese Operation SHO-1 attempted to disrupt U.S. landings in the gulf. Commander Third Fleet Adm. William F. Halsey Jr. led nine fleet and eight light carriers. Commander Seventh Fleet Vice Adm. Thomas C. Kinkaid led 18 escort carriers organized in Task Units 77.4.1, 77.4.2, and 77.4.3 and known as Taffy 1, 2, and 3, respectively. Japanese fuel shortages compelled the dispersal of its fleet into the Northern (decoy), Central, and Southern Forces that converged separately on Leyte Gulf. Attrition had reduced the Northern Force's 1st Mobile Force, Vice Adm. Ozawa Jisaburō commanding, to carrier *Zuikaku* and light carriers *Chitose*, *Chiyōda*, and *Zuihō*. In the Sibuyan Sea, U.S. planes attacked the Central Force, Vice Adm. Kurita Takeo commanding, and sank battleship *Musashi* south of Luzon. Aircraft also attacked the Southern Force as it proceeded through the Sulu Sea, and sank destroyer *Wakaba* and damaged battleships *Fusō* and *Yamashiro*.

Commander CVG-15 Cmdr. David S. McCampbell and his wingman, Lt. j.g. Roy Rushing, flew F6F-3 Hellcats from *Essex* (CV 9), and broke up a formation of an estimated 60 Japanese aircraft, downing nine (claiming 15). McCampbell subsequently received the Medal of Honor for this and the action on 19 June. During a Japanese counterattack on Task Group 38.3, a bomb from a Yokosuka D4Y1 Type 2 Judy struck *Princeton* (CVL 23) and she was later scuttled. On 25 October, the Seventh Fleet turned back the Southern Force before daylight in the Battle of Surigao Strait.

The Central Force made a night passage through San Bernardino Strait and at daylight off Samar attacked Taffy 3, Rear Adm. Clifton A. F. Sprague commanding. Valiant rearguard efforts threw Kurita's ships into disarray and compelled his retirement despite the Japanese superiority in weight and firepower. Aircraft damaged battleships *Yamato* and *Kongō* and heavy cruisers *Chikuma*, *Chōkai*, and *Suzuya*. Japanese gunfire sank *Gambier Bay* (CVE 73), two destroyers and a destroyer escort; damaged *Kalinin Bay* (CVE 68), *Fanshaw Bay* (CVE 70), a destroyer and a destroyer escort; and straddled *St. Lo* (CVE 63), *White Plains* (CVE 66), and *Kitkun Bay* (CVE 71). *Kamikaze* planes sank *St. Lo* and damaged *Kalinin Bay*, *Kitkun Bay*, *Suwannee* (CVE 27), and *Santee* (CVE 29)—also torpedoed by submarine *I-56*—and missed *Sangamon* (CVE 26), *Petrof Bay* (CVE 80), and *White Plains*.

The Northern Force decoyed Halsey's Third Fleet beyond range to protect Taffy 3 but off Cape Engaño aircraft sank all four Japanese carriers, and *Chitose* with the assistance of cruiser gunfire. In addition, planes sank (some scuttled by the Japanese) heavy cruisers *Chikuma*, *Chōkai*, *Mogami*, and *Suzuya*; light cruisers *Abukuma* (by USAAF B-24 Liberators) *Kinu*, *Noshiro*, *Nowaki* (by gunfire) and *Tama* (also from submarine *Jallao* [SS 368]); and destroyers *Hatsuzuki* (by gunfire) *Hayashimo*, and *Uranami*; and damaged battleships *Yamato*, *Haruna*, and *Nagato*; heavy cruisers *Kumano*, *Myōkō*, and *Tone*; light cruiser *Yahagi*; and destroyers *Fujinami*, *Kiyoshimo*, and *Okinami*.

On 27 and 28 October, aircraft from the heavy carriers attacked airfields on Luzon and the Visayas, ships near Cebu on 28 October, and the next day, airfields on Luzon and vessels in Manila Bay. On 27 October, Allied aircraft from Tacloban assumed direct air support missions

238363

Kitkun Bay's (CVE 71) 5-inch gun makes a direct hit on a Japanese torpedo bomber attacking a carrier aft of her off Saipan, 18 June 1944.

700580

A Japanese suicide plane narrowly misses *Sangamon* (CVE 26) during the Battle of Leyte Gulf, 25 October 1944.

over Leyte and Samar, which two days later enabled the retirement of the escort carriers. During October, carrier aircraft claimed the destruction of 1,046 Japanese planes and warships totaling more than 300,000 tons. The Battle of Leyte Gulf effectively finished the Japanese surface fleet.

25 OCTOBER • In recognition of the difference in the functions performed, carrier aircraft service units and patrol aircraft service units operating at advanced bases were redesignated combat aircraft service units (forward), while those commands in the continental United States and Hawaiian Islands retained the original title.

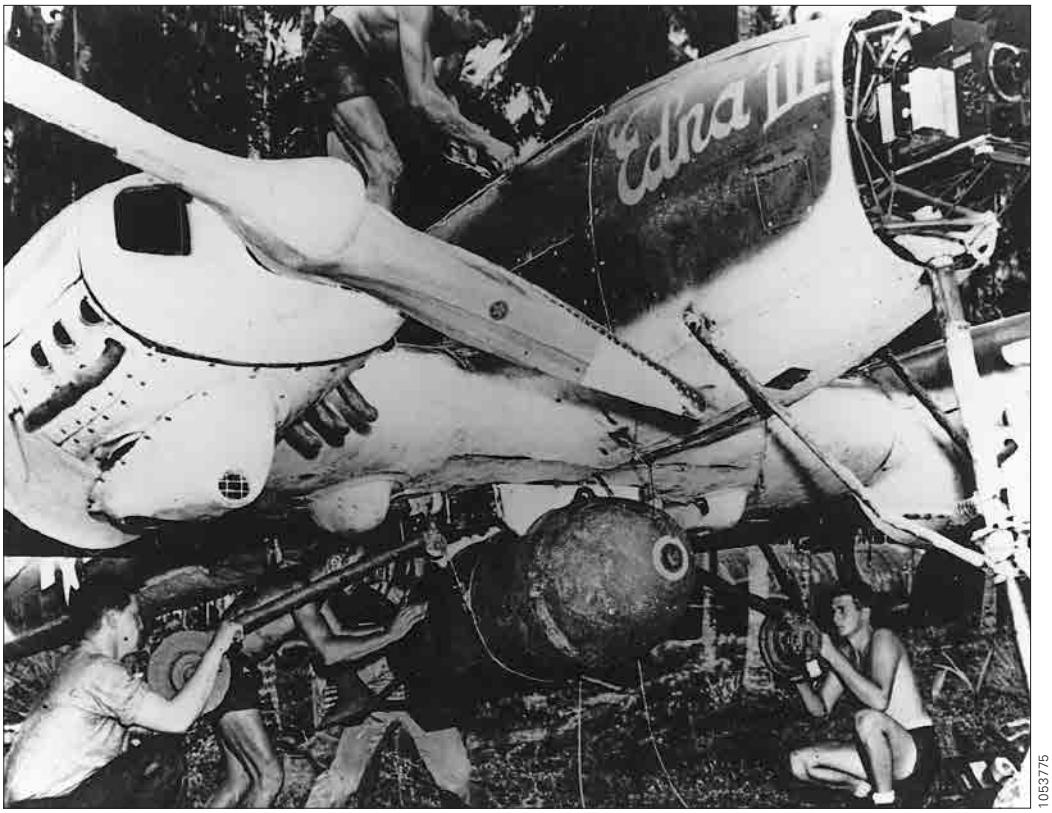
26 OCTOBER • Special Task Air Group (STAG) 1 concluded a month-long demonstration of the first use of guided missiles in the Pacific with a final attack of two TDR-1 assault drones against a lighthouse on Cape St. George, New Ireland, making one hit that demolished the structure. Twenty-nine of the 46 drones expended during the demonstration reached their target areas. In addition to the success against the lighthouse; nine attacked antiaircraft guns on beached ships and achieved six direct hits and two near misses; and 18 attacked other targets in the Shortlands and Rabaul areas and made 11 hits.

29 OCTOBER • Task Group 38.2, Rear Adm. Gerald F. Bogan commanding, attacked Japanese airfields and shipping in the Manila area, Philippines. Planes damaged heavy cruiser *Nachi*, which was sunk on 5 November. *Intrepid* (CV 11) launched a strike against Clark Field on Luzon. A suicide plane damaged the ship, but *Intrepid* continued in action. The following day, three *kamikaze*s attacked *Franklin* (CV 13) off Samar. The first two damaged the ship, while the third missed and crashed *Belleau Wood* (CVL 24). Both ships completed temporary repairs at Ulithi. Later, *Franklin* proceeded to Puget Sound Navy Yard at Bremerton, Wash., and *Belleau Wood* to Hunters Point, Calif.

5 NOVEMBER • Appalling weather and difficult terrain that delayed the development of airfields on Leyte, Philippines, and the requirement for continued carrier air support influenced the cancellation of a fast carrier strike on Tōkyō. Task Force 38, Vice Adm. John S. McCain commanding, began two days of carrier raids on airfields and shipping around Luzon and Mindoro. Planes from *Essex* (CV 9), *Lexington* (CV 16), and *Langley* (CVL 27) sank heavy cruiser *Nachi* and smaller vessels. Japanese retaliatory air strikes included a *kamikaze* that crashed *Lexington*, but the ship controlled the blaze and her guns shot down another suicide aircraft as it plunged toward *Ticonderoga* (CV 14). *Lexington* underwent repairs at Ulithi.

6 NOVEMBER • The recognition of the future importance of turbojet and turboprop powerplants prompted BUAER to request a study by the Naval Air Material Center of the requirements for a laboratory to develop and test such engines. This decision initiated action that consequently led to the establishment of the Naval Air Turbine Test Station, Trenton, N.J.

10 NOVEMBER • An estimated 3,000 tons of explosives on board ammunition ship *Mount Hood* (AE 11) exploded in Seeadler Harbor, Manus, Admiralty Islands. The blast damaged 36 nearby ships and landing craft including *Petrof Bay* (CVE 80) and *Saginaw Bay* (CVE 82), which suffered minor damage to their exteriors. The crew of *Saginaw Bay* helped care for the wounded.



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Sailors mount a 2,000-pound bomb on a TDR-1 assault drone in preparation for an attack.

11 NOVEMBER • Task Force 38, Vice Adm. John S. McCain commanding, attacked a Japanese reinforcement convoy of four transports and five destroyers in Ormoc Bay, Leyte, in the Philippines, sinking all but one destroyer. On 13 and 14 November, McCain shifted his strikes to the Manila area and central Luzon and sank light cruiser *Kiso*; destroyers *Akebono*, *Akishimo*, *Hatsuharu*, and *Okinami*; and 20 merchant and auxiliary ships. During 19 to 28 November, a group of escort carriers protected convoys from the Admiralty Islands against air and submarine attacks, and from 14 to 23 November another group protected convoys from Ulithi.

17 NOVEMBER • BUAER reported the continuation of technical studies to determine the feasibility of launching an adaptation of the USAAF JB-2 version of German V-l Buzz Bombs from escort carriers for attacks on enemy ships and shore targets. The modifications envisioned included the installation of radio controls and a radar beacon. This program subsequently developed the Loon.

23 NOVEMBER • The dissolution of Training Task Force Command enabled the relocation of its facilities, people, and equipment to other commands.

25 NOVEMBER • Task Groups 38.2 and 38.3, Rear Adms. Gerald F. Bogan and Frederick C. Sherman commanding, respectively, launched strikes against Japanese ships off central Luzon in the Philippines. In Dasol Bay, planes from *Ticonderoga* (CV 14) sank heavy cruiser *Kumano*. F6F Hellcats, SB2C Helldivers, and TBM-1C Avengers from *Essex* (CV 9), *Ticonderoga*, and *Langley* (CVL 27) attacked a convoy about 15 miles southwest of Santa Cruz off western Luzon and sank coast defense ship *Yasojima* (former Chinese light cruiser *Ping Hai*) and three landing ships. Aircraft from *Essex*, *Intrepid* (CV 11), and *Langley* sank additional vessels. Japanese suicide planes damaged *Essex*, *Intrepid*, *Hancock* (CV 19), and *Cabot* (CVL 28). A plane embarked on board *Independence* (CVL 22) accidentally crashed into the ship's island. All these ships continued in action.

27 NOVEMBER • *Commencement Bay* (CVE 105), Capt. Roscoe L. Bowman commanding, was commissioned as the first of her class built from the last U.S. escort carrier design at Tacoma, Wash.

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Vice Adm. Mark A. Mitscher pins the Distinguished Flying Cross on the Navy's second highest scoring ace, Lt. Cecil E. Harris.

29 NOVEMBER • A revision of the aircraft complement of *Essex* (CV 9)–class carrier air groups to 73 fighters, 15 bombers, and 15 torpedo planes reflected the changing character of the war. Fighters consisted of two squadrons of 36 planes each plus one for the carrier air group commander.

30 NOVEMBER • The headquarters of Fleet Air Wing 10 shifted to Jinamoc Island, Philippines.

30 NOVEMBER • During November, Task Force 38 claimed the destruction of 770 Japanese planes.

1 DECEMBER • Electronics Tactical Training Unit was established at NAS Willow Grove, Pa. The unit trained people of the Airborne Coordinating Group as instructors in the operation of all newer types of airborne electronics apparatus including search, navigation, identification, and ordnance radar.

7 DECEMBER • *Chourre* (ARV 1), Capt. Andrew H. Bergeson commanding, was commissioned as the first purpose-built aviation repair ship of the Navy at Baltimore, Md.

11 DECEMBER • During the year a steady decline in U-boat attacks in the Caribbean permitted a reduction of blimp operations over the southern approaches, and Fleet Airship Wing 5 was disestablished at Trinidad.

12 DECEMBER • Three Evacuation Squadrons (VE) were established in the Pacific Fleet from air-sea rescue squadron elements already providing evacuation services.

12 DECEMBER • Six escort carriers of Task Unit 77.12.1, Rear Adm. Felix B. Stump commanding, combined with Marine shore-based aircraft to support Army landings on the southwest coast of Mindoro, Philippines. From 12 to 14 December, planes covered the passage of transports and assault shipping through the Visayas, and, from 15 to 18 December, supported the landings. On the night of D-day, seaplanes also joined with operations from Mangarin Bay. During the morning watch on 15 December, antiaircraft fire shot down two Japanese suicide planes that crashed near *Marcus Island* (CVE 77). On 14 December, Task Force 38, Vice Adm. John S. McCain commanding, including seven heavy and six light carriers, began fighter sweeps over airfields on Luzon. The planes continued with successive combat air patrols that spread an aerial blanket over the area to effectively pin down Japanese aircraft on the island, and accounted for a major share of the estimated 341 enemy aircraft destroyed.

13 DECEMBER • Escort Carrier Force, Pacific, Rear Adm. Calvin T. Durgin commanding, was established for the administrative control of all escort carriers operating in the Pacific, except those assigned to training and transport duties.

14 DECEMBER • The rank of fleet admiral was established. The next day, Adms. Ernest J. King, William D. Leahy, and Chester W. Nimitz received promotions to the rank.

16 DECEMBER • Planes from Task Force 38 sank Japanese freighter *Oryoku Maru* in Subic Bay, Philippines. Pilots attacked unaware that the ship carried at least 1,619 Allied prisoners under shipment to Japan. The men killed included Cmdr. Francis J. Bridget of Patrol Wing 10. On 27 December 1944 and 9 January 1945, the survivors endured additional attacks by U.S. planes at Takao, Formosa (Taiwan), and only 497 prisoners reached Moji, Japan.

18 DECEMBER • A typhoon roared into the Third Fleet, Adm. William F. Halsey Jr. commanding, following the refueling of some of the ships. Destroyers *Hull* (DD 350), *Monaghan* (DD 354), and *Spence* (DD 512) capsized in the

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A tender hoists a PBM on board to service the Mariner.

high seas northeast of Samar, Philippines, and 21 other ships including *Cowpens* (CVL 25), *Monterey* (CVL 26), *Cabot* (CVL 28), and *San Jacinto* (CVL 30) of Task Force 38, and *Altamaha* (CVE 18), *Nehenta Bay* (CVE 74), *Cape Esperance* (CVE 88), and *Kwajalein* (CVE 98) of the replenishment group sustained damage, and 146 planes were swept or blown overboard, jettisoned, or crushed by debris or other aircraft torn lose from the carriers, battleships, and cruisers.

26 DECEMBER • A Japanese "Intrusion Force" attacked the U.S. beachhead at Mindoro, Philippines. PB4Y Liberators and PBM Mariners, together with USAAF Curtiss P-40 Warhawks, Republic P-47 Thunderbolts, Lockheed P-38 Lightnings, and North American B-25 Mitchells damaged heavy cruiser *Ashigara*; light cruiser *Oyodo*; destroyers *Asashimo*, *Kasumi*, and *Kiyoshimo*; and destroyer escorts *Kashi*, and *Kaya*. The Japanese bombarded the beachhead but motor torpedo boats intercepted the intruders. *PT-77* received damage, apparently from misidentification by U.S. planes, and *PT-223* sank *Kiyoshimo* off San Jose south of Manila.

28 DECEMBER • VMF-124 and -213 reported on board *Essex* (CV 9) at Ulithi. Their arrival marked the first Marine fighter squadrons to operate from fast carriers in combat.

30 DECEMBER • An amendment to the specification on aircraft color proscribed a color scheme for patrol and patrol bombing landplanes similar to that of carrier based airplanes—semigloss Sea Blue on top and bottom surfaces of wings and on all horizontal tail surfaces, and nonspecular Sea Blue on other tail surfaces and the fuselage.

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The carriers (from front) *Wasp* (CV 18), *Yorktown* (CV 10), *Hornet* (CV 12), *Hancock* (CV 19), and *Ticonderoga* (CV 14) form a powerful centerpiece amid an array of naval power at Ulithi, 8 December 1944.

1945

1 JANUARY • Carrier Training Squadron, Pacific was established in the Pacific Fleet to provide operational control over carriers employed in training carrier air groups out of Pearl Harbor, Territory of Hawaii, and San Diego, Calif. Two carrier divisions composed the squadron.

2 JANUARY • Eighteen fighter bomber squadrons (VBF) were established within the existing carrier air groups to adjust their composition to changing combat requirements in the Pacific.

2 JANUARY • The headquarters of Fleet Air Wing 17, based on seaplane tender *Tangier* (AV 8), began to direct patrol plane support of operations in Lingayen Gulf from San Pedro Bay, Philippines.

2 JANUARY • In spite of almost continuous harsh weather during the month, the Allies invaded Lingayen Gulf on western Luzon in the Philippines. The Japanese reacted vigorously and their planes attacked the invasion forces during the transit from Leyte Gulf. Task Force 38, Vice Adm. John S. McCain commanding, including seven heavy and four light carriers, a night group of one heavy and one light carrier, and a replenishment group with one hunter-killer and seven escort carriers, concentrated on the destruction of enemy air power and air installations. On 3 January, planes bombed Japanese airfields and ships at Formosa (Taiwan). On 6 January, strikes shifted to airfields and shipping at Luzon in response to Japanese suicide attacks, and on 9 January, the Pescadores and Ryūkyū Islands, claiming the destruction of more than 100 Japanese aircraft and 40,000 tons of merchant and small warships.

During the night of 9–10 January, Task Force 38 made a high-speed run through Luzon Strait into the South China Sea. The replenishment group passed through Balintang Channel. On 12 January, the carriers launched strikes along 420 miles of the Indochina coast. Planes sank training cruiser *Kashii*, 14 small warships, 10 tankers, and

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Antiaircraft fire shoots down a Japanese bomber over an *Essex* (CV 9)-class carrier, 1945.

16 transports and cargo vessels totaling 126,000 tons. The raiders also sank French colonial cruiser *Lamotte-Picquet* and surveying vessel *Octant* near the Japanese ships.

The force moved northward to evade a typhoon and, on 15 January, bombed Japanese targets at Hong Kong, along the Chinese coast, Hainan, and Formosa, and the next day concentrated on Hong Kong. The Americans suffered heavy losses in the face of robust resistance, but sank 62,000 tons of shipping. Inclement weather persisted, and the attackers left the South China Sea. On 20 January, they made a night-time run through Balintang Channel to strike Formosa, the Pescadores, and Okinawa. Japanese planes damaged *Ticonderoga* (CV 14) and *Langley* (CVL 27), but the next day aircraft raided the Ryūkyūs. During three weeks of action, the force claimed the destruction of more than 600 Japanese aircraft and 325,000 tons of shipping.

Seventeen escort carriers of Task Group 77.4, Rear Adm. Calvin T. Durgin commanding, protected the approach of the Luzon attack force to Lingayen Gulf. On 4 January, a *kamikaze* crashed *Ommaney Bay* (CVE 79) in the Northern Sulu Sea, igniting fueled aircraft on the flight deck that resulted in the deaths of 95 men and the scuttling of the escort carrier. Another *kamikaze* narrowly missed *Lunga Point* (CVE 94), and a bomb passed over seaplane tender *Half Moon* (AVP 26) but failed to explode. On 5 January, additional *kamikaze* and aerial attacks damaged *Manila Bay* (CVE 61) and *Savo Island* (CVE 78). From 7–9 January, planes conducted preliminary strikes in the assault area, on 9 January, covered the landings, and through 17 January, supported the inland advance of troops. Further aerial attacks damaged *Kitkun Bay* (CVE 71) and *Kadashan Bay* (CVE 76) on 8 January, and on 13 January, *Salamaua* (CVE 96).

6 JANUARY • The first detachment of Women Accepted for Volunteer Emergency Service (WAVES) arrived in the Territory of Hawaii. By the end of the war, 4,009 women served in the islands in the only post outside the continental United States to which the Navy permanently assigned women during World War II.

11 JANUARY • The Bureau of Ordnance assigned the first task on Project Bumblebee to the Applied Physics Laboratory. The action established the program for the development of a ram-jet powered, guided antiaircraft weapon from which the Talos, Terrier, and Tartar missiles eventually emerged.

21 JANUARY • Task Force 38, Vice Adm. John S. McCain commanding, attacked Japanese airfields and ships at Formosa (Taiwan), the Pescadores, and Sakishima Gunto and Okinawa in the Ryūkyūs. During the two-day raid, planes sank a guardboat and 22 merchantmen and fishing vessels and damaged installations. A Japanese aircraft glide-bombed *Langley* (CVL 27), and an accidental explosion of bombs carried by a TBM-1C Avenger of VT-7 damaged *Hancock* (CV 19). Two suicide planes crashed *Ticonderoga* (CV 14) and their attacks cost the ship 36 planes, 143 killed or missing, and 202 wounded including her skipper, Capt. Dixie Kiefer. *Ticonderoga* made for Ulithi for temporary repairs and then to Puget Sound Navy Yard at Bremerton, Wash. On 20 April, she completed repairs and, on 22 May, returned to Ulithi.

29 JANUARY • Planes from six escort carriers of Task Group 77.4, Rear Adm. William D. Sample commanding, covered Army landings at San Antonio near Subic Bay, Philippines; on 30 January on Grande Island at the entrance to the bay; and the following day at Nasugbu, south of the entrance to Manila Bay.

6 FEBRUARY • The Chief of Naval Operations directed the equipment of VPB-109, -123, and -124 of Fleet Air Wing 2 to employ Bat—Special Weapons Ordnance Device (SWOD) Mark 9—glide bombs in combat following a period of training at NAS Kaneohe Bay, Hawaiian Islands.

15 FEBRUARY • The disestablishment of the West Coast Wing of the Naval Air Transport Service facilitated the reassignment of its squadrons to the Pacific and Atlantic Wings.

16 FEBRUARY • Task Force 58, Vice Adm. Mark A. Mitscher commanding, including nine heavy and five light carriers and a night group of two heavy carriers launched the first carrier attack against Honshū, Japan, in preparation for Operation Detachment—landings on Iwo Jima in the Kazan Rettō (Volcano Islands) by the 4th and 5th Marine Divisions.

In addition to Navy aircraft, the carriers embarked 144 F4U-1D and FG-1 Corsairs from VMF-112, -123, -124, -213, -216, -217, -221, and -451. PB4Y-1 Liberators and PB4Y-2 Privateers and USAAF B-29 Superfortresses from the Marianas augmented carrier air patrols that swept the seas ahead of the ships to prevent their discovery. Planes bombed Japanese aircraft factories, airfields, and ships around the Tōkyō area. Heavy clouds, snow, and rain squalls impeded operations, but a momentary break in the weather enabled a major dogfight between U.S. and Japanese fighters east of the capital. On 17 February, foul weather persuaded Mitscher to cancel attacks and return to support the landings. Planes also flew neutralization strikes against the Bonin Islands.

Previous carrier raids and USAAF B-24 Liberator and Superfortress missions from the Marianas had weakened but warned the Japanese defenders, and the garrison prepared extensive defenses using the island's caves. The volcanic terrain limited the effectiveness of all but direct hits against these positions and the Marines sustained appalling casualties. On 19 February, naval aircraft that supported the landings included a flight of 24 F6F Hellcats and 24 Marine Corsairs, led by Lt. Col. William A. Millington, USMC, that attacked the Japanese in double-column approaches. The planes broke by division to port and starboard, dropped napalm on their initial runs, and made subsequent rocketing and strafing passes. On this date, 606 planes flew 765 sorties, dropped 1,558 bombs and 104 napalm tanks, and fired 2,254 rockets.

On 25 February, Mitscher returned for a second strike on Tōkyō during harsh weather, followed, on 1 March, with raids on Okinawa and the Ryūkyūs, and then retired to Ulithi, leaving in his wake the destruction of an estimated 648 Japanese aircraft and 30,000 tons of merchant shipping. Task Group 52.2, Rear Adm. Calvin T. Durgin commanding, commenced the Iwo Jima campaign with nine escort carriers, later augmented by one night heavy carrier and two additional escort carriers. From 16–18 February, Durgin dispatched preliminary air strikes against Iwo Jima, and from 19 February – 11 March, these planes supported the Marines and attacked Bonin Islands airstrips.

Planes also protected ships from Japanese submarine attacks including *kaiten* human-guided suicide torpedoes. On 26 February, FM-2 Wildcats and TBM-1C Avengers, embarked on board *Anzio* (CVE 57) and *Tulagi* (CVE 72), sank submarines *I-368* (transporting a *kaiten*) and *RO-43* in separate attacks. Aircraft of Task Group 50.5 operating

from the Marianas conducted shipping reconnaissance and air-sea rescue between Japan and Iwo Jima, and offensive screens for carrier raids and expeditionary forces. From 28 February – 8 March, patrol planes of Fleet Air Wing 1 carried out similar operations from tenders anchored in the lee of Iwo Jima.

On 26 February, two OY-1 Sentinels of VMO-4 and -5 flew ashore from *Wake Island* (CVE 65), and two days later, the balance of the squadrons began to operate from airstrips while under artillery and mortar fire. On 6 March, USAAF North American P-51 Mustangs and Northrop P-61 Black Widows arrived from Saipan, followed two days later by VMTB-242. These aircraft flew day and night combat air patrols and provided all air support upon the 11 March departure of the escort carriers.

Japanese aerial counterattacks included five suicide planes and a bomber that damaged *Saratoga* (CV 3) on 21 February with a loss of 123 men killed or missing. She made for Eniwetok for temporary repairs and then to Puget Sound Navy Yard at Bremerton, Wash., and never returned to action. A *kamikaze* crashed *Bismarck Sea* (CVE 95) and triggered fires and ammunition explosions that led to the loss of the ship and 318 men. Another suicide plane damaged *Lunga Point* (CVE 94), and a bomb struck *Langley* (CVL 27). On 4 March, a crippled B-29 named *Dinah Might* made the first of more than 2,251 Superfortress emergency landings on Iwo Jima by the end of the war. The campaign included the use of altitude-determining radar on board LSTs, and a night fighter director in the organization of the air support commander. On 16 March, Iwo Jima was declared secured.

19 FEBRUARY • Commander Fleet Air Wing 1 went to sea on board seaplane tender *Hamlin* (AV 15) to direct patrol squadrons in support of the fighting on Iwo Jima, and remained in the area until the island was secure.

26 FEBRUARY • The headquarters of Fleet Air Wing 17 deployed to Clark Field on Luzon, Philippines.

3 MARCH • The Naval Air Transport Service was reorganized and established as a fleet command with its headquarters at NAAS Oakland, Calif. The service operated under the immediate direction of the Commander in Chief and Chief of Naval Operations.

3 MARCH • The Naval Air Training Command incorporated the Naval Air Technical Training Command.

6 MARCH • Ens. Jane Kendeigh became the first Navy flight nurse to serve in a combat zone when she reached Iwo Jima, Volcano Islands. The aircraft on which she arrived took Japanese mortar fire during its landing.

7 MARCH • The commanding officer of CGAS Floyd Bennett Field, N.Y., reported to BUAER the successful test of a dunking sonar suspended from an XHOS-1 helicopter.

7 MARCH • Pilot Frank N. Piasecki and copilot George N. Towson made the first flight of the tandem rotor XHRP-X transport helicopter at P-V Engineering Forum, Sharon Hill, Pa.

8 MARCH • A PBY-5A Catalina launched a rocket-powered Gorgon air-to-air missile that achieved an estimated speed of 550 mph in its first powered test flight. Lt. Cmdr. Moulton B. Taylor directed the experiment off NAS Cape May, N.J.

11 MARCH • Yokosuka P1Y Ginga (Frances) land attack planes flew from Kanoya, Japan, to attack U.S. ships at their Ulithi anchorage. One Frances crashed *Randolph* (CV 15) and killed 25 men and wounded 106. Another bomber slammed into Sorlen Island. Salvage vessel *Current* (ARS 22) sustained damage during a collision with the carrier while firefighting. *Randolph* completed repairs at the atoll.

17 MARCH • The Naval Air Transport Service received responsibility for evacuating wounded sailors and Marines.

18 MARCH • Task Force 58, Vice Adm. Marc A. Mitscher commanding, supported Operation Iceberg—the invasion of Okinawa in the Ryūkyū Islands. Through 22 March, ten heavy and six light carriers launched raids against Japanese airfields and shipping at Kyūshū and Honshū, Japan, claiming the destruction of 482 enemy aircraft by aerial attack and 46 by antiaircraft fire. Japanese planes lashed the ships and a Mitsubishi G4M1 Type 1 Betty crashed close aboard *Intrepid* (CV 11), killing two men and wounding 43. A dud bomb inflicted minor damage on *Enterprise* (CV 6) and the ship later sailed to Ulithi for repairs. Three Yokosuka D4Y1 Type 2 (Judy) dive bombers attacked *Yorktown* (CV 10) during which a bomb from the third plane damaged the ship. The next day, carrier planes attacked targets from Kure to

Kōbe and Osaka, destroyed incomplete submarine *I-205* in drydock, and damaged 14 warships.

Off Shikoku, a suicide plane and a bomber damaged *Wasp* (CV 18), killing 101 men and wounding 269, but for several days the ship continued in action before retiring for repairs. A Japanese bomber dropped two 550-pound bombs on *Franklin* (CV 13) that ignited fires and exploded ordnance and fuel among aircraft spotted on the flight deck or parked below. Despite 724 men killed or missing and 265 wounded, after brief tows, *Franklin* sailed under her own power to New York, N.Y.

On 21 March, 16 Bettys carrying MXY7 *Ohka* (Cherry Blossom) Model 11 flying bombs attacked, but fighters intercepted forcing them to prematurely release their *Ohka*s. Two days later, Task Force 58 began pre-assault strikes on Okinawa, and carrier aircraft neutralized airfields on the surrounding islands, supported ground operations, and intercepted air raids. Task Group 52.1, Rear Adm. Calvin T. Durgin commanding, including 18 escort carriers, took part in the preliminary strikes, and on 25 and 26 March, supported landings on Kerama Rettō and provided close air support. In late April, *Block Island* (CVE 106) and *Gilbert Islands* (CVE 107) arrived with MCVG-1 and -2, consisting of VMF-511 and VMTB-233, and of VMF-512 and VMTB-143, respectively, marking the combat debut of Marine air support carriers. Beginning on 3 April, OY-1 Sentinels of VMO-2, -3, -6, and -7 periodically operated ashore.

From 26 March – 20 April and from 3 – 25 May, Task Force 57, Vice Adm. Sir H. Bernard Rawlings, RN, commanding, fought south of Okinawa. At times British carriers *Formidable* (67), *Illustrious* (87), *Indefatigable* (10), *Indomitable* (92), and *Victorious* (38) launched strikes at airfields on Formosa (Taiwan) and Sakishima Gunto and intercepted air raids. The British carriers' armored flight decks enabled their survival against *kamikaze*s.

On 26 March, the commander of Fleet Air Wing 1, based on seaplane tender *Hamlin* (AV 15), arrived at Kerama Rettō to direct patrol squadron operations. On 1 April, Marines and soldiers established a beachhead on western Okinawa and captured an airfield at Yontan (Yomitan), from which six days later aircraft began defensive patrols and close air support missions. On 3 April, two *kamikaze*s damaged *Wake Island* (CVE 65) southeast of Okinawa, and although the crew escaped without casualties, she departed for repairs.

On 6 April, the Japanese launched the first of a series of ten mass *kamikaze* attacks, interspersed with smaller raids and named *Kikusui* (Floating Chrysanthemum) No. 1, against Allied ships operating off Okinawa. These attacks involved 1,465 aircraft through 28 May. The second of two *kamikaze*s damaged *San Jacinto* (CVL 30). A U.S. fighter crashed on board *Chenango* (CVE 28) and started fires among the aircraft spotted for a strike. The carrrier left the area two days later.

The Japanese dispatched the First Diversion Attack Force, including battleship *Yamato*, across the East China Sea toward Okinawa to lure U.S. carriers from the island and to facilitate *kamikaze* attacks. Submarines *Hackleback* (SS 295) and *Threadfin* (SS 410) and a plane from *Essex* (CV 9) sighted and reported the enemy ships. Lt. James R. Young, USNR, and Lt. j.g. R. L. Simms, USNR, of VPB-21 piloted two PBM-3D Mariners that shadowed the ships and assisted in guiding aircraft toward them. On 7 April, carriers launched 386 planes that sank *Yamato*, light cruiser *Yahagi*, and destroyers *Asashimo*, *Hamakaze*, *Isokaze*, and *Kasumi*, and damaged destroyers *Fuyuzuki*, *Hatsushimo*, *Suzutsuki*, and *Yukikaze*. Antiaircraft fire downed ten U.S. planes. *Kamikaze*s took advantage of the diversion and a plane crashed into *Hancock* (CV 19), but she continued the fight despite the loss of 62 men killed and 71 wounded.

On 11 April, Japanese planes damaged *Enterprise* and *Essex*. On 16 April, a *kamikaze* crashed *Intrepid*, and the next day the ship departed for repairs at San Francisco, Calif. On 17 April, Lt. Eugene A. Valencia, USNR, in his VF-9 F6F-3 Hellcat embarked on board *Yorktown* (CV 10), led a combat air patrol and shot down at least six attackers. He subsequently received the Navy Cross. On 4 May, two *kamikaze*s attacked *Sangamon* (CVE 26) and the ship sailed for repairs to Norfolk, Va.

On 11 May, two *kamikaze*s tentatively identified as a Mitsubishi A6M Type 0 and a Judy crashed flagship *Bunker Hill* (CV 17), which suffered 353 men killed, 43 missing, and 264 wounded. Mitscher shifted his flag to *Enterprise* and *Bunker Hill* made for repairs to Puget Sound Navy Yard, Bremerton, Wash. On 13 and 14 May, carrier aircraft attempted to blunt these counterattacks by raiding airfields on Kyūshū and Shikoku. A *kamikaze* crashed *Enterprise* on 14 May, killing 14 men and wounding 68. The next day, Mitscher shifted his flag to *Randolph* (CV 15) and *Enterprise* sailed to Puget Sound for repairs. On 6 June, a Zeke crashed *Natoma Bay* (CVE 62) and she made for San Diego, Calif.

On 27 May, a change in command from the Fifth Fleet, Adm. Raymond A. Spruance commanding, to the

USMC 129356

A Marine F4U Corsair fires a full salvo of eight rockets at a target on Okinawa, 1945.

Third Fleet, Adm. William F. Halsey Jr. commanding, took place that adjusted all task number designations from the 50s to the 30s—the first designations are used throughout this campaign narrative. On 18 June, Japanese artillery on Okinawa killed Commander Tenth Army Lt. Gen. Simon B. Buckner Jr., USA. Pilot Maj. Gen. Roy S. Geiger, USMC, assumed temporary command of the Tenth Army until his relief on 23 June by Gen. Joseph W. Stilwell, USA.

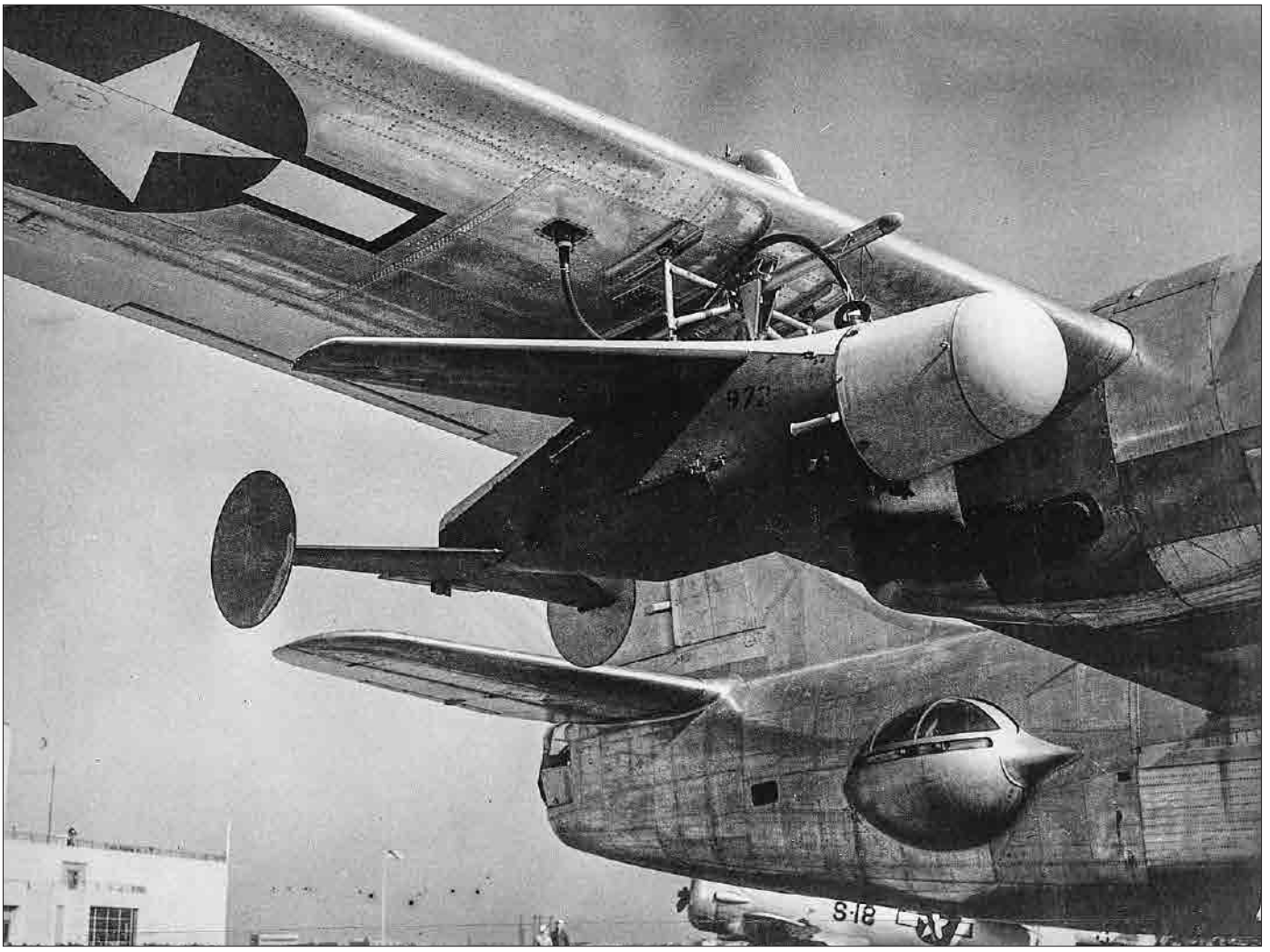
On 21 June, the Americans declared Okinawa secured but the aerial counterattacks continued. A *kamikaze* damaged seaplane tender *Curtiss* (AV 4) and she retired for repairs. A second *kamikaze* damaged *Kenneth Whiting* (AV 14). Carrier air support—more than 40,000 combat sorties, the claimed destruction of 2,516 Japanese aircraft, 8,500 tons of bombs dropped, and 50,000 rockets fired—ensured the success of Iceberg. Marine squadrons ashore claimed the destruction of another 506 Japanese aircraft and expended 1,800 tons of bombs and 15,865 rockets. Many ships fought for long periods with *Essex* logging 79 consecutive days in battle. The fighting cost the Navy 763 aircraft and 36 ships and craft sunk and 368 damaged. At least 4,907 men on board these ships were killed or missing and 4,824 wounded.

21 MARCH • BUAER awarded a contract for 100 experimental liquid-fueled anti-*kamikaze* Lark missiles to the Ranger Engine Division of Fairchild, initiating the development of rocket-powered surface-to-air guided missiles.

27 MARCH • Ninety-four USAAF B-29 Superfortresses dropped mines provided by the Navy in Shimonoseki Strait and the waters of Suo Nada, Japan, to begin Operation Starvation—an aerial minelaying campaign to reduce the flow of merchant shipping that supplied the Japanese home islands. This operation and the six raids that followed into 12 April also supported the fighting for Okinawa, and additional minelaying runs then continued until the end of the war.

14 APRIL • The commander of Fleet Air Wing 10 arrived at Puerto Princessa, Palawan, Philippines, to direct patrol plane operations against Japanese ships in the South China Sea and along the Indochina coast.

20 APRIL • A typhoon damaged *Corregidor* (CVE 58) while she hunted Japanese submarines as part of Task Group 12.3 east of the Marianas.



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A Bat radar-guided glide bomb is mounted under the wing of a PB4Y-2 Privateer. The weapon carried an internal 1,000-pound bomb.

23 APRIL • Squadron skipper Lt. Cmdr. George L. Hicks of VB-109 led PB4Y-2 Privateers that launched two Special Weapons Ordnance Device (SWOD) Mark 9 Bat glide bombs against Japanese ships in Balikpapan Harbor, Borneo, Netherlands East Indies (Indonesia). The attack marked the first combat employment of the only automatic homing bomb used by the Navy in World War II. Both devices proved defective and missed their targets. Five days later, Hicks led two Privateers in a second foray against Balikpapan. The bombers released three Bats against a large transport. Two of the bombs dove to either side of the vessel and sank two smaller freighters, while the third executed a sharp right turn to strike a large oil storage tank a quarter mile away in the Pandanseri Refinery. The squadron changed bases several times during the remainder of the war and continued to launch Bats with varying degrees of success.

1 MAY • CVBG-74 was established at NAAF Otis Field, Mass. This, the Navy's first large carrier air group, later served on board *Midway* (CVB 41).

2 MAY • Lt. August Kleisch, USCG, flying an HNS-1 Hoverfly made the first U.S. helicopter rescue when he saved 11 Canadian airmen marooned in Northern Labrador about 125 miles from Goose Bay.

4 MAY • Fleet Air Wing (FAW) 18, Rear Adm. Marshall R. Greer commanding, was established at Guam. The wing took over the operational responsibilities in the Marianas area previously held by FAW-1.

8 MAY • The Allies celebrated V-E (Victory in Europe) Day.

9 MAY • German submarine *U-249* raised the black surrender flag to a PB4Y-2 Privateer of Fleet Air Wing 7 near the Scilly Islands off Lands End, England. The incident marked the surrender of the first U-boat after the end of combat in Europe.

10 MAY • In a crash program to counter Japanese MXY7 *Ohka* (Cherry Blossom) Model 11 flying bombs, the Naval Aircraft Modification Unit received authorization to develop a ship-to-air guided missile—dubbed Little Joe—powered by a standard JATO unit.

19 MAY • The Office of Research and Inventions was established in the Office of the Secretary of the Navy to coordinate and disseminate to all bureaus full information with respect to all naval research, experimental, test, and developmental activities. The office also supervised and administered all Navy Department action relating to patents, inventions, trademarks, copyrights, and royalty payments. The directive transferred the Naval Research Laboratory and the Special Devices Division of BUAER to the newly established office.

28 MAY • The Commander, Kodiak Sector, Alaskan Sea Frontier, dispatched three PBYs from Fleet Air Wing 1 and one Catalina from NAS Kodiak via Anchorage to Fairbanks to assist in evacuating people threatened by rising floodwaters of the Yukon River. The Catalinas returned from their humanitarian mission on 31 May.

5 JUNE • Off Okinawa, a typhoon struck the Third Fleet, Adm. William F. Halsey Jr. commanding. The heavy seas damaged 36 ships including *Hornet* (CV 12), *Bennington* (CV 20), *Belleau Wood* (CVL 24), *San Jacinto* (CVL 30), *Windham Bay* (CVE 92), *Salamaua* (CVE 96), *Bougainville* (CVE 100), and *Attu* (CVE 102). Inadequate weather reporting and communications hampered the admirals' responses; however, a court of inquiry found Halsey, Vice Adm. John S. McCain, and Rear Adms. Donald B. Beary and Joseph J. Clark negligent in their implementation of precautions learned as a result of the 18 December 1944 typhoon, noting a "remarkable similarity between the situations, actions and results" of the admirals concerning the two storms.

5 JUNE • Orders resulting from the end of the war in Europe called for the disestablishment of 4 patrol wings and 23 patrol, 5 inshore patrol, and 7 composite squadrons operating in the Atlantic, and for the redeployment of 7 patrol squadrons from the Atlantic to the Pacific.

10 JUNE • Following the German surrender in Europe, Fleet Air Wing 15 departed from NAS Port Lyautey, Morocco, for NAS Norfolk, Va.

10 JUNE • During May and June, raids by PB4Y-1 Liberators, PB4Y-2 Privateers, and PBM Mariners forced Japanese ships sailing in Korean waters to operate only by night and shelter by day in small protected anchorages. On this date, PB4Y-2s of VPB-118 from Okinawa flew the first aerial minelaying mission by Privateers. The planes were to drop mines in Pusan (Busan) harbor to drive Japanese vessels into the open sea to facilitate attacks against them and to overextend Japanese minesweeping efforts. Heavy flak from enemy warships in Tsushima Strait persuaded aircrews to shift their minelaying to the coastal waters between Seigan-To and Shinchi-To. The raids continued through 1 July with varying degrees of success.

12 JUNE • The Tenth Fleet was disestablished.

13 JUNE • A ramjet engine produced power in supersonic flight in a test conducted by the Applied Physics Laboratory at Island Beach, N.J. A booster of four 5-inch high-velocity aircraft rockets launched the ramjet unit that flew a range of 11,000 yards.

15 JUNE • Fleet Airship Wing 2 was disestablished at NAS Richmond, Fla.

15 JUNE • Experimental Squadrons XVF-200 and XVJ-25 were established at NAS Brunswick, Maine. The squadrons provided flight facilities for evaluating and testing tactics, procedures, and equipment for use in special defense tasks under the direct operational control of COMINCH, particularly those concerned with defense against Japanese suicide planes.

16 JUNE • Naval Air Test Center, Patuxent River was established to be responsible for the aviation test functions formerly assigned to NAS Patuxent River, Md.

20 JUNE • Task Group 12.4, Rear Adm. Ralph E. Jennings commanding, including *Lexington* (CV 16), *Hancock* (CV 19), and *Cowpens* (CVL 25), sailed from NS Pearl Harbor, Hawaiian Islands, to Leyte, Philippines. On this date, Jennings launched five strikes against Japanese positions on Wake Island, marking the fifth carrier raid there since the Japanese overran the island.

27 JUNE • Fleet Air Wing 16 was disestablished at Recife, Brazil.

30 JUNE • Three escort carriers of Task Group 78.4, Rear Adm. William D. Sample commanding, supported landings by the Australian 7th Division at Balikpapan, Borneo, in the Netherlands East Indies (Indonesia). On 1 July, the Australians landed and, through 3 July, the carriers launched close air support missions, local combat air patrols, and strikes against Japanese installations.

10 JULY • Task Force 38, Vice Adm. John S. McCain commanding, initially composed of 14 carriers, launched a series of raids against Japanese airfields, ships, and installations from Kyūshū to Hokkaido, Japan. A replenishment group and an antisubmarine group each included escort carriers. After 16 July, Task Force 37, Vice Adm. Sir H. Bernard Rawlings, RN, commanding, including British carriers *Victorious* (38), *Formidable* (67), and *Implacable* (86) reinforced the Americans. *Indefatigable* (10) arrived eight days later.

The attack began with strikes on airfields in the Tōkyō plains area. The Japanese camouflage and dispersal of most of their aircraft reduced the aerial opposition encountered but also diminished the results obtained. On 14 and 15 July, harsh weather compelled the shift of attacks to airfields, vessels, and rail targets in northern Honshū and Hokkaido. These strikes wrought havoc with the vital shipment of coal across the Tsugaru Strait. On 17 July, the planes returned to bomb targets around Tōkyō, and night combat air patrols of planes from *Bon Homme Richard* (CV 31) protected U.S. and British ships that bombarded the industrialized Mito-Hitachi area of Honshū. The following day, the carriers launched aircraft against the naval station at Yokosuka and airfields near Tōkyō, sinking eight Japanese ships including training cruiser *Kasuga* and escort destroyer *Yaezakura*, and damaging five vessels including battleship *Nagato*. On 19 July, planes damaged battleship *Haruna* and carriers *Amagi* and *Katsuragi*.

13 JULY • Capt. Ralph S. Barnaby, commanding officer of the Johnsville Naval Aircraft Modification Unit, Pa., reported to BUAER that an LBD-1 Gargoyle air-to-surface missile completed five satisfactory runs in a series of 14 test flights including two at service weight.

14 JULY • Fleet Air Wing 12 was disestablished at NAS Key West, Fla.

14 JULY • Commander Fleet Air Wing 7 embarked on board seaplane tender *Albemarle* (AV 5) at Avonmouth, England, to transfer the wing's headquarters to NAS Norfolk, Va.

14 JULY • Commander Fleet Air Wing 1, embarked on board seaplane tender *Norton Sound* (AV 11), set up the wing's headquarters at Chimu Wan, Okinawa, and directed patrol plane operations over the East China Sea, Yellow Sea, and Japanese coastal waters from there until the end of the war.

15 JULY • Fleet Airship Wing 4 was disestablished at Recife, Brazil.

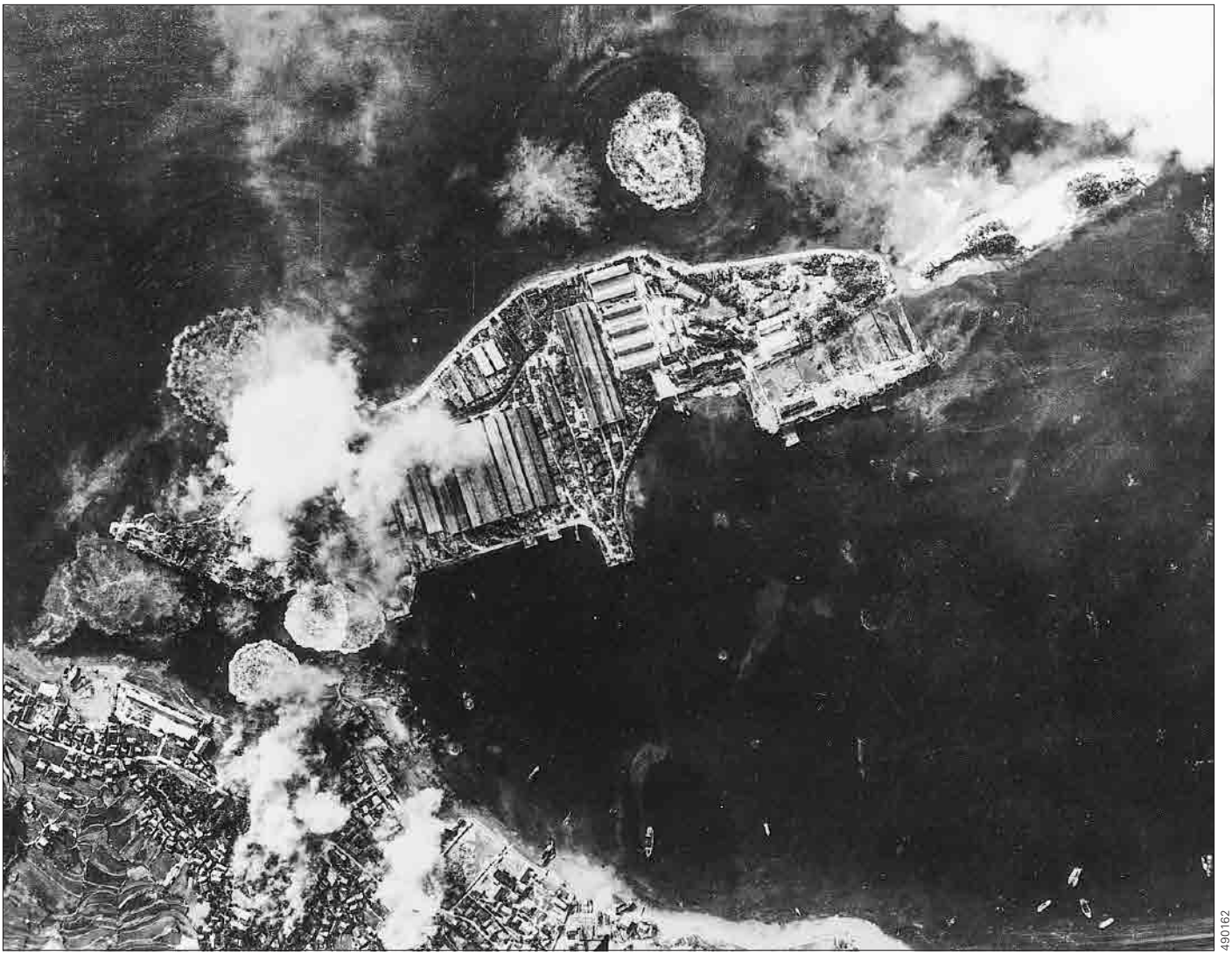
18 JULY • *Wasp* (CV 18) returned to action after repairs and overhaul by launching air strikes against Japanese targets on Wake Island, marking the sixth carrier raid there since the Japanese overran the island.

19 JULY • Fleet Air Wing 9 was disestablished at NAS New York, N.Y.

20 JULY • A rocket-propelled surface-to-air missile dubbed Little Joe made two successful flights at the Applied Physics Laboratory at Johns Hopkins University test station, Island Beach, N.J.

20 JULY • Fleet airborne electronics training units were established to train airborne early warning sailors in the theory, operation, and maintenance of their equipment.

20 JULY • The first of 16 PB-1W Flying Fortresses began training operations with the establishment of VPB-101 at NAS Willow Grove, Pa., under Project Cadillac II. Japanese suicide plane attacks convinced the Navy of the need for aircraft of adequate range and size to operate as flying combat information centers for airborne early warning



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Planes of the Third Fleet savage Japanese ships at Kure during a sweep along the Inland Sea of Japan, July 1945.

and air control. The introduction of the modified bombers initiated the Navy's contribution toward what later became airborne warning and control systems (AWACS).

24 JULY • Task Force 38, Vice Adm. John S. McCain commanding, attacked Japanese airfields and shipping along the Inland Sea and northern Kyūshū, supported by USAAF long-range strikes. Carrier planes flew 1,747 sorties and sank 21 ships including battleship-carrier *Hyūga*, heavy cruiser *Tone*, training cruiser *Iwate*, and target ship *Settsu*, and damaged 17 vessels. The carriers repeated the sweep on 25, 28, and 30 July. Also, on 28 July, planes struck targets between Nagoya and northern Kyūshū. Ships sunk included battleship *Haruna*, battleship-carrier *Ise*, training ship *Izumo*, heavy cruiser *Aoba*, light cruiser *Oyodo*, escort destroyer *Nashi*, submarine *I-404*, and submarine depot ship *Komahashi*. Additional vessels sustained damage.

Task Force 32, Rear Adm. Jesse B. Oldendorf commanding, including four escort carriers, covered minesweeping operations in the East China Sea. Planes attacked vessels off the mouth of the Yangtze River but failed to locate lucrative targets. On 29 July, night combat air patrols and spotters from *Bon Homme Richard* (CV 31) supported U.S. and British ships during a two-day bombardment of Hamamatsu, Honshū.

On 1 August, the carriers sailed southward to evade a typhoon. They launched raids on 9 and 10 August against the Honshū-Hokkaido area and, on 13 August, against Tōkyō. These raids were intended to defeat enemy attempts to concentrate planes for further suicide attacks and to

repel an Allied invasion. On 15 August, Commander Third Fleet Adm. William F. Halsey Jr. announced the end of the war. McCain cancelled follow-up strikes and recalled the attackers. The first raid of the day had hit Tōkyō and 15 to 20 Japanese fighters intercepted six F6Fs of VF-88, embarked on board *Yorktown* (CV 10), over an airfield at Tokurozama. The Americans claimed nine enemy planes and lost four Hellcats. The second wave approached the coastline, but heeded McCain's recall, jettisoned their ordnance and returned.

24 JULY • Marine planes flying from *Vella Gulf* (CVE 111) attacked Japanese positions on Pagan Island in the Mariana Islands, and two days later hit Rota in the same island group.

28 JULY • Fleet Air Wing 15 was disestablished at NAS Norfolk, Va.

1 AUGUST • Task Group 12.3 including *Cabot* (CVL 28) bombed and bombarded Wake Island. This was the seventh carrier raid there since the island fell to the Japanese on 23 December 1941.

4 AUGUST • Fleet Air Wing 7 was disestablished at NAS Norfolk, Va.

6 AUGUST • *Intrepid* (CV 11) sailed en route from NS Pearl Harbor, Hawaiian Islands, to Task Force 38 off Japan. On this date, she launched a strike against Japanese installations on Wake Island, marking the eighth carrier raid on the island since it fell to the Japanese.

6 AUGUST • Task Group 95.3, Rear Adm. Calvin T. Durgin commanding, including *Makin Island* (CVE 93), *Lunga Point* (CVE 94), and *Cape Gloucester* (CVE 109), covered cruisers operating in the East China Sea by launching raids on Japanese vessels in the harbor at Tinghai (Qinghai), China.

9 AUGUST • Naval aviator Cmdr. Frederick L. Ashworth participated in dropping the second atomic bomb, *Fat Man*, on the Japanese from a USAAF Boeing B-29 Superfortress named *Bockscar*. Ashworth had supervised and coordinated the field tests of the bomb. Dense smoke rising from a bombing raid two days previously shrouded the original target of Kokura and the strike diverted to the secondary target of Nagasaki on Kyūshū.

14 AUGUST • Japan accepted the terms of unconditional surrender and the Allies celebrated V-J (Victory in Japan) Day—15 August in the Western Pacific. On 27 August, ships of the Third Fleet, Adm. William F. Halsey Jr. commanding, steamed into Sagami Wan outside the entrance to Tōkyō Bay, Japan. Aircraft carriers launched reconnaissance missions over the Japanese homeland from outside the bay. On 2 September, the Japanese formally surrendered on board battleship *Missouri* (BB 63) in Tōkyō Bay. During the final carrier actions of World War II, naval aviation claimed the destruction of 1,223 Japanese aircraft, including more than 1,000 on the ground, and sank 285,000 tons of shipping.

21 AUGUST • The Asiatic Wing, Naval Air Transport Service, was established at NAS Oakland, Calif., Capt. Carl F. Luethi commanding. The service operated and maintained air transport support of establishments and units in the Western Pacific and Asiatic theaters. Early in September, the wing's headquarters was established on Samar, Philippines, and on 15 November shifted to NAB Agana, Guam.

10 SEPTEMBER • *Midway* (CVB 41), Capt. Joseph F. Bolger commanding, was commissioned as the first of the 45,000-ton class aircraft carriers at Newport News, Va.

11 SEPTEMBER • Operation Magic Carpet commenced the return of servicemembers from the war zones by ships and aircraft.

3 OCTOBER • BUAER established the Committee to Evaluate the Feasibility of Space Rocketry as an initial attempt to establish an earth satellite program. On 29 October, the committee recommended the introduction of detailed studies to determine the feasibility of an earth satellite vehicle. The proposal led BUAER to issue contracts to one university and three companies for theoretical study and preliminary design of a launch vehicle, and for determining by actual test the specific impulse of high-energy fuels including liquid hydrogen.

10 OCTOBER • The reorganization of the Office of Chief of Naval Operations included the establishment of four new deputy chiefs for personnel, administration, operations, and logistics on the same level as the existing Deputy CNO (Air). The reorganization occurred by direction of the Secretary of the Navy and in accord with an executive order,

and abolished COMINCH and transferred command of the operating forces to CNO.

17 OCTOBER • The basic aircraft type designation system received the addition of the letter K for pilotless aircraft to replace the previous class designation VK. Classes A, G, and S, within the type were assigned for pilotless aircraft intended for attack against aircraft, ground targets, and ships, respectively.

27 OCTOBER • *Franklin D. Roosevelt* (CVB 42) was commissioned at New York Naval Shipyard, N.Y., Capt. Apollo Soucek commanding. The event marked the first exception to the traditional naming of fleet carriers for battles or famous ships.

1 NOVEMBER • The reorganization of the Naval Air Training Command included the assignment of its headquarters to NAS Pensacola, Fla., and the following subordinate commands: Naval Air Advanced Training, Naval Air Basic Training, Naval Air Technical Training, and the newly formed Naval Air Reserve Training. By this change, the titles Naval Air Operational Training and Naval Air Intermediate Training ceased to exist, and basic training or the reserve program absorbed the facilities of the former Naval Air Primary Training Command.

5 NOVEMBER • Ens. Jake C. West of VF-41, embarked for carrier qualifications on board *Wake Island* (CVE 65), lost power in the forward radial engine of an FR-1 Fireball shortly after take-off. The mishap compelled him to start his aft jet engine and he returned to the ship to make the first jet landing on board a carrier.

15 NOVEMBER • A Soviet fighter attacked a PBM-5 Mariner about 25 miles south of Port Arthur (Darien), Manchuria. The PBM investigating six Soviet transports and a beached seaplane in the Gulf of Chihli in the Yellow Sea escaped without damage.

29 NOVEMBER • The Special Weapons Test and Tactical Evaluation Unit was redesignated Pilotless Aircraft Unit. In December, it shifted to MCAS Mojave, Calif., receiving direction to operate detachments as necessary at NAF Point Mugu, Calif.

1 DECEMBER • Fleet Air Wing 6 was disestablished at NAS Whidbey Island, Wash.

5 DECEMBER • At 1410, Lt. Charles C. Taylor, USNR, of VTB-1 led Flight 19, consisting of five Avengers—TBM-1Cs BuNos 45714, 46325, and 73209; TBM-1E, 46094; and TBM-3, 23307—on an overwater navigation training mission from NAS Ft. Lauderdale, Fla. Within two hours Ft. Lauderdale intercepted messages between the planes that indicated the flight was lost in the vicinity of the Bahamas. At about 1800, an approximate high frequency direction-finder fix placed 23307 within a 100-mile radius of 29°15′N, 79°00′W. Lt. j.g. Walter G. Jeffrey of VPB-2 ATU-3 piloted a search PBM-5, BuNo 59225, from NAS Banana River, Fla., but the Mariner also vanished. A search-and-rescue operation to 10 December failed to recover wreckage, the 14 men from the Avengers, or the 13 of the Mariner. The mysterious losses occurred near an area subject to atmospheric variances, which later became popularly known as the "Bermuda Triangle," although the likely explanation stems from a combination of navigational errors and fuel exhaustion.

28 DECEMBER • President Harry S. Truman directed the transfer of the Coast Guard from the operational control of the Navy and its return to the jurisdiction of the Treasury Department.

Chapter 6

The Cold War

1946–1949

The problems of demobilization, organizational readjustment, and the tense beginning of the Cold War highlighted the years following World War II. Six years of waging the bloodiest war hitherto endured by man had exhausted the warring powers and brought the wartime alliance system to collapse. Two superpowers emerged into the ensuing void, the United States–led Western alliance and the Soviet-dominated Eastern Bloc, and their struggle for world mastery overshadowed the second half of the century.

American demobilization proceeded rapidly. Sailors and Marines placed ships and submarines into "mothballs" and aircraft into storage, even as shore stations at home and abroad deactivated. Within a year after the end of hostilities, the on-board figures for the men and women who comprised naval aviation fell to a quarter of the peak wartime strength. Only a skeleton of the force remained to carry out the new operational demands that arose.

The unsettled international situation raised familiar problems for the Navy. Fleet elements assigned to areas for the purpose of supporting occupation forces began to receive the additional yet familiar task of supporting the nation's policy in areas on opposite sides of the world. A task force built around an operational average of one to two carriers sailed into the Mediterranean, and as the years passed, the force became a fixture there. A similar force in the western Pacific provided the same tangible symbol of U.S. might and determination to support the free peoples of the world.

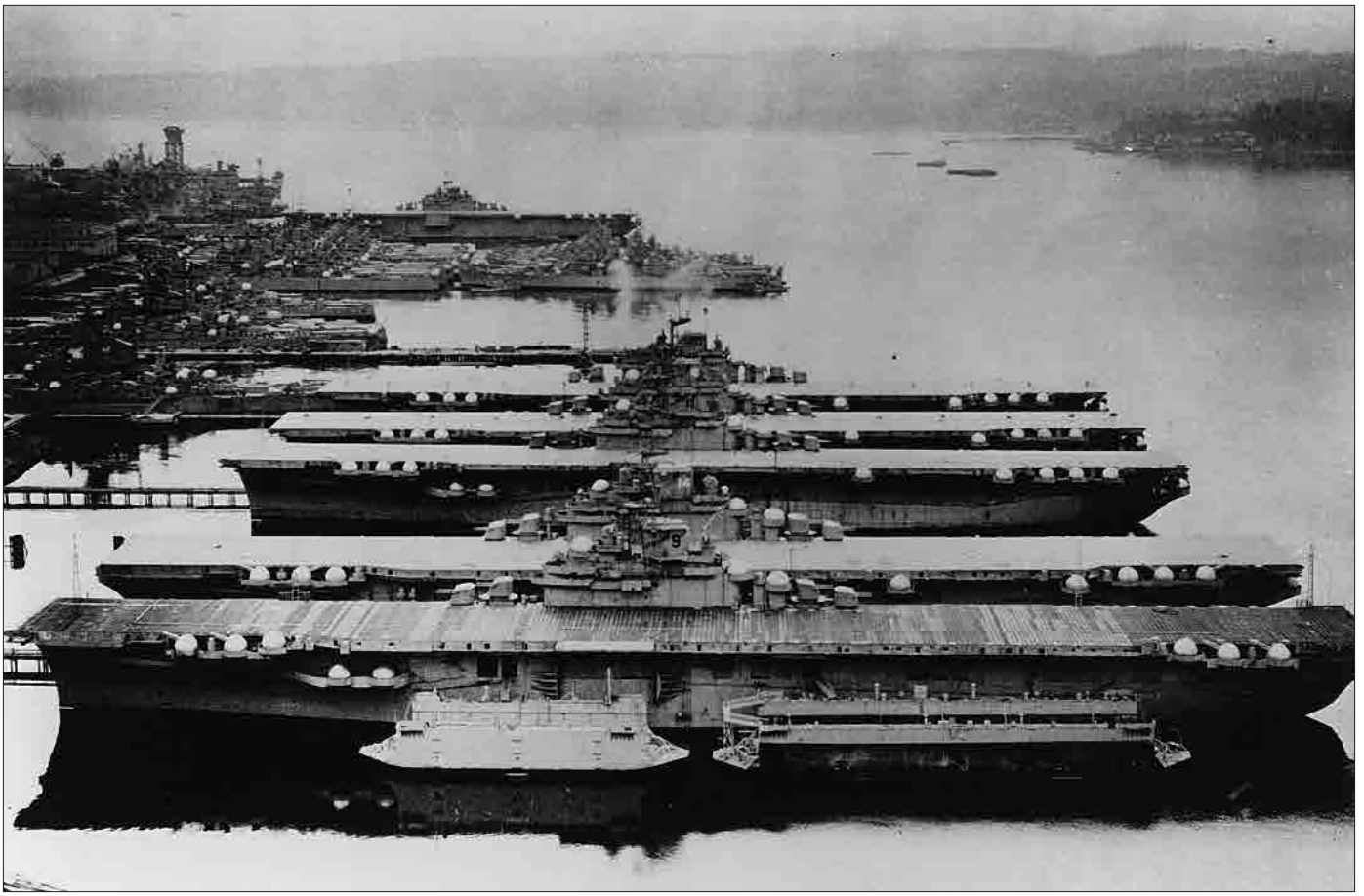
The organizational readjustment of naval aviation took place at several levels. At the upper echelons, problems ensued from the adjustment of a new departmental organization formed by what was, in effect, a compromise agreement. At the bureau and office level, the Navy dealt with the problems related to reducing staffs and realigning the functional elements of technical and administrative units to meet new requirements.

The fleet experienced problems of transition, partly in size, but particularly in regard to weapons and tactics developed as a result of combat experience or from technological advances. The introduction of jet aircraft posed special problems for carrier operations, and their employment renewed the dilemma that, as navies developed increased capability aircraft, they encountered the additional challenge of finding the means of taking them to sea.

These changes occurred at an ever accelerating rate. Technological and scientific advances built rapidly upon each other, and newer and greater advances superseded existing designs. New concepts included guided missiles, which had been introduced during World War II but were still in their embryonic development and, therefore, required additional efforts in all areas—from design through operational deployment. The need to complete this transition without a temporary loss of combat effectiveness increased the degree of difficulty.

A constant readjustment in planning, the continual adaptation of force organization, and the repeated revision of tactical doctrine highlighted this period. Urgency existed, largely accelerated by an appreciation of the destructive power that had been unleashed in the New Mexico desert in 1945 by the explosion of the atomic bomb. In other respects, however, the period appeared much like a repetition of the 1920s. Leaders and journalists clamored for a separate air force and for a merger of the services, which occurred by unifying them first, in 1947, under the National Military Establishment and then, in 1949, under the Department of Defense. The study of aviation and of the national air policy by a presidential commission and a congressional committee proved reminiscent of the Morrow Board and Lampert Committee of 1925. Despite infighting, the services reluctantly agreed on their respective missions and functions.

The armed forces also disputed their respective roles as they sought sufficient shares of a decreasing budget,



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Essex (CV 9)-class carriers mothballed at Puget Sound, Wash.

and their chiefs raised old charges of duplication. Critics of naval power renewed their declaration of navies as obsolete in the atomic era, and they shifted their derision from battleships to aircraft carriers by citing the ships' expense and vulnerabilities. Opponents claimed that the capabilities of aircraft carriers to perform atomic missions duplicated effort and that their value for conventional warfighting was too limited to warrant continued existence. Those who supported carriers retaliated with criticism of the Strategic Air Command's Convair B-36 long-range bombers as being equally vulnerable, expensive, and unable to fulfill their allotted roles in national defense.

During the height of this controversy, Secretary of Defense Louis A. Johnson canceled *United States* (CVA 58), designed to carry Navy long-range attack planes, while under construction. Secretary of the Navy John L. Sullivan resigned in protest. Journalists labeled this "The Revolt of the Admirals," even as the Air Force publicly attempted to tell the Navy how to carry out its mission and what tools the sea service needed to accomplish its tasks. Congressional hearings ended the dispute. The outbreak of the Korean War in June 1950 generated more immediate problems, but provided a greater national appreciation of the necessity for adequate military forces in an era when communist aggression endangered the survival of the free world.

1946

2 JANUARY • Fleet Air Wing 17 was disestablished in Japan.

26 JANUARY • The Naval Aviation Ordnance Test Station was established at NAAS Chincoteague, Va., under the cognizance of the Bureau of Ordnance and under the air station for administration and logistic support. The establishment order also provided for the transfer of all Bureau of Ordnance guided missile test facilities and staff from Johnsville, Pa., to perform tests and modifications as necessary to develop aviation ordnance and guided missiles at the new location.

1053774

Carrier qualification trials of jet and piston engine–propelled FR-1 Fireballs take place on board *Ranger* (CV 4), May 1945.

1 FEBRUARY • A major reorganization of the Bureau of Aeronautics aligned the technical divisions into two groups—Research Development and Engineering and Material and Services—according to function. An additional assistant chief was established over each group and the former assistant chief, and their staff divisions strengthened by the reorganization and their title of deputy and assistant chief.

1 MARCH • *Midway* (CVB 41), Rear Adm. John H. Cassady commanding, sailed from Norfolk, Va., for Operation Frostbite— weather tests. From 7 to 22 March, the task force operated in the Davis Strait, off the coast of Labrador, and above the Arctic Circle. The expedition carried out flight operations with World War II–type aircraft, newer F8F Bearcats, the combination prop-and-jet FR-1 Fireballs, and HNS-1 Hoverfly helicopters.

2 MARCH • Chief of Naval Operations Fleet Adm. Chester W. Nimitz established an aircraft storage program

277123

The F8F Bearcat was designed as an interceptor.

to stockpile up to 6,000 aircraft of operational types against future needs, together with the preparation of an additional 360 F6F-5 Hellcats for future conversion to drones.

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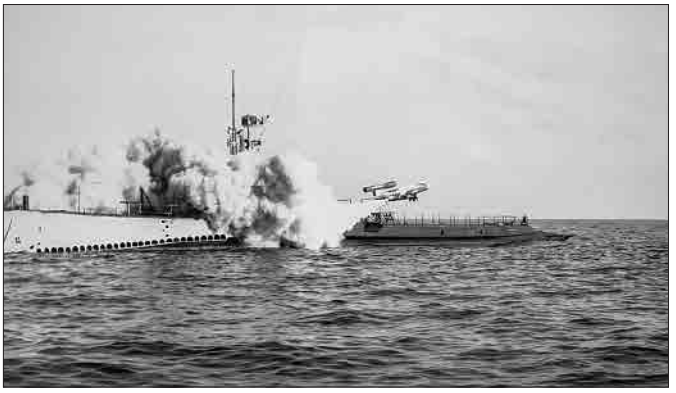
An F6F-5 Hellcat (BuNo 94409) launches a Tiny Tim rocket during testing at NAF China Lake, Calif., 6 November 1945.



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Submarine *Carbonero* (SS 337) launches a Loon guided missile adapted from the German V-1 rocket, 1949.

5 MARCH • Secretary of the Navy James V. Forrestal approved the conversion of two submarines into guided-missile launching vessels. The two later selected for this conversion were *Carbonero* (SS 337) and *Cusk* (SS 348).

7 MARCH • The Chief of Naval Operations directed the adoption of ground-controlled approach equipment as the standard blind landing system for the Navy.

11 MARCH • A modification of the class designation of naval aircraft eliminated the VB and VT used for bomber and torpedo aircraft, and created VA to identify aircraft with a primary mission of attacking surface targets. This change was responsible for the subsequent redesignation of BT2D and BTM aircraft as AD and AM, respectively.

12 MARCH • In a reorientation and consolidation of Navy guided-missile developments, the Chief of Naval Operations Fleet Adm. Chester W. Nimitz directed the discontinuance of the development of Glombs, Gorgon II-Cs, and Little Joes; limiting Gargoyles, Gorgon II-As, Gorgon III-As, and Doves to test and research vehicles; the continuance

of Loons as launching test vehicles and possible interim weapons; the continuance of Kingfishers, Bumblebees, and Larks as high-priority missiles, and the completion of SWOD (Special Weapons Ordnance Device) Mark 9 Bats.

15 MARCH • The Bureau of Aeronautics chief formally proposed to the commanding general of the USAAF the establishment of a joint Army-Navy project to develop an earth satellite.

15 MARCH • Coast Guard aircraft scouted for ice and determined the limits of the ice field from the air during the first Coast Guard aerial patrols of the International Ice Patrol through 27 July 1946.

25 MARCH • The first twin-engine XHJD-1 helicopter, BuNo 43318, made a hovering flight. McDonnell Aircraft Corp. designed the helicopter for experimental use in a flight development program, and for tactical use in utility and air-sea rescue operations.

3 APRIL • Douglas received a contract for the design and construction of the XF3D-1 night fighter.

15 MAY • The designation of patrol squadrons reverted to their prewar status and changed back from VPB to VP.

21 MAY • Chief of Naval Operations Fleet Adm. Chester W. Nimitz outlined a program for the operational introduction of Bat missiles that called for their assignment to VP-104 in the Atlantic Fleet. He also directed the transfer to VP-104 of all PB4Y-2 Privateers already modified to operate Bats.

22 MAY • The initial operational tests of an XCF dunking sonar carried in an HO2S-1 concluded off NAS Key West, Fla. During three months of testing, Lt. Stewart R. Graham, USCG, and Ens. William H. Coffee, USCG, piloted the helicopter, and Lt. Cmdr. Roy Rather, J. J. Coop, and C. V. Scott operated the sonar. The XCF provided good sonic and supersonic listening ranges and a high degree of bearing accuracy against both conventional and snorkel-type submarines.

29 MAY • The Aeronautical Board acted upon a BUAER proposal for a joint Army-Navy earth satellite project by approving the establishment of an earth satellite subcommittee to coordinate projects already underway.

395920

In the emergent helicopter technologies of the mid- to late-1940s, the lone XHJD-1 with its lateral twin-rotor configuration was designed to compete with tandem rotor designs.

419488

The first production tailless F7U-1 Cutlass runs through its paces with the Naval Air Test Center, Patuxent River, Md., c. August 1950.

6 JUNE • A charter of the Secretaries of War and Navy created the Joint Research and Development Board for coordinating all research and development activities of joint interest to the two departments. Its several committees embraced aeronautics, atomic energy, electronics, geographical exploration, geophysical sciences, and guided missiles.

24 JUNE • North American Aviation, Inc. received a defense contract for the design and construction of three XAJ-1 aircraft, thereby beginning active development of a long-range carrier-based bomber capable of delivering nuclear weapons.

25 JUNE • The Navy issued a contract to Chance Vought for the development and construction of three tailless, high performance XF7U-1 carrier fighter prototypes powered by twin turbojet engines.

26 JUNE • The Aeronautical Board agreed unanimously on the adoption of the knot and the nautical mile by the USAAF and Navy as standard aeronautical units of speed and distance, and directed the specification of the use of the terms in all future procurement of air speed indicators, charts, related equipment, and future issues of applicable handbooks and technical orders.

1 JULY • Operation Crossroads began—a series of tests to determine the effects of atomic bombs on naval targets at Bikini Atoll in the Pacific. In the first—Test Able—a Boeing B-29 Superfortress dropped a Nagasaki-type bomb from 30,000 feet aimed at battleship *Nevada* (BB 36) centered amid 82 other ships of all classes anchored in the lagoon. The bomb missed its intended target, but the ensuing detonation sank five vessels outright and heavily damaged nine others.

On 25 July a shallow underwater burst, designated Test Baker, sent water nearly 6,000 feet into the air and raised the total number of vessels sunk directly or indirectly to 32. *Saratoga* (CV 3), with 19 years of active service, sank in shallow water and, on 28 August, *Independence* (CVL 22), which received severe damage and contamination that rendered her unfit for use, was decommissioned.

These tests had a broad national impact on the Navy and on naval aviation and made clear the importance of atomic weapons for control of the sea. In addition, the evaluations provided detailed data on the effects of atomic blasts and a sound technical basis for intensification of efforts to develop tactics and equipment to minimize the damage of such attacks against naval task forces.

1 JULY • The Naval Air Reserve Program was activated under the Naval Air Training Command with 21 reserve activities already in operation.

1 JULY • VX-3 was established at NAS New York, N.Y. The squadron studied and evaluated the adaptability of helicopters to naval purposes.

3 JULY • Fleet Air Wing 8 was disestablished at NAS Alameda, Calif.

11 JULY • To create clear-cut relationships for aircraft maintenance, Chief of Naval Operations Fleet Adm. Chester W. Nimitz directed the disestablishment of all carrier aircraft service units (CASU) and other maintenance units, and their replacement by fleet aircraft service squadrons (FASRON) by 1 January. According to the aircraft types serviced, FASRONs comprised three kinds of squadrons. These new organizations were designed to promote higher standards, uniformity, and efficiency in aircraft maintenance.

13 JULY • Eight specially modified aircraft—two SOC-1 and one each SOC-2 and -3 Seagulls, three PBM-5 Mariners, and an HNS-1 Hoverfly—embarked on board seaplane tender *Norton Sound* (AV 11), netlayer *Whitewood* (AN 63), cargo ships *Alcona* (AK 157) and *Beltrami* (AK 162), and Coast Guard icebreaker *Northwind* (AG 278), at Norfolk, Va. The ships sailed to operating areas north of the Arctic Circle for cold weather testing designated Project Nanook. The aircraft scouted ahead of the ships for icebergs, pack ice, and other hazards to navigation, and conducted photoreconnaissance of the coastline. On 18 September, the vessels returned to Virginia waters.

21 JULY • In the first U.S. test of the adaptability of jet aircraft to shipboard operation, Lt. Cmdr. James J. Davidson made successful landings and takeoffs (non-catapulted deck launches) in an XFD-1 Phantom on board *Franklin D. Roosevelt* (CVB 42).

1 AUGUST • An act of Congress established the Office of Naval Research to plan, foster, and encourage scientific investigation. The redesignation of the earlier Office of Research and Inventions, which had been established by secretarial order in May 1945, enabled the new office to open on 21 August.

8 AUGUST • *Franklin D. Roosevelt* (CVB 42) sailed to the Mediterranean. From 5 to 9 September, the ship called at Piraeus (Athens) as a show of support for the Greek government's efforts to stem the tide of communism in the embattled country, and launched 78 aircraft over the task force during her departure. On 30 September, President Harry S. Truman declared the permanency of the U.S. naval presence in the region, primarily to contain Soviet aggression. On 4 October, the carrier returned home.

1053757

Lt. Cmdr. James J. Davidson, in front of the second XFD-1 prototype after completion of the first carrier tests of a pure-jet aircraft on board *Franklin D. Roosevelt* (CVB 42), 21 July 1946.

13 AUGUST • Congress approved the Hale Plan, also known as the Flying Midshipmen or Aviation Midshipmen Program. This was designed to provide the Navy with qualified pilots in the post–World War II period after the loss of a large segment of experienced naval aviators to civilian life. The plan would pay for two years of college and training as naval aviators in exchange for a service obligation. Those who completed flight training and were designated naval aviators did not automatically commission at the same time, but remained as aviation midshipman and served as pilots but not commissioned officers. After a period of service in the fleet, they usually received their commissions. Early in 1950 the Naval Aviation Cadet program replaced the Flying Midshipmen program. Of the 3,000 aviation midshipmen, approximately 1,800 received designations as naval aviators including later-astronaut Neil A. Armstrong, the first man to walk on the moon. The Navy recalled many aviation midshipmen to active service during the Korean War.

14 AUGUST • Chief of Naval Operations Fleet Adm. Chester W. Nimitz standardized missile terminology within the Navy to the extent that he directed the use of the term "guided missiles" for all types developed by the sea service. He allowed past practice by authorizing the continuation of model designations, the description of missile classes, the Bureau of Ordnance term SWOD (Special Weapons Ordnance Device), and the Bureau of Aeronautics term pilotless aircraft (P/A).

15 AUGUST • The Instrument Flight Standardization Board was established under the operational control of the Deputy Chief of Naval Operations (Air), at NAS Anacostia, D.C. The board was to determine the means to improve the instrument flight proficiency of pilots.

1 SEPTEMBER • A reorganization of the Office of the Deputy Chief of Naval Operations (Air) placed its divisions into four groups entitled plans, personnel, readiness, and air logistics. The Air Planning Group was also set up on the DCNO (Air) staff to facilitate planning at the top policy level and to coordinate and direct the work of all divisions toward the same goals.

18 SEPTEMBER • A Belgian Sabena Airlines DC-4 registered OO-CBG, carrying seven crewmembers and 37 passengers en route from Brussels, Belgium, to New York, crashed during harsh weather 24 miles southwest of Gander, Newfoundland. Rescue Officer Eastern Area Capt. Richard L. Burke, USCG, organized the rescue. Lt. Cmdr. James N. Schrader, USCG, piloted a Coast Guard PBY-5A Catalina, BuNo 34008, carrying the helicopter pilots over the scene of

USCG

These crews of two Coast Guard helicopters rescued 18 survivors of a commercial airliner crash on 18 September 1946 from a remote area near Gander, Newfoundland. From left are: Lts. A. N. Fisher and Stewart R. Graham; AMMCs Oliver F. Berry, Leo Brzycki, and Cozy Eldridge; and AMM1 Merwin Westerberg.

the crash from Argentia, Newfoundland. On 20 September, a USAAF C-54 Skymaster carried an HOS-1 overnight to Gander from CGAS Brooklyn, N.Y. A second Skymaster flew an HNS-1 Hoverfly from CGAS Elizabeth City, N.C. Coast Guard helicopter crewmembers included pilots Cmdr. Frank A. Erickson, Lts. A. N. Fisher, Stewart R. Graham, August Kleisch, and Walter C. Bolton, and aircrewmen AMMCs Oliver F. Berry, Leo Brzycki, and Cozy Eldridge, and AMM1 Merwin Westerberg. These Coast Guardsmen rescued 18 survivors during 40 helicopter evacuation flights. At times, Cmdr. Larry L. David, USCG, flew an additional PBY-5A, BuNo 48314, and Lt. j.g. Charles E. MacDowell, USCG, piloted one of two PB-1Gs, BuNo 77247 (the other was 77249), that searched for survivors and dropped food and medical provisions.

29 SEPTEMBER • Cmdrs. Thomas D. Davies, Eugene P. Rankin, and Walter S. Reid, and Lt. Cmdr. Roy H. Tabeling manned the *Truculent Turtle*, a P2V-1 Neptune, BuNo 89082, during a 55 hour, 17 minute flight from Perth, Australia, to Columbus, Ohio. The plane arrived on 1 October after a journey of 11,235.6 miles, breaking the world distance record for unrefueled flight.

1 OCTOBER • The Naval Air Missile Test Center, Capt. Albert N. Perkins commanding, was established at Point Mugu, Calif., to conduct tests and evaluation of guided missiles and their components.

2 OCTOBER • The Bureau of Aeronautics recommended adoption of the designation XF9F-2 in lieu of XF9F-1,

703094

The Truculent Turtle's record flight stood for 16 years.

thereby reflecting a decision to abandon development of the four-engine night fighter in favor of a single-engine day fighter. The decision included the substitution of a British Rolls Royce Nene engine for Westinghouse 24Cs and subsequently led to U.S. production of Nene engines.

27 OCTOBER • Airship XM-1, Lt. Harold R. Walton commanding, departed NAS Lakehurst, N.J., followed the Atlantic coast to Savannah, Ga., headed seaward to the Bahamas, then to Florida, Cuba, across the Gulf of Mexico, and, on 3 November, reached NAF Glynco, Ga. The flight of 170.3 hours set a world record for duration in self-sufficient flight for any type of aircraft.

30 OCTOBER • Under a project conducted by Naval Air Material Center Philadelphia, Pa., Lt. j.g. Adolph J. Furtek made a successful ejection from a JD-1 Invader flying at about 250 knots at 6,000 feet over NAS Lakehurst, N.J. The event marked the Navy's first live test of an ejection seat.

7 NOVEMBER • The Navy adopted a letter identification system for marking all Navy and Marine aircraft including trainers and those of the Naval Air Reserve. All carriers and wings, groups, and squadrons not assigned to carrier operations received letter assignments. Instructions further placed a wide

703095

Cmdr. Thomas D. Davies commanded the P2V-1 *Truculent Turtle* during an unrefueled long-distance record flight of 11,235 miles from Perth, Australia, to Columbus, Ohio, 29 September to 1 October 1946.

419472

The AD-2 Skyraider was just one of seven major models and 28 versions of Douglas' attack aircraft. More than 3,000 were built over its 12-year production run, 1945–1957.

orange stripe around the fuselage, forward of the empennage, on all aircraft of the Naval Reserve. A change issued on 12 December discontinued the assignment of letters to carriers; carrier air groups and Marine squadrons operating on board escort aircraft carriers received the letter assignments instead.

8 NOVEMBER • The Office of the Deputy Chief of Naval Operations (Special Weapons) was disestablished, and its functions relating to guided missiles were reassigned to a new Assistant Chief of Naval Operations (Guided Missiles) and a Guided Missiles Division, both established under DCNO (Air).

11 NOVEMBER • Lt. Col. Marion E. Carl Jr., USMC, completed two catapult launches, four free take-offs, and five arrested landings in a jet propelled Lockheed P-80A Shooting Star on board *Franklin D. Roosevelt* (CVB 42) off the Virginia Capes. Carl made the first catapult launches on 1 November. These operations comprised part of an extensive investigation of the carrier suitability of jet aircraft that began on 29 June 1945 with the delivery of a P-80A to NAS Patuxent River, Md.

15 NOVEMBER • Sweeping changes occurred in air unit designations to correct the results of demobilization that left squadron numbers out of sequence. Carrier air groups of four types received designations according to their assigned ship: CVBG–battle carrier; CVG–attack carrier; CVLG–light carrier; and CVEG–escort carrier. The action limited carrier squadrons to fighter and attack and thus abolished the VBF, VB, and VT designations, and these squadrons received suffix letters to indicate their carrier assignments. Patrol squadrons were redesignated to show an abbreviation of their aircraft class in addition to the VP (i.e. VP-MS-1 for Patrol Squadron 1 that operated medium seaplanes). Observation squadron numbers followed the parent ship division but received the addition of the suffix letters B or C to differentiate between battleship and cruiser units. The VJ for utility became VU, VPP replaced the VD for photographic squadrons, and VPM replaced VPW for meteorological squadrons. Reserve units switched to the same system but received consecutive numbers of a higher series. The changes did not affect Marine Corps commands.

20 NOVEMBER • Lt. Cmdr. Merl W. Davenport took off in an F8F Bearcat in a distance of 115 feet from a standing start and climbed to 10,000 feet in 94 seconds at Cleveland, Ohio, to set an unofficial world record.

25 NOVEMBER • The Navy approved a report of a board headed by Rear Adm. Thomas S. Combs established to consider the steps required to adapt the Integrated

Aeronautic Maintenance, Material, and Supply Program to postwar conditions. The board's recommendations largely concerned improved program administration measures to provide for exact planning, rigid adherence to schedules and complements, the receipt of complete information from the field, and its proper evaluation. Some proposals touched on areas that were considered critical and that warranted action before their final approval.

6 DECEMBER • Capt. Victor D. Herbster (Naval Aviator No. 4) died at Naval Hospital, St. Albans, N.Y. Herbster served continuously in naval aviation from first reporting for flight training on 8 November 1911 at Annapolis, Md., until his retirement on 1 July 1936. He served again from his return to active service in August 1940 until retirement on 29 March 1946.

6 DECEMBER • VA-19A accepted delivery of the first AD-1 Skyraider for fleet service.

1947

1 JANUARY • Adm. John H. Towers (Naval Aviator No. 3) assumed the duties of the newly created post of Commander in Chief, Pacific Command.

2 JANUARY • The Navy issued a directive to display unit identification letters, which had been assigned on 15 November 1946, on both sides of the vertical fins and rudders of its aircraft, and on the upper right and lower left surfaces near the wing tips. This placement required relocation of several standard aircraft markings.

2 JANUARY • The promulgation of a new specification for aircraft color required the use of glossy Sea Blue on all shipboard and water-based aircraft and all helicopters. Landplane transports, utility aircraft, and advanced training planes retained Aluminum, and primary trainers similarly retained glossy Orange Yellow paint. Special color schemes included land camouflage (Olive Drab above and Light Gray below) for Marine observation planes, glossy Insignia Red for target drones, glossy Orange Yellow wings with glossy Sea Blue fuselages and glossy Insignia Red wing bands and rudders for target towing aircraft.

11 JANUARY • The XF2H-1 made its first flight.

14 JANUARY • A horizontal red stripe, centered on the white horizontal bar, was added to the national star insignia on all U.S. military aircraft.

15 JANUARY • Pilot Lt. James A. Cornish, USCG, and observer PhoMC Everett F. Mashburn, USCG, completed the first Coast Guard helicopter flight to the station at Little America, Antarctica. Cornish and Mashburn made the flight in an HNS-1 Hoverfly they named *Flutterbuggy* from Coast Guard cutter *Northwind* (WAG 282).

29 JANUARY • From a position 660 miles off the Antarctic continent, *Philippine Sea* (CV 47) launched the first of six R4D transport aircraft she ferried from Norfolk, Va., to Little America as part of Operation Highjump. Cmdr. William M. Hawkes piloted the first plane, which carried Rear Adm. Richard E. Byrd Jr. as a passenger. The Skytrains used JATO to takeoff, and skis attached to their landing gear facilitated ice cap operations. The event marked the first carrier takeoff for Skytrains.

2 FEBRUARY • Col. Bernard L. Smith, USMC, the second Marine aviator (Naval Aviator No. 6), died from injuries received when his car struck a train at Coral Gables, Fla. Smith served with Marine and Navy aviation elements in a variety of duties, including intelligence assignments overseas, from when he reported for flight training on 18 September 1912 at Annapolis, Md., until his resignation on 20 January 1920. From 1931 to 1937, he served as a member of the Naval Reserve, then transferred to the Marine Corps Reserve, and returned to active duty during World War II until his retirement in December 1946.

12 FEBRUARY • Submarine *Cusk* (SS 348) launched an American adaptation of the German V-1 rocket, dubbed the Loon, from off Point Mugu, Calif. The event marked the first firing of a guided missile from a U.S. submarine.

MARCH • The growing importance of maintaining strength in the Mediterranean Sea prompted the establishment of Naval Forces Eastern Atlantic and Mediterranean. On 1 June 1948, the command was redesignated the Sixth Task Fleet and, on 12 February 1950, the Sixth Fleet. The cruise of *Randolph* (CV 15)

USMC 44731

This dual-seat -2N night-fighter version of the twin-engine F7F Tigercat was flown by Marines of VMF(N)-531 out of NAS Eagle Mountain Lake, Texas, in late 1945.

initiated a regular schedule of deployment of carriers to the region. She returned to the United States on 21 December.

1 MARCH • A Bureau of Aeronautics contract with P. R. Mallory & Co. initiated the development of titanium alloys for aeronautical applications. The agreement covered the study of methods of producing titanium metal and alloys and of determining their essential properties.

4 MARCH • Operation Highjump air operations in the Antarctic ended. From 24 December 1946, six PBM Mariners based on seaplane tenders operated in the open seas around the continent, and from 9 February 1947, six R4D Skytrains were based ashore at Little America. Altogether these planes logged 650 hours on photographic mapping flights that covered 150,000 square miles of the interior and 5,500 miles of coastline.

16 APRIL • On 30 January 1947, the Greeks proclaimed martial law in response to the rising threat posed by communist insurgents during the Greek Civil War. On 21 February, the British announced the reduction of their forces deployed to the eastern Mediterranean and the withdrawal of military assistance to the Greeks and Turks effective on 1 April. U.S. intervention against communist expansionism in the ensuing power vacuum included a visit on this date by *Leyte* (CV 32) to Greece as a show of support for that country's government.

30 APRIL • The Army and Navy adopted a standard system for designating guided missiles and assigning them popular names. The basic designation adopted consisted of a two-letter combination of the three letters; A (air), S (surface), and U (underwater); in which the first letter indicated the origin of the missiles and the second letter their objectives, followed by the letter M for missile. Thus, surface-to-air missiles were designated SAM. This basic designation was followed by an odd model number for Army missiles and an even number for Navy weapons. For popular names, the services agreed upon naming ASMs for birds of prey, AAMs for other winged creatures, SAMs for mythological terms, and SSMs for astronomical terms or bodies.

2 MAY • Amid ongoing Soviet pressure against the Turks and the British withdrawal from the eastern Mediterranean, U.S. ships including *Leyte* (CV 32) made a show of support for the Turkish government during a week-long visit to Istanbul.

20 MAY • Secretary of the Navy James V. Forrestal directed the relocation and redesignation of Navy Pre-Flight at NAS Ottumwa, Iowa, to Naval School, Pre-Flight, NAS Pensacola, Fla. The move was to occur from 1 June to 1 August 1947.

4 JUNE • Chief of Naval Operations Fleet Adm. Chester W. Nimitz approved new aircraft carrier characteristics for incorporation into Project 27A—a program to improve *Essex* (CV 9)-class carriers to meet new operating requirements resulting from developments in aircraft and weapons. Designers directed the principal changes toward a capability for operating aircraft of up to 40,000-pounds including the installation of two H-8 catapults, the strengthening of flight decks and the clearance of guns from these decks, an increase of elevator capacity, and the addition of special provisions for jet aircraft such as blast deflectors, increased fuel capacity, and jet fuel mixers. On 1 October 1947, *Oriskany* (CV 34) began her conversion at New York Naval Shipyard, N.Y., as the first of nine carriers scheduled for modernization under this project.

7 JUNE • Fleet Air Wing 10 was disestablished at NAB Sangley Point, Philippines.

17 JUNE • The Navy awarded a contract to the Douglas Aircraft Company for design study and engineering data for a delta wing fighter. On the basis of the technical information thus obtained, the service subsequently initiated development of the XF4D-1.

26 JUNE • The development of low-drag bombs began as the Bureau of Aeronautics authorized the design by Douglas Aircraft Company at El Segundo, Calif., of a bomb release system with clean flight characteristics at subsonic speeds. This was to overcome aircraft buffeting induced by conventional bombs when being carried externally at three-quarters the speed of sound. The basic goal was the development of an external store shape to house conventional bombs, machine guns, and rockets, and capable of adaptation for use as an external fuel tank.

30 JUNE • Fleet Air Wing 18 was disestablished at NAS Agana, Guam.

9 JULY • A Northrop P-61C Black Widow air-launched a subsonic ramjet-powered Gorgon IV (PTV-2) that made a 28-second free flight at NAMTC Point Mugu, Calif.

24 JULY • The Chief of Naval Operations initiated the adaptation of helicopters to amphibious warfare by establishing a requirement for a type capable of transporting assault troops from escort carriers, and landing them ashore with their necessary combat equipment and supplies.

26 JULY • President Harry S. Truman signed the National Security Act of 1947 into law. The measure provided the most basic reorganization of defense activities affecting the Navy Department since its creation in 1798. It established the National Security Council, Central Intelligence Agency, National Security Resources Board, and the National Military Establishment headed by the Secretary of Defense. Within the National Military Establishment, the act redesignated the War Department as the Department of the Army and established a third service, the Air Force, along with the Joint Chiefs of Staff, Research and Development Board, and Munitions Board. In addition, the act defined the Navy as "including such aviation as may be organic therein."

7 AUGUST • An act of Congress restored the Aeronautical Engineering Duty Only (AEDO) designation that had been abolished in 1940, by authorizing the assignment of qualified officers of the line including those designated EDO.

13 AUGUST • The establishment of Naval Air Development Station, Johnsville, Pa., replaced Naval Aircraft Modification Unit. The station's mission was the development of aircraft electronics, pilotless aircraft, guided missiles, and aviation armament, and research and development in the field of aviation medicine that pertained to the human centrifuge. Four appropriately named laboratories performed these functions.

704422

The D-558-1 Skystreak experimental jet was the Navy's contribution to a national program for solving high-speed flight issues. It held the world speed record until bested by the rocket-powered Bell X-1.

USMC 11986

Maj. Marion E. Carl Jr., USMC, set a world speed record in the D-558-1 on 25 August 1947.

20 AUGUST • Cmdr. Turner F. Caldwell broke the world speed record in the Douglas D-558-1 at 640.663 mph over a Muroc, Calif., three-kilometer course.

626130

F2H-4 Banshees of VF-12 fly over *Coral Sea* (CVB 43), 12 June 1951.

25 AUGUST • Maj. Marion E. Carl Jr., USMC, set a new world speed record in the D-558-1 Skystreak of 650.796 mph over the three-kilometer Muroc, Calif., course.

25 AUGUST • Tests of the Douglas Aircraft Company low-drag bomb shape began at the Southern California Cooperative Wind Tunnel at Pasadena, Calif.

6 SEPTEMBER • *Midway* (CVB 41) launched a V-2 rocket from her flight deck in the first firing of a large ballistic missile from a ship at sea. The rocket behaved abnormally after liftoff, but the launch demonstrated the feasibility of the concept.

17 SEPTEMBER • Naval aviator James V. Forrestal of World War I service took the oath of office as the first Secretary of Defense. The following day, the National Security Act of 1947 became effective, and the Departments of the Army, Navy, and Air Force became constituted as integral parts of the National Military Establishment.

30 SEPTEMBER • The Research and Development Board, which superseded the Joint Research and Development Board and dealt with research and development coordination, planning, and direction, was formally set up in the National Military Establishment. Dr. Vannevar Bush took office as its chairman. At its first meeting on 19 December, the board accepted the credentials of all of its members. One of the two Navy members was the Deputy Chief of Naval Operations (Air).

1 OCTOBER • *Coral Sea* (CVB 43), Capt. A. P. Storrs III commanding, was commissioned at Newport News, Va.

1 NOVEMBER • The Naval Parachute Unit moved from NAS Lakehurst, N.J., to NAS El Centro, Calif. Its mission was the research, development, and testing of parachutes, parachute recovery systems, and ejectable seat capsules.

21 NOVEMBER • The Grumman XF9F-2 made its first flight.

24 NOVEMBER • The first launch of a liquid-fueled RTV-N-8 Aerobee rocket for the Navy took place at White Sands Proving Ground, N.M. The rocket, designed primarily for upper atmospheric research, reached an altitude of 34.7

1053788

Tandem-rotor HRP-1s of HMX-1 lift off from Quantico, Va.

miles. The United States launched more than 1,000 Aerobees in various configurations through 1985.

28 NOVEMBER • Seaplane tender *Norton Sound* (AV 11) was assigned to the Operational Development Force for use as an experimental rocket-firing ship. The following March, the ship began the necessary alterations at Philadelphia Naval Shipyard, Pa.

1 DECEMBER • HMX-1, Col. Edward C. Dyer, USMC, commanding, was established at MCAS Quantico, Va. Its mission was development of techniques and tactics for the use of helicopters in amphibious operations.

19 DECEMBER • The New Development Board was established to review the programs of the various bureaus and offices, and to recommend the priorities of development projects to the Chief of Naval Operations. In May 1948, the Research and Development Review Board, consisting of the Chief of Naval Research and people in the Office of the CNO responsible for development, replaced the New Development Board.

19 DECEMBER • The Research and Development Board directed its committee on guided missiles to coordinate the Earth Satellite Vehicle Project, thereby taking over this function from the Aeronautical Board.

30 DECEMBER • Chairman Thomas K. Finletter of the president's Air Policy Commission submitted the commission's report *Survival in the Air Age*, based on extensive hearings over three months. The report was a broad review of the international situation in terms of the proven effectiveness of air power and its added potential for destruction with the advent of atomic weapons. It stressed the need to maintain military forces large enough to make aggression dangerous, and emphasized the urgency of building strong military aviation with its supporting industry and civil air transport, and of encouraging a progressive research and development program to maintain the existing margin of U.S. superiority.

1948

1 JANUARY • The headquarters of the Naval Air Basic Training Command shifted from NAS Corpus Christi, Texas, to NAS Pensacola, Fla., and Naval Air Training Bases, Corpus Christi, was disestablished. The establishment of the Naval Air Advanced Training Subordinate Command occurred simultaneously at Corpus Christi.

1 MARCH • Sen. Ralph O. Brewster (R-Maine), chairman of the Congressional Committee on National Aviation Policy, submitted the committee's report. The deductions of the members differed in some respects from the earlier report submitted by the president's Air Policy Commission, but generally reiterated the conclusions in regard to the effect of air power on national security, and the need for a national policy to build a strong military air force supported by a vibrant aircraft industry and civil aviation.

1053785

This FJ-1 Fury in Naval Air Test Center markings participated in carrier trials, c. 1947.

424773

An HTL-3, one of only nine built, takes off from *Valley Forge* (CV 45), parallel with an HO3S in the background, c. January 1953.

11 MARCH • Interservice conflict over the respective roles and missions of the services prompted Secretary of Defense James V. Forrestal to convene meetings of the Joint Chiefs at NAS Key West, Fla. These conferences resulted in limited concessions by both the Navy and the Air Force. The Navy acknowledged the primacy of the Air Force in strategic bombing, and the Air Force agreed not to hinder the construction of the world's largest carrier—a 65,000-ton, 1,090-foot long flush-deck ship without an island superstructure, designed to launch aircraft carrying atomic bombs, and subsequently named *United States* (CVA 58).

29 MARCH • The Technical Evaluation Group of the Research and Development Board noted its conclusion concerning the feasibility of the development of an earth satellite. The board recommended the delay of construction until researchers clearly established the project's utility.

30 MARCH • Secretary of the Navy John L. Sullivan approved the establishment of a Naval Air Reserve Advisory Council. This consisted of 50 Reserve aviation officers appointed from civilian life with the purpose of making available to the Navy the experience and continuing advice of reservists, who had held key positions while on active duty during World War II.

4 MARCH • The Test Pilot Training Division was established at NATC Patuxent River, Md. The division instructed experienced fleet pilots in aeronautical engineering and techniques of flight testing. Ten years later it became the Naval Test Pilot School.

10 MARCH • Pilots Cmdr. Evan P. Aurand and Lt. Cmdr. Robert M. Elder of VF-5A tested the carrier suitability of FJ-1 Furies on board *Boxer* (CV 21) off San Diego, Calif.

1 APRIL • HU-1, Cmdr. Maurice A. Peters commanding, was established at NAS Lakehurst, N.J., as the first helicopter squadron in the U.S. Navy.

21 APRIL • The Secretary of Defense issued a memorandum for the secretaries within his department, attaching a paper defining the functions of the armed forces and the Joint Chiefs of Staff. Based on the policy embodied in the National Security Act, this event marked the first functions paper drawn

up by the services following their reorganization, and is commonly referred to as the Key West agreement.

27 APRIL • In the first carrier launchings of planes of this size and weight, pilots Cmdr. Thomas D. Davies and Lt. Cmdr. John P. Wheatley made JATO takeoffs in two P2V-2 Neptunes from *Coral Sea* (CVB 43) off Norfolk, Va.

29 APRIL • Amid fears of a communist coup in Norway, *Valley Forge* (CV 45) made a four-day visit to the capital of Oslo.

30 APRIL • The Martin XP5M-1 made its first flight.

1 MAY • Changes in aircraft marking specifications made it mandatory for carrier squadrons to use distinguishing colors on propeller spinners and across the top of vertical fins and rudders. The colors Insignia Red, Insignia White, Light Blue, Light Yellow, Light Green, and Black outlined in white marked squadrons one through six, respectively, of each carrier air group. The changes also required the painting of arresting hooks in alternate 4-inch black-and-white bands.

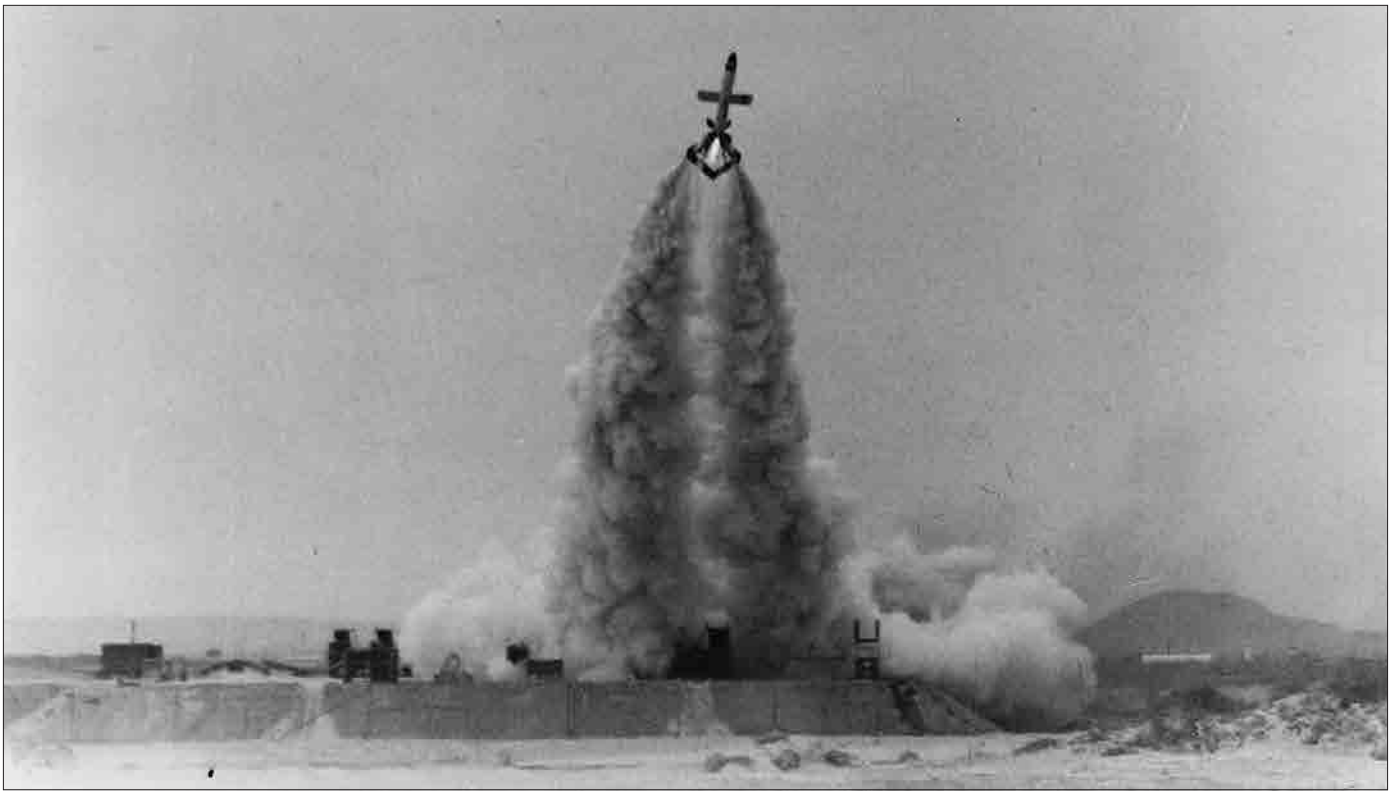
1053754

The P5M-1 Marlin was an evolution of Martin's PBM Mariner. These are from VP-56, c. 1954.

5 MAY • Submarine *Cusk* (SS 348) launched a Loon missile off NAMTC Point Mugu, Calif., guided it over a 46-mile course, and crashed the weapon within 100 yards of its target, Begg Rock.

5 MAY • VF-17A became the Navy's first carrier-qualified jet squadron. During three days of operations on board *Saipan* (CVL 48), all the squadron's pilots and Commander CVG-17 qualified in 16 FH-1 Phantoms with a minimum of eight takeoffs and landings each.

8 MAY • Michelson Laboratory at the Naval Ordnance Test Station, China Lake, Calif., was dedicated. This marked a major step in the transition of the station from a rocket test range to a research and development activity specially equipped to study the various aspects of rocketry and guided missiles.



400916

A Lark guided missile hurtles skyward from Point Mugu, Calif. Originally designed to combat *kamikazes*, the missile was not developed in time for World War II and never got beyond the prototype stage.

18 MAY • The Goodyear Aircraft Corporation received a contract for the design of a submarine-hunting airship with an envelope volume of 825,000 cubic feet, approximately double that of K-class airships. The proposed airship was to carry a crew of 14, extensive antisubmarine equipment, and in-flight refueling capabilities. Through subsequent contractual action initiated in September, the Navy ordered prototype ZPN-1.

25 MAY • Two support wings were established and placed under a Commander, Fleet Logistic Support Wings. They provided, subsequent to the merger of Navy and Air Force air transport commands, air logistic support services over routes of sole Navy interest as required for the internal administration and fulfillment of naval missions.

1 JUNE • The consolidation of the Naval Air Transport Service and the Air Transport Service of the Air Force's Air Transport Command formed the Military Air Transport Service as a unified element of the National Military Establishment. The service operated under the command and direction of the Air Force.

4 JUNE • To establish and maintain close relationships between the operating forces and planning agencies, arrangements were made for an air board to meet quarterly with principal members Deputy Chief of Naval Operations (Air), the chief of the Bureau of Aeronautics, ComAirLant, and ComAirPac.

4 JUNE • The Airborne Coordination Group was redesignated Naval Aviation Electronics Service Unit.

11 JUNE • The Chief of Naval Operations issued standards for training aviators as helicopter pilots and provided for the retention of their qualification of helicopter pilots previously trained by the Coast Guard or VX-3.

18 JUNE • The chief of the Bureau of Aeronautics authorized NAMTC Point Mugu, Calif., to train (on a non-interfering basis) the Air Force 1st Experimental Guided Missile Group in the operation of the Lark guided missile.

22 JUNE • Under a plan that in essence reactivated the Aviation Cadet program, men between the ages of 18 and 25

with at least two years of college became eligible for flight training. Candidates were required to serve on active duty for four years, after which they returned to inactive duty as members of the Reserve. A limited number of the cadets gained the opportunity to remain on active duty with the possibility of transferring to the regular Navy. The first of the new Aviation Cadets under the program reported for training in late August.

1053786

The radical XF5U-1 had a nearly disk-shaped wing for maneuverability and a short takeoff run.

24 JUNE • In a reaction to ongoing Allied efforts to consolidate control of their zones of occupation in divided Germany, the Soviets initiated a blockade of Berlin by cutting off all road, rail, and waterborne traffic into the German city. Despite international condemnation of their actions, the Soviets claimed that they experienced "technical difficulties" in maintaining the lines of communication into Berlin. The Allies subsequently responded with Operation Vittles—an airlift to feed and supply the troops and civilians entrapped within the city. Naval aircraft operated during the airlift, and at least one carrier battle group normally steamed in the North Atlantic.

29 JUNE • The development of TACAN –Tactical Air Navigation system– began with a Bureau of Ships contract with the Federal Telecommunications Laboratory for development of a surface beacon and airborne receiver capable of determining the direction of aircraft from surface stations. The stringent accuracy requirements originated from needs that grew out of carrier operational experience during World War II. A year later and following tests of the initial model, the company received contracts for development of equipment that also measured distances.

1 JULY • The Naval Air Transport Service was disestablished. The command had remained in existence following the establishment of the Military Air Transport Service to assist in the transfer of Navy commands to the new organization.

1 JULY • The Naval Aeronautical Rocket Laboratory was established at Lake Denmark, N.J. The laboratory provided an East Coast rocket testing facility similar in function to the Air Force Rocket Test Facility at Muroc, Calif.

3 JULY • The Chief of Naval Operations Adm. Louis E. Denfeld requested that the Bureau of Ordnance develop a 250-pound bomb on the lines of the Douglas Aircraft Company shape and a container to the same lines that could carry a number of conventional 250-pound bombs. The move initiated the ordnance aspects of low-drag bomb development.

6 JULY • VAW-1 and -2 were established in the Pacific and Atlantic Fleets, respectively, responsible for organizing and training airborne early warning (AEW) teams for carrier operations. Although AEW aircraft had operated from carriers, and land-based squadron VPW-1 was established on 1 April 1948 with a secondary mission of AEW, these wings marked the first naval commands organized specifically for the AEW mission, and the first to provide the fleet with AEW services from carriers.

20 JULY • Chief of Naval Operations Adm. Louis E. Denfeld directed the change of the standard composition of carrier air groups to comprise three fighter and two attack squadrons; thus adding an additional fighter squadron to each group. To compensate for this increase, the Navy later reduced squadron aircraft complements.

1053758

The JRM *Philippine Mars* transport, BuNo 76820, uses jet-assisted takeoff at NAS Alameda, Calif. It was one of only seven built.

22 JULY • The assembly and repair departments at Navy and Marine air stations were redesignated overhaul and repair departments.

23 JULY • The Assistant Secretary of the Navy for Air approved a plan to develop a fleet aviation center in the area of Jacksonville, Fla. The plan included reactivation of facilities at Cecil Field and Mayport to help support the air groups assigned to the center, and the relocation of the Naval Air Advanced Training Command based at NAS Jacksonville.

29 JULY • President Harry S. Truman approved the construction of *United States* (CVA 58). The Naval Appropriation Act of 1949 provided funds in a private shipyard for the ship at Newport News (Virginia) Shipbuilding and Dry Dock Company.

1 AUGUST • The dissolution of the Aeronautical Board ended more than 30 years as an interservice agency for cooperation in aviation. The National Security Act of 1947 assigned most of the board's functions to other boards.

17 AUGUST • Chief of Naval Operations Adm. Louis E. Denfeld informed the chief of the Bureau of Aeronautics of his intention to assign antisubmarine warfare as a primary mission to most patrol squadrons, and requested the institution of a vigorous program by the bureau to outfit patrol planes with the necessary equipment.

20 AUGUST • Secretary of Defense James V. Forrestal convened at the Naval War College, Newport, R.I., a second meeting of the Joint Chiefs of Staff in an effort to clarify the rationale concerning each service's national security responsibilities. Although the meeting resulted in designating the Air Force as the interim executive agent for the Armed Forces Special Weapons Project (which controlled the atomic weapons stockpile), it also provided the Navy with the authority to participate in atomic bombing.

28 AUGUST • The JRM-2 *Caroline Mars*, BuNo 76824, from VR-2 completed a record nonstop flight of 4,748 miles from Honolulu, Hawaii, to Chicago, Ill., in 24 hours, 12 minutes with 42 persons on board and carrying a 14,000-pound payload.

1 SEPTEMBER • The Navy simplified the system of group and squadron designations in effect since November 1946. The action redesignated carrier air groups as CVG without regard to their carrier assignments; changed the numbers of most squadrons to conform to the previous system (VF and VA were assigned two or three digit numbers,

the first of which was the same as the parent air groups, and suffix letters were dropped); redesignated fighting squadrons as fighter squadrons; reverted patrol squadrons to the simple VP designation; redesignated VRF and VRU as VR—development, helicopter, lighter-than-air, and observation squadrons remained the same—and some VC became VAW to reflect their air warning mission, while others were redesignated VFN or VAN to reflect all-weather capabilities. These changes did not affect Marine Corps squadron designations.

5 SEPTEMBER • The JRM-2 *Caroline Mars*, BuNo 76824, from VR-2 carried a 68,282-pound cargo on a 390-mile flight from NAS Patuxent River, Md., to Cleveland, Ohio. The event marked the heaviest payload ever lifted in an aircraft to date.

9 SEPTEMBER • VC-5 was established as a result of a Navy effort to provide carriers with atomic capabilities. The squadron initially received P2V Neptunes and developed tactics and procedures to takeoff with nuclear weapons from the decks of carriers.

1 OCTOBER • Seaplane tender *Norton Sound* (AV 11) completed conversion at the Philadelphia Naval Shipyard, Pa. After a brief shakedown, she began operations as the Navy's first guided missile experimental and test ship. The ship was redesignated AVM-1 on 8 August 1951.

27 OCTOBER • VR-6 and -8 of the Military Air Transport Service received orders to move from their Pacific bases to the Allied zones in West Germany to take part in Operation Vittles—the Berlin Airlift.

1 NOVEMBER • The Naval Air Advanced Training Command shifted from NAS Jacksonville, Fla., to NAS Corpus Christi, Texas, in accordance with plans to convert the Jacksonville area into a fleet aviation center.

5 NOVEMBER • To meet the requirements of landing aircraft weighing up to 50,000-pounds at speeds as high as 105 knots, a project began for the design of Mark 7 high energy–absorption arresting gear at the Naval Aircraft Factory at Philadelphia, Pa.

9 NOVEMBER • VR-6 and -8 of the Military Air Transport Service began flying cargoes into Soviet-besieged Berlin.

17 DECEMBER • To meet the mounting requirements for transatlantic airlift in support of Operation Vittles, VR-3 switched from flying domestic routes to flying the run from Westover, Mass., to Frankfurt, Germany.

1949

23 JANUARY • *Palau* (CVE 122) completed 12 days of tests off the New England coast as part of an effort to develop carrier capabilities in conducting air operations under cold and severe weather conditions. This marked the Navy's continuing interest in cold weather evaluations first demonstrated by *Langley* (CV 1) in the same area 18 years before.

26 JANUARY • Seaplane tender *Norton Sound* (AV 11) launched her first Loon guided missile off NAMTC Point Mugu, Calif.

707741

Marines embark in HRP-1s during a vertical envelopment amphibious exercise on board *Palau* (CVE 122).

415146

Seaplane tender *Norton Sound* (AV 11) fires a Loon guided missile off Point Mugu, Calif., 26 January 1949.

27 JANUARY • Chief of Naval Operations Adm. Louis E. Denfeld authorized the conversion of all newly constructed cruisers to accommodate helicopters.

3 FEBRUARY • The Lockheed XR6O-1, which the Navy had accepted the day before at NAS Alameda, Calif., inaugurated its transcontinental service with a flight from NAS Moffett Field, Calif., to Washington, D.C. The 92-ton Constitution established a new record for the number of people carried on a transcontinental flight—18 crewmen and 78 passengers—and crossed the continent in 9 hours, 35 minutes.

25 FEBRUARY • The JRM-2 *Caroline Mars*, BuNo 76824, from VR-2 broke the world record for passenger lift by transporting 202 passengers from NAS Alameda, Calif., to San Diego, Calif. The plane carried 218 people on the return flight to break the record again the same day. These loads were in addition to its crew of four.

4 MARCH • The JRM-2 *Caroline Mars*, BuNo 76824, from VR-2, set a new record for persons carried aloft by transporting 263 passengers and a crew of six on a 2 hour, 41-minute flight from San Diego, Calif., to NAS Alameda, Calif. The passengers included officers and men of CVG-15 on a routine transfer of station.

7 MARCH • Pilot Capt. John T. Hayward of VC-5 launched in a P2V-3C Neptune from *Coral Sea* (CVB 43) off the Virginia Capes with a 10,000-pound load of dummy bombs, crossed the continent to drop the load on a West Coast target, and returned nonstop to NAS Patuxent River, Md.

24 MARCH • Pilot Lt. Stewart R. Graham, USCG, and aircrewman AM2 Robert McAuliffe, USCG, set the record for the longest unescorted helicopter flight to date when they ferried an HO3S-1G, designated Coast Guard Aircraft No. 234, from CGAS Elizabeth City, N.C., to CGAS Port Angeles, Wash. Graham and McAuliffe arrived on 3 April after a total of 57.6 hours in flight.

31 MARCH • In the highest monthly amount of the airlift to date, U.S. aircraft delivered 154,475 tons of cargo to West Berlin, East Germany. In addition, VR-8 set an airlift record to date of 155 percent efficiency for the month, and a daily utilization of 12.2 hours per squadron aircraft.

5 APRIL • The initiation of a plan to use helicopters in place of fixed-wing aircraft on board battleships and cruisers began, and VO-2 was disestablished as the last of the observation squadrons. The events marked the end of one era and the beginning of another. The changeover was to be completed by 30 June.

23 APRIL • Secretary of Defense Louis A. Johnson abruptly halted the construction of *United States* (CVA 58), just five days after her keel laying at Newport News (Virginia) Shipbuilding and Dry Dock Company. The secretary made his decision without consulting Secretary of the Navy John L. Sullivan or Chief of Naval Operations Adm. Louis E. Denfeld. Secretary Sullivan subsequently resigned in protest, and President Harry S. Truman appointed Francis P. Matthews in his place.

19 MAY • The JRM-1 *Marshall Mars* broke the record for the number of people carried on a single flight with 301 passengers and a crew of seven from NAS Alameda, Calif., to San Diego, Calif.

15 JULY • Douglas Aircraft Company test pilots completed an initial flight evaluation of the low-drag external-store shape on an XF3D-1 at Edwards AFB Calif. The aircraft carried two of the shapes, and it attained a top speed of 51 knots greater than when carrying two conventional 2,000-pound bombs and 22 knots greater than with two 150-gallon external fuel tanks.

31 JULY • VR-6 and -8's participation in the Berlin Airlift ended. During their eight months in Germany, the squadrons flew a total of 45,990 hours, carried 129,989 tons of cargo into Berlin, and established a record of payload efficiency and aircraft utilization at the hitherto unparalleled figure of better than ten hours per day per plane for the entire period.

1 AUGUST • The Seventh Task Fleet stood up as the forward-deployed U.S. naval force in the western Pacific.

1 AUGUST • The Navy established Naval Air Development Center, Johnsville, Pa., and disestablished Naval Air Development Station.

9 AUGUST • Lt. Jack L. Fruin of VF-171 made the first operational use of an ejection seat for an emergency escape in the United States. He survived ejection from an F2H-1 while the Banshee flew at more than 500 knots in the vicinity of Walterboro, S.C.

10 AUGUST • An amendment to the National Security Act of 1947 provided for an increase in the authority of the Secretary of Defense and replaced the National Military Establishment with the Department of Defense. The change further provided the continuance of the separate administration of the three military departments, and that naval aviation was to "be integrated with the naval service . . . within the Department of the Navy."

1 OCTOBER • An exchange program to indoctrinate selected Air Force, Navy, and Marine pilots in the operational and training activities of each other's service began with the exchange of 18 pilots from the services for one year. The move

652827

A twin-jet F3D-2 Sky Knight of VF-14 overflies *Intrepid* (CV 11) during carrier qualification trials, November 1954.

407668

A dozen P2V-3 Neptunes were modified to the -3C specification for a carrier-launched nuclear bomber. To verify the ability to launch and range to get to the target, Cmdr. Frederick L. Ashworth flies from *Midway* (CVB 41) off Norfolk, Va., on a 4,800-mile route to San Diego, Calif., 5 October 1949.

1053787

The photoreconnaissance F2H-2P Banshee had all its armament removed and replaced with cameras. This is a Marine Banshee of Headquarters Squadron 2.

accorded with an interservice agreement reached in July, which provided for the qualification of all pilots in the type of aircraft operated by the commands in which they served, and their occupation of regular pilots' billets in their new assignments.

5 OCTOBER • Pilot Cmdr. Frederick L. Ashworth took off in a P2V-3 Neptune from *Midway* (CVB 41) at sea off Norfolk, Va., flew to the Panama Canal, northward over Corpus Christi, Texas, and on to San Diego, Calif. Ashworth completed the 4,800-mile nonstop, unrefueled flight in 25 hours, 40 minutes.

5 OCTOBER • Congress opened hearings on unification and strategy. In a controversy that journalists subsequently dubbed "The Revolt of the Admirals," Adm. Arthur W. Radford spearheaded the testimony of Navy witnesses against Air Force charges of the sea service's obsolescence during the atomic age. On 17 October, despite the objections of Secretary of Defense Louis A. Johnson and Secretary of the Navy Francis P. Matthews, the Chief of Naval Operations Adm. Louis E. Denfeld supported the statements of preceding witnesses against defense policies that centered on the intercontinental bombing of enemy cities by Air Force

1053755

Patrol Squadron (VP) 21 received its first P4M-1 Mercator in June 1950.

bombers and marginalized naval aviation, as exemplified in the development of the Convair B-36. Admiral Denfeld's stand prompted his removal from office on 1 November; however, the controversy resulted in Congressional support that preserved a role for naval aviation in national deterrence.

30 OCTOBER • Lt. Giuseppe A. Rullo and M. D. Kembro of the Civil Air Patrol flew an HO3S-1 in 10 hours, 50 minutes from NAS Seattle, Wash., to NAS Alameda, Calif. Their achievement unofficially bettered the existing distance record for helicopters with a flight of 755 miles.

1 NOVEMBER • Adm. Louis E. Denfeld's controversial decision during the congressional hearings on strategic posture triggered his removal as Chief of Naval Operations, and naval aviator Adm. Forrest P. Sherman became the 12th CNO the next day.

1 DECEMBER • The consolidation of all air transport wings under a single command—the Fleet Logistic Air Wing—resulted in the dissolution of the Atlantic and Pacific Fleet Logistics Support Wings.

1053756

A landing signal officer directs an HO3S-1 landing on board *Franklin D. Roosevelt* (CVB 42).

9 DECEMBER • The reorganization of the Naval Air Reserve was completed. This placed 128 fighter, 41 attack, 25 composite, 29 patrol, 26 transport, 57 service, and 5 blimp squadrons under the command of 27 air wings established at the same number of Reserve air stations across the United States.

1949 continued

29 DECEMBER • Earlier in the month, the Chinese Communists had defeated the Chinese Nationalists on the mainland and driven them to Formosa (Taiwan). On this date, the Navy announced the reinforcement by *Boxer* (CV 21) to the U.S. presence in the western Pacific in an effort principally to deter Chinese Communist expansionism.

Chapter 7

The Korean War

1950–1953

The outbreak of the Korean War caught naval aviation in the midst of transition. The establishment of the Department of Defense in 1947 and its reorganization in 1949 required adjustments that had not been completed. Successive budgetary decreases and the prospect of further cuts had reduced the size of the service, and a reorganization of operating forces to keep within the prescribed limits had begun.

New weapons and equipment had not been fully integrated and tactical doctrine and innovative operating techniques for their employment were still under development. The introduction of jet aircraft created a composite force in which either jet or propeller-driven aircraft that differed in performance characteristics, maintenance requirements, and tactical applications equipped comparable commands.

Despite the amphibious landings at Inchon 2½ months after the North Korean invasion of South Korea, the operations of naval aviation during the Korean War diverged from the island hopping campaigns in the Pacific during World War II. The United Nations sought to confine the fighting to the Korean peninsula to avoid the specter of escalation into an atomic war, but this policy limited air operations.

The seesaw clashes on the ground during the first six months of the war demanded flexibility of force, but the air campaign developed into a predictable pattern that Commander Task Force 77 described in January 1952 as "a day-to-day routine where stamina replaces glamour and persistence is pitted against oriental perseverance." In addition, the need to sustain carrier air power for extended periods over a landmass imposed a command and logistical burden.

Carrier aircraft flew deep support missions, attacked supply lines, roamed over enemy territory for targets of opportunity, bombed bridges, interdicted highways and railroads, attacked refineries, railroad yards, and hydroelectric plants, and escorted land-based bombers on special missions. The variability of these raids challenged men trained to interdict enemy sea lines of communication and to ward off attacks by enemy naval forces. Helicopters assumed an increasingly significant role as they rescued downed aircrew, evacuated wounded, flew short-range supply missions to Marines and soldiers ashore, enhanced command-and-control options for Marines, spotted shore bombardment gunfire for ships, and scoured coastal areas for mines.

During the three years of war, Navy and Marine aircraft flew 276,000 combat sorties, dropped 177,000 tons of bombs, and expended 272,000 rockets. Their achievement reached within 7,000 sorties of the comparable World War II totals in all theaters, and surpassed the bomb tonnage by 74,000 tons and the number of rockets by 60,000. Naval and Marine aircraft completed action sorties that rose in number from less than 10 percent during World War II to more than 30 percent during the Korean War.

Outside the combat area, the fleet continuously maintained peaceful missions in the Mediterranean and eastern Atlantic, and trained on the same scale as before. Accelerated research and development nonetheless did not shift to emphasize projects that directly applied to the war effort, but continued on longer range programs aimed at progressively modernizing fleet forces and their equipment with more effective weapons.

Advances in guided missiles indicated their early operational status and the ships and submarines to employ them readied for action. The firing of research missiles such as Larks, Loons, and Vikings from shore installations and ships provided useful data and experience. Additional missiles including Regulus, Sidewinder, Sparrow, Talos, and Terrier types passed successive stages of development.

A VF-191 F9F-2 rotates as the catapult bridle drops away and the Panther reaches flying speed on *Princeton* (CV 37). The squadron made two Korean War deployments flying these aircraft in 1950–1952.

The research in high-speed flight assisted by specially designed aircraft provided data that led toward advances in aircraft performance. The carrier modernization program continued and underwent revision to incorporate steam catapults and angled flight decks. Naval aviation demonstrated its continuing usefulness in war and its versatility in adapting to new combat requirements and moved forward toward new horizons.

1950

10 JANUARY • Seaplane tender *Norton Sound* (AV 11) sailed for a 19-day cruise in Alaskan waters from Port Hueneme, Calif. During the operation, the ship launched two RTV-N-8 Aerobee sounding rockets, one Lark surface-to-air guided missile, and one LTV-N-2 Loon test vehicle, evaluating an auxiliary propulsion system for the Lark under severe conditions. *Norton Sound* embarked 27 observers representing the Army, Navy, and Air Force, including eight scientists from the Aerobee upper atmosphere research program.

13 JANUARY • In the Navy's first successful automatic homing flight of a surface-to-air guided missile, a CTV-N-10 Lark was launched from NAMTC Point Mugu, Calif. The Lark passed within lethal range of its target F6F Hellcat drone and made a simulated interception at a range of 17,300 yards and an altitude of 7,400 feet.

7 FEBRUARY • In a demonstration of carrier long-range attack capabilities, pilot Cmdr. Thomas Robinson took off in a P2V-3C Neptune from *Franklin D. Roosevelt* (CVB 42) off Jacksonville, Fla., and flew over Charleston, S.C., the Bahamas, the Panama Canal, up the coast of Central America, and over Mexico, landing the next day at the Municipal Airport, San Francisco, Calif. The flight covered 5,060 miles in 25 hours, 59 minutes—the longest to date made from a carrier deck.

20 FEBRUARY • Joint exercise Operation Portrex began, which included the first peacetime maneuvers to employ airborne troops in an amphibious operation. This escalated into a combined amphibious and airborne assault on 8 March against Vieques Island, P.R. The Pentagon staged Portrex to

evaluate joint service doctrine for combined operations, to service test new equipment under simulated combat conditions, and to provide training for the Caribbean Command. The exercise extended through 14 March.

10 MARCH • Secretary of Defense Louis A. Johnson announced the development under a Bureau of Aeronautics research program begun in 1946 of a lightweight titanium alloy for use in jet aircraft engines. The announcement described the alloy as being as strong as high-strength steel and only half as heavy, highly resistant to corrosion, and capable of retaining its basic properties at high temperatures.

22 MARCH • Submarine *Cusk* (SS 348) launched a Loon guided missile from a position off NAMTC Point Mugu, Calif. At the midway point of the missile's 50-mile flight, *Cusk* surrendered control to a guidance station on San Nicolas Island. This station completed the first successful operation involving the transfer of guidance by crashing the Loon 360 yards from the center of the target, Begg Rock.

1 APRIL • The Naval Air Rocket Test Station was established at Lake Denmark, N.J. The action superseded Naval Aeronautical Rocket Laboratory for the testing and evaluation of rocket engines, components and propellants, and the training of personnel to operate and service rocket engines.

8 APRIL • Soviet aircraft shot down a PB4Y-2, BuNo 59645, of VP-26 Detachment A—based at NAS Port Lyautey in French Morocco, but on patrol from Wiesbaden, West Germany—over the Baltic Sea off the coast of Liepāja, Latvia. Searchers recovered pieces of wreckage, but all ten men on board the Privateer died.

18 APRIL • The experimental model of the Convair XP5Y-1 passed its initial flight test at San Diego, Calif. Four Allison T-40 turboprop engines, each rated at 5,500 hp and turning 15-foot contra-rotating propellers, powered the 60-ton seaplane.

21 APRIL • Pilot Lt. Cmdr. Robert C. Starkey of VC-6 took off in a P2V-3C Neptune from *Coral Sea* (CVB 43) with a gross weight of 74,668-pounds—the heaviest aircraft launched from a carrier to date. In addition, pilot and VC-5 commanding officer Capt. John T. Hayward made the first heavy attack plane carrier takeoff in an AJ-1 Savage from *Coral Sea*.

197506

A pair of AJ-1 Savages from Composite Squadron (VC) 6 cruise off the coast of Hawaii. The squadron was the second formed, in January 1950, to receive the new bombers.

3 MAY • Submarine *Cusk* (SS 348) launched a Loon guided missile. The boat submerged and tracked and controlled the flight of the missile to a range of 105 miles.

11 MAY • Seaplane tender *Norton Sound* (AV 11) launched a Viking missile from a position near Christmas Island, south of the Hawaiian Islands. The event set a new altitude record for U.S.-built single-stage rockets of 106.4 statute miles.

15 MAY • The Navy announced the completion of a new test chamber at the Ordnance Aerophysics Laboratory, Daingerfield, Texas. For the first time, full-scale ramjet engines up to 48-inches in diameter could be tested and at simulated altitudes of up to 100,000 feet.

19 JUNE • The JRM-2 *Caroline Mars*, BuNo 76824, completed a 2,609-mile flight with 144 men on board from Honolulu, Hawaii, to San Diego, Calif. The flight marked the largest passenger lift over the Pacific to date.

25 JUNE • Despite warnings from multiple intelligence sources, the North Koreans, achieving tactical surprise, invaded South Korea initiating the Korean War. The United States asked for an emergency meeting of the UN Security Council, which then adopted a resolution condemning the North Korean aggression, ordered the withdrawal of North Korean troops above the 38th parallel, and called on all members to assist the UN in the execution of the resolution. The Soviets had boycotted the council in protest of ongoing American support of the Chinese Nationalists and their absence prevented their veto of the motion.

428637

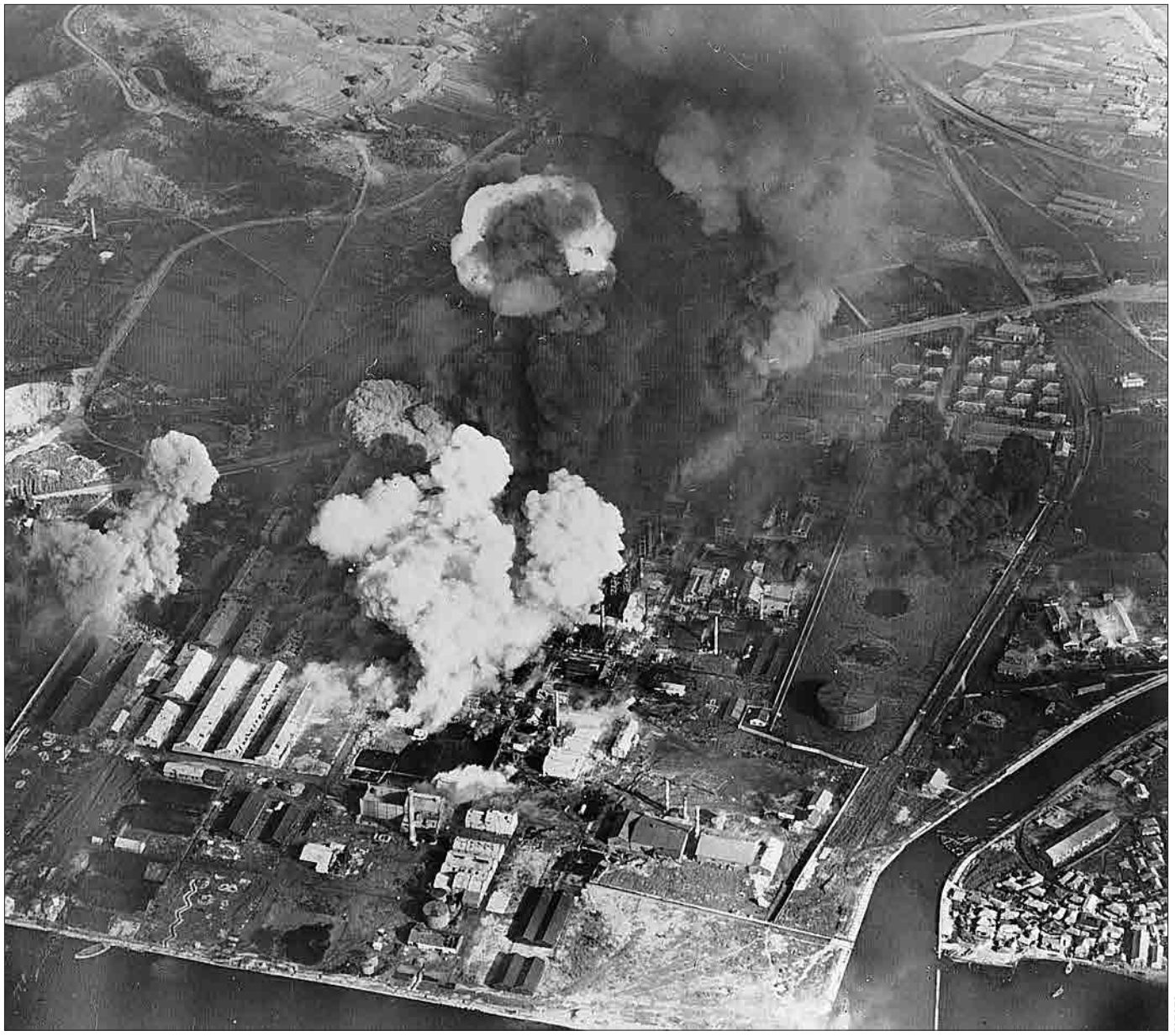
A VA-195 AD-4 Skyraider spreads its wings as it prepares to takeoff from *Princeton* (CV 37) during the Korean War.

27 JUNE • President Harry S. Truman announced that he had ordered sea and air forces in the Far East to give support and cover to the South Koreans, and directed the Seventh Fleet to take steps to prevent an invasion of Formosa (Taiwan). During a meeting later that night, the UN Security Council adopted a resolution calling upon all its members to assist the South Koreans to repel the North Korean invasion.

30 JUNE • President Harry S. Truman declared that in keeping with the UN Security Council request for support to the South Koreans to resist the communist invaders and to restore peace, he authorized the Air Force to bomb military targets in North Korea, the use of Army ground troops in action to support South Korean forces, and a naval blockade of the entire Korean coast.

3 JULY • Carrier aircraft went into action during the Korean War. *Valley Forge* (CV 45)—the only operational U.S. carrier in the western Pacific when the war began—with CVG-5 embarked and British carrier *Triumph* (R 16) operating in the Yellow Sea with Fairy Firefly FR.1s and Supermarine Seafire FR.47s of Nos. 827 and 800 Squadrons, respectively, launched strikes on North Korean airfields, supply lines, and transportation facilities in the area of Pyŏngyang. These raids marked the baptism of fire for F9F-3 Panthers and AD Skyraiders. Navy pilots also recorded their initial kills in aerial combat during the Korean War and the first by Navy jets. Lt. j.g. Leonard H. Plog and Ens. Elton W. Brown Jr. of VF-51 piloted two F9F-3s and shot down two enemy Yakovlev Yak-9P Franks over Pyŏngyang.

8 JULY • Commander in Chief Far East approved and adopted as policy an agreement of Commander Naval Forces, Far East, and Commanding General Far East Air Forces to obtain the maximum effectiveness in the employment of all air resources in the Far East Command and to ensure coordination of efforts. Under the terms of the accord, the Navy controlled the operations of its carrier aircraft whenever they flew on missions assigned to Commander, Naval Forces, Far East, and of its shore-based aircraft during naval missions. On all other sorties, the operations of carrier and shore-based naval aircraft fell under the purview of the Air Force.



707876

The North Korean oil refinery at Wŏnsan burns following a carrier strike.

Shore-based Marine aircraft operated under direct control while Navy aircraft were indirectly controlled. The selection of targets and their priority by General Headquarters Joint Service Target Analysis Group ensured coordination of the overall objectives of the air campaign.

12 JULY • Naval Air, Japan, was formed in Tōkyō to provide an interim staff to administer the expanding aviation forces in the Far East. On 9 August, the command was established as Fleet Air, Japan, Rear Adm. George R. Henderson commanding.

16 JULY • The headquarters of Fleet Air Wing 1 shifted from Guam to Naha, Okinawa, to direct patrol squadron operations over the Formosa (Taiwan) Strait.

18 JULY • After a brief respite, *Valley Forge* (CV 45) and British carrier *Triumph* (R 16) returned to action with strikes on North Korean airfields, railroads, and factories at Hamhŭng, Hungnam, Numpyong, and Wŏnsan. Their aircraft heavily damaged the oil refinery at Wŏnsan. For the remainder of the month, carrier aircraft flew interdiction strikes deep behind enemy lines and close support missions

419929

Sailors ready a heavily armed Marine Corps F4U-4B Corsair for a pre-dawn launch from *Sicily* (CVE 118) in late summer or early fall 1950.

as required, while the ships shifted entirely around the peninsula from the Sea of Japan to the Yellow Sea in operations intended to relieve the pressure on UN troops retreating toward Pusan (Busan), South Korea.

19 JULY • Ens. Donald E. Stevens of VA-55 was shot down in an AD-4 Skyraider during a strafing run in Kangmyong-ni, North Korea. He was the first naval aviator lost in action during the Korean War.

20 JULY • Fourteen squadrons of the Organized Reserve including eight carrier fighter, two carrier attack, one antisubmarine, one fleet aircraft service, and two patrol squadrons were activated for duty as a result of the Korean War.

22 JULY • *Badoeng Strait* (CVE 116), with elements of the 1st Marine Aircraft Wing embarked, arrived at Yokosuka, Japan. Four days later, *Sicily* (CVE 118) arrived at that port with a load of ammunition, and on 1 August, *Philippine Sea* (CV 47) reported to Commander Seventh Fleet at Buckner Bay, Okinawa. These arrivals marked the first carrier reinforcements to *Valley Forge* (CV 45) in Far Eastern waters and the beginning of carrier deployments to the Korean War that by the war's end totaled 11 attack, one light, and five escort carriers sent into action. Some of these carriers fought through two or three tours.

23 JULY • *Boxer* (CV 21), with a load of 145 USAF North American P-51 Mustangs and six L-5 Sentinels, 19 Navy aircraft, 1,012 passengers, and 2,000 tons of additional cargo arrived in Yokosuka, Japan. This delivery of urgently needed reinforcements for the fighting in Korea was made by breaking all existing records for a Pacific crossing in 8 days, 16 hours from NAS Alameda, Calif., to Yokosuka.

27 JULY • To meet the requirements of supporting combat forces in the Korea War, Fleet Logistic Air Wing, Pacific, was established as a unit of the Pacific Fleet and independently from the existing Fleet Logistic Air Wing.

420530

A wounded man is carried from the HO3S-1 of VMO-6, which evacuated him from the front.

3 AUGUST • HO3S-1s and OY-2 Sentinels of VMO-6 began Korean War operations in support of the 1st Provisional Marine Brigade in the vicinity of Changwon. During their first day in battle, the helicopters delivered rations and water to troops on a mountain, and evacuated men felled by the severe heat.

3 AUGUST • VMF-214, operating from *Sicily* (CVE 118) while she sailed in Tsushima Strait, began the combat operations of the 1st Marine Aircraft Wing in the Korean War with a rocket and incendiary bomb attack on North Korean troops at Chinju. *Badoeng Strait* (CVE 116), with VMF-323 embarked, joined the action three days later. Marine squadrons flew close air support from light and escort carriers that logged 12 deployments during the war.

4 AUGUST • Fleet Air Wing 6, Capt. John C. Alderman commanding (acting), was established at Tōkyō, Japan. The wing assumed operational control over all U.S. and British patrol squadrons in the Japan-Korea area.

5 AUGUST • *Valley Forge* (CV 45) and *Philippine Sea* (CV 47) began almost three years of continuous fast carrier operations with attacks on enemy lines of communication in southwestern Korea and close support missions for UN troops holding the perimeter around Pusan (Busan).

7 AUGUST • The Navy received delivery of airship ZP2K-1, subsequently redesignated ZSG-2. The modernized K-class airship was equipped with in-flight refueling equipment and attachments for picking up seawater as ballast.

7 AUGUST • An HO3S-1 equipped with a single-axis automatic pilot made the first Navy flight of a helicopter under automatic control at NAF Mustin Field, Philadelphia, Pa. The successful test confirmed the feasibility of a helicopter automatic pilot. L. S. Guarino oversaw the development of the system at the Aeronautical Instrument Laboratory, Naval Air Material Center.

14 AUGUST • At the request of the Lebanese government, *Midway* (CVB 41) and *Leyte* (CV 32) visited Beirut, and launched an aerial demonstration over the Lebanese capital.

21 AUGUST • Aircraft flying from *Valley Forge* (CV 45) and *Philippine Sea* (CV 47) indicated the escalation of the air war when they set new records for operations, completing 202 sorties in a day over the Pyŏngyang area of North Korea.

24 AUGUST • A RIM-2 Terrier surface-to-air guided missile intercepted an F6F Hellcat drone at a range of more than 11 miles from the point of launch at Naval Ordnance Test Station Inyokern, Calif.

31 AUGUST • VC-5 marked the introduction of long-range attack bombers to carrier operations with the completion of AJ-1 Savage carrier qualifications on board *Coral Sea* (CVB 43).

6 SEPTEMBER • *Leyte* (CV 32) sailed from the Atlantic Fleet and arrived in the Korean War theater on 9 October.

14 SEPTEMBER • Commander U.S. Far East Command and UN troops in Korea Gen. Douglas A. MacArthur, USA, surmised that a successful landing in the Inchon area of South Korea and the rapid seizure of the nearby airfield at Kimpo would enable the allies to liberate the South Korean capital of Seoul, turn the flank of the North Koreans, and cut their rail and road supply routes into the south. On this date, *Badoeng Strait* (CVE 116) and *Sicily* (CVE 118) launched preliminary strikes against North Korean troops around Inchon and on roads leading into Seoul.

The following day, Task Force 90, Rear Adm. James H. Doyle commanding, sailed through a narrow channel and landed the 1st Marine Division at Inchon. Aircraft and naval gunfire supported the leading Marines as they seized fortified Wolmi Island. The landing craft regrouped and incurred a delay of about 12 hours to ensure that the treacherous tide again became favorable, and the Marines followed up with an assault of the mainland.

British carrier *Triumph* (R 16) operating with the Blockade and Covering Force provided air defense for the assault forces en route, and *Boxer* (CV 21) arrived on D-day. "The Navy and the Marines," MacArthur wrote Commander Seventh Fleet Vice Adm. Arthur D. Strubble, "have never shone more brightly than this morning." Through 3 October, carrier aircraft flew close air support missions and strikes against enemy lines of communication to support the advance inland. The success of the landings changed the course of the war.

18 SEPTEMBER • Fleet Logistic Air Wing, Atlantic/Continental, replaced Fleet Logistic Air Wing, with a status parallel to that of the previously established Fleet Logistic Air Wing, Pacific.

19 SEPTEMBER • Two days after troops had fought their way inland from Inchon and captured the airfield at Kimpo, South Korea, the first elements of the 1st Marine Aircraft Wing arrived from Japan. Early the next morning, the Marine aircraft began air operations from there with strikes to support allied columns advancing on Seoul.

23 SEPTEMBER • An HO3S-1 equipped with an automatic pilot developed by the Aeronautical Instruments Laboratory was flown with three-axis automatic control at NAF Mustin Field, Philadelphia, Pa.

2 OCTOBER • The Bureau of Aeronautics authorized the establishment of Project Arowa (Applied Research: Operational Weather Analysis) at Norfolk, Va., to develop basic meteorological research data into practical weather forecasting techniques.

10 OCTOBER • Carriers moved into action off the east coast of Korea and launched strikes and sweeps from Ch'ŏngjin to Wŏnsan in preparation for amphibious landings at Wŏnsan. A heavy concentration of mines in the harbor delayed the scheduled landings and the naval attack shifted northward and inland to assist the push of UN forces. When troops landed on 26 October, the inland advance had swept past the intended objective area toward the Yalu River.

28 OCTOBER • Chief of Naval Operations Adm. Forrest P. Sherman directed the establishment by each station, air group, wing, and squadron of a permanent instrument flight board to check the instrument flying proficiency of naval aviators and naval aviation pilots, and to supervise and coordinate the instrument training of all pilots attached. He also directed the maintenance, with certain exceptions, by all Group I naval aviators of a valid instrument rating following 18 months from the date.

29 OCTOBER • The fast carrier force retired to Sasebo, Japan, because the advance of UN forces toward the Yalu River reduced the enemy-held area in Korea into which aircraft could attack.

31 OCTOBER • The National Advisory Committee for Aeronautics issued a report on tests at the Langley Aeronautical Laboratory in which a wind tunnel was used to determine the characteristics of a fully submerged,

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Lt. Cmdr. William T. Amen of VF-111 from *Philippine Sea* (CV 47) scored the Navy's first MiG kill, 9 November 1950.

high-speed submarine. The experiment reemphasized the interrelationships of basic naval sciences dealing with aeronautics and naval architecture.

6 NOVEMBER • United Nations forces approached the China–North Korean border along the Yalu River, and communist leaders from Moscow to Peking (Beijing) argued that the allied advance comprised part of a global U.S. conspiracy to encircle the Eastern Bloc. Chinese Premier Mao Tse-tung (Zedong) stated his expectation of American attacks across the Formosa (Taiwan) Strait, the Philippines, and French Indochina, and pledged to support the foundering North Korean regime. On 19 October, 12 Chinese divisions began to cross the Yalu from Manchuria, and several days later clashed with American and South Korean troops before deceptively withdrawing. As enemy opposition thus stiffened, the fast carriers returned on this date to attack targets in their assigned area east of the 127th meridian. Two days later the carriers received the primary mission of cutting off Chinese Communist reinforcements from Manchuria by destroying the international bridges across the Yalu River. Political considerations restricted UN aircraft from pursuing communist aircraft across the river into Chinese territory to avoid escalating the war to embroil the Soviets. These restrictions frustrated the allies and allowed enemy aircraft to escape retribution in what became a safe haven.

9 NOVEMBER • Aircraft made the initial strikes against the bridges crossing the Yalu River at Sinŭiju, North Korea. Lt. Cmdr. William T. Amen, commanding officer of VF-111, led F9F-2B Panthers that covered the strike force of F4U Corsairs and AD Skyraiders. At least five Mikoyan and Gurevich (MiG) 15 Fagots flying from the sanctuary of Antung, Manchuria, counterattacked. The battle swirled

from just above ground level up to 18,000 feet, and Amen shot down a MiG-15 to make the Navy's first MiG—and jet-on-jet—kill. The Skyraiders scored three direct hits and five near misses on the bridges during the first strike, and scored four hits with 2,000-pound bombs on the railroad bridge at Manpojin. All the attackers returned despite heavy and accurate enemy ground fire.

10 NOVEMBER • The Naval Guided Missile Training Unit No. 21, under training to operate RIM-2 Terrier surface-to-air missiles, was relocated from Naval Ordnance Test Station Inyokern, Calif., to seaplane tender *Norton Sound* (AV 11), and was redesignated a fleet activity under AirPac.

14 NOVEMBER • Two days of snow-covered flight decks and heavy seas severely hampered carrier operations off Korea, which gave the Communists time to repair the Yalu River bridges. On 16 November, a reconnaissance flight of two aircraft photographed the target areas around Sinŭiju and confirmed the transfer of most of the antiaircraft guns to the Manchurian side of the river, where politics constrained the allies from attacking the flak batteries.

18 NOVEMBER • Carriers launched a strike at the bridge at Sinŭiju, North Korea, to cut the communist supply lines across the Yalu River. Twelve MiG-15 Fagots jumped the strike group of VF-54 F4U-4Bs as the Corsairs rendezvoused at 31,000 feet with their high cover F9F-2 and F9F-3 Panthers. Lt. Cmdr. William E. Lamb, VF-52 commanding officer, and Lt. Robert E. Parker flew two Panthers and downed a jet (both shared), while Ens. Frederick C. Weber of VF-31 flying another Panther shot down a second MiG-15. Meanwhile, the Corsairs attacked the antiaircraft guns with 500-pound proximity-fuzed bombs, which facilitated an attack on the bridge by the AD Skyraiders of VA-55. The planes experienced difficulties hitting the dug-in guns, intense flak riddled a pair of Skyraiders, and the raid only damaged the bridge.

27 NOVEMBER • The failure to drop the bridges over the Yalu River, enabled the Chinese Communist Ninth and Thirteenth Army Groups comprising 26 divisions, numbering 260,000 men, to launch a second offensive to close the jaws of a giant trap. "We face an entirely new war," Commander U.S. Far East Command and UN troops in Korea Gen. Douglas A. MacArthur, USA, declared.

29 NOVEMBER • Within days of their offensive, the Chinese tore gaps in the allied lines, smashing through the South Korean troops, and then attacked the exposed flanks of the U.S. soldiers and Marines especially in the rugged mountains northwest of Chosin Reservoir. Their drive sent the UN troops into a retreat through the onset of winter. The crisis required a shift of emphasis in fast carrier operations from bridge strikes to close air support, which intensified through December to cover the retreat toward east coast ports and the evacuation of the troops and civilian refugees by ships. This continued into January as the enemy advance rolled south past the 38th parallel.

30 NOVEMBER • Naval aviation flew 6,725 Korean War sorties during November; 2,728 by heavy carriers, 583 by escort carriers, 473 by naval non-carrier aircraft, and 2,941 by Marines ashore. Six aircraft were lost to enemy action and 27 operationally.

4 DECEMBER • Ens. Jesse L. Brown of VF-31—the first African American to complete the Navy's basic flight training program for pilot qualification and to be designated a naval aviator—embarked on board *Leyte* (CV 32), flew a close support mission in an F4U-4 Corsair over Hagaru-ri, North Korea. Antiaircraft fire struck the Corsair and he made an emergency landing beyond Chosin. As darkness approached and the temperature fell, his wingman, Lt. j.g. Thomas J. Hudner, deliberately crash-landed nearby and attempted to pull Brown from the burning wreck. With the buckled fuselage trapping the pilot's legs, Hudner packed snow around Brown to protect him from the flames and returned to his aircraft to radio for a rescue helicopter. An HO3S-1 flown by 1st Lt. Charles C. Ward, USMC, of VMO-6 responded, and after repeated unsuccessful attempts to free Brown, had to leave him with the onset of nightfall. Brown died and Ward rescued Hudner, who subsequently received the Medal of Honor.

6 DECEMBER • Five days after her return from Korean waters, *Valley Forge* (CV 45) sailed under emergency orders to return to the war from San Diego, Calif.

6 DECEMBER • Col. Deane C. Roberts, USMC, commanding officer of VMR-152, provided an R5D to the 1st Marine Aircraft Wing for a unique conversion into a tactical air direction center with situation maps and an extra radio.

1061489

An F4U Corsair drops napalm on Chinese communist positions while supporting Marines during the fierce fighting near the Chosin Reservoir, 6 December 1950.

6 DECEMBER • Chinese troops redoubled their attacks on retreating Marines in North Korea. Eighteen VMF-214 F4U-4B Corsairs struck the enemy with rockets and proximity-fuzed 500-pound bombs but the Chinese rallied. Cmdr. Horace H. Epes Jr., VF-33 commanding officer, led eight F4U-4s that made repeated strafing and napalm runs on the enemy. In some instances the Corsairs bombed the Chinese as close as 50 yards ahead of the Marines.

7 DECEMBER • The advance of communist forces required the evacuation of airfields in North Korea. Without an additional break in flying close air support operations, the F4U-4 Corsairs of VMF-214 flew from Yonpo and landed on board *Sicily* (CVE 118) off Hŭngnam.

9 DECEMBER • After 12 days of fighting, the Marines retreating from Chosin linked up with other UN troops at Chinhung-ni.

10 DECEMBER • Task Force 90 began to evacuate troops and refugees from Hŭngnam, North Korea. In two weeks, ships rescued 105,000 American and South Korean troops, and 91,000 civilians who had fled the pursuing Communists. The vessels also loaded 350,000 tons of supplies. Naval aircraft supplemented allied types that covered the withdrawal and delayed the onslaught of Chinese and North Korean columns. Following the evacuation of the last survivors, troops destroyed the harbor facilities with demolition charges to prevent their use by the enemy.

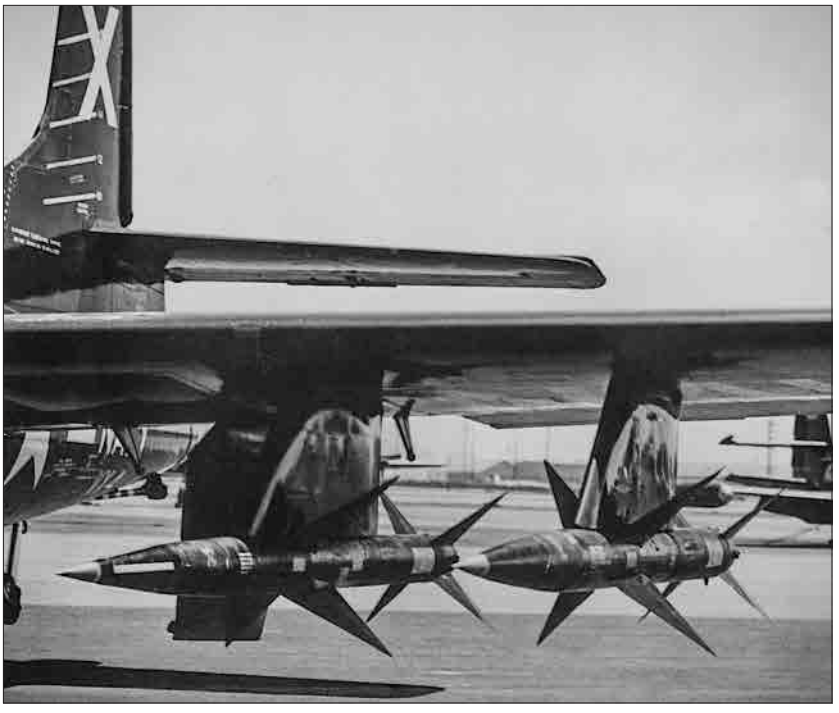
17 DECEMBER • *Bataan* (CVL 29), with VMF-212 embarked, joined forces in the Sea of Japan that protected the evacuation of troops and refugees from Hŭngnam and other North Korean ports. *Bataan* was pressed into service after her delivery of replacement aircraft to Japan, and her embarked F4U-4 Corsairs had been evacuated from Yonpo earlier in the month.

18 DECEMBER • VP-892 began operations from Iwakuni, Japan, as the first all-Reserve squadron to operate in the Korean War.

19 DECEMBER • President Harry S. Truman proclaimed a national emergency because of the Chinese successes in the Korean War.

22 DECEMBER • Chinese Premier Mao Tse-tung (Zedong) ordered his commanders to launch a third Korean War offensive.

31 DECEMBER • In December, naval aviation flew 6,781 Korean War sorties; 3,630 by heavy carriers, 1,470 by escort carriers, 535 by naval non-carrier aircraft, and 1,146 by Marines ashore. Enemy action claimed 16 aircraft and accidents 32 others.



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AAM-N-2 Sparrow I air-to-air missiles mounted on the wing of an F3D Sky Knight of VX-4 at Naval Air Missile Test Center, Point Mugu, Calif.

1951

4 JANUARY • The Chinese Communists and North Koreans drove UN forces from the South Korean capital of Seoul.

16 JANUARY • The Navy implemented a step in a program that provided for the early service evaluation of BW-0 (subsequently redesignated RIM-2A) Terrier surface-to-air and AAM-N-2 Sparrow I air-to-air missiles, together with the development of production engineering information and the establishment of production facilities, by placing an advance order for 1,000 Sparrows with Sperry Gyroscope Company.

17 JANUARY • Commander Eighth Army Lt. Gen. Matthew B. Ridgeway, USA, ordered a counterattack against the communist forces in Korea. Naval aircraft flew close air support missions and interdicted enemy supply routes during the ensuing fighting.

29 JANUARY • Task Force 77 commenced a series of air attacks against rail and highway bridges along North Korea's east coast. The force subsequently received the additional assignment of bombing highways and lines of communication in the northeastern part of the peninsula, which occupied a major share of its attention through the end of the Korean War.

1 FEBRUARY • Heavy Attack Wing 1, Capt. Robert Goldthwaite commanding, was established at Norfolk, Va., as the first of two such units. The next day, VC-5 reported as the wing's first squadron.

5 FEBRUARY • Six AJ-1 Savages and three P2V-3C Neptunes of VC-5 departed NAS Norfolk, Va., and flew via Bermuda and the Azores to NAS Port Lyautey, French Morocco. A lack of spare parts compelled the grounding of one of the Savages at Lajes in the Azores, but the remaining five AJ-1s completed the first U.S. transatlantic flight by carrier-type aircraft three days later. Planners initially based the Savages at Port Lyautey. In the event of war, they were to load atomic bombs and fly to carriers sailing en route to the eastern

Mediterranean, and operate from them against Soviet military targets along the outer fringe of the Eastern Bloc to tear holes in the Soviet defenses to enable Air Force bombers to penetrate to strike deeper targets.

8 FEBRUARY • After a period in Japan, Marine fighter squadrons returned to the Korean War and resumed their support operations from an airfield at Pusan (Busan), South Korea.

16 FEBRUARY • United Nations forces began a naval siege of the North Korean port of Wŏnsan that continued throughout the war. The allies temporarily developed the port into a sanctuary for aircraft damaged by enemy fire that ditched in the harbor. Helicopters pulled the downed aircrew to safety and thereby saved men from death or enemy imprisonment.

6 MARCH • Naval Ordnance Test Station Inyokern, Calif., launched a ramjet-powered Talos surface-to-air missile. It operated for two minutes in the longest full-scale ramjet flight achieved to date.

29 MARCH • Carrier Air Group 101, the first all-Reserve group to deploy to Korean waters, flew its initial combat missions from *Boxer* (CV 21). Reserve squadrons composed the group called to active duty from Dallas, Texas; Glenview, Ill.; Memphis, Tenn.; and Olathe, Kans.

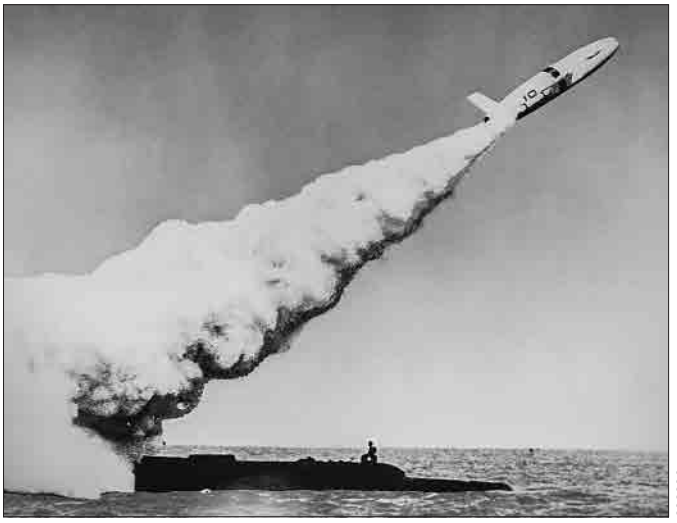
29 MARCH • An XSSM-N-8 Regulus test vehicle operating under airborne command took off from the lakebed, circled the field, and landed successfully at Edwards AFB, Calif.

31 MARCH • A contract issued to Convair for the XFY-1 initiated a program to develop a propeller-driven vertical takeoff fighter. Lockheed received an order three weeks later for a similar aircraft known as the XFO-1 (later redesignated XFV-1) as an alternate solution to the design problems.

2 APRIL • Two F9F-2B Panthers of VF-191, each loaded with four 250- and two 100-pound general-purpose bombs, catapulted from *Princeton* (CV 37) to attack a railroad bridge near Songjin, North Korea. Their attack marked the Navy's first recorded use of jet aircraft as bombers.

1053792

A Regulus I surface-to-surface missile uses jet-assisted takeoff rockets to boost its launch during testing.



636833

Tunny (SSG 282) launches a Regulus I surface-to-surface missile test vehicle.

5 APRIL • The Chinese Communists and North Koreans launched their fifth offensive with the aim of pushing the UN forces back from the 38th parallel and enveloping the South Korean capital of Seoul. During the following two weeks, allied aircraft flew daily close air support strikes to aid combat-engaged Marines and soldiers.

8 APRIL • Intelligence indications of a possible Chinese Communist amphibious attack on Formosa (Taiwan) compelled the temporary detachment of Task Force 77 from Korean waters to make a show of strength in the Formosa Strait. From 11 to 14 April, the ships steamed off the China

429191

F9F Panthers of VF-191 dump their reserve fuel before landing on board *Princeton* (CVA 37) following a strike over Korea.

428678

AD-4 Skyraiders destroy the Hwachon Dam with torpedoes, 1 May 1951.

coast and their aircraft flew aerial parades in international airspace off the Chinese mainland before returning to the Korean War.

1 MAY • In the first and only use of aerial torpedoes during the Korean War, carrier aircraft attacked the Hwachon Dam 50 miles northeast of Seoul, South Korea. The dam contained the waters of the Pukhan River, which ran high because of the spring thaw and thus enabled communist troops to attack the exposed flanks of allied troops. The Chinese and North Koreans emplaced antiaircraft guns along likely aerial approaches and strengthened the dam with rocks. Cmdr. Richard C. Merrick, Carrier Air Group 19 commanding officer, led a strike group from *Princeton* (CV 37) consisting of eight VA-195 AD-4 Skyraiders and three others from VC-35 Detachment 3, supported by eight VF-192 F4U-4 Corsairs and four of VF-193. The Corsairs attacked the flak batteries while the Skyraiders ran the gauntlet and dropped their torpedoes. Two of the eight torpedoes malfunctioned and missed but the remaining six weapons struck the dam and tore breaches in the flood gates, releasing millions of gallons of water. VA-195 laconically tallied the success at the bottom of a list of targets attacked as "Flood Gates: 2 Destroyed, 1 Damaged." The attack prevented communist forces from easily crossing the now flooded valleys.

1 JUNE • The 1st Marine Aircraft Wing inaugurated the policy of basing one squadron immediately in the rear of the 1st Marine Division to provide ground alert aircraft on call through the Joint Operations Center to provide close air support.

5 JUNE • Task Force 77 commenced participation in Operation Strangle—a joint offensive with the 1st Marine Aircraft Wing and the Air Force to interdict eight communist supply routes across the Korean Peninsula. These strikes continued until ongoing aerial reconnaissance missions

1053759

Korean railroad bridges fell after repeated bombing during the interdiction campaign.

revealed by 20 September that the operation failed to cut the enemy routes. Chinese and North Korean efforts to camouflage and conceal trucks, tanks, rail and boat traffic, and supply dumps and caches, and their endeavors to repair damage reduced the effectiveness of these raids.

12 JUNE • Two PB4Y-2s of VP-772 were transferred from NAS Atsugi, Japan, to Pusan (Busan), South Korea. The Privateers dropped flares to support Marine night bombing, and their success persuaded planners to continue the practice of assigning specially equipped patrol aircraft for this purpose during the subsequent months.

17 JUNE • Convair received a contract for the development of a delta wing, hydroski equipped research seaplane with fighter characteristics that subsequently became the (redesigned) XF2Y-1.

18 JUNE • Airship ZPN-1 made its first flight.

1 JULY • The Naval Air Turbine Test Station was established at Trenton, N.J. Its mission consisted of the testing and evaluation of turbojet, turboprop, ramjet, and pulsejet engines, together with their accessories and components.

3 JULY • Capt. James V. Wilkins, USMCR, of VMF-312, flew an F4U-4B as part of a four-plane armed reconnaissance mission when antiaircraft fire struck his Corsair and the plane crashed near Yon-Dong, 35 miles southwest of Wŏnsan, North Korea. Lt. j.g. John K. Koelsch of HU-1

424772

Three of eight HTL-3s transported for use in evacuating Korean War battle casualties prepare to lift off from *Valley Forge* (CV 45) off the Japanese coast in early January 1953.

1053760

Because of devastating strike damage, there is little evidence that this stranded locomotive was ever on a railway.

piloted an HO3S-1, embarked on board Japanese-manned tank landing ship *Q-007*, in an attempt to rescue Wilkins. Despite thick fog and the approach of darkness Koelsch spotted Wilkins and hovered overhead. Aircrewman AD3 George M. Neal lowered the hoist, but enemy fire shot down the helicopter. The three men evaded the communists on the ground for nine days before their capture. During their imprisonment, Koelsch inspired his fellow prisoners with his defiance of their captors, but died during captivity and posthumously received the Medal of Honor. Wilkins and Neal survived, and Neal was awarded the Navy Cross.

10 JULY • Commander Naval Forces Far East Vice Adm. C. Turner Joy led a delegation of UN military representatives for armistice discussions with communist leaders at Kaesong, Korea. The unabated fighting across the Korean Peninsula, however, compelled the repeated suspension of negotiations during the remainder of the war.

22 JULY • Chief of Naval Operations Adm. Forrest P. Sherman suffered a fatal heart attack while visiting Naples, Italy. Born on 30 October 1886 in Merrimack, N.H.,

433959

F2H-2 Banshees of VF-172 flying from *Essex* (CV 9) seek North Korean targets.

Sherman graduated from the Naval Academy in 1917, completed flight training in 1922, and become an early proponent of naval aviation. He served through both world wars and became one of the principal authors of the National Security Act of 1947.

7 AUGUST • An experimental prototype Navy shipboard jet fighter, designated XF3H-1, completed its first flight at McDonnell Aircraft Corporation, St. Louis, Mo.

7 AUGUST • A Viking high-altitude sounding rocket developed by the Naval Research Laboratory achieved an altitude of 135.3 miles over the White Sands Proving Grounds, N. Mex.

7 AUGUST • Douglas test pilot William B. Bridgeman set an unofficial world speed record of 1,238 mph in a Navy sonic research D-558-2 Skyrocket over Edwards AFB, Calif.

8 AUGUST • Secretary of the Navy Dan A. Kimball established the classification AVM for Auxiliaries, Guided Missile Ship. The action redesignated modified seaplane tender *Norton Sound* from AV-11 to AVM-1.

15 AUGUST • Douglas test pilot William B. Bridgeman reached 79,494 feet—an unofficial world altitude record—in a Navy sonic research D-558-2 Skyrocket over Edwards AFB, Calif.

23 AUGUST • *Essex* (CV 9), the first of the postwar converted carriers to fight in the Korean War, joined Task Force 77 off the east coast of Korea and launched her aircraft into battle. During this strike, F2H-2 Banshees flown by VF-172 went into action for the first time.

25 AUGUST • F2H-2 Banshees from VF-172 and VF-51 F9F-2 Panthers, embarked on board *Essex* (CV 9) operating with Task Force 77 in the Sea of Japan, escorted Air Force

1030116

Sailors arm an F9F-3 Panther's 20mm guns.

428982

Aviation ordnancemen prepare an AD Skyraider for a raid over Korea.

Boeing B-29 Superfortresses on a high-altitude bombing mission against the Rashin railroad marshalling yards near the USSR-China border with North Korea.

7 SEPTEMBER • Guided missile ship *Norton Sound* (AVM 1) made the first RIM-2A surface-to-air missile launch, firing a Terrier that intercepted an F6F Hellcat target drone.

15 SEPTEMBER • The Department of Defense Joint Parachute Test Facility was established at NAAS El Centro, Calif. Navy and Air Force parachutists under Bureau of Aeronautics management manned the facility.

21 SEPTEMBER • By this time, Korean War fighting gradually developed into positional warfare. On this date, the fast carrier task force consequently received orders to reduce its close air support missions and to concentrate attacks on railroads as part of an interdiction program.

3 OCTOBER • HS-1, Cmdr. Joseph T. Watson Jr. commanding, was established at NAS Key West, Fla. as the first helicopter antisubmarine squadron in the Navy.

29 OCTOBER • AD Skyraiders from VF-54, embarked on board *Essex* (CV 9), raided the communist party headquarters building at Kapsan, North Korea. An intelligence report revealed the meeting to planners, and the attack killed or wounded scores of enemy officials.

6 NOVEMBER • Soviet fighters shot down a P2V-3W, BuNo 124284, of VP-6, as the Neptune flew a weather reconnaissance mission over international waters off Vladivostok, Siberia. All ten men on board were reported missing and presumed dead.

1 DECEMBER • The Naval Aviation Safety Activity was established at Norfolk, Va. This operated under the Chief of Naval Operations to promote the aviation safety program and direct a specific effort toward maintaining the highest practicable level of aviation safety throughout the fleet. In

707573

One of the very first AD-1 Skyraiders, BuNo 09177, fires a salvo of Mighty Mouse air-to-air rockets during tests at NOTS Inyokern, Calif., 26 January 1950.

April 1955, the activity was redesignated the Naval Aviation Safety Center.

11 DECEMBER • Aircraft from Air Task Group (ATG) 1 flew their first combat mission from *Valley Forge* (CV 45) against coastal rail lines and bridges in northeastern North Korea. ATG-1 was the first such group formed following experience in the Korean War that demonstrated that the five squadrons originally comprising carrier air groups did not operate effectively in combat from *Essex* (CV 9)-class carriers. The temporary withdrawal of one squadron from each group scheduled for deployment provided the squadrons needed for the ATGs. These temporary groups did not formerly establish and operated from 1951 to early 1959 with eight in existence by 1955.

12 DECEMBER • The Kaman Aircraft Corporation K-225 made its first flight at Windsor Locks, Conn. This Navy-sponsored development of a helicopter equipped with a Boeing YB-502 turbine engine marked the first demonstration of the adaptability of gas-turbine engines to helicopters.

19 DECEMBER • *Philippine Sea* (CV 47) tested her nuclear weapons emergency assembly capabilities while at San Diego, Calif.

1952

4 JANUARY • The creation of the new classifications CAG and CLG for heavy and light cruiser guided missile ships brought about the redesignation of converted heavy cruisers *Boston* and *Canberra* from CA-69 and -70 to CAG-1 and -2, respectively.

1 FEBRUARY • Chief of Naval Operations Adm. William M. Fechteler approved a modification of the Project 27A carrier conversion program that provided an increase in the capacity of deck operating equipment. The changes included the use of more powerful arresting gear, higher performance catapults, and replacement of the number three

477063

An F9F Panther launches from *Antietam* (CVA 36) during the operational suitability testing of the angled flight deck on 14 January 1953.

centerline elevators with a deck-edge type of greater capacity. Three *Essex* (CV 9)-class carriers that incorporated these modifications completed their conversion under Project 27C (Axial Deck) in 1954.

1 APRIL • Guided Missiles Service Unit No. 211 was formed at the Naval Mine Depot, Yorktown, Va. The first of six scheduled RIM-2 Terrier surface-to-air missile units, the command consisted of sailors trained by Guided Missiles Training Unit No. 2 at the Consolidated Vultee Aircraft Corporation, San Diego, Calif.

26 APRIL • *Wasp* (CVS 18) and destroyer minesweeper *Hobson* (DMS 26) collided as *Wasp* conducted night flying operations in the Atlantic, 700 miles west of the Azores while en route to Gibraltar. The destroyer broke in two and sank quickly. *Wasp* and destroyer minesweeper *Rodman* (DMS 21) rescued 52 survivors, but 176 men died. *Wasp* had no casualties, but a 75-foot gash in her bow required drydock work at Bayonne, N.J. In ten days, the bow of *Hornet* (CV 12)—undergoing conversion to an attack carrier at Brooklyn—was removed and floated by barge to replace *Wasp*'s shattered stem.

28 APRIL • The Navy announced the adoption of the British-developed steam catapult for use on board U.S. aircraft carriers, with the first installation scheduled for *Hancock* (CV 19). The decision followed tests conducted during the first three months of the year at the Philadelphia Naval Shipyard, Pa.; NOB Norfolk, Va.; and at sea; during which British carrier *Perseus* (A 197) had launched U.S. naval aircraft by this device.

8 MAY • The Fleet Air Gunnery Unit was established as an integral part of the operating forces of the Pacific Fleet under AirPac. Its mission was to provide air gunnery training on an individual and tactical unit basis for the Pacific Fleet.

16 MAY • Two RIM-2 surface-to-air missiles fired separately at F6F-5K target drones destroyed the Hellcats. This success culminated the Terrier developmental program, permitting the shift of emphasis to the production of the first tactical model.

26 MAY • The Navy's first, and for many years the world's largest, wind tunnel was disestablished at the Naval Gun Factory, Washington, D.C. The 8-by-8-foot wooden tunnel had been completed in 1914, and served the Navy for more than 30 years as an aerodynamic laboratory for research in aircraft design.

26 MAY • Jets and other aircraft from the Naval Air Test Center and the Atlantic Fleet demonstrated the feasibility of the angled-deck concept during three days of tests using a simulated angled deck on board *Midway* (CVB 41).

17 JUNE • The Aviation Medical Acceleration Laboratory was dedicated at the Naval Air Development Center. The laboratory featured a human centrifuge with a 110-foot arm capable of producing accelerations of up to 40 Gs, and was designed and constructed as a research tool for investigating pilot reactions to the accelerations encountered in high-speed flight at various temperatures and altitudes, and also afterward proved useful in the astronaut training program.

20 JUNE • A contract was issued for the construction of a 7-by-10 foot slotted throat transonic wind tunnel at the David Taylor Model Basin, Washington, D.C.

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A Marine HRS helicopter carries supplies to an isolated outpost in the Korean mountains.

23 JUNE • Air Force, Navy, and Marine aircraft virtually destroyed North Korean electric power potential with more than 1,200 sorties during two days of attacks on military targets that had been bypassed during previous raids. The main effort struck the hydroelectric plant at Suiho, 40 miles up the Yalu River from Antung, Manchuria. The raids continued the following day focused on the plants at Chosin, Fusen, and Kyosen.

1 JULY • The Naval Guided Missile School was established at the Fleet Air Defense Training Center, Dam Neck, Va. The school provided the fleet with people trained in the operation, maintenance, and control of surface- and submarine-launched guided missiles. The Naval Air Guided Missile School (Advanced) was also established at the Naval Air Technical Training Center, NAS Jacksonville, Fla., to provide technicians for air-launched guided missiles.

11 JULY • The allies gradually developed a program of mass air attack over the course of the Korean War. During one of the major coordinated air efforts of the conflict, USN, USMC, USAF, Australian, and British aircraft flew round-the-clock strikes into the following day on railroad yards and industrial facilities at the North Korean capital, Pyŏngyang.

14 JULY • The keel of *Forrestal* (CVA 59) was laid at the Newport News (Virginia) Shipbuilding and Dry Dock Company. She was the first of the 59,900-ton carriers and the name ship of her class.

1 AUGUST • The Naval Air Special Weapons Facility was established at Kirtland AFB, N. Mex. This provided for naval participation in various programs involved in the application of nuclear weapons to aircraft.

6 AUGUST • A fire swept the hangar deck of *Boxer* (CV 21), killing eight men and seriously injuring two, forcing the

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An AJ-1 Savage lands on board *Lake Champlain* (CV 39).

carrier to undergo emergency repairs from 11 to 23 August at Yokosuka, Japan. *Boxer* returned to Korean waters and then, on 26 September, returned to San Francisco, Calif. The ship underwent repairs there until March 1953.

7 AUGUST • Squadron Leader John R. Gardner, RAF, on an exchange from the Royal Air Force, and airborne intercept operator SSgt. R. G. Kropp of VMF(N)-513 launched in an F3D-2 Sky Knight for a training mission from K-8 near Kunsan, South Korea. Controllers diverted them to search for aircraft showing emergency IFF and, although they failed to engage the elusive enemy, the event marked the first combat sortie of a Sky Knight. A detachment of Sky Knights from VC-4 augmented the Marine F3D-2s, and the sailors and Marines subsequently flew close escort and barrier patrols for Air Force Boeing B-29 Superfortresses during night bombing raids over North Korea.

28 AUGUST • Guided Missile Unit 90, embarked on board *Boxer* (CV 21), launched an explosive-laden F6F-5K Hellcat drone under control of two AD Skyraiders against a railroad bridge at Hŭngnam, North Korea. The attack marked the first of six such Navy drone operations.

29 AUGUST • Task Force 77 carrier air squadrons teamed with Fifth Air Force, 1st Marine Aircraft Wing, British, and South Korean aircraft for around-the-clock strikes over two days against communist supply concentrations around Pyŏngyang, North Korea.

1 SEPTEMBER • After the completion of an outfit with RIM-2 Terrier surface-to-air missiles at the Norfolk Naval Shipyard, Va., battleship *Mississippi* (AG 128) reported to Commander Operational Development Force to take part in Terrier evaluations.

1 SEPTEMBER • Vessels that participated in Operation Mainbrace, NATO's first large scale naval exercise in the North Atlantic, included battleship *Wisconsin* (BB 64), *Midway* (CVB 41), and *Franklin D. Roosevelt* (CVB 42).

1 SEPTEMBER • Carrier aircraft from Task Force 77 attacked the North Korean oil refinery at Aoji about eight miles from the Soviet border.

3 SEPTEMBER • The firing of the first fully configured AAM-N-7 Sidewinder I air-to-air missile initiated a period of developmental testing at Naval Ordnance Test Station Inyokern, Calif.

8 SEPTEMBER • The Deputy Chief of Naval Operations (Air) assumed responsibility for all phases of basic and technical training of people for air-launched missiles. The Commander Naval Air Technical Training Command administered the program. The Bureau of Naval Personnel formerly held responsibility for all individual training.

11 SEPTEMBER • After World War II, Yugoslav support of the Eastern Bloc deteriorated. On this date, *Coral Sea* (CVB 43) called at Split, Yugoslavia. The next day, Yugoslav President Josip Broz (Tito) briefly visited the ship as a demonstration of the availability and acceptability of U.S. aid to the Yugoslavs. *Coral Sea* sailed on 14 September.

15 SEPTEMBER • VX-4 was established at NAMTC Point Mugu, Calif. The squadron served within AirPac to conduct operational evaluation tests of air-launched missiles, and initially assisted with the testing of AAM-N-2 Sparrow I air-to-air missiles.

1 OCTOBER • Aircraft Carriers (CV) and Large Aircraft Carriers (CVB) were redesignated Attack Aircraft Carriers (CVA).

9 OCTOBER • Carrier aircraft struck communist troops along the front lines in the Korean Peninsula that operated beyond the range of UN artillery. Naval aviators referred to these raids as "Cherokee strikes" in recognition of the Native American ancestry of Commander Seventh Fleet Vice Adm. Joseph J. Clark.

28 OCTOBER • The XA3D-1 bomber designed to carry nuclear weapons made its first flight. Skywarriors also later served in reconnaissance, electronic warfare, and tanker configurations.

3 NOVEMBER • Guided missile ship *Norton Sound* (AVM 1) launched a Regulus assault missile from off NAMTC Point Mugu, Calif. The Regulus impacted on San Nicolas Island in the first shipboard demonstration of the system.

3 NOVEMBER • Maj. William T. Stratton Jr., USMCR, and airborne intercept operator MSgt. Hans C. Hoglind, USMC, of VMF(N)-513 manning an F3D-2 Sky Knight, shot down a North Korean Yakovlev Yak-15 by 20mm cannon fire in the vicinity of Sinŭiju, North Korea. Their victory marked the first enemy jet destroyed by U.S. airborne intercept radar–equipped night fighters.

12 NOVEMBER • The final configuration of nonrigid airship ZP3K (later ZSG-3) was flown and accepted at NAS Lakehurst, N.J. The designers intended the modernized antisubmarine adaptation of K-class airships for carrier-based operations and 30 received the modification.

18 NOVEMBER • VX-1 demonstrated the feasibility of using helicopters as aerial minesweepers in the first of a series of tests conducted with an HRP-1 off Panama City, Fla.

18 NOVEMBER • Seven Soviet MiG-15 Fagots approached ships of Task Force 77 while carriers launched strikes against North Korean targets from international waters near Vladivostok, Soviet Union. Three F9F-5 Panthers of VF-781, flying combat air patrol from *Oriskany* (CVA 34), intercepted the intruders and shot down two MiGs, damaged a third, and forced the survivors to retire.

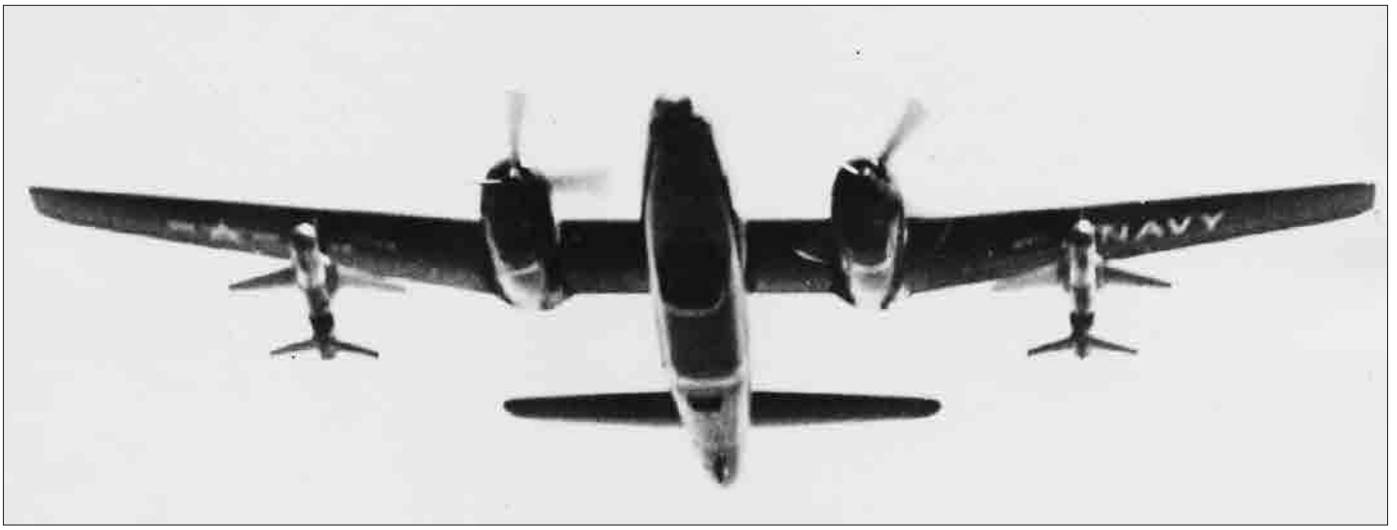
4 DECEMBER • The Grumman XS2F-1, the prototype of the first carrier-borne aircraft designed specifically to hunt submarines, made its first flight.

16 DECEMBER • *Princeton* (CVA 37) catapulted F2H-2P Banshee control jets followed by a Regulus assault missile from the sea test range off NAMTC Point Mugu, Calif. The Banshees guided the Regulus to a transfer point on San Nicolas Island, where they handed off control to other aircraft that successfully guided the missile to its impact.

1953

12 JANUARY • Ship's skipper Capt. Samuel G. Mitchell landed in an SNJ Texan on board *Antietam* (CVA 36) in the initiation of test operations on board the Navy's first angled deck carrier. During the next four days, six aircraft models made landings, touch-and-go landings, night landings, and takeoffs in winds of varying force and direction. Angled flight decks eventually became a feature on all Navy carriers and contributed to the reduction in the number of accidents.

18 JANUARY • Chinese Communist antiaircraft guns shot down P2V-5, BuNo 127744, of VP-22 while the Neptune patrolled the Formosa (Taiwan) Strait off Swatow, China. The plane ditched in the strait, but Chinese shore batteries fired on the rescuers who had to contend with high seas. Despite fire from the island of Nan-ao Tao, a Coast Guard



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A P2V Neptune carries two Petrel antiship guided missiles suspended beneath its wings, April 1956.

PBM-5 rescued 11 of the 13 Neptune crewmembers, but the Mariner crashed while attempting to takeoff in 8- to 12-foot swells. Destroyer *Halsey Powell* (DD 686) rescued ten survivors while a Mariner from VP-40 that assisted took antiaircraft fire, and shore batteries targeted destroyer *Gregory* (DD 802), which held her fire and cleared the area. Eleven men died including seven from the Neptune.

9 FEBRUARY • The carriers of Task Force 77 launched two days of maximum effort strikes against Chinese and North Korean supply concentrations and transport targets from Wŏnsan on the east coast through Songjin to Ch'ŏngjin on the west coast.

13 FEBRUARY • The first full-guidance flight of an AAM-N-6 Sparrow III air-to-air missile occurred at NAMTC Point Mugu, Calif.

1 MARCH • Aircraft from Task Force 77 heavily damaged the North Korean hydroelectric plant at Chosin. Four days later, they repeated the attack and cut the penstocks and destroyed sections of the main power plant.

6 MARCH • Submarine *Tunny* (SSG 282) returned to the fleet after the completion of her refit to launch Regulus assault missiles at Mare Island Naval Shipyard, Calif.

19 MARCH • The carriers of Task Force 77 launched a heavy strike that ravaged the industrial section of Ch'ŏngjin, North Korea.

20 MARCH • ZP2N-1 (later ZPG-2) made its first flight at Akron, Ohio. The airship was the production model of the nonrigid N-class but with an envelope of 975,000 cubic feet. The designers originally intended it to conduct mid-ocean antisubmarine warfare and convoy-escort operations, thus the airship contained provisions for in-flight refueling, reprovisioning, and servicing. The Navy procured 17 of these airships in antisubmarine and airborne early warning configurations; the latter were designated ZPG-2W.

9 APRIL • The experimental delta wing XF2Y-1 jet seaplane equipped with hydroskis made its first flight at San Diego, Calif.

3 MAY • Commanding General, Far East Air Forces listed 30 major North Korean airfields that were to be rendered unserviceable in order to limit communist air action and prevent augmentation of the enemy's air strength preceding the date of a rumored armistice. Task Force 77 received the responsibility to bomb six of these fields and the naval air campaign featured periodic attacks on these targets through the end of the Korean War.

21 MAY • An AD-4 Skyraider took off with a bomb load of 10,500-pounds from NAS Dallas, Texas. Its combined weight including guns, ammunition, fuel, and pilot totaled a useful load of 14,491 pounds—3,143 pounds more than the weight of the plane.

7 JUNE • The carriers operating in Korean waters directed their major effort against the communist front lines and supporting positions to counter enemy efforts to gain ground for negotiating leverage before a cease fire. These raids continued round-the-clock through 19 June.

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Maj. John F. Bolt, USMC, an ace in World War II, becomes an ace in the Korean War and the first U.S. naval aviator to claim five victories in jet aerial combat.

23 JUNE • Lt. Cmdr. George H. Whisler Jr., attached to VR-31, completed the first transcontinental round-trip solo flight between sunrise and sunset. Whisler departed NAS Norfolk, Va., in an F9F-6 Cougar, BuNo 127432, and after stops at NAS Memphis, Tenn., and Webb AFB, Texas, landed at NAS North Island, Calif. He then took off in an F3D-2 Sky Knight, BuNo 127076, from North Island, refueled at NAS Dallas, Texas, and landed at Norfolk.

25 JUNE • Task Force 77 deployed four F4U-5Ns to operate under the Fifth Air Force for an indefinite period from Kimpo, South Korea. Communist nuisance night attacks on the field by aircraft flying too slowly to be intercepted by jets prompted the Corsair deployment.

30 JUNE • Reorganization Plan No. 6 from President Dwight D. Eisenhower became effective. This included the abolishment of the Research and Development Board and three other activities of the Department of Defense whose functions shifted to the Secretary of Defense; the creation of six new assistant secretaries of Defense; and the assignment of managerial control of the Joint Chiefs of Staff to the Chairman of the Joint Chiefs.

8 JULY • The designation Anti-Submarine Support Aircraft Carrier (CVS) was established for attack carriers assigned to hunt submarines. The decision became effective one month from this date and redesignated five assigned carriers, not all operational—*Enterprise* (CVS 6), *Franklin* (CVS 13), *Bunker Hill* (CVS 17), *Leyte* (CVS 32), and *Antietam* (CVS 36).

651837

One of three D-558-2 high-speed research aircraft makes an early test flight with a JATO rocket assist in October 1949. Lt. Col. Marion E. Carl Jr., USMC, later set an unofficial altitude record of 83,235 feet in the type.

10 JULY • The Naval Air Development Unit was established at NAS South Weymouth, Mass. The unit participated in the development and testing of equipment designed for antisubmarine warfare and air defense.

11 JULY • Maj. John F. Bolt, USMC, made his fifth and sixth MiG kills of the Korean War while operating with the 39th Fighter-Interceptor Squadron of the Fifth Air Force. He flew an F-86E Sabre named *Darling Dottie*, Serial No. 52-2852, when his second section of four aircraft turned for base because of low fuel. Bolt spotted four MiGs and despite diminishing fuel attacked, with his wingman, the enemy head-on and repeatedly engaged the MiGs. He became the first U.S. naval aviator to attain five victories in jet aerial combat and the only Marine ace of the Korean War. Bolt received the Navy Cross for this action.

15 JULY • Submarine *Tunny* (SSG 282) launched a Regulus assault missile from a position off NAMTC Point Mugu, Calif., in the first submarine firing of the missile. The missile was recovered on San Nicolas Island after the simulated attack.

16 JULY • Lt. Guy P. Bordelon Jr., temporarily deployed ashore with VC-3 Detachment D to intercept communist night harassment raids against Seoul, shot down a North Korean Polikarpov Po-2 biplane while flying an F4U-5N Corsair. This battle marked Bordelon's fifth kill and made him the Navy's only ace of the Korean War.

25 JULY • The aircraft of Task Force 77 established a record for one day of operations in the Korean War by flying 538 offensive and 62 defensive sorties.

27 JULY • On the final day of the Korean War, Task Force 77 expended its major effort against Chinese and North Korean transportation facilities and designated airfields as secondary targets. These attacks claimed the destruction or damage of 23 railroad cars, 11 railroad bridges, a railroad tunnel, nine highway bridges, and a number of buildings.

27 JULY • United Nations and communist representatives signed an armistice at Panmunjom, Korea, which ended the major fighting of the Korean War. Isolated outbreaks occurred for years, however, because of North Korean violations of the agreement.

12 AUGUST • Battleship *Mississippi* (AG 128) fired a RIM-2 surface-to-air missile in the first successful shipboard launching of a fully guided missile. The Terrier hit the approaching F6F Hellcat drone.

21 AUGUST • Lt. Col. Marion E. Carl Jr., USMC, in a D-558-2 Skyrocket, attained a new altitude record of 83,235 feet over Edwards AFB, Calif.

2 SEPTEMBER • The Navy promulgated a conversion plan for *Midway* (CVA 41)-class carriers designated Project 110. The basic changes matched those for the angled-deck versions of Project 27C but with the addition of modified C-11 steam catapults in the angled-deck areas.

11 SEPTEMBER • In the first successful interception by an AAM-N-7 air-to-air missile, a Sidewinder shot down an F6F Hellcat drone at Naval Ordnance Test Station Inyokern, Calif.

1 OCTOBER • *Hornet* (CVA 12) completed conversion as the last of nine *Essex* (CVA 9)-class carriers to be modernized under Project 27A at New York Naval Shipyard, N.Y.

3 OCTOBER • Lt. Cmdr. James F. Verdin set a new official world speed record in an F4D-1 Skyray of 752.943 mph over a three-kilometer course at Edwards AFB, Calif. The achievement marked the first time that a carrier aircraft established the record in its normal combat configuration.

16 OCTOBER • Test pilot R. O. Rahn broke the 100-kilometer closed course speed record in an F4D-1 Skyray at 728.114 mph.

30 OCTOBER • The Department of Defense adopted National Security Council Directive No. 126, which reflected President Dwight D. Eisenhower's "New Look" defense policy focused on strategic power.

19 NOVEMBER • Chief of Naval Operations Adm. Robert B. Carney endorsed the common use of the Fleet Air Gunnery Unit by the Pacific and Atlantic Fleets and the Marine Corps "as a step towards increased emphasis and standardization in the combat employment of aircraft armament."

3 DECEMBER • The Steam Catapult Facility at NAMC Philadelphia, Pa., was established with the launching of F9F Panthers and AD Skyraiders.

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Lt. Cmdr. James F. Verdin, here shown on board *Coral Sea* (CVA 43) in the first of two XF4D-1 Skyray prototypes during final carrier qualifications in late October 1953, had earlier in the month set a new world speed record in the second prototype.

3 DECEMBER • The first successful test of super circulation—boundary-layer control—on a high-speed aircraft took place with an F9F-4 Panther at Grumman Aircraft Corporation, Bethpage, N.Y. Bureau of Aeronautics engineer John S. Attinello received credit for developing this practical application of the aerodynamic principle.

630627

A pair of F2H-2 Banshees of VF-62 sweep past *Lake Champlain* (CV 39) en route to their North Korean targets.

Chapter 8

The New Navy

1954–1959

Despite the truce that ended large-scale fighting in the Korean War, global peace remained on unsteady footing. The two great superpowers of the United States and the Soviet Union embraced divergent ideologies that led toward repeated confrontations in the Cold War. The rivals expanded their nuclear arsenals but the specter of global thermonuclear war compelled the adversaries to wage their struggle for supremacy through proxies.

The worsening situation in the Far East and a series of crises in the Middle East gave new importance to the traditional practice of deploying naval forces to trouble spots. International maneuverings led to incidents and demands that threatened world peace, and naval forces represented the nation in critical areas. On different occasions, these forces evacuated refugees, patrolled troubled waters, provided support to menaced nations, and presented a physical symbol of freedom as a bulwark between aggressors and oppressed.

Technological and scientific advances also marked the period and naval aviation passed through tremendous changes. The effective exploitation of these advances enhanced the firepower, versatility, and mobility of naval sea and air forces. Guided missiles began to replace guns on board ships, the fleet increased capabilities to deliver nuclear weapons, aircraft speeds jumped from subsonic to supersonic, the adaptation of nuclear power to aircraft proceeded under investigation, and an increased knowledge of space affected naval operations.

Air-to-air missiles became standard equipment on interceptors and ships received air defense missiles. Planners intended fighters to intercept Soviet bombers at long ranges and high altitudes and erroneously deleted guns from the initial design of the McDonnell Aircraft Company F4H-1 Phantom II, a mistake the Navy failed to remedy. Air Force experience gained over Vietnam during the following decade led that service to fit guns to later models. The Naval Air Reserve acquired air-to-surface missiles and an interceptor missile was introduced into flight training. Polaris fleet ballistic missiles went to sea on board nuclear-powered submarines. *Forrestal* (CVA 59)-class carriers entered service and the basic carrier modernization program attained fruition. The successful application of nuclear power included the construction of nuclear-propelled carrier *Enterprise* (CVAN 65). These additions and improvements strengthened the carrier forces and enabled the operation of a new family of aircraft with high performance capabilities.

Reorganizations within the Navy Department accompanied the application of technological advances that placed greater emphasis on research. Similar adjustments set up special task groups for the progressive improvement of antisubmarine tactics, provided mobile amphibious squadrons to operate in the new tactics of vertical envelopment, and revised the Reserves to provide units trained and equipped to perform specific tasks upon mobilization. These advances in technology and improvements in weapons and equipment challenged the Navy while the sea service played its traditional role of sea control.

The space program dominated the events of the late 1950s. Soviet achievements in space generated United States investigations regarding the state of the nation's scientific advances, education, and progress in missilery. Successful orbiting of Explorer I, Vanguard, and other satellites together with tests that demonstrated the feasibility of retrieving objects from orbit prompted the launch of an astronaut training program in quest of the dream of man in space.

638785

Cmdr. Henry J. Jackson pilots the first aircraft—an S2F-1 Tracker—to be launched by a steam catapult from an American carrier. The operational trials on board *Hancock* (CVA 19) took place on 1 June 1954.

1954

1 JANUARY • The Naval Air Weapons Systems School was established at NAS Jacksonville, Fla. The school trained cadres in the maintenance of air-launched guided missiles, aircraft armament control systems, missile external control equipment, and bomb directors.

4 JANUARY • *Leyte* (CVS 32) became the initial operational antisubmarine warfare carrier.

19 MARCH • Multiple U.S. forces in the western Pacific operated on alert because of the Battle of Dien Bien Phu between the French and the communist Viet Minh in French Indochina (Cambodia, Laos, and Vietnam). On 22 March, Task Group 70.2, including *Essex* (CVA 9), *Wasp* (CVA 18), and *Boxer* (CVA 21), began steaming to an area south of Hainan to monitor the war.

1 APRIL • Pilots Lt. Cmdr. Francis X. Brady, Lt. W. Rich, and Lt. j.g. John C. Barrow completed the first transcontinental flights in less than four hours during a 2,438-mile journey in three VF-21 F9Fs from San Diego, Calif., to NAS Floyd Bennett Field, N.Y. Brady made the crossing in 3 hours, 45 minutes, 30 seconds; Rich in 3 hours, 48 minutes; and Barrow in 3 hours, 46 minutes, 49 seconds. All were refueled in mid-air over Hutchinson, Kans. Official timers did not participate.

18 APRIL • Twenty-five F4U-7 Corsairs of VMA-324 flew from *Saipan* (CVL 48) to the *Aéronavale* (French Naval Aviation) at Tourane (Da Nang), French Indochina

(Cambodia, Laos, and Vietnam). *Saipan* then entered the harbor, unloaded spare parts and maintainers, and sailed for Manila, Philippines.

19 APRIL • A modification of model designations for airships conformed with the designations for heavier-than-air aircraft. The action included the replacement of envelope designation letters K and N by manufacturer's letters, the uniform application of standard suffix numbers and letters, and the division of the patrol class of airships into patrol and antisubmarine classes. Thus ZP2K, ZP3K, and ZP4K became ZSG-2, -3, and -4, respectively; ZP5K became ZS2G-1; ZPN-1 became ZPG-1; ZP2N-1 became ZPG-2; and ZP2N-1W became ZPG-2W.

20 MAY • In January, the leftist Guatemalan government requested arms from the Eastern Bloc in reaction to a U.S. decision to support Western opponents of the regime. On this date, the first shipment arrived and the Caribbean Sea Frontier established air and sea patrols in the Gulf of Honduras to protect Honduras from invasion and control the flow of arms to the region. On 3 June, U.S. airlifts of arms to the Hondurans began followed on 18 June by an embargo against weapons to the Guatemalans. On 29 June, a Guatemalan rightist army coup led to the overthrow of the government.

25 MAY • After a record breaking flight of 200.1 hours, Cmdr. Marion H. Eppes landed a ZPG-2 airship at NAS Key West, Fla. The voyage of more than eight days in the air began at NAS Lakehurst, N.J., ranged over the Atlantic northward to Nova Scotia, Canada, out to Bermuda and Nassau, Bahamas, and southward over the Caribbean and Gulf of Mexico. Eppes subsequently received the Distinguished Flying Cross and the 1955 Harmon International Trophy for Aeronauts.

26 MAY • The port side catapult accumulator on board *Bennington* (CVA 20) burst and released vaporized lubricating oil during flight operations off Narragansett Bay. An unidentified heat source detonated the oil spray and set off a series of secondary blasts that killed 103 men and injured 201 others. The ship proceeded under her own power to disembark the casualties at NAS Quonset Point, R.I. *Bennington* then moved for extensive repairs and rebuilding from 12 June 1954 to 19 March 1955 at New York Naval Shipyard, N.Y.

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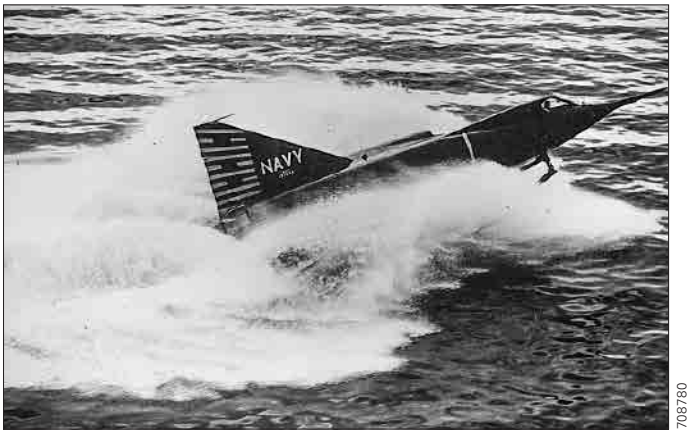
An HUP-2 Retriever of HU-2 demonstrates a pilot recovery.



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The XF2Y-1 Sea Dart hydro ski fighter throws up a massive wake during early taxi trials, which began in San Diego Bay in mid-December 1952.

27 MAY • Chief of Naval Operations Adm. Robert B. Carney approved Project 125 of the carrier improvement program, which further modernized the *Essex* (CVA 9)-class carriers that completed Project 27A by changes including the installation of angled decks and enclosure of the bows to improve seaworthiness.

1 JUNE • Cmdr. Henry J. Jackson launched in an S2F-1 Tracker from *Hancock* (CVA 19) in the initial operational test of the C-11 steam catapult. The tests continued throughout the month with the ship recording a total of 254 launches by Trackers, F2H-3/4 Banshees, F3D-2 Sky Knights, F7U-3 Cutlasses, FJ-2 Furies, and AD-5 Skyraiders.

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An S2F Tracker lands on board *Valley Forge* (CVS 45).

63014

The first of two XF4D-1 Skyray prototypes, BuNo 124586, lands on board *Coral Sea* (CVA 43) during final carrier qualifications in late October 1953.

15 JUNE • The Naval Air Development and Material Center, Rear Adm. Selden B. Spangler commanding, was established at Johnsville, Pa. The center coordinated and guided aeronautical research, development, and material activities in the Fourth Naval District including facilities at Johnsville and Philadelphia, Pa., and Lakehurst and Trenton, N.J.

22 JUNE • An XA4D-1 made the first flight of a Skyhawk.

22 JULY • The XZS2G-1, formerly designated XZP5K-1, made its first flight at Goodyear Aircraft Corporation, Akron, Ohio. This airship had been designed as a replacement for K-class airships and had unusual inverted "Y" control surfaces.

26 JULY • Two Chinese Communist Lavochkin La-7s attacked a pair of AD-4 Skyraiders from VF-54, embarked on board *Philippine Sea* (CVA 47). During the ensuing battle, which included five other Skyraiders and an F4U-5N Corsair, both attackers were shot down without damage to U.S. aircraft. A Chinese gunboat also fired ineffectively at the planes. The Skyraiders had been involved with other commands, including aircraft from *Hornet* (CVA 12), in the search for survivors of a British Cathay Airlines passenger plane shot down by two Chinese La-7s off Hainan on 22 June, which killed ten of the 18 people on board including six Americans.

4 SEPTEMBER • Two Soviet MiG-15 Fagots attacked a P2V-5 of VP-19 on a routine reconnaissance mission over international waters. The Neptune ditched 40 miles off the Siberian coast of the Soviet Union, and an Air Force Grumman SA-16 Albatross amphibian rescued nine of the ten-man crew.

13 OCTOBER • Helicopters operating from *Saipan* (CVL 48) off the southern coast of Haiti aided humanitarian efforts to victims of Hurricane Hazel through 19 October.

31 OCTOBER • Ens. Duane L. Varner of VF-34 completed a 1,900-mile nonstop unrefueled transcontinental flight in an F2H-2 Banshee in 3 hours, 58 minutes, from NAS Los Alamitos, Calif., to NAS Cecil Field, Fla.

2 NOVEMBER • Pilot J. F. Coleman made a successful flight in the XFY-1 delta wing experimental fighter consisting of vertical takeoff, transition to horizontal flight, and return to vertical position for landing at NAS Moffett Field, Calif. The first free vertical takeoff had been accomplished on 1 August. Coleman later received the Harmon International Trophy for 1955 for his contribution to the art of flying in testing the XFY-1.

1955

17 JANUARY • VX-6 was established for operations with Task Force 43 at NAS Patuxent River, Md. The squadron provided services for parties based ashore on Antarctica and made courier flights between that continent and New Zealand during Operation Deep Freeze—the Navy's renewed support of Antarctic research. VX-6 initially used ski-equipped planes including two R4D-5/6 Skytrains, two P2V-2 Neptunes, and two UF-1 Albatrosses to deal with the harsh conditions on the ice shelf. Two R5D-2/3 Skymasters using their conventional landing gear operated from the relatively smoother sea ice at McMurdo Sound. Additional initial aircraft comprised four UC-1 Otters and three HO4S-3s.

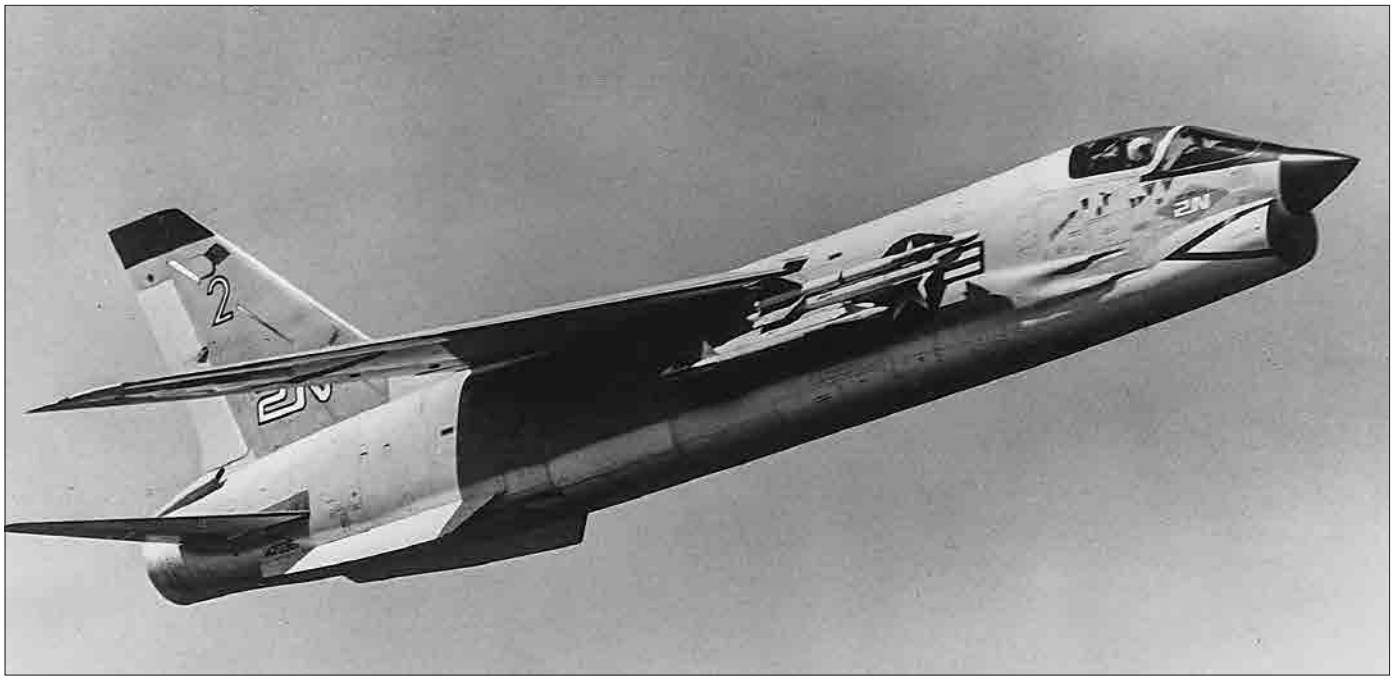
21 JANUARY • A one-man direct-lift rotorcraft dubbed the Flying Platform made its first flight at the Hiller Helicopters plant, Palo Alto, Calif. The flight, which occurred during ground tests, was accidental but otherwise successful.

709126

Only one of three XFY-1 experimental vertical takeoff fighter prototypes was completed and flown.

27 JANUARY • Lt. Cmdr. William J. Manby Jr. of VF-33 set an unofficial time-to-climb mark by reaching 10,000 feet from a standing start in 73.2 seconds in an FJ-3 Fury at NAS Oceana, Va.

1 FEBRUARY • Task Force 43, Capt. George J. Dufek commanding, was activated to plan Antarctic operations scheduled to begin in the fall under Operation Deep Freeze. The force's first expedition mission was the construction of facilities and airstrips and supply delivery in support of U.S. participation in the International Geophysical Year of 1957 to 1958.



1061492

The second of two F8U-2N Crusader all-weather fighter prototypes displays the type's larger radome and Y-shaped fuselage mounted pylon capable of carrying AAM-N-7 Sidewinder heat-seeking air-to-air missiles.

1 FEBRUARY • After six days of intensive training at a Spanish air base at Reus, P2V-5 Neptunes of VP-23 left Tarragona, Spain, for NAS Port Lyautey, Morocco. The event marked the first operation of U.S. forces from bases in Spain.

6 FEBRUARY • *Midway* (CVA 41) reported to Commander Task Force 77 after a voyage from the Atlantic to the Pacific around the Cape of Good Hope. The ship's arrival initiated the operation of *Midway*-class carriers in the western Pacific.

6 FEBRUARY • During January, the Chinese Communists began to bombard the Tachen Islands off the China coast. On this date, carrier aircraft covered the Seventh Fleet's evacuation of 29,000 Taiwanese garrison troops and civilian refugees from the islands through 12 February.

13 FEBRUARY • McDonnell Aircraft Company test pilot C. V. Braun set the unofficial record for time-to-climb to 10,000 feet at 71 seconds in an F3H-1N Demon.

16 FEBRUARY • The Bureau of Aeronautics issued instructions describing new aircraft color schemes for application to Marine Corps aircraft beginning on 1 July 1955, and to be applied on all currently operating aircraft within the subsequent two years. The action changed the familiar Sea Blue to nonspecular Light Gull Gray on top and glossy Insignia White below for carrier aircraft, semigloss Seaplane Gray overall for water-based aircraft and overall nonspecular Light Gull Gray for helicopters. Bare aluminum was retained for utility types and landplane transports, the latter having in addition a solar heat reflecting glossy Insignia White top. Orange Yellow remained the color for primary trainers, but a shift occurred for the advanced trainer scheme to International Orange and Insignia White. Other changes included Olive Drab above and glossy Insignia White below for land observation types, and a combination of Orange Yellow, Engine Gray, and Insignia Red for target drones and target tow aircraft.

23 FEBRUARY • Douglas test pilot R. O. Rahn reached 10,000 feet in 56 seconds in an F4D-1 Skyray. His achievement marked the fourth unofficial time-to-climb record set by Navy carrier fighters in less than a month.

24 FEBRUARY • Chief of Naval Operations Adm. Robert B. Carney directed the use of the term "angled" in lieu of "canted," "slanted," and "flamed" to describe the deck of aircraft carriers in which the landing runway was offset at an angle from the line of the keel.

1053762

One of *Hancock*'s (CVA 19) bow steam catapults launches an F8U-1 Crusader of VF-154 during carrier qualifications on 25 November 1957.

24 FEBRUARY • The first high-speed seaplane R3Y-1 transport, powered by four Allison turboprop engines, arrived for service suitability evaluation and trials at NATC Patuxent River, Md. Designers intended the Tradewind for long-range over water transportation of military cargo and personnel and the aerial evacuation of wounded.

22 MARCH • An R6D-1 Liftmaster of VR-3 assigned to the Military Air Transport Service crashed and exploded on Pali Kea Peak, 15 miles northwest of Honolulu, Hawaii. The accident killed all 66 people on board, nine crewmembers and 57 passengers.

25 MARCH • An XF8U-1 Crusader exceeded the speed of sound during its first flight at Edwards AFB, Calif.

4 APRIL • The Jet Transitional Training Unit was established at NAS Olathe, Kansas. The unit provided refresher training for aviators who transferred from shore to sea duty in the rank of commander and below. It also trained pilots making the transition from propeller aircraft to jets.

22 APRIL • During a ceremony on board *Bennington* (CVA 20), Secretary of the Navy Charles S. Thomas presented medals and commendations to 178 of the crew in recognition of their heroism fighting the 26 May 1954 fire.

30 APRIL • Adm. John H. Towers (Naval Aviator No. 3) died. His career began on 26 June 1911 when he reported to the Curtiss Flying School at Hammondsport, N.Y., for flight instruction. Towers served as Chief of Bureau of Aeronautics; Commander Naval Air Forces, Pacific; Commander Second Carrier Task Force; and Commander in Chief, Pacific Fleet. He retired from active duty on 1 December 1947 while serving as chairman of the General Board.

1053800

An XP6M-1 Seamaster swept-wing jet-powered seaplane.

2 MAY • The Navy announced the Aviation Officer Candidate Program for college graduates between the ages of 19 and 26. The plan paralleled the Aviation Cadet Program insofar as flight training was concerned, but in recognition of the higher scholastic achievement of its candidates offered a commission as ensign, USNR, upon completion of the four-month preflight course.

5 MAY • Twelve P2V-5 Neptunes of VP-1 returned from the Far East by way of Asia, Europe, and North Africa to NAS Whidbey Island, Wash. Despite a tour of duty that separated the Pacific Ocean leg from the rest of the voyage, their return marked the first round-the-world flight by a Navy squadron. VP-1 had departed the continental United States on 21 April 1955. The achievement bolstered the Navy's claims to strategic airpower in the face of ongoing Air Force demands for control over all land-based airpower and of congressional calls for post–Korean War defense cutbacks.

12 MAY • A revision of naval vessel classifications included the designations Escort Helicopter Aircraft Carrier (CVHE) and Utility Aircraft Carrier (CVU). The ships were redesignated one month later.

1 JUNE • VQ-1, Lt. Cmdr. Eugene R. Hall commanding, was established at NAS Iwakuni, Japan, as the first squadron of its type. It initially flew P4M-1Q Mercators.

22 JUNE • Two Soviet MiG-15 Fagots attacked a VP-9 P2V-5 Neptune, BuNo 131515, on patrol over the Aleutian Islands from NAS Kodiak, Alaska. The Neptune crashed on St. Lawrence Island near Gambell in the Bering Sea. Four of the 11 crewmen sustained gunfire wounds, and six were injured in the crash.

1 JULY • Naval Auxiliary Air Station (NAAS) Mayport, Fla., was established. The action completed the program that began in 1948 to convert the Jacksonville area into a fleet aviation center. Mayport provided mooring facilities for carriers alongside the airstrip and thus permitted the rapid loading or unloading of special equipment and personnel and the easy movement of carrier aircraft ashore or afloat.

1 JULY • *Thetis Bay* (CVE 90) was reclassified an assault helicopter aircraft carrier (CVHA 1).

14 JULY • A swept-wing XP6M-1 seaplane powered by four Allison J-71 jet engines and incorporating a new hull design made its first flight. The Seamasters were designed for minelaying and reconnaissance tasks but were adaptable to other missions.

22 AUGUST • VX-3 began operational evaluation of the mirror landing system installed on *Bennington* (CVA 20). Squadron commanding officer, Cmdr. Robert G. Dose, made the first landing with the device in an FJ-3 Fury. Two days later, Lt. Cmdr. Harding C. MacKnight accomplished the first night landing in an F9F-8 Cougar. A favorable report from VX-3 formed the basis for a decision to procure the mirror landing system for installation on carriers and at certain shore stations.

12 SEPTEMBER • The Navy announced the fitting of all the fighters in production with in-flight refueling gear, thus establishing the technique as a standard operational procedure.

16 SEPTEMBER • Guided Missile Group 1 was established at San Diego, Calif., to provide trained detachments to operate Regulus bombardment missiles from aircraft carriers

709972

Forrestal (CVA 59) is the lead ship of her class, and the first operational U.S. carrier designed specifically to operate jets.

and to support the employment of the weapons on board cruisers and submarines of the Pacific Fleet. Ten days later, Guided Missile Group 2 was established at Chincoteague, Va., to provide the same services in the Atlantic Fleet.

27 SEPTEMBER • The chief of Naval Research received Navy responsibilities in connection with plans to launch an earth satellite during the International Geophysical Year of 1957 to 1958. These tasks included technical management of the Department of Defense portion of the program.

1 OCTOBER • *Forrestal* (CVA 59), Capt. Roy L. Johnson commanding, was commissioned at the Norfolk Naval Shipyard, Portsmouth, Va., as the first of four ships of her class.

10 OCTOBER • Following a week of disaster relief operations in the wake of Hurricane Hilda, *Saipan* (CVL 48), with HTU-1 embarked, sailed from Tampico, Mexico. Helicopters flying from the ship rescued 5,439 people and delivered 183,017 pounds of food and medical supplies. Additional commands involved included Marines from the 2d Marine Aircraft Wing, Marine Aircraft Group 26, and VMR-153 and -252.

1006922

The seventh of nine YA4D-1 Skyhawk test aircraft, BuNo 137819, carries a Douglas NAVPAC (navigation package) during a trial flight, c. May 1956.

11 OCTOBER • The Navy announced the initial step toward monitoring surface weather in uninhabited portions of the world to provide improved weather forecasting for use in both flight and surface operations. Automatic meteorological stations developed by the Office of Naval Research and Bureau of Aeronautics were set adrift in the hurricane lanes north of Puerto Rico and provided continuous weather data on tropical storm Janet. Subsequent progress included moored automatic weather stations. In September 1960, a station provided the first alert on tropical storm Ethel; beginning in 1956, unit stations on Antarctica achieved increasing success culminating in the provision of adequate data in 1960 and, beginning in 1964, with nuclear energy power as a source for data collection and transmission.

15 OCTOBER • Lt. Gordon Gray broke the Class C world speed record for 500 kilometers at 695.163 mph in an A4D-1 Skyhawk over Muroc, Calif.

1 NOVEMBER • *Boston* (CAG 1), Capt. Charles B. Martell commanding, was commissioned at the Philadelphia Naval Shipyard, Pa., as the world's first guided-missile cruiser.

8 NOVEMBER • The Secretary of Defense established a national ballistic missile program involving joint Army-Navy development of an intermediate-range ballistic missile for shipboard and land-based operations. The decision resulted in Navy support for the Army's program to develop liquid-propellant Jupiter missiles at the Redstone Arsenal, Ala., in order to adapt the weapons for use as fleet ballistic missiles.

9 NOVEMBER • The Chief of Naval Operations informed the chief of the Bureau of Ships of his intention to equip each angled-deck carrier with mirror landing systems, and requested the procurement of equipment for 12 installations during 1956 and 1957.

14 NOVEMBER • The flagship of Commander Task Force 43, Rear Adm. George J. Dufek, sailed from Norfolk, Va., for New Zealand to rendezvous with the ships of the task force for the southward voyage to participate in Operation Deep Freeze. The force's mission was to establish bases on Antarctica for geophysical studies during the following year.

1 DECEMBER • The assignment of an element of Fleet All Weather Training Unit, Pacific with the Continental Air Defense Command began as a fighter-interceptor group under Air Force control. The element was disestablished on 2 May 1958, raised to squadron status, and designated VF(AW)-3.

4 DECEMBER • Lt. Cmdr. Charles A. Mills piloted a ZPG airship in the vicinity of NAS South Weymouth, Mass., on an experimental ice accreting flight during a project to evaluate the all-weather capabilities of airships. In spite of heavy hull and propeller icing, severe vibration, and flying ice particles, Mills directed the collection of data, returned

to the field under instrument conditions, and made a ground-controlled approach landing in a manner that retained a maximum amount of ice on the ship for ground analysis. For his achievement on this and other evaluation flights, Mills received the 1956 Harmon International Trophy for Aeronauts.

20 DECEMBER • Two P2V Neptunes and two R5D Skymasters of VX-6 forged the first air link with Antarctica with a flight from Christchurch, New Zealand, to McMurdo Sound, Antarctica.

1061490

An F3H-2N Demon, BuNo 137010, launches an AAM-N-6 Sparrow III air-to-air missile during testing at Point Mugu Pacific Missile Range, c. 1958.

1956

3 JANUARY • ZW-1, Cmdr. John L. Mack commanding, was established at NAS Lakehurst, N.J., as the first lighter-than-air unit of its type. The squadron's initial mission was the training of personnel, evaluation of airborne early warning (AEW) equipment, and formulation of tactics in preparation for manning a station in the contiguous AEW barrier system. In February, ZW-1 began project flights into September 1956 to test and evaluate the ZPG-2W airship as an AEW vehicle, and to determine the effectiveness of its equipment for use in continental and fleet air defense.

10 JANUARY • Airborne Early Warning Wing, Pacific was established at NAS Barbers Point, Territory of Hawaii, Capt. Edward C. Renfro commanding. The wing supervised and directed aircraft flying defensive patrols protecting the United States against surprise attack.

29 FEBRUARY • Growing unrest in Jordan and dissatisfaction with British influence within the kingdom led to the dismissal of British Commander Gen. John B. Glubb of the Arab Legionnaires. The Sixth Fleet subsequently dispatched *Randolph* (CVA 15) and *Coral Sea* (CVA 43) to the eastern Mediterranean. The formation of a new Jordanian cabinet in May ended the turmoil.

7 MARCH • The assignment of F3H-2N Demons to the fleet began with the delivery of six to VF-14 at NAS Cecil Field, Fla.

12 MARCH • F7U-3M Cutlasses from VA-83 equipped with AAM-N-2 Sparrow I air-to-air missiles sailed from Norfolk, Va., on board *Intrepid* (CVA 11) for the Mediterranean in the first overseas deployment of a naval squadron using air-to-air missiles. In June, VA-46 deployed equipped with AAM-N-7 Sidewinder air-to-air missiles.

12 MARCH • The Assistant Secretary of Defense for Research and Development established a titanium alloy sheet rolling program and designated the Bureau of Aeronautics as coordinator. This created an organized effort of the armed services and the titanium industry to improve the strength, uniformity, and fabricating characteristics of the alloys for use in aircraft and missiles.

20 MARCH • The Ballistic Missile Committee of the Office of the Secretary of Defense approved a Navy program to develop solid-propellant motors for use in ship-based ballistic missiles.

31 MARCH • Five A3D-1 Skywarriors ferried from NAS Patuxent River, Md., to VAH-1 at NAS Jacksonville, Fla., completed the first delivery of the type to a fleet command.

3 APRIL • The Navy announced the operational integration of Petrel air-to-surface guided missiles designed for use by patrol aircraft against shipping, with the first assigned to P2V-6M Neptunes of VP-24.

23 APRIL • The cognizance of an earth satellite launching program designated Project Vanguard within OpNav shifted to the Guided Missiles Division of Deputy Chief of Naval Operations (Air). The division received responsibility for advising the Chief of Naval Operations on general aspects

1053799

One of two A3D-1 Skywarriors, BuNo 135408, used for Naval Air Test Center carrier suitability trials in June 1956 is launched from *Forrestal* (CVA 59).

of the program, and supporting and assisting the Office of Naval Research in the resolution of problems, other than fiscal, that arose within the Navy Department and at missile test activities of other services.

25 APRIL • The Chief of Naval Operations announced the planned installation of mirror landing systems at all the principal naval air stations to improve air traffic control and reduce landing accidents.

26 APRIL • The Naval Aircraft Factory at Philadelphia, Pa., was renamed the Naval Air Engineering Facility (Ships Installations). Its revised mission included research, engineering, design, development, and limited manufacturing of devices and equipment for aircraft and guided missile launch and recovery. The redesignation ceremony occurred on 1 June.

29 MAY • The modification of the ship designation system by the use of the suffix "N" identified vessels propelled by nuclear energy.

25 JUNE • The Naval Ordnance Plant at Indianapolis, Ind., was redesignated the Naval Avionics Facility. The plant had been established early in World War II for the development and production of aviation ordnance including the Norden bombsight and was devoted to the research, development, production, and repair of aviation fire control equipment. Its redesignation completed an internal Navy realignment whereby the Bureau of Ordnance became responsible for solid propellant rocket motors and Bureau of Aeronautics for aviation fire control equipment.

27 JUNE • The first Fleet Air Gunnery Meet was held at NAAS El Centro, Calif. Six teams selected from Navy and Marine shore-based fighter squadrons, each composed of the

squadron commanding officer and three pilots, competed with two firings each at 15,000 and 25,000 feet during the two-day event. The top team honors and the Earle Trophy went to VF-112 of Naval Air Forces, Pacific, and individual honors to Lt. j.g. H. N. Wellman of VF-43 from Naval Air Forces, Atlantic.

7 JULY • VW-12 and Headquarters and Maintenance Squadron 2 were established at NAS Barbers Point in the Hawaiian Islands for patrol duty along the Pacific Distant Early Warning Line of the Continental Air Defense System.

698382

Equipment development encompasses all phases of naval aviation. An early mirror landing system aids an A3D Skywarrior as it lands on board an aircraft carrier.

12 JULY • The chief of Bureau of Aeronautics approved a reorganization of the Office of Assistant Chief for Research and Development that included the regrouping of various technical divisions with closely related functions under the appropriately titled officers. The move completed a reorganization of the entire bureau initiated the previous year. It included the establishment of an assistant chief for plans and programs with a concomitant strengthening of planning functions and a division of the material and services group into two groups entitled "Procurement" and "Maintenance and Support," each under an assistant chief.

14 JULY • In the initial overseas deployment of a fleet command equipped with AAM-N-7 Sidewinder air-to-air missiles, the F9F-8 Cougars of VA-46, embarked on board *Randolph* (CVA 15), sailed from Norfolk, Va., for the Sixth Fleet in the Mediterranean. The following month, the deployment of Sidewinders began to the western Pacific as the FJ-3 Furies of VF-211 sailed from the West Coast on board *Bon Homme Richard* (CVA 31).

20 JULY • *Thetis Bay* (CVHA 1), Capt. Thomas W. South II commanding, was commissioned at San Francisco, Calif., as the first helicopter assault carrier. The former escort carrier (CVE 90) had been converted to operate helicopters and to accommodate 1,000 Marines to be flown ashore in the vertical envelopment tactics of amphibious assault. *Thetis Bay* was redesignated an amphibious assault ship (LPH 6) on 28 March 1959, but she never supported a combat landing in this configuration and was decommissioned on 31 March 1964.

26 JULY • The Egyptians nationalized the Suez Canal, and amid Anglo-French preparations for war to assert their claims to the canal, the Sixth Fleet subsequently deployed *Randolph* (CVA 15) and *Coral Sea* (CVA 43) to the eastern Mediterranean. The ships dispersed in mid-September following an apparent lessoning of the tensions.

31 JULY • Lt. Cmdrs. P. Harwood and Alton R. Henson and Lt. Roy R. Miears demonstrated the performance capabilities of carrier jet attack aircraft with a 3,200-mile nonstop unrefueled flight in an A3D Skywarrior from Honolulu, Hawaiian Islands, to Albuquerque, N. Mex. The trip took 5 hours, 40 minutes, at an average speed of 570 mph.

15 AUGUST • The Avionics Division, Capt. William E. Sweeney director, was established in the Bureau of Aeronautics' Research and Development Group. The merger of the electronics and armament divisions and the navigation branch of the Airborne Equipment Division formed the Avionics Division that resulted from a rapid expansion of electronics in aviation armament and air navigation, and from the closely coordinated effort required for its most effective application.

21 AUGUST • Cmdr. Robert W. Windsor Jr. captured the Thompson Trophy with a new national speed record of 1,015.428 mph in an F8U-1 over a 15-kilometer course at NOTS China Lake, Calif. This production model Crusader carried its normal armament of 20mm cannon and dummy ammunition during the record performance, making it the first operationally equipped U.S. aircraft to fly faster than 1,000 mph.

1053795

An HUS-1 Seahorse of HMR-362 demonstrates an at-sea rescue while operating with *Thetis Bay* (CVHA 1), c. 1956.

22 AUGUST • Pilot Lt. Cmdr. Virgil Solomon completed the last scheduled passenger run for Martin Mars seaplanes after a flight from Honolulu, Hawaiian Islands, when he landed the JRM *Marianas Mars* off NAS Alameda, Calif.

22 AUGUST • The crew of a VQ-1 P4M-1Q, BuNo 124362, on a night patrol from Iwakuni, Japan, reported themselves under attack by unidentified aircraft over international waters, 32 miles off the Chinese coast near Wenchow, about 180 miles north of Formosa (Taiwan). The Mercator sent no further word and the plane and all 16 men on board disappeared. Carrier and land-based aircraft and ships searched for the aircraft and destroyer *Dennis J. Buckley* (DDR 808) recovered wreckage, empty life rafts, and the bodies of two crewmembers.

30 AUGUST • The Air Coordinating Committee approved a common military-civil short-range air navigation system called VORTAC. The system consisted of a combination of the Navy-developed tactical air navigation system (TACAN) with the Civil Aeronautic Authority's very-high frequency omni-range direction finder (VOR). The action resulted in the installation of ground beacons on civil airways that served civilian and military aircraft, each using their own specialized equipment.

1 SEPTEMBER • In the race for the North American Trophy at an event of the National Aircraft Show, four FJ-3 Furies of VF-24 took off from *Shangri-La* (CVA 38) off the Pacific coast of Mexico and flew 1,198 miles nonstop without refueling to Oklahoma City, Okla. Lt. j.g. D. K. Grosshuesch won with a time of 2 hours, 13 minutes, 38.6 seconds, at an average speed of 537.848 mph.

2 SEPTEMBER • On the second day of the National Aircraft Show, Lt. j.g. R. Carson of VF-124 captured the McDonnell Trophy with a nonstop unrefueled flight in an F3H-2N Demon from *Shangri-La* (CVA 38) at sea off San Francisco, Calif., to Oklahoma City, Okla. Carson covered 1,436 miles in 2 hours, 32 minutes, 13.45 seconds, at an average speed of 566.007 mph.

3 SEPTEMBER • Capt. John T. Blackburn, commanding officer of Heavy Attack Wing 1, and Cmdr. Charles T. Frohne launched in two A3D Skywarriors from *Shangri-La* (CVA 38) off the Oregon coast, flew across a finish line at the National Aircraft Show at Oklahoma City, Okla., and continued on without refueling to NAS Jacksonville, Fla. Blackburn received the Douglas Trophy for completing the 1,543.3-mile leg from the *Shangri-La* to Oklahoma City in 2 hours, 32 minutes, 39.7 seconds, at an average speed of

606.557 mph. This flight completed a three-day demonstration of carrier mobility in which *Shangri-La* launched jets to the same destination from widely separated points while sailing from Mexico to Oregon.

21 SEPTEMBER • Grumman test pilot Tom Attridge, flying an F11F-1 Tiger, shot himself down when he flew into 20mm projectiles he fired only seconds before while conducting test firings off eastern Long Island, N.Y.

2 OCTOBER • The Navy struck *Enterprise* (CV 6) and placed the ship for sale as scrap. The carrier was commissioned on 12 May 1938, served through World War II, and helped pioneer night combat operations. *Enterprise* received the Presidential Unit Citation and the Navy Unit Commendation. The ship was decommissioned during the demobilization period after the war and laid-up with the Reserve Fleet at Bayonne, N.J.

1061494

Cmdr. Robert W. Windsor Jr. set the world speed record of more than 1,000 mph on 21 August 1956 in this production model F8U-1 Crusader, BuNo 141345, and was awarded the Thompson Trophy.

5 OCTOBER • Cmdrs. Gerald A. Robinson and Donald Mitchie and Ens. Ronald K. Hess of VF-144 made a round-trip transcontinental flight in three F9F-8 Cougars from Miramar, Calif., to Long Island, N.Y., with fueling stops each way at Olathe, Kans. Although the flight's elapsed time of 10 hours, 49 minutes, 11 seconds, beat the existing record of 11 hours, 18 minutes, 27 seconds, the flight was not under official observation and therefore did not receive official recognition.

11 OCTOBER • An R6D-1 of VR-6 on a scheduled Military Air Transport Service flight from Lakenheath, England, to Lajes, Azores, disappeared over the Atlantic with nine crewmembers and 50 passengers on board. Ships and aircraft searched during the following 14 days and found debris from the Liftmaster, but failed to locate survivors.

16 OCTOBER • Five students received naval observer wings as the first graduates of the Navigator-Bombardier School. The course began on 26 May at NAS Corpus Christi, Texas.

29 OCTOBER • The Suez Crisis in the Middle East erupted into open warfare. All available ships and submarines of the Sixth Fleet in the Mediterranean went to sea under conditions of maximum readiness, and the Fleet received orders to evacuate U.S. citizens from the threatened area. At times, *Randolph* (CVA 15), *Antietam* (CVS 36), and *Coral Sea* (CVA 43) responded. Through 3 November, aircraft provided cover while ships and USAF transports evacuated about 2,200 people from Alexandria, Egypt; Haifa and Tel Aviv, Israel; Amman, Jordon; and Damascus, Syria. On 7 November, the United States received information of an impending Soviet deployment of six ships from the Black Sea

1011277

The supersonic F11F-1 Tiger had its origins in the subsonic F9F Panther and Cougar series of aircraft. This early prototype displays the plane's planform.

805653

The crew—(from left) AMM2 John P. Strider, Rear Adm. George J. Dufek, Lt. Cmdr. Conrad S. Shinn, Lt. John Swadener, AT2 William Cumbie, Capt. William M. Hawkes, and Capt. Douglas L. L. Cordiner—of the first plane to land at the South Pole, 31 October 1956.

to the eastern Mediterranean. The Chief of Naval Operations dispatched *Coral Sea* and *Randolph* to sail off the Egyptian coast, from where they could support the evacuation of Americans or strike against the Soviets, and sent *Franklin D. Roosevelt* (CVA 42) and *Forrestal* (CVA 59) to the vicinity of the Azores to reinforce the Sixth Fleet. Two additional carriers sailed to the western Pacific and Indian Ocean. The operations by the Sixth Fleet during subsequent weeks included the logistic support of the initial UN peacekeeping forces that arrived in the area on 15 November. On 13 December, the Sixth Fleet stood down from a 24-hour alert status.

31 OCTOBER • Commander Task Force 43 and Commander Naval Support Forces, Antarctica Rear Adm. George J. Dufek; Capt. Douglas L. L. Cordiner, commanding officer of VX-6; pilot Lt. Cmdr. Conrad S. Shinn; copilot Capt. William M. Hawkes; navigator Lt. John Swadener; crew chief AMM2 John P. Strider; and radioman AT2 William Cumbie landed in *Que Sera Sera*—an R4D-5L Skytrain, BuNo 12418—on the ice at the South Pole. The crew disembarked and at 0834 GMT became the first men to stand at the South Pole since British Capt. Robert F. Scott, RN, had accomplished the feat on 17 January 1912. The party remained at the pole for 49 minutes setting up navigational aids to assist the future delivery of materials and equipment for constructing a scientific observation station at the pole. A Navy R5D Skymaster and an Air Force C-124 Globemaster provided navigational assistance and were to drop survival gear in the event of an accident. The Naval Aviation Museum subsequently preserved *Que Sera Sera* for display at NAS Pensacola, Fla.

2 NOVEMBER • The Navy announced the award of a contract to Westinghouse Electric to design and furnish reactor components for *Enterprise* (CVAN 65).

8 NOVEMBER • Lt. Cmdrs. M. Lee Lewis and Malcolm D. Ross bettered the existing world altitude record by soaring to 76,000 feet in a Navy Stratolab balloon over the Black Hills of South Dakota. The duo received the 1957 Harmon International Trophy for Aeronauts for this record ascent, which was intended to gather meteorological, cosmic ray, and other scientific data necessary to improve safety at high altitudes.

9 NOVEMBER • Maj. Roy L. Anderson, USMC, began a three-day assault on world records in an HR2S-1 helicopter that set three new marks at Windsor Locks, Conn. On 9 November, he carried a payload of 11,050 pounds to an altitude over 12,000 feet; on 10 November, he conveyed 13,250 pounds to over 7,000 feet; and on 11 November, he set a speed record of 162.7 mph over a three-kilometer course.

29 NOVEMBER • The ZSG-4 made its initial flight as the first airship fitted with a Dacron envelope at NAS Lakehurst, N.J.

USMCA 150310

The Marines' HR2S-1 Mojave could carry 26 fully equipped troops or up to three jeeps, c. 1956.

3 DECEMBER • *Compass Island* (EAG 153) was commissioned at the New York Naval Shipyard, N.Y., Cmdr. J. A. Dare commanding, as the first ship converted to support the fleet ballistic missile program.

3 DECEMBER • *Gyatt* (DD 712), Cmdr. Charles F. Helme Jr. commanding, was recommissioned at Boston, Mass., as the first destroyer fitted with RIM-2 Terrier surface-to-air missiles.

7 DECEMBER • The Secretary of Defense directed the placement of air transport operations under a single manager service and designated the Military Air Transport Service (MATS) of the Air Force as the operating agency. This directive required the Navy to transfer to that agency all transport aircraft that it operated under MATS and all four-engine land transports of the fleet logistic air wings, except for 30 retained for fleet service and administrative airlift. The implementation of the instruction was to occur on 1 July 1957.

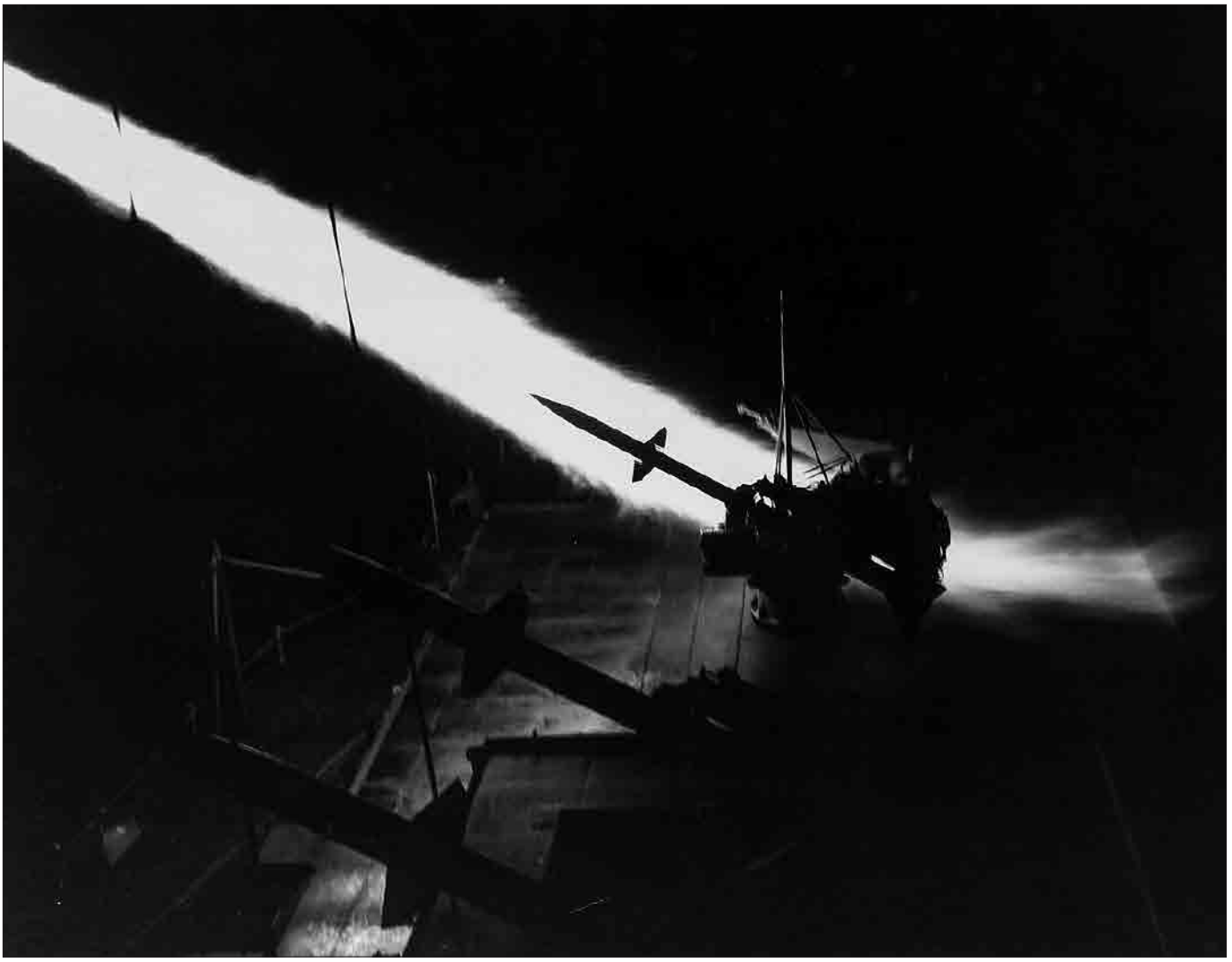
8 DECEMBER • The Secretary of Defense authorized the Navy to proceed with the development of the solid-propellant Polaris fleet ballistic missile as a submarine-launched weapon system, and to terminate its participation in the liquid-propellant Jupiter program.

8 DECEMBER • A Martin Viking rocket successfully launched from Cape Canaveral, Fla., during a test of launching equipment, tracking, and telemetry instruments intended for the Vanguard earth satellite.

17 DECEMBER • A WF-2 Tracer carrier early warning plane, adapted from the TF-1 design, made its first flight at the Grumman facility, Peconic River, Long Island, N.Y.

1957

1 JANUARY • The Naval Air Experimental Station, one of the four subcommands that had been grouped together on 14 July 1943 to form the Naval Air Material Center, was disestablished and consolidated within the center at Philadelphia, Pa.



659363

Converted battleship *Mississippi* (AG 128) first launched a SAM-N-7 Terrier surface-to-air missile during tests in January 1953. This is a later night launch.

3 JANUARY • The Bureau of Aeronautics ordered the retirement of the last operational PBY-6A Catalina from naval service at Naval Air Reserve Training Unit Atlanta, Ga.

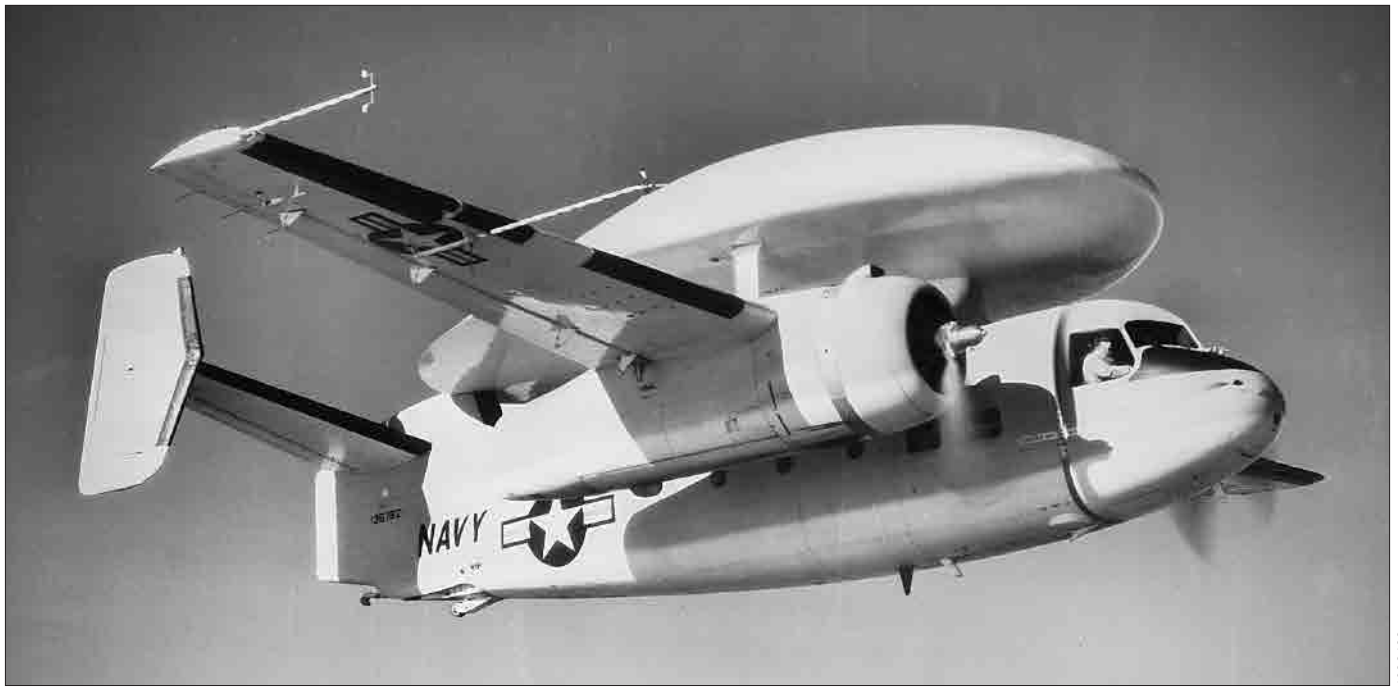
10 JANUARY • The Naval Air Mine Defense Development Unit was established as a full command at Panama City, Fla. The unit had been established on 31 August 1956, under an officer in charge to develop and evaluate aviation systems, materials, and techniques for mine countermeasures.

14 JANUARY • In an evaluation of their all-weather capability, ZPG airships of ZW-1 operating in relays from NAS South Weymouth, Mass., maintained continuous radar patrols over the North Atlantic 200 miles off the New England coast through a series of fierce storms into 24 January.

15 JANUARY • *Forrestal* (CVA 59), with Carrier Air Group 1 embarked, deployed to the Mediterranean from NS Norfolk, Va. The 12 A3D-1s of VAH-1 that sailed with the ship marked the first deployment of Skywarriors with a *Forrestal*-class carrier. She returned to the United States on 22 July.

18 JANUARY • VA(AW)-35 at San Diego, Calif., received TF-1Qs, the first Navy aircraft equipped for electronic jamming.

1 FEBRUARY • Lt. Cmdr. Frank H. Austin Jr., MC, became the first Navy flight surgeon to qualify as a test pilot when he completed the Test Pilot Training Program at NATC Patuxent River, Md.



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This TF-1 Trader, BuNo 136792, carrier onboard delivery transport has been converted into the aerodynamic prototype—without internal electronic systems—of the WF-2 Tracer carrier-based early warning aircraft.

4 FEBRUARY • The Chief of Naval Operations set forth a new policy for billet assignment, which provided the assignment of aviators and non-aviators alternately as either the senior or next senior officer of each important policy generating and administrative billet, and that assignment to all billets of commander-level and above were to be filled by aviators and non-aviators in the ratio of their respective numbers on board.

9 FEBRUARY • Chairman and Deputy Secretary of Defense Reuben B. Robertson Jr. issued the final report of the eponymous committee formed to study the means of shortening the time required to develop aircraft. The Robertson Committee concluded that streamlining management and administrative processes eliminated wasted motion and accomplished the development of weapon systems in less time than had been required since World War II. To this end, the services were to take specific action to correct problems. Those taken by the Navy included the establishment of managers for each weapon program within the Bureau of Aeronautics, and a long-range objectives group in the Office of Chief of Naval Operations.

21 FEBRUARY • In recognition of the increasing importance of weather information to naval operations, the Naval Aerology Branch, OP-533, received status as the Naval Weather Service Division, OP-58.

4 MARCH • Cmdr. Jack R. Hunt commanded airship ZPG-2 during a flight from NAS South Weymouth, Mass., that circled over the Atlantic Ocean toward Portugal and the African coast and landed on 15 March at NAS Key West, Fla. This set a new world record in distance and endurance by covering 9,448 statute miles and remaining airborne without refueling for 264 hours, 12 minutes. Hunt received the 1958 Harmon International Trophy for Aeronauts.

7 MARCH • A turbocatapult powered by the exhaust of six jet engines and designed primarily for use by Marine expeditionary forces, launched its first aircraft at Georgetown, Del. Test pilot Joseph Barkley took off in an AD-4NA Skyraider weighing 16,400 pounds at a speed of 90 knots in a run of 210 feet.

21 MARCH • Cmdr. Dale W. Cox Jr. broke two transcontinental speed records in an A3D-1 Skywarrior. The first occurred during a round trip of 9 hours, 31 minutes, 35.4 seconds, from Los Angeles, Calif., to New York, N.Y. The second marked an east-to-west flight completed in 5 hours, 12 minutes, 39.24 seconds.

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Cmdr. Jack R. Hunt briefs the crew of airship ZPG-2 for their non-stop 11-day flight, 4 March 1957.

25 MARCH • VF-32 received the first F8U-1 Crusader delivered to a fleet unit two years after the first flight of the experimental model.

25 MARCH • African American Lt. j.g. Bobby C. Wilks, USCGR, earned his wings as Coast Guard Aviator No. 735 at NAS Corpus Christi, Texas. Wilks thus became the Coast Guard's first black pilot, and in 1959 he also qualified as Coast Guard Helicopter Pilot No. 343. The following year he transferred to the regular Coast Guard as a lieutenant, and in 1986 he retired as a captain.

5 APRIL • In the second annual Naval Air Weapons Meet, VMF-314 won the Earle Trophy for first place in air gunnery, and VA-26 took the Kane Trophy for best in the air-to-ground competition. Cmdr. Alexander Vraciu, commanding officer of VF-51 and a World War II ace, attained the best individual score of the meet.

12 APRIL • The Sperry Farragut Company of Bristol, Tenn., completed the scheduled production of AAM-N-2 Sparrow I air-to-air missiles with the delivery of the final missile on order.

13 APRIL • Aviation officer distribution functions shifted to the Bureau of Naval Personnel. The office of Deputy Chief of Naval Operations (Air) had performed these functions since its establishment in 1943.

21 APRIL • *Antietam* (CVS 36) was assigned to the chief of Naval Air Training at NAS Pensacola, Fla., to provide that command with its first angled deck carrier for use in flight training. *Antietam* operated from NS Mayport, Fla., while dredging deepened the channel into Pensacola, and physically shifted her home port in January 1959.

25 APRIL • The Sixth Fleet including *Lake Champlain* (CVA 39) and *Forrestal* (CVA 59) sailed to the eastern Mediterranean in a show of strength to support a publicized warning by President Dwight D. Eisenhower to contain a communist threat to Jordanian independence. On 27 April, Commander Sixth Fleet Vice Adm. Charles R. Brown reported to NATO the Fleet's readiness in the event of an escalation of the crisis: "For deterrent action could launch attack aircraft today and all types first light tomorrow for demonstration." The two carriers operated in those waters for a week.

30 APRIL • The Naval Aviation Medical Center was established at NAS Pensacola, Fla. The move combined under a single command the clinical, training, and research functions of the Naval School of Aviation Medicine and the Naval Hospital Pensacola.

1 MAY • A two-stage rocket consisting of the first stage of a Viking and a prototype of the Vanguard third stage launched in the second successful test of components of the Vanguard earth satellite launching vehicle from Cape Canaveral, Fla.

6 MAY • ZPG-2W made its first flight at Akron, Ohio. The early-warning airship was equipped with a large radar antenna mounted within the envelope.

17 MAY • *Badoeng Strait* (CVE 116) was decommissioned at Bremerton, Wash., as the last escort carrier in service.

23 MAY • A drone HTK-1 carrying a safety pilot operated from the fantail of frigate *Mitscher* (DL 2) in the vicinity of Narragansett Bay. These tests and other evaluations in which a piloted HUL-1 carried Mk 43 torpedoes in flights

to and from *Mitscher* in February off NAS Key West, Fla., demonstrated the feasibility of assigning torpedo carrying drone helicopters to destroyers. The evaluations led to the development of the Drone Anti-Submarine Helicopter (DASH) later embodied in the QH-50C.

27 MAY • The first T2V-1 Sea Star jet trainer arrived at the Naval Air Advanced Training Command, NAS Corpus Christi, Texas.

28 MAY • In a reorganization of the Naval Air Reserve, the Chief of Naval Operations directed the disestablishment of the 73 auxiliary air units located across the country during the following six months.

JUNE • The Chinese Communists reinforced their forces opposite Formosa (Taiwan). The Seventh Fleet deployed to the region to deter an attack on the island from the mainland, and by September reached a maximum strength of three aircraft carriers operating in the area.

6 JUNE • Capt. Robert G. Dose, commanding officer of VX-3, and Lt. Cmdr. Paul Miller Jr., and Lt. Cmdrs. Charles C. McBratnie and John H. Miller completed the first nonstop carrier-to-carrier transcontinental flight in two F8U-1 Crusaders and two A3D Skywarriors, respectively, from *Bon Homme Richard* (CVA 31) at sea off San Diego, Calif., to *Saratoga* (CVA 60) steaming off the east coast of Florida. The Skywarriors accomplished the flight without aerial refueling, but the Crusaders required refueling by AJ-2 Savages of VAH-11 operating from NAS Dallas, Texas. President Dwight D. Eisenhower embarked *Saratoga* overnight and greeted the jet crews upon their arrival.

27 JUNE • Lt. Cmdr. Malcolm D. Ross and Charles B. Moore of the Arthur D. Little Company successfully completed a flight in a Stratolab balloon to investigate the interior of a thunderstorm. Ross and Moore ascended from a point close to the summit of Mount Withington near Socorro, N. Mex., into a cumulus cloud above the mountain. Their ascent marked the first of a series of flights conducted during the summer under the sponsorship of the Office of Naval Research and Bureau of Aeronautics.

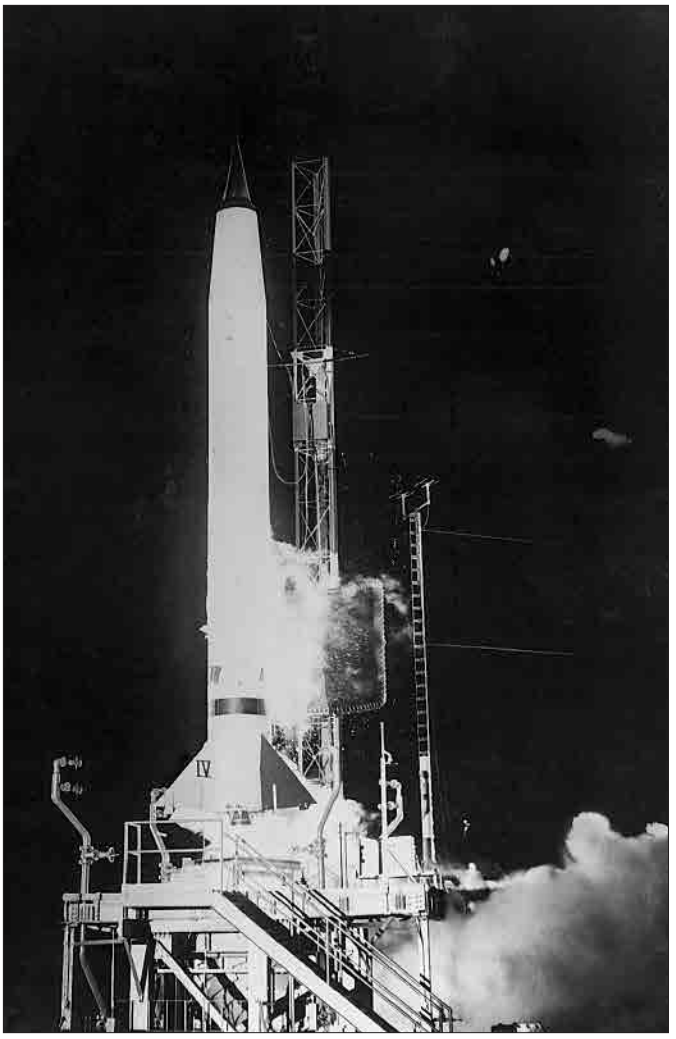
30 JUNE • The release of a transosonde balloon from NAS Iwakuni, Japan, inaugurated a program to gather daily weather data by the use of such balloons over the Pacific, North America, and the Atlantic. The balloons were set to float at 30,000 feet and carried instruments that reported pressure and temperature every two hours. Each flight was planned for from five- to eight-days duration with a termination point in the Atlantic, short of the European coast.

ZPG-2 lifts off for the record-breaking voyage from NAS South Weymouth, Mass.

1 JULY • The mission of ZW-1 changed to providing all-weather airborne early warning to fleet forces and shore warning nets. The squadron worked up to the shift in tasking, and on this date, a squadron ZPG-2W airship flew its first patrol as part of the system.

15 JULY • Following the establishment of a single manager for airlift service, fleet logistic air wings were abolished, and transport squadrons not assigned to the single manager underwent redesignation to fleet tactical support squadrons and reassignment for operations directly under the control of fleet commanders.

16 JULY • Maj. John H. Glenn Jr., USMC, broke the transcontinental speed record in an F8U-1P Crusader, BuNo 144608, with a crossing in 3 hours, 22 minutes, 50.05 seconds, at an average speed of 723.517 mph from NAS Los Alamitos, Calif., to NAS Floyd Bennett Field, N.Y. Glenn's achievement marked the first upper atmosphere supersonic flight from West to East Coasts.



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The modified Viking 14 flew the second successful test of the Vanguard earth satellite program when it launched the Vanguard's third stage motor from Cape Canaveral, Fla., 1 May 1957.

16 JULY • Two A3Ds completed a record flight across the eastern Pacific in 4 hours, 45 minutes, from NAS Moffett Field, Calif., to Honolulu, Oahu. The Skywarriors made a routine flight to join VAH-2 at NAS Barbers Point, Hawaiian Islands.

30 JULY • The first pilotless helicopter flight occurred at Bloomfield, Conn. Kaman Aircraft designed and built the new helicopter under a joint Army-Navy contract on the basis of principles developed experimentally under a Navy contract using a modified HTK.

30 JULY • Air Force, Pacific Fleet and Air Force, Atlantic Fleet were retitled Naval Air Force, Pacific Fleet and Naval Air Force, Atlantic Fleet respectively.

12 AUGUST • Lt. Cmdr. Don Walker landed in an F3D Sky Knight using the automatic carrier landing system on board *Antietam* (CVS 36) off NAS Pensacola, Fla. Walker's "hands off" landing began the first shipboard test of the system designed to land aircraft on board during all weather conditions without help from pilots. *Antietam* completed more than 50 fully automatic landings through 20 August.

27 AUGUST • The Navy announced the obligation of all naval aviator candidates, with the exception of aviation cadets entering flight training after 1 January 1958, to serve 3 ½ years on active duty upon completion of the course instead of the two years previously required.

28 AUGUST • Royal Air Force Lt. Sydney Hughes successfully ejected from an F9F-8T Cougar while flying just above the ground at 120 mph at NAS Patuxent River, Md. The Martin-Baker Aircraft Company Ltd. of England had designed and developed the ground-level ejection seat, and Grumman Aircraft evaluated it for the U.S. Navy.

3 SEPTEMBER • The solid-propellant XKDT-1 Teal rocket-powered target drone made its first flight in a launch from an F3H Demon over NAMTC Point Mugu, Calif.

21 SEPTEMBER • German sailing ship *Pamir* sank during Hurricane Carrie in the eastern Atlantic. U.S. Navy aircraft including P2V Neptunes flying from NAS Port Lyautey, Morocco, Coast Guard cutter *Absecon* (WAVP 374, formerly seaplane tender AVP 23), USAF, and Portuguese aircraft, joined ships from 13 nations during a week-long search, but only rescued six of the 86 men on board.

28 SEPTEMBER • *Alameda County* was redesignated advanced aviation base ship (AVB 1) from tank landing ship *LST-32*. She provided fuel, spare parts, technicians, and facilities necessary to establish and operate an airstrip for patrol and carrier aircraft in locations lacking base facilities.

1 OCTOBER • The Naval Air Test Facility (Ship Installations) was established at NAS Lakehurst, N.J., Cmdr. Richard M. Tunnell commanding. The facility evaluated aircraft launching and recovery systems and supported their development.

3 OCTOBER • *Saipan* (CVL 48) was decommissioned at Bayonne, N.J., as the last of the light carriers. The ship remained in reserve status, but on 15 May 1959, was reclassified AVT 6, and on 27 August 1966, recommissioned as communications relay ship *Arlington* (AGMR 2).

11 OCTOBER • An A3D Skywarrior of VAH-4 bettered the time from the continental United States to the Hawaiian Islands with a control tower–to–control tower flight of 4 hours, 29 minutes, 55 seconds, from San Francisco, Calif., to Honolulu, Oahu.

15 OCTOBER • Chief of the Bureau of Ordnance Rear Adm. Frederick S. Withington accepted the Talos Defense Unit from the Radio Corp. of America. The land-based version of the Talos shipboard missile system was designed to launch the missiles automatically. Chief of Army Ordnance Lt. Gen. E. L. Cummings, USA, subsequently used the unit for evaluation and for potential use at Army antiaircraft installations at White Sands Proving Ground, N. Mex.

16 OCTOBER • A severe flood inundated the area around Valencia, Spain. *Lake Champlain* (CVS 39), with HMR-262 embarked, subsequently aided in locating, feeding, and rescuing thousands of victims displaced by the rising waters.

1 NOVEMBER • ZW-1 maintained an all-weather airborne early warning barrier commitment to fleet forces and shore warning nets with only two operational airships of the four normally required to be available through March 1958. Each airship operated more than 225 hours monthly during this period compared to a monthly average of approximately 110 hours during World War II.

13 NOVEMBER • A Regulus II bombardment missile with a range of 1,000 miles made its first launch with rocket boosters from Edwards AFB, Calif. Control aircraft returned the 11-ton missile to the field and landed it after a 48-minute flight.

21 NOVEMBER • The Department of Defense terminated Project Arowa (Applied Research: Operational Weather Analysis). The project attempted to develop basic meteorological research data into practical weather forecasting techniques. The people and records assigned to Arowa moved to Navy Weather Research Facility, which had been established the preceding month at Norfolk, Va.

22 NOVEMBER • VP-834 from NAS Floyd Bennett Field, N.Y., became the first Reserve squadron to launch guided missiles as a part of its regular training after completing two weeks of instruction at NAS Chincoteague, Va. The squadron fired Petrel air-to-surface missiles under the supervision of Guided Missile Unit 11.

9 DECEMBER • The cognizance of research and development programs for space vehicles was transferred from Deputy Chief of Naval Operations (Air) to Assistant Chief of Naval Operations (Research and Development), and the broadening of the responsibilities for the former Project Vanguard included all space vehicle programs prosecuted by the Office of Naval Research in the extension of, or following, Vanguard.

1958

2 JANUARY • *Princeton* (CVS 37) and destroyers *Eversole* (DD 789) and *Shelton* (DD 790) from the Seventh Fleet and seaplane tender *Duxbury Bay* (AVP 38) from the Middle East Force rescued victims of a disastrous flood in Ceylon (Sri Lanka). Twenty CH-19Es from HMRL-162 comprised the principal aviation contingent. *Princeton* left the area on 9 January.

9 JANUARY • Naval aircraft began the delivery of emergency supplies to the people of Jaluit and other islands in the Marshall Islands in the wake of devastation caused by Super Typhoon Ophelia.

3 FEBRUARY • The chief of BUAER appointed a weapons system team to accelerate the development and introduction of A2F (A-6) Intruders. The team worked under the chairmanship of the program manager and consisted of representatives from production, maintenance, and contracts divisions, and the Research and Development Group. The research and development project officer (or class desk officer) also chaired the research and development project team that included representatives of avionics, airborne equipment, and power plant divisions. This action and the assignment of systems management responsibilities to the airframe contractor marked important steps in the implementation of the management concepts recommended by the Robertson Committee.

Maj. John H. Glenn Jr., USMC, breaks the transcontinental speed record in an F8U-1P Crusader, 16 July 1957.

4 FEBRUARY • The keel of *Enterprise* (CVAN 65) was laid at Newport News Shipbuilding and Dry Dock Company, Va., as the world's first nuclear-powered aircraft carrier.

13 FEBRUARY • The creation of a selected reserve within the overall reserve organization provided fully trained and equipped people and commands for immediate deployment to specific active duty assignments during wars. The organization incorporated the entire Naval Air Reserve.

14 FEBRUARY • The operational evaluation of AAM-N-6 air-to-air missiles began when VX-4 fired the first Sparrow III.

1 MARCH • The Navy accepted and assigned an early warning WV-2E prototype with a rotodome radar antenna mounted on the fuselage for preliminary evaluation to the Naval Air Development Unit, NAS South Weymouth, Mass.

7 MARCH • *Grayback* (SSG 574), Lt. Cmdr. Hugh G. Nott commanding, was commissioned at Mare Island Navy Yard, Vallejo, Calif., as the first submarine built from the keel up with guided-missile capabilities.

10 MARCH • The Chief of Naval Operations approved a reorganization of carrier aviation to create uniform air groups, provide a more permanent group assignment to ships, and to permit a reduction of the assigned units and aircraft without also reducing combat readiness. The new organization also established permanent replacement air groups on each coast with responsibility for the

indoctrination of key technicians, the tactical training of aircrew, and special programs required for the introduction of new combat aircraft models.

17 MARCH • A Vanguard rocket fired from Cape Canaveral, Fla., placed a 3 ¼-pound earth satellite into orbit in a test of the system designed for launching earth satellites for the International Geophysical Year. The Office of Naval Research supervised the design and development of the satellite. Equipped with solar-powered batteries, the satellite transmitted data for more than six years and initially was estimated to remain in orbit for up to 2,000 years.

19 MARCH • VX-4 began the operational evaluation of ASM-N-7 air-to-ground missiles with the launch of the first Bullpup.

23 MARCH • The fleet ballistic missile underwater launching apparatus off San Clemente Island, Calif., had its first practical test with the launch of a dummy Polaris missile.

2 APRIL • An important step in the development of drone antisubmarine helicopters for operations from destroyers occurred with the amendment of an existing Bureau of Aeronautics contract with Gyrodyne for the RON-1 rotocycle one-man helicopter to provide for the development, installation, and flight test of remote control equipment.

8 APRIL • Airborne firing tests of a high-performance external gun in F3H-2N Demons commenced at Naval Aviation Ordnance Test Station, Chincoteague, Va. This twin-barrel 20mm cannon underwent development for a pod installation on aircraft, making it interchangeable with other aviation ordnance.

11 APRIL • Rear Adm. John S. Thach issued the first operation order to Task Group Alpha. The group had been formed in the Atlantic Fleet to accelerate the development of antisubmarine tactics and to improve fleet antisubmarine warfare readiness.

18 APRIL • The third annual Naval Air Weapons Meet was held at NAAS El Centro, Calif. Fifteen selected squadrons participated and top honors in their class went to VF-111 in air-to-air (day), VF-213 in air-to-air (all-weather), VA-126 in air-to-ground, and VAH-5 in heavy attack events.

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Galveston (CLG 3) launches a SAM-N-6 Talos long-range surface-to-air guided missile during the missile's first at-sea firing, 24 February 1959.

18 APRIL • Lt. Cmdr. George C. Watkins broke the world altitude record for the second time in three days by setting the mark at 76,939 feet in an F11F-1F Tiger at Edwards AFB, Calif.

21 APRIL • To clarify command relationships and to permit the closer integration of Navy units into the single manager airlift service, the Chief of Naval Operations directed the organization of Navy squadrons into one naval air transport wing each for the Atlantic and Pacific Fleets.

4 MAY • The practical test of an all-jet basic training program began as 14 students reported to Advanced Training Unit 206 for instruction in T2V-1 Sea Stars at NAS Pensacola, Fla.

10 MAY • Naval Missile Facility Point Arguello, Calif., was established as an activity of the National Pacific Missile Range.

11 MAY • Lt. Cmdr. Jack Neiman completed a 44-hour simulated high-altitude flight in a NAS Norfolk, Va., pressure chamber under conditions existing between 80,000 and 100,000 feet.

15 MAY • The Lebanese government informed the United States of the likelihood of their need for assistance because of the infiltration of Syrian troops. The Sixth Fleet subsequently deployed three carriers to the eastern Mediterranean. On 1 July, the Lebanese indicated the stabilization of the crisis and the ships afterward turned around.

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Randolph (CVS 15) was reconfigured in 1959 for antisubmarine warfare. Throughout that year and much of the next, she and her Task Group Alpha conducted operations off the East Coast.

17 MAY • Four F3H Demons and four F8U Crusaders completed nonstop transatlantic crossings in Operation Pipeline—a practical test of the speed of delivery of carrier aircraft from the East Coast to the Sixth Fleet in the Mediterranean.

22 MAY • Maj. Edward N. LeFaivre, USMC, set five world records into the next day in an F4D-1 Skyray at NAMTC Point Mugu, Calif.—time-to-climb to 3,000; 6,000; 9,000; 12,000; and 15,000 meters with marks of 44.392, 66.095, 90.025, 111.224, and 156.233 seconds, respectively.

26 MAY • Sikorsky test pilot Jack Stultz made the initial public flight of an HSS-1N at NAS Corpus Christi, Texas. Seabats proved capable of day and night antisubmarine warfare under instrument flight conditions.

27 MAY • McDonnell Aircraft test pilot R. C. Little made the first flight of an XF4H-1 Phantom II at St. Louis, Mo.

28 MAY • *Galveston* (CLG 3), Capt. J. B. Colwell commanding, was commissioned at Philadelphia, Pa., as the first Talos surface-to-air missile equipped cruiser.

16 JUNE • The Pacific Missile Range, Point Mugu, Calif., was established. The Navy managed the site to provide range support to the Department of Defense and other government agencies in guided missiles, satellite, and space vehicle research, development, evaluation, and training. This was the third site established within the National Missile Range, and the first that facilitated the safe launching of satellites into polar orbit.

20 JUNE • The Advanced Research Projects Agency requested that the Naval Research Laboratory modify its Minitrack system under development for Project Vanguard to produce a capability for the detection, identification, and prediction of the orbits of nonradiating objects in space. In June 1959, the development of the Navy Space Surveillance System from this request first produced useful data. On 2 February 1960, the system established the existence of an unknown object in orbit later identified as the re-entry vehicle of satellite *Discoverer V*, which had been assumed lost.

26 JUNE • A VR-21 TF-1 from San Diego, Calif., made the first delivery of an aircraft engine by carrier-on-board delivery when the Trader transported a J-34 engine to *Yorktown* (CVS 10) about 300 miles at sea.

1 JULY • The Pacific extension of the continental air defense Distant Early Warning (DEW) Line began full operation.

1 JULY • Submarine Squadron 14, Capt. Norvell G. Ward commanding, was established as the first fleet ballistic missile submarine squadron under the Atlantic Fleet Submarine Force.

1 JULY • The first joint Civil Aeronautics Authority–Navy radar air traffic control center began operations at NAS Miramar, Calif.

15 JULY • Around this time, factions favoring Egyptian President Gamal A. Nasser stirred unrest in Iraq, Jordan, and Lebanon. Rebellion broke out in Lebanon, followed by the assassination of the Iraqi king and the consolidation of power in that country by the Ba'aths. The Jordanian

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An A3D-2, BuNo 142652, aerial tanker refuels the third Phantom II built, the first of five YF4H-1 Phantom II, BuNo 143388, c. 1960.

and Lebanese governments requested assistance, and the United States and Great Britain launched Operation Bluebat—to restore order and to protect Americans and Britons in the area. On this date, aircraft from *Essex* (CVA 9) and *Saratoga* (CVA 60) covered landings by the Sixth Fleet of about 1,800 Marines on a beach near Beirut. Marine helicopters from *Wasp* (CVS 18) flew reconnaissance missions and evacuated the sick and injured from Beirut International Airport. A composite air strike force deployed to Turkey to sustain the northern flank of the landings. By 3 August, the dispatch of reinforcements to the area stabilized the situation. The U.S. forces withdrew by 25 October and the British by 2 November. Naval aircraft flew about 11,000 sorties during Bluebat, and a total of 82 vessels sailed with the Sixth Fleet at times during the crisis.

23 JULY • Tests conducted off the Florida coast into the next day by VW-4, Cmdr. Nicholas Brango commanding, established the feasibility of creating or destroying cloud formations by the release of carbon black into the atmosphere. Dr. Florence W. van Straten of Naval Weather Service Division, Op-58, directed the evaluations.

27 JULY • After launch the previous day, Cmdr. Malcolm D. Ross and Lt. Cmdr. M. Lee Lewis ascended in a balloon to 82,000 feet carrying a record load of 5,500-pounds and remained in the air 34 ½ hours. The flight was to test and evaluate the sealed cabin system designed to carry an externally mounted telescope for the observation of the atmosphere of Mars.

6 AUGUST • The approval of the Department of Defense Reorganization Act of 1958 provided for more direct civilian control over military operations through the offices of the Secretary of Defense, the Joint Chiefs of Staff, and the respective service secretaries; the establishment of unified or specified combatant commands; the direction of the operations of units assigned from the respective services, responsible for the accomplishment of their mission directly to the President and Secretary of Defense; the revision of the secretarial structure of the department by reducing the

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Saratoga (CVA 60) sails from Augusta Bay, Sicily, during a 1958 deployment with the Sixth Fleet.

number of assistant secretaries from nine to seven, limiting the number within each service department to three, and the revocation of the statutory provision for an assistant secretary of the Navy for air. The law also maintained the separate organization of each service under its own secretary and defined the Navy Department to include naval aviation and the Marine Corps. The act became effective six months from this date.

19 AUGUST • The first successful flight of a RIM-24A surface-to-air missile occurred when a Tartar intercepted an F6F Hellcat drone at NOTS China Lake, Calif.

19 AUGUST • The XP3V-1 prototype of the Orion made its first flight.

23 AUGUST • President Dwight D. Eisenhower signed into law the creation of the Federal Aviation Agency. The action assigned the agency broad responsibilities involving the operation of airways, the regulation of military and civil air traffic, and the establishment of airports and missile and rocket sites. The measure also provided for military participation in the performance of agency functions, for military deviations from air traffic regulations in an emergency, and for appeal to the president of disagreements concerning the location of military airfields.

24 AUGUST • The Chinese Communists increased shelling of the Chinese Nationalist held Kinmen (Quemoy) and Matsu Islands in the Formosa (Taiwan) Strait. The Chief of Naval Operations directed the Seventh Fleet to support the

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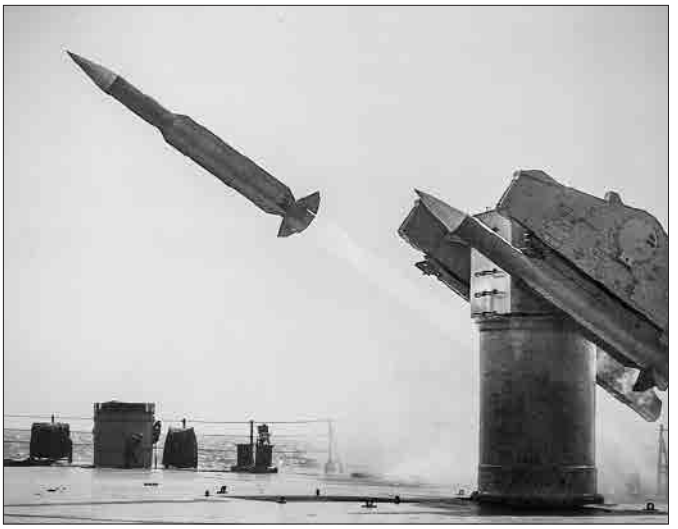
The A3J-1 Vigilante had a unique, but unsuccessful, bomb bay—a tunnel between the plane's twin engines from which the weapon attached to two expended fuel cans was ejected rearward. The type went on to become a successful supersonic reconnaissance aircraft.

Taiwanese. *Hancock* (CVA 19) received orders to deploy to the south of Taiwan and ready combat air patrols over the strait and air strikes to deter the communists if required. *Lexington* (CVA 16) and *Princeton* (CVS 37) sailed toward the northeast of the island. The Seventh Fleet prepared to assist the Nationalists to defend and resupply the islands, and to launch air raids against communist airfields near the Chinese coast. The Fleet operated so as to avoid clashes with the communists, however, and directed aircraft to approach no closer than 20 miles of the mainland. On 25 August, carrier aircraft received orders to fly night sweeps over the strait.

The next day, Marine Aircraft Group (MAG) 11, consisting of 20 FJ-4 Furies of VMF-323 and 16 and 20 F4D-1 Skyrays of VMF(AW)-115 and -314, respectively, received deployment orders to Taiwan. Despite delays from foul weather, the group completed the move by 9 September, supported by two TV-2 Shooting Stars and two R4D Skytrains. Planners also recommended shifting the fixed-wing aircraft of MAG-13 from Kaneohe Bay, Hawaiian Islands, to Atsugi, Japan, to restore the air defense capability of the area after the departure of MAG-11.

Additional reinforcements included the arrival of *Shangri-La* (CVA 38), *Midway* (CVA 41), and *Essex* (CVA 9) in Taiwanese waters on 30 August and 4 and 16 September, respectively. On 2 September, *Lexington*, *Princeton*, and *Shangri-La* moved south of Taiwan to evade Typhoon Grace. *Lexington* and *Princeton* returned to Taiwanese waters the following day, but repairs delayed *Shangri-La* by a day in Subic Bay, Philippines. The rotation of shore-based aerial reconnaissance patrols ensured that at least one P2V Neptune at a time covered the islands, but the carrier aerial night sweeps ceased on 7 September. The show of resolve deterred the communists, a cease-fire was signed on 6 October, and the crisis diminished by December.

25 AUGUST • Cmdr. Forrest S. Petersen was assigned to the National Advisory Committee for Aeronautics (NACA) to fly the X-15. The rocket plane program emerged from NACA's effort to research the problems associated with controlled, manned aircraft at extreme altitude and at high Mach (speed of sound) numbers—as high as 250,000 feet and as swift as 4,093 mph. Petersen's specialty was the exploration of the angle of attack envelope to obtain information on aerodynamic heating and stability and control. He completed five X-15 flights of about 40 minutes by 30 January 1962.



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Guided missile ship *Norton Sound* (AVM 1) fires a RIM-24 Tartar surface-to-air missile from a Mk 11 twin-arm launcher. She conducted tests on that missile and the SAM-N-7 Terrier from 1955 to 1962.

28 AUGUST • The situation in Lebanon eased and *Essex* (CVA 9) sailed from the Sixth Fleet in the Mediterranean to join the Seventh Fleet off Formosa (Taiwan) where tensions continued to flare. *Essex* transited the Suez Canal and, on 16 September, relieved *Hancock* (CVA 19) off Taiwan.

29 AUGUST • A Lockheed Electra made its first flight in the external configuration of a P3V-1. In April, the Navy selected the plane as the design most closely meeting the requirements for long-range antisubmarine warfare.

1 SEPTEMBER • The Anti-Submarine Warfare Laboratory was established at the Naval Air Development Center, Johnsville, Pa.

5 SEPTEMBER • A coordinator, missile ranges was established on the staff of Deputy Chief of Naval Operations (Air) to serve as his principal advisor on missile range matters, to determine operating requirements, and to coordinate the establishment of policies relating to missile range use.

6 SEPTEMBER • Guided missile ship *Norton Sound* (AVM 1) launched her third and final atomic tipped rocket to an altitude of about 300 miles while operating midway between the southern extremities of South America and Africa. This series of test firings included shots on 27 and 30 August conducted under the auspices of the Advanced Research Projects Agency as Project Argus. The nuclear explosions produced a visible aurora and a radiation belt around the earth that extended for almost 4,000 miles into space, lasted for several weeks, and provided significant scientific and military data.

8 SEPTEMBER • Lt. Richard H. Tabor, MC, completed a 72-hour simulated flight wearing a Goodrich lightweight full-pressure suit in a hypobaric chamber at NAS Norfolk, Va., in which he endured simulated altitude conditions up to 139,000 feet.

15 SEPTEMBER • Project officer Lt. William P. Lawrence performed an evaluation flight in an XF8U-3 Crusader at Edwards AFB, Calif. During this mission, Lawrence became the first naval aviator to fly at twice the speed of sound in a fleet-type aircraft.

16 SEPTEMBER • Submarine *Grayback* (SSG 574), off the California coast, made the first sea launch of a Regulus II bombardment missile. The missile continued under radio control inland on a simulated mission to Edwards AFB, Calif.

28 SEPTEMBER • In a preliminary test of equipment for use within International Geophysical Year solar eclipse studies, dock landing ship *Point Defiance* (LSD 31) launched a sounding rocket accelerated by a Nike missile booster from near Puka Puka Island to a height of 800,000 feet. This marked the highest altitude reached to date by ship-launched rockets.

30 SEPTEMBER • Chairman of the National Advisory Committee for Aeronautics (NACA) Gen. James H. Doolittle, USAF, issued the committee's final annual report. The forwarding letters pointed out that at the close of business that day, NACA was to cease to exist, and noted the absorption of all the committee's facilities and employees by NASA. Vice Adm. William V. Davis Jr. and Rear Adm. Wellington T. Hines comprised the final Navy members of the committee. NASA was established the next day.

30 SEPTEMBER • Commander Naval Support Force, Antarctica Rear Adm. George J. Dufek and four of his staff arrived on board a VX-6 R5D Skymaster at NAF McMurdo Sound. Their arrival marked the beginning of Operation Deep Freeze IV.

1 OCTOBER • Project Vanguard was transferred from the Navy to NASA. On 17 February 1959, NASA launched the first full-scale Vanguard earth satellite.

8 OCTOBER • FJ-4B Furies of VMA-212 and -214 completed Operation Cannonball by landing at NAS Atsugi, Japan, after a transpacific flight from MCAS Kaneohe, Hawaiian Islands. The Marines made the flight in two sections of 12 jets with layovers at Midway Island and Guam, and refueled from Air Force Boeing KB-50 tankers in the vicinity of Wake Island and from Navy AJ Savages near Iwo Jima, Volcano Islands.

10 OCTOBER • The Secretary of the Navy directed the replacement of the terms "aerology" and "aerological officer" by "meteorology" and "meteorological officer."

21 OCTOBER • To provide a highly mobile unit capable of employing Marine helicopter squadrons and troops in the fast-landing concept of vertical envelopment, the Commander in Chief Atlantic Fleet announced the formation of a new amphibious squadron consisting of *Boxer* (CVS 21) and four dock landing ships to be equipped with helicopter platforms. *Boxer* was redesignated LPH-4 on 30 January 1959.

23 OCTOBER • The fighting between Cuban revolutionaries led by Fidel R. Castro and the government troops of Gen. Fulgencio Batista threatened Americans living within Nicaro, and the State Department ordered the evacuation of U.S. nationals from the port. The next day, *Franklin D. Roosevelt* (CVA 42) provided distant air cover while transport *Kleinsmith* (APD 134) evacuated 56 Americans and three foreigners.

10 NOVEMBER • The first permanent Marine aviation detachment afloat was activated on board the *Boxer* (CVS 21) to provide supply, maintenance, and flight deck control functions necessary to support the operations of Marine helicopter squadrons.

5 DECEMBER • Experimental miscellaneous auxiliary *Observation Island* (EAG 154), Capt. Leslie M. Slack commanding, was commissioned at the Norfolk Naval Shipyard, Va. The ship's design incorporated launching, fire control, navigational, and other devices required for the fleet ballistic missile testing program.

5 DECEMBER • A Navy RIM-2 Terrier-type missile launcher fired sounding rocket Hugo from NASA's Pilotless Aircraft Research Station, Wallops Island, Va. Hugo reached a height of 86 miles and obtained the first extremely high-altitude photographs of a frontal cloud formation. The Office of Naval Research carried out Project Hugo with assistance from Bureau of Aeronautics, NASA, and the Weather Bureau, and used a camera package designed and constructed by New Mexico State University.

8 DECEMBER • F3H Demons of VF-64 flying from *Midway* (CVA 41) made the first firing of an AAM-N-6 Sparrow III air-to-air missile by a squadron deployed beyond the continental United States. Eleven days later, VF-193, embarked on board *Bon Homme Richard* (CVA 31), conducted a similar exercise. Both squadrons operated with the Seventh Fleet in the western Pacific.

12 DECEMBER • The Secretary of the Navy directed the termination of the Regulus II bombardment missile program as a measure necessary to achieve an overall balance in missile weapons systems with the available resources. The decision followed the first successful Regulus submarine launch barely three months before, but emphasized the development of Polaris submarine-launched intercontinental ballistic missiles.

16 DECEMBER • The successful firing of a Thor missile from Vandenburg AFB, Calif., inaugurated the intermediate-range ballistic missile portion of the Pacific Missile Range at Point Mugu.

19 DECEMBER • Naval Air Missile Test Center, Point Mugu, Calif., was redesignated Naval Missile Center, Point Mugu, and placed under the command of Commander, Pacific Missile Range.

25 DECEMBER • Aircraft from NAS Port Lyautey, Morocco, rescued 134 people during heavy flooding in that country.

28 DECEMBER • Nine ships of an antisubmarine group including *Yorktown* (CVS 10) turned from operations to aid people made homeless by a fire that swept through Koniya, Japan. Within 24 hours of the disaster, the ships had delivered food, medicine, clothing, blankets, and tents to victims, and sailors and Marines continued to help until the arrival of Japanese relief workers.

710394

The first prototype HSS-2 Sea King, BuNo 147137, all-weather antisubmarine helicopter made its initial flight in March 1959.

16 FEBRUARY • The Naval Air Reserve participated for the first time in a full-scale fleet exercise. Fifty-five crews from selected Reserve squadrons and 36 P2V Neptunes and S2F Trackers took part in a three-day antisubmarine defense exercise along the West Coast with the Pacific Fleet and the Royal Canadian Navy.

24 FEBRUARY • Cruiser *Galveston* (CLG 3) fired a Talos surface-to-air missile in the vicinity of Roosevelt Roads, P.R. The launch marked the missile's operational sea deployment.

1959

21 JANUARY • Tests of a new type of movable nozzle for the Polaris at Indian Head, Md., demonstrated a successful major advance in the directional control of ballistic missiles.

24 JANUARY • Maj. John P. Flynn, USMC, and Capt. Clifford D. Warfield, USMC, of Marine Aircraft Wing 2 made a nonstop unrefueled flight covering 2,082 miles in 4 hours, 25 minutes in A4D Skyhawks from El Toro, Calif., to MCAS Cherry Point, N.C.

27 JANUARY • The Naval Air Development and Material Command, Johnsville, Pa., was redesignated Naval Air Research and Development Activities Command, and its scope expanded to include aeronautical research and development activities in the Third Naval District.

5 FEBRUARY • The abolition of the office of Assistant Secretary of the Navy for Air occurred in accordance with the provisions of the Defense Reorganization Act of 1958. The Secretary of the Navy assumed the functions of the office pending an appointment to fill the newly created office of Assistant Secretary for Research and Development.

10 MARCH • The Chief of Naval Operations approved the transfer of lighter-than-air (LTA) training from the Naval Air Training Command to AIRLANT, and the end of the requirement for all LTA students to receive heavier-than-air training.

11 MARCH • Sikorsky pilot R. S. Decker made the first flight of an XHSS-2 Seabat.

13 MARCH • Aviation Cadet E. R. Clark became the first naval aviation student to solo a jet without previous experience in propeller aircraft when he flew a TT-1 Pinto.

7 APRIL • NASA announced the selection of seven prospective astronauts—including naval aviators Lt. Col. John H. Glenn Jr., USMC; Lt. Cmdrs. Walter M. Schirra Jr. and Alan B. Shepard Jr.; and Lt. Malcolm S. Carpenter—to Project Mercury, a basic program in the development of space exploration and manned orbital flight.

15 APRIL • Elements of the Naval Air Reserve took part in Exercise Slamex under the leadership of Commander, Anti-Submarine Defense Force, Atlantic. The event marked the second such participation in a full-scale fleet exercise since the organization of the Selected Reserve.

P2V Neptunes and S2F Trackers manned by 78 crews from 12 reserve stations trained round-the-clock through 22 April, logged 2,800 flight hours, and reported 75 submarine contacts while operating from Naval Air Stations Brunswick, Maine; Quonset Point, R.I.; and Lakehurst, N.J.

25 APRIL • FJ-4B Furies of VA-212, embarked on board *Lexington* (CVA 16), carried out the first deployment of ASM-N-7 Bullpup air-to-ground missiles overseas when the carrier sailed for the western Pacific from NAS Alameda, Calif. The following August, VA-34 A4D Skyhawks extended Bullpup deployments to the Mediterranean when they embarked on board *Saratoga* (CVA 60) from the East Coast for the Sixth Fleet.

26 APRIL • Helicopters of HU-2, embarked on board ice breaker *Edisto* (AG 89) while she returned from the Antarctic, completed ten days of rescue operations in the Montevideo, Uruguay, area during which they carried 277 flooding victims to safety.

28 APRIL • The office of Assistant Chief of Naval Operations (Research and Development) was disestablished and replaced by Deputy CNO (Development), Vice Adm. John T. Hayward commanding, with the authority and responsibility to execute the research, development, test, and evaluation responsibilities of the CNO.

5 MAY • The Guided Missiles Division was transferred from Deputy Chief of Naval Operations (Air) to the newly established office of DCNO (Development), and its director was designated Assistant CNO (Development).

7 MAY • The classifications of 36 escort carriers designated CVE, CVU, and CVHE were changed to cargo ship and aircraft ferry, AKV. A change of hull numbers accompanied the redesignation and marked the end of escort carriers as U.S. Navy men-of-war.

15 MAY • The classifications of four support carriers (CVS) and seven light carriers (CVL) were changed to auxiliary aircraft transport (AVT). The change removed the CVL designation from the Navy Vessels Register.

15 MAY • The establishment in the office of Chief of Naval Operations of more direct channels for technical control and program guidance over the Operational Development Force occurred to centralize and strengthen the research and development program. The revision and broadening of the mission of the force included test and evaluation, and it was thus redesignated Operational Test and Evaluation Force.

26 MAY • A concept of aircraft maintenance that assigned responsibility directly to the units having custody of the aircraft and the gradual elimination of FASRONs received approval for implementation.

27 MAY • The Naval Weather Service Division shifted from Deputy Chief of Naval Operations (Air) to DCNO (Fleet Operations and Readiness) to reflect the ever-broadening scope of the division's duties.

8 JUNE • Submarine *Barbero* (SSG 317) launched a Regulus I bombardment missile from a position about 100 miles off the Florida coast that delivered a package of U.S. Post Office mail ashore after a 22-minute flight to NS Mayport, Fla.

16 JUNE • Two North Korean MiGs attacked a VQ-1 P4M-1Q, BuNo 122209, on a routine flight over international waters about 50 miles east of the Korean demilitarized zone. Gunfire seriously wounded the tailgunner and damaged the Mercator, knocking out both starboard engines and some flight controls. The plane made an emergency landing at Miho AFB, Japan.

19 JUNE • A ZPG-3W, the first of four airships designed for use in air warning patrol and the largest nonrigid naval airship ever built, was delivered at NAS Lakehurst, N.J.

5 JULY • During mounting tension between the Chinese Communists and Nationalists, the Seventh Fleet deployed *Lexington* (CVA 16) and *Ranger* (CVA 61) to Formosan (Taiwanese) waters for six days.

11 JULY • After a lapse of 18 years, the Marine Aviation Cadet program was reinstituted when a class of 12 began preflight training at NAS Pensacola, Fla.

13 JULY • The Chief of Naval Operations approved the policy recommendations of the Connolly Board that enunciated organizational responsibilities in the CNO

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An FJ-4B Fury, BuNo 143494, of Air Development Squadron (VX) 4 carries a full load of five ASM-N-7 Bullpup air-to-ground missiles and their guidance pod, 16 April 1958.

office. The new policy included the Navy's use of space to accomplish naval objectives, full participation in space technology, and the assignment of a high priority to astronautics in research and development.

14 JULY • A two-stage Nike-Asp solid-propellant rocket fired from Naval Missile Facility, Point Arguello, Calif., was the first of 12 rockets designed to record radiation at altitudes of 150 miles. The event also marked the launch of the first ballistic missile from the new facility.

15 JULY • The Aviation Safety Division of Deputy Chief of Naval Operations (Air) was changed to a staff office headed by a coordinator to act as principal advisor to DCNO (Air) in all matters of air safety, and to coordinate the planning and implementation of aviation safety programs throughout the Navy.

22 JULY • Within Deputy Chief of Naval Operations (Air), the office of the Coordinator, Missile Ranges was disestablished and its functions shifted to a simultaneously established Astronautics Division. This division assisted DCNO (Air) in performing his overall task of directing the Navy astronautic program including the formulation of plans, policies, and the determination of requirements.

28 JULY • The Naval Research Laboratory issued its initial report indicating the feasibility of adapting Omega navigation to aircraft use. Researcher A. F. Thornhill of the Radio Division prepared the report, which consisted of a theoretical analysis of the problems involved in designing an airborne receiver. Thornhill described Omega as a phase comparison radio navigation technique using very-low frequency radio waves of such range that six appropriately located shore-based transmitters would provide global coverage.

30 JULY • The Navy announced the assignment of AAM-N-7 Sidewinder air-to-air missiles to Advanced Training Command units and Reserve squadrons. Program implementation began the next week when Advanced Training Unit 203 began carrying Sidewinders on its F11F-1 Tigers at NAAS Kingsville, Texas.

3 AUGUST • The first flight test of a UUM-44 Subroc antisubmarine missile took place with a launch from NOTS China Lake, Calif.

18 AUGUST • An act of Congress created the Bureau of Naval Weapons and abolished the Bureaus of Aeronautics and Ordnance upon the transfer of their functions. The bureau was established on 1 September, and on 10 September, Rear Adm. Paul D. Stroop took the oath of office as its first chief.

20 AUGUST • HUS-1s from HMRL-261, operating from *Thetis Bay* (LPH 6), completed a week of relief operations in flood-stricken Formosa (Taiwan). The Seahorses airlifted more than 1.6 million pounds of cargo and 833 passengers during 898 missions.

25 AUGUST • Lt. Cmdr. Ed Decker took off in an A3D Skywarrior at a gross weight of 84,000-pounds during suitability trials on board *Independence* (CVA 62). This was the heaviest aircraft to fly from a carrier to date.

27 AUGUST • Experimental miscellaneous auxiliary *Observation Island* (EAG 154) off Cape Canaveral, Fla., completed the first launch of a prototype Polaris A-1 fleet ballistic missile from a ship at sea.

9 SEPTEMBER • Naval aircraft and ships located and recovered an Atlas-boosted Mercury capsule in the Atlantic Ocean about 700 miles short of the predicted point of impact.

699330

This F9F-8 Cougar, BuNo 141140, carries AAM-N-7 Sidewinder air-to-air missiles in addition to two auxiliary fuel tanks.

18 SEPTEMBER • The Air Warfare Division of Deputy Chief of Naval Operations (Air) was disestablished and its functions pertaining to aviation combat readiness were transferred to DCNO (Fleet Operations and Readiness). The Aviation Plans Division was established to perform the planning requirement functions of the disestablished division.

21 SEPTEMBER • Submarine *Barbero* (SSG 317) sailed in the North Pacific on the first deterrent patrol of a submarine equipped with a Regulus I bombardment missile.

25 SEPTEMBER • The final class of lighter-than-air students also qualified in heavier-than-air completed training at NAS Glynco, Ga. Ens. John B. Hall was the last to receive the dual designation.

29 SEPTEMBER • *Kearsarge* (CVS 33) supported relief operations in the wake of a typhoon at Nagoya, Japan. This included the evacuation of almost 6,000 people, the delivery of 200,000-pounds of supplies and medicine, and more than 17,000 doses of typhoid vaccine and antibiotics administered. The ship departed on 6 October.

30 SEPTEMBER • Airship flights by reservists of Naval Air Reserve Training Unit, Lakehurst, N.J., marked the end of the airship training program after 12 years of service under the Chief of Naval Air Reserve Training.

1 OCTOBER • Lt. Cmdr. John A. Henning of VX-6 landed an R5D Skymaster at NAF McMurdo Sound, Antarctica, after a flight from Christchurch, New Zealand, with Commander, Naval Support Force Antarctica Rear Adm. David M. Tyree on board. The arrival of this first flight of the season marked the operational start of Operation Deep Freeze 60.

1 OCTOBER • Fleet Air San Diego, Calif., was established, Rear Adm. Dale Harris commanding.

2 NOVEMBER • The use of T2J-1 Buckeyes in basic training commenced with a flight at NAS Pensacola, Fla., by instructor Lt. Cmdr. Rieman A. MacDonell and student 2d Lt. David K. Mosher, USMC.

30 NOVEMBER • The Airship Training Group was disestablished at NAS Glynco, Ga. This ended lighter-than-air training in the U.S. Navy.

1 DECEMBER • The Bureaus of Aeronautics and Ordnance were abolished as Chief of the Bureau of Naval Weapons Rear Adm. Paul D. Stroop relieved Rear Adms. Robert E. Dixon and Miles H. Hubbard, the chiefs of those bureaus, respectively, and the Bureau of Naval Weapons absorbed their functions.

710604

From left, Chief of the Bureau of Naval Weapons Rear Adm. Paul D. Stroop relieves Rear Adms. Robert E. Dixon and Miles H. Hubbard, the Chiefs of the Bureaus of Aeronautics and Ordnance, respectively.

1061491

The Navy bypassed the prototype stage making this, the first service test YT2J-1 Buckeye, BuNo 144217, the first of the advanced trainers.

710526

Cmdr. Lawrence E. Flint Jr. flew the second YF4H-1 Phantom II, BuNo 142260, to a world altitude record 98,560 feet on 6 December 1959.

3 DECEMBER • Following a dam burst in the San Raphael area of France, *Essex* (CVA 9), cruiser *Boston* (CAG 1), and destroyers *Myles C. Fox* (DD 829), *Vogelgesang* (DD 862), and *Mullinnix* (DD 944), aided relief efforts.

4 DECEMBER • Teams from selected fleet squadrons completed four days of competitive gunnery, bombing, and missile firing in the championship round of the annual weapons meet at MCAAS Yuma, Ariz. VF(AW)-3 and VF-41 took the all-weather fighter titles in the F4D Skyray and F3H Demon categories, respectively. VMF-232 won the day fighter competition, VA-56 the jet light attack, VA-85 the prop light attack, and VAH-4 the heavy attack. 1st Lt. G. A. Davis, USMC, of VMF-232 was the top individual scorer in the day fighter event.

6 DECEMBER • Cmdr. Lawrence E. Flint Jr. bettered the existing world altitude record by reaching 98,560 feet in an F4H-1 Phantom II over Edwards AFB, Calif.

7 DECEMBER • *Dewey* (DLG 14), Cmdr. Elmo R. Zumwalt Jr. commanding, was commissioned at the Boston Naval Shipyard, Mass., as the first of a new class of guided-missile destroyer leaders designed to employ RIM-2 Terrier III air defense missiles.

30 DECEMBER • *George Washington* (SSBN 598) was commissioned at Groton, Conn., Cmdr. George B. Osborn commanding. She was the first of nine such nuclear-powered fleet ballistic missile submarines authorized by Congress.

1053763

Coral Sea (CVA 43), *Midway* (CVA 41), and *Hancock* (CVA 19) moor at NAS Alameda, Calif., November 1960.

1053764

Intrepid (CVA 11) and *Independence* (CVA 62) prepare at Norfolk, Va., to deploy to the Mediterranean, summer 1960.

Chapter 9

On The Brink

1960–1969

The golden anniversary of naval aviation was celebrated in 1961 along with a new stature of the fleet's air arm as an effective fighting force. One nuclear-powered and two conventionally-powered attack carriers joined the operating forces, with two additional attack carriers commissioned by the end of the decade. The Navy acquired four new amphibious assault ships and other vessels to exploit the unique capabilities of helicopters in vertical assault and replenishment. New high-performance aircraft went into operation along with the development of vertical- and short-takeoff-and-landing aircraft. Innovative types of missiles appeared and Sparrows and Sidewinders received enhanced capabilities, but the importance of blimps and flying boats faded because of the advent of new technologies.

During the Cuban Missile Crisis the Navy exerted its traditional role of sea control by imposing a naval blockade that proved instrumental in averting global thermonuclear war. The round-the-world cruise of a nuclear-powered task force and operations in the Indian Ocean carried the flag into foreign ports. Naval forces responded to crises in Africa, the Middle East, the Caribbean, and Berlin; evacuated Americans trapped by fighting, and by their presence reaffirmed the role of the service in keeping the peace. Ships and aircraft aided the stricken when hurricanes, typhoons, and earthquakes struck in widely distant points.

In Southeast Asia, the nation responded to communist aggression with retaliatory air strikes that escalated into a protracted war of limited objectives and little relevancy to U.S. national security. The aircraft of the Seventh Fleet carried the burden of the naval air war, but the requirement for sustained naval action and the support of allied troops ashore challenged logistic planners and force commanders.

The conquest of space began in earnest as manned orbital flight became a reality and culminated in the first manned lunar landing. Half the nation's astronauts possessed Navy or Marine backgrounds and naval aviators made the first American suborbital and orbital flights. Navy flight surgeons joined in the study of the physiological effects of space flight. A Navy space surveillance system helped forge the necessary links for a continuous watch on space. Satellites developed by Navy scientists expanded human knowledge of the cosmos, and a naval satellite navigation system provided an accurate means to all nations of traveling the earth's oceans. Carriers or amphibious assault ships supported orbital missions to cover emergency landings, and recovered astronauts and their spacecraft following reentry.

The Navy's support of the space program resulted in a number of organizational adjustments as well as the formation of a recovery force command. Broader and more basic changes in departmental structure occurred as a result of a series of high-level studies directed toward clarifying the lines of authority and responsibility. The abolition of the bureau system and centralization of material support under a strengthened Material Command placed under the direct control of the Chief of Naval Operations occurred, the project manager concept received new impetus, and other changes radiated outward to the operating forces and shore establishments.

1960

1 JANUARY • Electronic countermeasures squadrons were redesignated fleet air reconnaissance squadrons without a change of their VQ letter designation.

15 JANUARY • The transfer of the Naval Weather Service Division from the Office of Deputy Chief of Naval Operations (Operations & Readiness) to the staff of Vice CNO occurred, and the Office of the Naval Weather Service

1063056

Enterprise (CVAN 65) is the world's first nuclear-powered aircraft carrier.

was set up as a field activity under the management control of the CNO. The responsibilities of the new office included the management control of the integrated fleet weather central system and the technical direction of meteorological matters within shore establishments and the operating forces.

15 JANUARY • National Air and Space Administration approved the *Overall Plan for Department of Defense Support for Project Mercury Operations*. The Navy's portion, entitled *Operation Plan COMDESFLOTFOUR No. 1-60*, provided for recovery procedures covering Mercury-Redstone and Mercury-Atlas missions.

26 JANUARY • The first of two giant unmanned balloons launched from *Valley Forge* (CVS 45) south of the Virgin Islands during Project Skyhook—the recording of cosmic ray activity. The balloons were nearly 50-stories tall, had a lifting gas capacity greater than that of rigid airship *Akron* (ZRS 4), and carried 2,500-pounds including 800-pounds of film to perform the readings. The first balloon achieved an altitude of 116,000 feet and remained aloft for eight hours, while the second reached 113,000 feet during a flight of 26 ½ hours. Early warning aircraft from *Valley Forge* and ashore tracked the balloons and a destroyer recovered the instruments. The Office of Naval Research and the National Science Foundation jointly sponsored the project.

FEBRUARY • Through April, the Naval School of Aviation Medicine at NAS Pensacola, Fla., modified a standard 20-man raft to enable its placement around the base of a floating Mercury spacecraft with the impact skirt extended.

The device raised the spacecraft high enough in the water to permit egress from the side hatch.

25 FEBRUARY • An R6D-1, BuNo 131582, carrying seven crewmembers of VR-1, 19 members of the Navy Band, and a team of 12 antisubmarine warfare specialists collided with a Brazilian DC-3 of REAL Transportes Aéreos, registered PP-AXD, over Sugarloaf Mountain at Rio de Janeiro, Brazil. The accident claimed the lives of all but three of the 38 sailors on board the Liftmaster and all 26 people—four crewmembers and 22 passengers—on board the airliner.

29 FEBRUARY • The Department of Defense announced a successful demonstration by the Navy's Mine Defense Laboratory and the Air Mine Defense Development Unit of two improvements in airborne mine countermeasures at Panama City, Fla. The first consisted of air-portable minesweeping gear that enabled a helicopter to become a self-sufficient aerial minesweeper. The second concerned equipment for transferring the minesweeping-gear towline from a surface minesweeper to a helicopter, from one helicopter to another, or from a helicopter to a surface minesweeper.

1046721

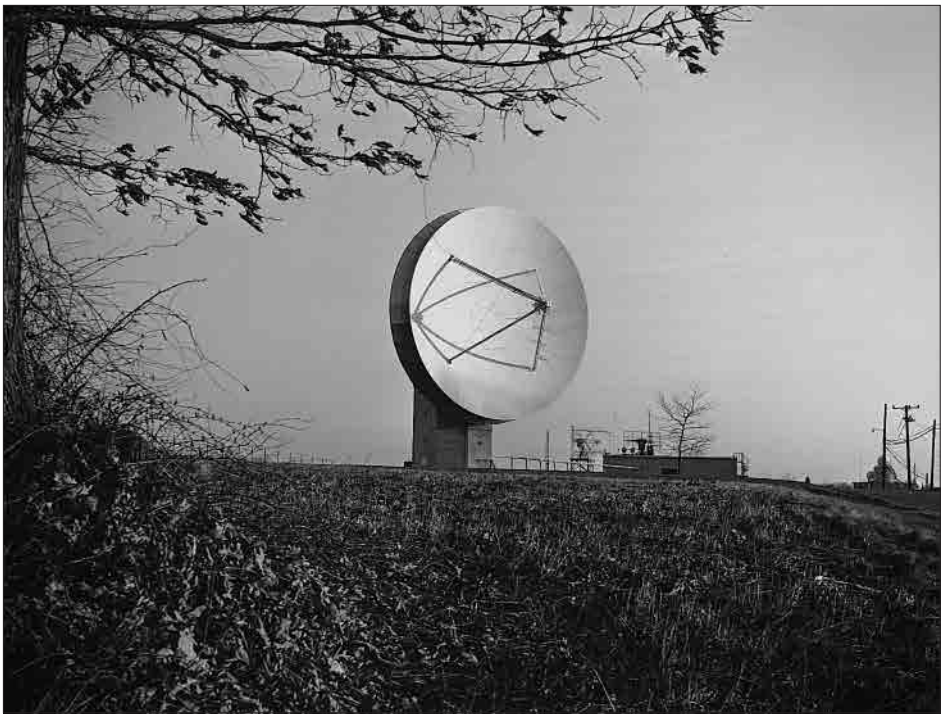
Valley Forge (CVS 45) prepares to launch a Project Skyhook unmanned balloon to record cosmic ray activity, 26 January 1960.

29 FEBRUARY • An earthquake razed the area around Agadir, Morocco. Aircraft flew sailors and Marines from NAS Port Lyautey to aid the victims, and a Navy-wide effort subsequently brought food and clothing to the people from Reserve and other units from as far as Seattle, Wash.

1 MARCH • A ZPG-3W airship of ZW-1 returned to NAS Lakehurst, N.J., after 49.3 hours on station and 58 hours in the air during an Air Defense Command barrier patrol over the North Atlantic. This new record for continuous patrol more than doubled the best time logged by its smaller ZPG-2W predecessor.

18 MARCH • On the first firing test of Project Hydra, a 150-pound rocket successfully ignited underwater and launched into the air at Naval Missile Center Point Mugu, Calif. The test demonstrated the feasibility of launching rockets while floating upright in the ocean and gave promise of eliminating the cost of launching pad construction and allowing greater freedom in the choice of launching sites.

25 MARCH • *Halibut* (SSGN 587) fired a Regulus I in the first launch of a bombardment missile from a nuclear-powered submarine during training exercises off Oahu, Hawaii.



1105433

A ground antenna for navigation satellite Transit 1B.

26 MARCH • Elements of Marine Aircraft Wing 1 participating in amphibious exercise Blue Star established an operational jet airstrip on the south shore of Formosa (Taiwan) within 72 hours of landing. Expeditionary airfield matting covered the 3,400-foot strip, and the equipment included a portable mirror landing system, TACAN, fuel tank farm, and a tower control system. A4D Skyhawks operated from it with the assistance of JATO, while F4D-1 Skyrays and F8U Crusaders used afterburners to takeoff.

28 MARCH • The astronauts of Project Mercury received their first open-water egress training from a spacecraft with the Naval School of Aviation Medicine, NAS Pensacola, Fla. The men emerged from a completely restrained state in the spacecraft to a life raft in conditions of up to ten-foot swells in an average of about four minutes. The training concluded on 1 April.

1 APRIL • CVSG-53 and -59 were established at NAS North Island, Calif. Each group consisted of one HS and two VS squadrons. This marked the beginning of a reorganization of antisubmarine aviation that called for the formation of nine CVSGs, and for the assignment of an additional replacement CVSG and a patrol squadron in each fleet to perform functions paralleling those carried out by the previously established replacement carrier air groups.

13 APRIL • A Thor Able-Star missile launched the Applied Physics Laboratory–designed navigation satellite Transit 1B into orbit from Cape Canaveral, Fla. The satellite emitted a radio signal at a precise frequency that surface receiving stations used as a baseline for measurement of the signal's doppler shift to determine the station's position with high accuracy. Other experiments performed with this launch included the separation and entry into its own orbit of an uninstrumented satellite, thereby demonstrating the feasibility of launching multiple satellites from a single vehicle.

19 APRIL • The Naval Space Surveillance Facility was established at Dahlgren, Va.

1 MAY • Seventeen basic training groups of the Naval Air Training Command were redesignated training squadrons (VT) and established as separate units, each under a commanding officer.

22 MAY • An earthquake measuring an estimated 9.5 on the moment magnitude scale devastated the area around Cañete, Chile, and generated tsunamis that struck the Pacific coast of South America, the Aleutian Islands, New Zealand, Australia, the Philippines, Japan, and Hilo, Hawaii—where 61 people died. On 25 June, dock landing ship *Catamount* (LSD 17) sailed from NS San Diego, Calif., to assist victims of flooding in the area around Valparaiso. The ship disembarked and transferred landing craft to the Chilean Navy, and provided critically needed transportation in the vicinity where tidal waves had destroyed piers. *Catamount* departed on 15 July.

3 JUNE • A Marine HUS-1 Seahorse successfully completed test launchings of AGM-12 Bullpup air-to-ground missiles at NATC Patuxent River, Md.

10 JUNE • Seven HSS-1Ns of HS-4, embarked on board *Yorktown* (CVS 10), rescued 53 men from British freighter *Shun Lee* when she broke up on Pratas Reef, 500 miles northwest of Manila, Philippines. Under storm conditions in the wake of Typhoon Mary, the Seabats pulled 25 men from the wreck and 28 more from Pratas Island inside the reef.

21 JUNE • Frigate *Norfolk* (DL 1) fired an RUR-5 ASROC (Anti-Submarine ROCket) in a public demonstration from a position off Key West, Fla. The event marked the completion of a two-month technical evaluation of the weapon, which featured a rocket-powered airframe carrying a homing torpedo or depth charge.

22 JUNE • A Thor Able-Star missile launched navigation satellite Transit 2A into orbit from Cape Canaveral, Fla. Naval Research Laboratory Solar Radiation I satellite mounted pickaback also entered into orbit. Transit 2A further developed Doppler navigation techniques and confirmed the practicability of using satellites for precise geodetic surveys, provided critical measurements of the effect of the ionosphere on electromagnetic waves, and measurements of high frequency cosmic noise that had been requested by the Canadian Government. The satellite had an operating life of 2 ½ years.

1 JULY • VRC-40, Cmdr. John H. Crawford commanding, was established at NAS Norfolk, Va., as the first carrier on-board delivery squadron.

1 JULY • An experimental DSN-1 successfully demonstrated the operating capabilities of a drone helicopter designed for use in antisubmarine warfare from destroyers when it landed on board frigate *Mitscher* (DL 2) off the coast of Long Island, N.Y. A safety pilot manned the drone but remote control from ashore flew and maneuvered it around the ship and into position for a landing before the pilot took command and made the final touchdown.

1 JULY • A Pacific Missile Range Facility was established at Eniwetok, Marshall Islands, to support the operations of the Pacific Missile Range, Calif.

9 JULY • On 30 June, the Belgian Congo (Zaire) gained its independence but an army revolt led to widespread violence and the collapse of order. On this date, *Wasp* (CVS 18), uniquely embarking a Marine company, sailed from NS Guantánamo Bay, Cuba, for the coast of Africa to evacuate Americans and support UN intervention. By the time *Wasp* departed the area in early August, the ship had also supplied some 250,000 gallons of aviation gasoline in support of the UN airlift.

1143449

DS-1382, shown modified as the first QH-50D, was one of 373 DSN-3 (later QH-50C) drone antisubmarine helicopters built. It is carrying two Mk 44 torpedoes.

18 JULY • The Navy terminated the Corvus air-to-surface missile program to permit increased emphasis on other weapon systems that offered a wider scope of employment.

20 JULY • *George Washington* (SSBN 598) launched a solid-propellant Polaris A-1 fleet ballistic missile for the first time while submerged off Cape Canaveral, Fla. The missile broke clear of the water, ignited in the air, and streaked almost 1,100 nautical miles toward its target down the Atlantic Missile Test Range. At 1239, Cmdr. James B. Osborn, commanding officer of the boat's Blue Crew, sent President Dwight D. Eisenhower a message: "Polaris—from out of the deep to target. Perfect." About two hours later, *George Washington* launched a second Polaris that also successfully struck its target.

21 JULY • The Navy announced the issuance of a contract to Douglas Aircraft Company for the development of the F6D Missileer for launching Eagle long-range air-to-air guided missiles.

1 AUGUST • Naval Air Rocket Test Station was disestablished at Lake Denmark, N.J. The Navy transferred its liquid rocket development projects to other activities

NH 69962

Cmdr. Leroy A. Heath (left) and Lt. Henry L. Monroe review their flight notes after breaking the altitude record for a 1,000-kilogram payload with an altitude of 91,450.8 feet in an A3J Vigilante, 13 December 1960.

19 SEPTEMBER • An Argo D-8 rocket launched the NASA Nuclear Emulsion Recovery Vehicle from Naval Missile Facility Point Arguello, Calif. The instrumented capsule reached an altitude of 1,260 miles and landed 1,300 miles down range for ship recovery.

25 SEPTEMBER • Cmdr. John F. Davis averaged 1,390.21 mph for 100 kilometers in an F4H-1 Phantom II over a closed circuit course, bettering the existing world record for that distance by more than 200 mph.

20 OCTOBER • The Department of Defense announced the establishment under Navy management of an Army-Navy-Air Force program to develop the prototype of an operational vertical-takeoff-and-landing aircraft to test its suitability for air transport service.

including NOTS China Lake, Calif.; Naval Propellant Plant, Indian Head, Md.; and Naval Weapons Laboratory, Dahlgren, Va. The Army began the incorporation of the reassigned land into Picattinny Arsenal.

11 AUGUST • An HRS-3 operating from cargo ship *Haiti Victory* (T-AK 238) made the first recovery of a man-made object that had been in earth orbit. Satellite *Discoverer XIII* completed its 17th pass around the earth and discharged an instrumented capsule that splashed down about 330 miles northwest of Honolulu, Hawaii. Air Force planes located the capsule and directed the ship to the recovery within three hours of its landing.

2 SEPTEMBER • Capt. Holden C. Richardson, CC, (Naval Aviator No. 13) died at Bethesda, Md. Richardson became the Navy's first engineering test pilot, helped to develop the initial catapults, co-designed and supervised the construction of the NC flying boats, piloted one of the planes (NC-3) on the transatlantic attempt, and served as one of the original members of NACA.

5 SEPTEMBER • Lt. Col. Thomas H. Miller Jr., USMC, set a new world speed record for 500 kilometers at 1,216.78 mph in an F4H-1 Phantom II over a triangular course at Edwards AFB, Calif.

10 NOVEMBER • The Secretary of Defense directed the placement of the Navy Space Surveillance System and the USAF Space Track System—each performing similar services over different sections of the surveillance network—under the control of the North American Air Defense Command for military functions.

15 NOVEMBER • The Polaris fleet ballistic missile weapon system became operational when submarine *George Washington* (SSBN 598) sailed with her principal armament of 16 Polaris A-1 missiles from NWS Charleston, S.C.

17 NOVEMBER • At the request of Guatemala and Nicaragua, President Dwight D. Eisenhower ordered a naval patrol of Central American waters to intercept and prevent communist-led invasion attempts of those countries from the sea. At times, *Wasp* (CVS 18) and *Shangri-La* (CVA 38) patrolled until diffused tensions prompted their recall on 7 December.

13 DECEMBER • An A3J Vigilante crewed by pilot Cmdr. Leroy A. Heath and bombardier/navigator Lt. Henry L. Monroe carried a payload of 1,000-kilograms to an attitude of 91,450.8 feet over Edwards AFB, Calif. This established a new world altitude record with payload and surpassed the existing record by more than four miles.

19 DECEMBER • A catastrophic fire erupted on the hangar deck of *Constellation* (CVA 64) during the final stages of her construction at New York Naval Shipyard, Brooklyn, N.Y. Fifty civilian workers died in the blaze and the ship sustained $75 million in damages.

19 DECEMBER • Mercury-Redstone 1A launched from Cape Canaveral, Fla. The unmanned, suborbital mission came after a failed attempt on 21 November. This mission qualified the spacecraft for space operations and the flight system for a planned primate flight. A P2V Neptune spotted the capsule during its descent toward the Atlantic and a helicopter from Marine Aircraft Group 26, embarked on board *Valley Forge* (CVS 45), recovered the spacecraft within 47 minutes of the launch.

22 DECEMBER • HSS-2 Sea Kings of HS-3 and HUP Retrievers of HU-2, embarked on board *Valley Forge* (CVS 45), rescued 27 men from oiler *Pine Ridge* when she broke-up in heavy seas about 100 miles off Cape Hatteras, N.C.

1961

1 JANUARY • By this time, North Vietnamese-supported Prince Souphanouvong and the communist Pathet Lao had seized positions on the Laotian *Plaine Des Jarres* from American-supported Prince Souvanna Phouma and his royalists. On this date, the Seventh Fleet deployed *Lexington* (CVA 16), *Bennington* (CVS 20), and *Coral Sea* (CVA 43) to the South China Sea to deter further communist gains until the situation stabilized. On 6 January the carriers received orders to turn around.

11 JANUARY • President-elect John F. Kennedy released a report from the Ad Hoc Committee on Space named to review the space and missile programs and to identify problems requiring prompt attention. The committee's conclusions included the requirement for the redefinition of the objectives of the national space program, the assignment of the National Aeronautics and Space Council as the effective agency to manage the space program, and the requirement for a single responsible agency within the defense establishment to manage the military aspects of the space program.

31 JANUARY • Mercury-Redstone 2 launched from Cape Canaveral, Fla. The suborbital mission obtained physiological and performance data during ballistic flight on the occupant, a 37-pound chimpanzee named Ham. The over acceleration of the launch vehicle coupled with the velocity of the escape rocket pushed the spacecraft to an altitude 42 miles higher and a range 125 miles farther than planned. 1st Lts. John A. Hellridger, USMC, and George F. Cox, USMC, of HMRL-262 from Marine Aircraft Group 26 manned an HUS-1 Seahorse embarked on board dock landing ship *Donner* (LSD 20), and recovered the capsule and Ham from the Atlantic. *Donner* proceeded at flank speed to disembark the chimpanzee at Grand Bahama Island, and then sailed to Cape Canaveral to offload the capsule.

1 FEBRUARY • The Space Surveillance System was established with its headquarters at Naval Weapons Laboratory, Dahlgren, Va., Capt. David G. Woosley commanding. The system had functioned as an experimental research project since 1959, but this action made it an operational command.

21 FEBRUARY • A Thor Able-Star missile launched navigation satellite Transit 3B and the piggybacked Low Frequency Transionospheric Satellite (Lofti) from Cape Canaveral, Fla. A programmer malfunction prevented their separation from the booster and each other causing them to reenter the atmosphere after only 37 days. Despite this, both functioned and Transit 3B received prototype navigational messages and reported back to provide the first complete demonstration of all features of the navigation satellite system.

21 FEBRUARY • Mercury-Atlas 2 launched from Cape Canaveral, Fla. The suborbital mission qualified the Mercury-Atlas combination in flight and evaluated the spacecraft performance under near maximum reentry loads. An HMRL-262 HUS-1 Seahorse from Marine Aircraft Group 26, embarked on board dock landing ship *Donner* (LSD 20), recovered the capsule in the Atlantic and offloaded the spacecraft at San Juan, P.R. In addition, on this date, NASA announced the selection of astronauts Lt. Col. John H. Glenn Jr., USMC; Cmdr. Alan B. Shepard Jr.; and Capt. Virgil I. Grissom, USAF; to begin special training for the first manned Mercury flight.

1069225

Kitty Hawk (CVA 63), the name ship of her class of supercarriers, is an evolution of the *Forrestal*-class ships.

6 MARCH • The Secretary of Defense established defense policies and responsibilities for the development of satellites, antisatellites, space probes, and supporting systems. The action authorized each military department "to conduct preliminary research to develop new ways of using space technology to perform its assigned function." The USAF received the responsibility for research, development, test, and engineering of Department of Defense space development programs and projects, but provisions granting exceptions made possible the Navy's development of a unique space capability.

21 MARCH • Ongoing attacks by communist Pathet Lao insurgents threatened the stability of the royalist regime in Laos, and the Seventh Fleet dispatched ships to the South China Sea to monitor the fighting. Aircraft flew reconnaissance missions over Laos into June.

10 APRIL • Cmdr. Lloyd E. Newcomer of VX-6 piloted a C-130BL Hercules carrying a double crew of 16 and a special crew of five during the emergency evacuation of Soviet exchange scientist Leonid Kuperov from Byrd Station, Antarctica, to Christchurch, New Zealand. Kuperov suffered from an acute abdominal condition. This round-trip flight from Christchurch accomplished the first aerial mission to pierce the winter isolation of the Antarctic continent.

17 APRIL • *Brigadistas* (Cuban exiles) of Brigade 2506 opposed to the regime of Fidel R. Castro sailed from British Honduras (Belize) for Bahía de Cochinos (Bay of Pigs), Cuba, during Operation Zapata—an attempt to overthrow Castro. The United States concentrated naval support for the émigrés initially within Task Group Alpha (81.8), including *Essex* (CVS 9), with Carrier Anti-Submarine Air Group 60 embarked. Aircraft from *Essex* were to fly combat air patrols

over the invaders' landing craft and reconnaissance flights over Castro's forces. The force included 12 VA-34 A4D-2 Skyhawks, two S2F-1 Trackers and eight S2F-1Ss of VS-34, four AD5-W Skyraiders of VAW-12 Detachment 45, 15 HS-9 HSS-1 Seabats, one HUP-3 Retriever of HU-2 Detachment 45, and one TF-1 Trader. To accommodate the Skyhawks on board *Essex*, the S2F-1s of VS-39 temporarily operated from NAS Quonset Point, R.I.

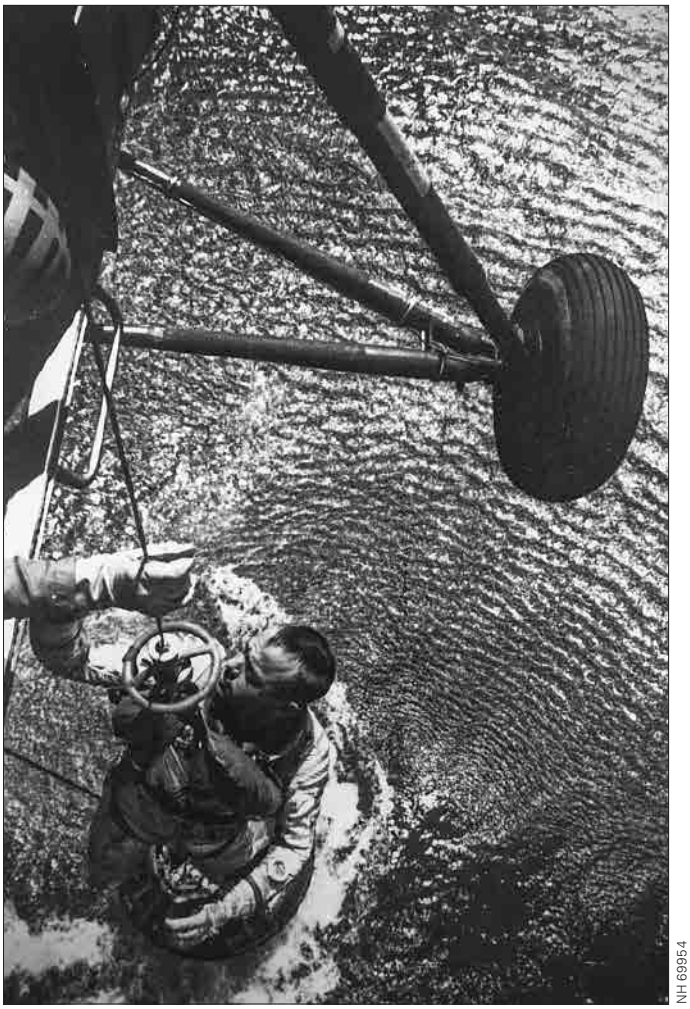
Independence (CVA 62), with Carrier Air Group 7 embarked, sailed to host President John F. Kennedy for a scheduled naval firepower demonstration from NS Norfolk, Va. The crisis compelled the cancellation of the chief executive's visit and *Independence* made for the area south of NS Guantánamo Bay, Cuba. The United States did not intervene, however, and Castro rushed reinforcements that forced the evacuation or surrender of the *brigadistas* by 20 April. *Essex* returned to Quonset Point on 29 April. *Independence* did not reach the area in time to affect the outcome and returned on 30 April, anchoring in Hampton Roads, Va.

21 APRIL • The Office of the Pacific Missile Range Representative, Kaneohe, Hawaii, was redesignated and established as the Pacific Missile Range Facility, Hawaiian Area, to serve as the mid-Pacific headquarters for missile and satellite tracking stations located in the Hawaiian and central Pacific areas.

29 APRIL • *Kitty Hawk* (CVA 63), Capt. William F. Bringle commanding, was commissioned at Philadelphia Naval Shipyard, Pa., as the first of a class of attack carriers equipped with RIM-2 Terrier surface-to-air missiles.

4 MAY • Cmdr. Malcolm D. Ross and Lt. Cmdr. Victor A. Prather, MC, crewed a two-place open gondola Stratolab balloon from *Antietam* (CVS 36) sailing off the mouth of the Mississippi River. This, the largest balloon ever employed to date on a manned flight, attained a world record balloon altitude of 113,739.9 feet, 2 hours, 36 minutes after liftoff at a position about 136 miles south of Mobile, Ala. Prather fell from the sling of the recovery helicopter, his pressure suit filled with water, and he drowned before he could be reached. His body was never recovered.

5 MAY • Cmdr. Alan B. Shepard Jr. manned space capsule *Freedom 7* during the flight of Mercury-Redstone 3 from



NH 69954

A Marine HUS-1 Seahorse recovers Cmdr. Alan B. Shepard Jr. after his completion of the first U.S. manned space flight, 5 May 1961.

Cape Canaveral, Fla. The crew of an HMRL-262 HUS-1 Seahorse from Marine Aircraft Group 26, embarked on board *Lake Champlain* (CVS 39), visually followed the descent of *Freedom 7*. The Seahorse recovered the capsule at sea at 27°13 ' 7"N, 75°53 ' W, and transported the spacecraft and Shepard to the carrier. After preliminary medical and technical debriefing, a helicopter flew the astronaut to Grand Bahama Island for two days of complete debriefings. Shepard became the first American to ascend into space during this initial of two suborbital Mercury missions.

17 MAY • Cmdr. Patrick L. Sullivan and Lt. Beverly W. Witherspoon set a new world class speed record in an HSS-2 Sea King of 192.9 mph for three kilometers at Bradley Field, Windsor Locks, Conn.

NH 69959

Cmdr. Patrick L. Sullivan (left) and Lt. Beverly W. Witherspoon flying an HSS-2 helicopter, set a world class speed record.

24 MAY • Three F4H-1 Phantom IIs competing for the Bendix Trophy bettered the existing record for transcontinental flight from Los Angeles, Calif., to New York, N.Y. The winning team of pilot Lt. Richard F. Gordon Jr. and radar intercept officer Lt. j.g. Bobbie R. Young averaged 870 mph on the 2,421.4-mile flight, and set a new record of 2 hours, 47 minutes.

24 MAY • Cmdr. Patrick L. Sullivan and Lt. Beverly W. Witherspoon set a new world class speed record in an HSS-2 Sea King with a mark of 174.9 mph over a 100-kilometer course between Milford and Westbrook, Conn.

25 MAY • President John F. Kennedy requested additional appropriations from Congress totaling $611 million for NASA and the Department of Defense to accelerate the space program. "I believe that this nation should commit itself to achieving the goal," the chief executive declared, "before this decade is out, of landing a man on the moon and returning him safely to the earth."

1 JUNE • Ships of the Second Fleet including *Intrepid* (CVA 11), *Randolph* (CVS 15), and *Shangri-La* (CVA 38), received orders to sail off the southern coast of Hispaniola when a general uprising appeared imminent after the assassination of Dominican Republic President (Gen.) Rafael Trujillo. The ships returned after the crisis passed.

21 JUNE • Secretary of the Navy John B. Connally Jr. approved plans for terminating the Navy's lighter-than-air program, disestablishing all operational units by November, putting eight of the ten remaining airships in storage, and deactivating the overhaul and repair shop at NAS Lakehurst, N.J.

29 JUNE • A Thor Able-Star missile launched navigation satellite Transit 4A from Cape Canaveral, Fla., into a nearly circular orbit at a height of about 500 miles. Greb and Injun satellites on board failed to separate from each other but otherwise operated satisfactorily. Transit 4A was the first space vehicle to be equipped with a nuclear-powered generator.

10 JULY • The distribution of the HSS-1 Seabat manual promulgated the first NATOPS (Naval Air Training and Operating Procedures Standardization) Manual. This manual prescribed the standard operating procedures and flight instructions peculiar to Seabats and complemented the more technical information contained in the HSS-1 Flight Manual—also known as the "handbook." As the system developed, the issuance of NATOPS flight manuals consolidated flight and operating instructions with the handbook information beginning with the F9F-8T Cougar manual on 15 December 1963. Further publications included the NATOPS Manual containing generalized instructions covering air operations, and other manuals dealing with such subjects as carrier operations, air refueling, instrument flight, and landing signal officer procedures.

18 JULY • An F4D-1 Skyray made the first of a series of eight unguided Sparoair II rocket launches to an altitude of 64 miles at Naval Missile Center, Point Mugu, Calif. The research rocket had been designed and built at Point Mugu by combining two Sparrow air-to-air missile rocket motors.

21 JULY • Capt. Virgil I. Grissom, USAF, piloted space capsule *Liberty Bell 7* during the launch of Mercury-Redstone 4 from Cape Canaveral, Fla. The spacecraft

NH 69957

Iwo Jima (LPH 2) is the first U.S. helicopter-capable amphibious assault ship to be designed and built as such.

splashed down near 27°34'N, 75°44'W, and *Randolph* (CVS 15), with Carrier Anti-Submarine Air Group 58 embarked, accomplished the recovery. A premature ejection of the hatch cover, however, caused flooding that made capsule retrieval impossible, and it sank in 2,500 fathoms. An HUS-1 Seahorse from Marine Aircraft Group 26 rescued Grissom and delivered the astronaut to the carrier. HUP-3 Retrievers of HU-2 Detachment 1 flew plane guard and two HSS-1N Seabats of HS-7 photographed the recovery. Grissom became the second American to ascend into space during this final of two suborbital Mercury flights.

3 AUGUST • The director of Defense Research and Engineering approved revisions to the tri-service vertical takeoff and landing program, whereby the administrative responsibility for a tilting wing aircraft was transferred from the Navy to the USAF, but the three services continued to share the cost equally. The aircraft was later developed as the Ling-Temco-Vought XC-142.

18 AUGUST • NASA announced that an analysis of Project Mercury suborbital data indicated the achievement of all objectives of the initial phase of the space program, and thereby concluded planning for additional Mercury-Redstone flights.

26 AUGUST • *Iwo Jima* (LPH 2), Capt. Thomas D. Harris commanding, was commissioned at Puget Sound Naval Shipyard, Bremerton, Wash., as the first amphibious assault ship to be designed and built as such. The new ship operated a helicopter squadron and embarked Marines in the "vertical envelopment" concept of amphibious assault.

28 AUGUST • NOTS China Lake, Calif., reported on tests of Snakeye I mechanical retardation devices under development to permit low-altitude bombing with the Mk 80 family of low-drag bombs. Four designs of retarders, two made by Douglas and two by the station, had been tested in flight on the station's rocket-powered test sled or in the wind tunnel. One of the Douglas designs showed sufficient promise and resulted in the issuance of a contract to the company for a number of experimental and prototype units.

28 AUGUST • An F4H-1 Phantom II crewed by pilot Lt. Hunt Hardisty and radar intercept officer Lt. Earl H. DeEsch averaged 902.769 mph for a new low-altitude world speed record over a three-kilometer course at Holloman AFB, N. Mex.

11 SEPTEMBER • Task Force 135, Rear Adm. Frederick J. Brush commanding, including *Antietam* (CVS 36) and *Shangri-La* (CVA 38), received orders to sail to the Galveston-Freeport, Texas, area for disaster relief operations in the wake of Hurricane Carla.

114345

An aviation ordnanceman handles Snakeye bombs on board *Hancock* (CVA 19).

13 SEPTEMBER • Mercury-Atlas 4 launched from Cape Canaveral, Fla. The unmanned mission demonstrated the capabilities to fly a person in orbit and of the global Mercury tracking network. Dock landing ship *Plymouth Rock* (LSD 29) and destroyer *Decatur* (DD 936) recovered the capsule in the Atlantic after a single orbit.

1 OCTOBER • Renewed tensions over control of divided Berlin, East Germany, prompted President John F. Kennedy to activate Reserve units including five Naval Reserve patrol and 13 carrier antisubmarine squadrons.

8 OCTOBER • HUS-1 Seahorses of HMRL-362, embarked on board amphibious assault ship *Princeton* (LPH 5), plucked 84 men from U.S. merchant ship *Pioneer Muse* and Lebanese vessel *Sheik* after both ships ran aground on Kita Daita Jima in the Pacific. Attack cargo ship *Tulare* (AKA 112) directed the rescue.

16 OCTOBER • The Astronautics Operations Division Op-54 was transferred from the office of Deputy Chief of Naval Operations (Air) to Op-76 of the office of DCNO (Development) to reassign the responsibilities for the naval support of the space program's Project Mercury within OPNAV.

23 OCTOBER • Submarine *Ethan Allen* (SSBN 608) made the first underwater launch of a Polaris A-2 fleet ballistic missile. The Polaris soared 1,500 miles down the Atlantic Missile Range.

31 OCTOBER • Fleet Airship Wing One and ZP-1 and -3 were disestablished at NAS Lakehurst, N.J., as the last operating naval lighter-than-air units.

31 OCTOBER • Hurricane Hattie devastated British Honduras (Belize), killing an estimated 310 people. On 2 November, *Antietam* (CVS 36) sailed from NAS Pensacola, Fla., to render relief. HT-8 HO4S-3s and HMRL-264 HUS-1 Seahorses proved instrumental in reaching people trapped and isolated by debris, rugged country, and swamps during 207 sorties carrying more than 57 tons of food, water, and medical supplies. The helicopters also transported teams from the Naval School of Aviation Medicine and relief workers to Belize, Stann Creek, and other points. On 6 November, the ship departed but six doctors and six helicopters with 18 pilots and 25 crewmen briefly remained to continue aid at the behest of the British.

18 NOVEMBER • Dominican Republic President Joaquín Balaguer declared a state of emergency following the return to that country of Héctor and José Trujillo, brothers of assassinated President (Gen.) Rafael Trujillo. *Franklin D. Roosevelt* (CVA 42) subsequently reinforced the Caribbean Ready Amphibious Squadron off the nation's coast. The combined force launched flights of A4D Skyhawks and made amphibious feints from outside Dominican waters to emphasize U.S. resolve to prevent a reestablishment of a dictatorship there. The ships departed after the formation of a Dominican council of state on 19 December.

22 NOVEMBER • Lt. Col. Robert B. Robinson, USMC, broke the world speed record by averaging 1,606.3 mph in two runs in an YF4H-1 Phantom II over a 15/25-kilometer course at Edwards AFB, Calif.

25 NOVEMBER • *Enterprise* (CVAN 65), Capt. Vincent P. DePoix commanding, was commissioned at Newport News Shipbuilding and Dry Dock Co., Va., as the world's first nuclear-powered aircraft carrier.

NH 69958

In Operation Skyburner, Lt. Col. Robert B. Robinson, USMC, breaks the absolute world speed record at 1,606.342 mph in the second YF4H-1 Phantom II, BuNo 142260, 22 November 1961.

29 NOVEMBER • Mercury-Atlas 5 launched from Cape Canaveral, Fla. The suborbital mission obtained physiological and performance data during ballistic flight on the occupant, a chimpanzee named Enos. A helicopter from Marine Aircraft Group 26, embarked on board *Lake Champlain* (CVS 39), together with destroyer *Stormes* (DD 780) recovered the capsule in the Atlantic. Dock landing ship *Fort Mandan* (LSD 21) was among the vessels that supported the recovery. Also on this date, NASA selected Lt. Col. John H. Glenn Jr., USMC, as the astronaut for the first manned orbital flight and Lt. Cmdr. M. Scott Carpenter as the backup pilot.

1 DECEMBER • Capt. Bruce K. Lloyd and Cmdr. Don J. Roulstone laid claim to three new world speed records in an HSS-2 Sea King over a course along Long Island Sound between Milford and Westbrook, Conn., with performances of 182.8 mph, 179.5 mph, and 175.3 mph for 100, 500, and 1,000 kilometers, respectively.

5 DECEMBER • Cmdr. George W. Ellis surpassed the existing world record for altitude sustained in horizontal flight with a height of 66,443.8 feet in a YF4H-1 Phantom II over Edwards AFB, Calif.

NH 69961

Capt. Bruce K. Lloyd (left) and Cmdr. Don J. Roulstone break three global helicopter speed records in an HSS-2 Sea King over a course along Long Island Sound, 1 December 1961.

6 DECEMBER • Cmdr. Alan B. Shepard Jr. and Capt. Virgil I. Grissom, USAF, received new wings honoring America's first astronauts in a joint Navy–Air Force ceremony. The designs of the emblems displayed a shooting star superimposed on the traditional aviator wings of the respective services.

8 DECEMBER • The closure of the landing field at NAS Anacostia, D.C., and the termination of all approach procedures and operation of air traffic facilities ended the career of the fourth oldest air station in terms of continuous operations in the Navy.

14 DECEMBER • The completion of the installation of the Pilot Landing Aid Television (PLAT) system on *Coral Sea* (CVA 43) heralded the first carrier to have the system installed for operational use. Designers intended the system to provide a video tape of every landing for instructional purposes and the analysis of landing accidents in the promotion of safety. By early 1963, all attack carriers received PLAT and planning had begun for its installation in antisubmarine carriers and at shore stations.

29 DECEMBER • NASA issued the *Gemini Operational and Management Plan* outlining the roles and responsibilities of the Department of Defense and NASA in the Gemini space program.

30 DECEMBER • Cmdr. Patrick L. Sullivan and Capt. David A. Spurlock, USMC, bettered the existing HSS-2 Sea King three-kilometer world speed record at 199.01 mph at Windsor Locks, Conn.

1962

1 JANUARY • Three new fleet air commands were established under Commander, Naval Air Force Atlantic, one each with headquarters at Iceland, Bermuda, and in the Azores.

15 JANUARY • Through 17 January, recovery area swimmers completed training at NAS Pensacola, Fla., including jumps from a helicopter for use in the Mercury-Atlas 6 manned orbital mission.

17 JANUARY • *Enterprise* (CVAN 65) accomplished the first fleet air operations of a nuclear-powered aircraft carrier. Cmdr. George C. Talley Jr., commander of Carrier Air Group 1 from NAS Cecil Field, Fla., made an arrested landing—trap—and catapult launch in an F8U-1E of VF-62, BuNo 145375. A few minutes later, Cmdr. Joseph P. Moorer and Lt. Cmdr. Jesse J. Taylor of VF-62 landed two more Crusaders. These events marked the first of 170 catapult shots and traps over two days. On 30 October 1961, three TF-1 Traders of VR-40 took off from the ship to transport VIPs to the mainland following their observation of sea trials, but Talley's flights marked the start of *Enterprise* fleet operations.

23 JANUARY • Lt. Col. Charles E. Crew, USMC, commanding officer of VMF(AW)-451, led a flight consisting of the last of 18 F8U-2N Crusaders to complete the first transpacific mission by a Marine jet fighter squadron from MCAS El Toro, Calif., to NAS Atsugi, Japan. The Crusaders stopped at Kaneohe, Hawaii; Wake Island; and Guam; and GV-1 Hercules tankers provided aerial refueling.

NH 69960

The HSS-2 Sea King flown by Capt. Louis K. Keck, USMC (left), and Navy Lt. R. W. Crafton is the first helicopter to officially exceed 200 mph, 5 February 1962.

24 JANUARY • Two Navy F4H-1 Phantom IIs, designated F-110A by the USAF, arrived at Langley AFB, Va., for use in orientation courses prior to the assignment of Phantoms to the USAF Tactical Air Command.

26 JANUARY • To overcome deficiencies disclosed during the operations of ships equipped with surface-to-air missiles, the chief of the Bureau of Naval Weapons designated an assistant chief for surface missile systems to head a special task force and direct all aspects of surface missiles within the bureau, and to act with the Chief of Naval Personnel and the Bureau of Ships on matters involving those bureaus.

5 FEBRUARY • Navy Lt. R. W. Crafton and Capt. Louis K. Keck, USMC, flew an HSS-2 Sea King during the first officially sanctioned trial of a helicopter to exceed 200 mph. Crafton and Keck broke the 15/25-kilometer world record with a speed of 210.65 mph over a course along the Connecticut shore from Milford to New Haven.

NASA 62MA6-112

Lt. Col. John H. Glenn Jr., USMC, on board spacecraft *Friendship 7,* hurtles into space during the launch of Mercury-Atlas 6, 20 February 1962.

8 FEBRUARY • A detachment of P2V-7 Neptunes of VP-11 began ice reconnaissance flights from NAS Argentia, Newfoundland, over the Gulf of St. Lawrence to aid in evaluating satellite imagery of ice formations transmitted by Tiros 4 after the weather satellite's entry into orbit that day.

20 FEBRUARY • Lt. Col. John H. Glenn Jr., USMC, manned space capsule *Friendship 7* during the launch of Mercury-Atlas 6 from Cape Canaveral, Fla. The mission's three turns about the earth became the first U.S. manned orbital flights and accomplished the basic goals of Project Mercury—putting an astronaut into orbit, determining his ability to perform various functions during space flight, and obtaining physiological data concerning Glenn's reactions to the stresses encountered. Destroyer *Noa*

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During Project High Jump—(from left) Lt. Col. William C. McGraw, USMC; Cmdr. David M. Longton, Lt. Cmdr. Del W. Nordberg, and Lt. Cmdr. John W. Young—set multiple F4H-1 Phantom II time-to-climb records.

(DD 841) recovered Glenn and *Friendship 7* about 21 minutes after splashdown about 800 miles southeast of Bermuda near 21°26'N, 68°41'W. An HUP-3 Retriever of HU-2 Detachment 36, Aircraft No. 46, delivered Glenn to *Randolph* (CVS 15), and then a VS-26 S2F-3 Tracker flew the astronaut to Grand Turk Island in the Bahamas. Additional ships that supported the flight included *Enterprise* (CVAN 65) and *Forrestal* (CVA 59) sailing in the Atlantic and *Antietam* (CVS 36) in the Pacific. On 9 March, Glenn received his astronaut wings at the Pentagon.

21 FEBRUARY • Pilot Lt. Cmdr. John W. Young and radar intercept officer Cmdr. David M. Longton established new world time-to-climb records to 3,000 and 6,000 meters with times of 34.52 and 48.78 seconds, respectively, in an F4H-1 Phantom II at NAS Brunswick, Maine.

1 MARCH • Lt. Col. William C. McGraw, USMC, established new world time-to-climb records from a standing start to 9,000 and 12,000 meters in 61.62 and 77.15 seconds, respectively, in an F4H-1 Phantom II at NAS Brunswick, Maine.

3 MARCH • Lt. Cmdr. Del W. Nordberg broke a time-to-climb record by reaching an altitude of 15,000 meters in 114.54 seconds in an F4H-1 Phantom II at NAS Brunswick, Maine.

13 MARCH • *Midway* (CVA 41) and the Caribbean Ready Amphibious Squadron established precautionary patrols in Guatemalan waters for nine days when rioting by students led to widespread disorder in that country.

13 MARCH • NASA Administrator James E. Webb recommended to President John F. Kennedy the assignment of DX priority (the highest precedence in the procurement of critical materials) to the Apollo lunar program. The president approved the recommendation on 11 April.

31 MARCH • Lt. Cmdr. F. Taylor Brown attained a new world time-to-climb record to 20,000 meters with a time of 178.5 seconds in an F4H-1 Phantom II at NAS Point Mugu, Calif.

3 APRIL • Lt. Cmdr. John W. Young broke the Phantom II's seventh world time-to-climb record by reaching 25,000 meters in 230.44 seconds in an F4H-1 at NAS Point Mugu, Calif.

5 APRIL • NASA pilot Neil A. Armstrong flew an X-15 to a speed of 2,830 miles per hour and an altitude of 179,000 feet at Edwards AFB, Calif. The naval aviator achieved the marks during a test of an automatic control system intended for incorporation in Apollo spacecraft and the Dyna-Soar rocket-boosted hypersonic glider used in the development of a manned orbital vehicle for bombing and reconnaissance. The Dyna-Soar program was subsequently cancelled. Armstrong made seven flights in X-15s from December 1960 to July 1962, attaining a maximum speed of 3,989 mph in X-15-1 and a peak altitude of 207,500 feet in X-15-3.

12 APRIL • Lt. Cmdr. Del W. Nordberg broke a time-to-climb record by reaching an altitude of 30,000 meters in 371.43 seconds in an F4H-1 Phantom II at NAS Point Mugu, Calif.

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Unmodified production F4H-1 Phantom IIs set a number of time-to-climb speed records during Project High Jump.

15 APRIL • Aircraft from *Hancock* (CVA 19) provided distant cover (because of a request by the State Department to operate inconspicuously to avoid international criticism) while 24 UH-34D Seahorses of HMM-362 flew from amphibious assault ship *Princeton* (LPH 5) to Soc Trang, South Vietnam. Elements of HMM-261 assisted the landings but returned to the ship. Three OE-1 Bird Dogs of VMO-1, an R4D-8 Skytrain, and some KC-130 Hercules had already arrived. The Marines supported the Army and South Vietnamese during Operation Shufly—counterinsurgency operations against the People's Liberation Armed Forces (Viet Cong) within the Mekong Delta. The Marines subsequently recommended the installation of armor plate and machine guns on their helicopters, and the addition of new flight clothing and body armor for crewmembers. On 1 August, HMM-362 departed South Vietnam.

18 APRIL • NASA announced the acceptance of applications for additional astronauts until 1 June. The agency planned to select five to ten astronauts to augment the seven Mercury team members. The new pilots were to participate in support operations in Project Mercury and join the Mercury astronauts in piloting the two-man Gemini spacecraft. The requirements included

NH 69953

Alan B. Shepard Jr.

NASA 36911

John H. Glenn Jr.

NH 69951

M. Scott Carpenter

NASA 62MA7-24

Walter M. Schirra Jr.

experienced jet test pilots preferably engaged in flying high-performance aircraft; experimental flight test pilot status through military service, the aircraft industry, or NASA, or graduation from military test pilot schools; degree achievement in the physical or biological sciences or in engineering; U.S. citizenship under 35 years of age at the time of selection and six feet or less in height; and recommendation by their parent organizations.

30 APRIL • The Naval Air Research and Development Activities Command was disestablished, and the Bureau of Naval Weapons reassumed responsibility for the overall management and coordination of the aeronautical research and development activities in the Third and Fourth Naval Districts.

10 MAY • Up to this time, communist Pathet Lao insurgents routed Laotian royalists and advanced toward the Thai border. On this date, President John F. Kennedy dispatched ships including *Hancock* (CVA 19), *Bennington* (CVS 20), and amphibious assault ship *Valley Forge* (LPH 8) to the Gulf of Thailand, together with 3,400 Marines supported by British, Australian, and New Zealand forces, which collectively arrived between 17 and 20 May. On 17 May, HMM-261 flew from *Valley Forge* to Udorn Royal Thai AFB, Thailand, where the squadron operated until relieved by HMM-162 in late June. The North Vietnamese consequently pressured the insurgents to accept a cease-fire, and the deployments ended in July.

10 MAY • An F4H-1 Phantom II scored a direct hit with an AAM-N-6 Sparrow III air-to-air missile in a head-on attack on a Regulus II bombardment missile while both traveled at supersonic speed over the Naval Air Missile Center Point Mugu, Calif. The achievement marked the first successful head-on attack by an air-launched weapon on a surface-launched guided missile.

22 MAY • The Navy Astronautics Group, Cmdr. James C. Quillen Jr. commanding, was established as the Navy's first space satellite command at Pacific Missile Range Headquarters, Point Mugu, Calif. One of the duties of the command included the responsibility for operating the Transit Navigational System, under Navy development for the Department of Defense.

24 MAY • Lt. Cmdr. M. Scott Carpenter manned space capsule *Aurora 7* during the launch from Cape Canaveral, Fla., of Mercury-Atlas 7, the second U.S. manned orbital flight. The capsule splashed down in the Atlantic near 19°27'N, 63°59'W, miles beyond the planned impact area northeast of Puerto Rico. The overshot resulted from a yaw error during the firing of the retrograde rockets that put the capsule beyond radio and recovery vehicle range. Carpenter egressed from *Aurora 7* into a life raft on a sea of lazy swells, and waited until a P2V Neptune made visual contact a half hour later. A USAF SC-54 Skymaster dropped two pararescue men to assist the astronaut before an HSS-2 Sea King, Aircraft No. 57, of HS-3 embarked on board *Intrepid* (CVS 11), returned the astronaut to the carrier more than four hours after splashing down, and destroyer *John R. Pierce* (DD 753) retrieved the capsule. Additional ships involved included dock landing ships *Donner* (LSD 20) and *Spiegel Grove* (LSD 32). On 25 June Carpenter received his astronaut wings.

29 MAY • Vice Adm. Patrick N. L. Bellinger (Ret.), (Naval Aviator No. 8), died in Clifton Forge, Va. On 26 November 1912, Bellinger had reported for flight training to the Annapolis, Md., aviation camp and on 1 October 1947, he retired while serving on the General Board.

1 JUNE • The Materials Advisory Board of the National Research Council issued its final report on the titanium alloy sheet rolling program, thereby terminating the program as a formally organized effort. The achievements of the program during its six years of work included acquiring metallurgical and engineering data for a number of titanium alloys and familiarizing the aerospace industry with their properties and methods of fabrication. High strength, heat-treated sheet alloys developed under this program were subsequently used in aircraft including A-7 Corsair IIs, later model F-4 Phantom IIs, Lockheed SR-71A Blackbirds, and in deep submergence vehicles used in oceanographic research.

26 JUNE • The 1,500-mile-range Polaris A-2 became operational when submarine *Ethan Allen* (SSBN 608) sailed with 16 of the fleet ballistic missiles from NWS Charleston, S.C.

29 JUNE • A Polaris fleet ballistic missile carrying the new bullet-nose shape for use with A-3 missiles soared 1,400 miles down range from Cape Canaveral, Fla. On 7 August 1962, the first A-3 flight model successfully launched from the same base.

1 JULY • Fleet Air Patuxent and Naval Air Bases, Potomac River Naval Command were established, and assigned as additional duties to Commander Naval Air Test Center, Patuxent River, Md.

25 JULY • Following the defeat of Gen. Fulgencio Batista, Cuban leftists led by Fidel R. Castro harassed NS Guantánamo Bay, Cuba. In response to U.S. fears of an escalation to coincide with the celebration of the 26th of July Cuban revolutionary holiday, the Caribbean Ready Amphibious Squadron sailed for Guantánamo and aircraft flew demonstrations over the station until the termination of the alert on 27 July.

1 AUGUST • Squadrons of the Naval Air Reserve that had been called up during the Berlin Crisis on 1 October 1961 were released to inactive duty. The action reduced the strength of the naval air operating forces by 18 squadrons and 3,995 officers and men.

30 AUGUST • One of two Cuban *GC-107*–class patrol boats shot at an S-2 Tracker flying in international air space 15 nautical miles north of Cárdenas, Cuba.

31 AUGUST • The last flight of a Navy airship at NAS Lakehurst, N.J., marked the passing of an era. The flight also marked the end of a year's service by the two airships maintained in operation following the discontinuance of the lighter-than-air (LTA) program for use as airborne aerodynamics and research laboratories in the development of V/STOL aircraft and antisubmarine search systems. Cmdrs. Walter D. Ashe and Robert Shannon piloted this final flight and the passengers included LTA stalwarts Vice Adm. Charles E. Rosendahl (Ret.) and Capt. Frederick N. Klein (Ret.).

8 SEPTEMBER • Two Cuban MiG-17 Frescos overtook two S2Fs over the Caribbean, 45 miles southwest of NAS Key West, Fla. One Fresco made simulated firing runs on the Trackers, but two F4D-1 Skyrays scrambled from Key West and the MiGs disengaged.

12 SEPTEMBER • Lt. Cmdr. Donald E. Moore climbed to 29,460 feet over Floyd Bennett Field, N.Y. in a UF-2G to set a new world altitude record for amphibians carrying a 1,000-kilogram load. On the same day, Lt. Cmdr. Fred A. W. Franke Jr. piloted the Albatross to a new record for amphibians with a 2,000-kilogram load with a climb to 27,380 feet.

15 SEPTEMBER • Lt. Cmdr. Richard A. Hoffman set a new world 5,000-kilometer speed record for amphibians carrying a 1,000-kilogram load with 151.4 mph in a UF-2G Albatross on a course from Floyd Bennett Field, N.Y., to Plattsburgh, N.Y., to Dupree, S. Dak., returning to Floyd Bennett Field.

17 SEPTEMBER • At the University of Houston, Texas, NASA introduced the public to nine pilots selected to join the nation's astronaut corps: civilian test pilots and naval aviators Neil A. Armstrong and Elliott M. See Jr.; Navy Lt. Cmdrs. James A. Lovell Jr. and John W. Young; and Lt. Charles Conrad Jr.; together with Lt. Col. Frank Borman, USAF; Maj. Thomas P. Stafford, USAF; Capt. James A. McDivitt, USAF; and Capt. Edward H. White II, USAF.

NH 69950

Cmdr. Walter M. Schirra Jr. emerges from space capsule *Sigma 7* on board *Kearsarge* (CVS 33) after his six-orbit flight, 3 October 1962.

18 SEPTEMBER • A joint Army-Navy-Air Force regulation established a uniform system of designating military aircraft similar to that previously in use by the USAF. All existing aircraft received redesignations using a letter, dash, number, and letter to indicate respectively the basic mission or type of aircraft, its place in the series of that type, and its place in the series of changes in its basic design. Under the system the Crusader, formerly designated F8U-2, became the F-8C indicating the third change (C) in the eighth (8) of the fighter (F) series. A provision indicated the status of the aircraft and modifications of its basic mission by prefix letters. Thus the YF8U-1P became the YRF-8A symbolizing a prototype (Y) of the photoreconnaissance (R) modification of the F-8A.

19 SEPTEMBER • During growing tensions with the Cubans, six F-8D Crusaders deployed for defensive duties with the USAF in the North American Air Defense Command to NAS Key West, Fla.

28 SEPTEMBER • A Navy flight photographed Soviet freighter *Kasimov* en route to Cuban waters with ten crated Ilyushin Il-28s on her deck. The Soviets eventually deployed at least 42 of the Beagles, which were capable of carrying nuclear weapons, to Cuba.

1 OCTOBER • On the eve of the Cuban Missile Crisis, the Atlantic Fleet included *Essex* (CVS 9), *Wasp* (CVS 18), and *Lake Champlain* (CVS 39), in the area of Boston, Mass., and Newport, R.I.; *Intrepid* (CVS 11) off New York City, N.Y.; *Randolph* (CVS 15) at NS Norfolk, Va.; *Shangri-La* (CVA 38) at NS Mayport, Fla.; amphibious assault ships *Okinawa* (LPH 3), *Boxer* (LPH 4), and *Thetis Bay* (LPH 6) at Norfolk; and cruiser *Canberra* (CAG 2) at NS Guantánamo Bay, Cuba.

3 OCTOBER • Cmdr. Walter M. Schirra Jr. piloted space capsule *Sigma 7* during the launch of Mercury-Atlas 8 from Cape Canaveral, Fla. After six orbits, the spacecraft splashed down in the Pacific 275 miles northeast of Midway Island near 32°5'N, 174°28'W, and about 9,000 yards from primary recovery ship *Kearsarge* (CVS 33). Helicopters dropped swimmers near the capsule and *Kearsarge* hoisted *Sigma 7* and Schirra on board. Additional vessels that supported the recovery included *Lake Champlain* (CVS 39) in the Atlantic. On 16 October, Schirra received his astronaut wings.

8 OCTOBER • Lt. Col. Edwin A. Harper, USMC, of VMA-225 led a flight of 16 A-4C Skyhawks on a round-trip crossing of the Atlantic between MCAS Cherry Point, N.C., and NS Rota, Spain. The Marines flew to Bermuda and then directly to Rota. After a brief layover, the flight returned on 17 October to Cherry Point by way of Lajes, Azores, and Bermuda. Ten KC-130F Hercules of VMGR-252 refueled the Skyhawks during the operation.

8 OCTOBER • The F-4B Phantom IIs of VF-41 shifted from NAS Oceana, Va., to NAS Key West, Fla., to augment a

detachment of six F-8D Crusaders for defensive duties with the USAF in the North American Air Defense Command during growing tensions with Cuba.

14 OCTOBER • During the preceding months, Soviet Premier Nikita S. Khrushchev grew concerned over the imbalance in the nuclear arsenals of the rival superpowers and launched Operation Anadyr—the infiltration into Cuba of surface-to-surface missiles capable of being fitted with nuclear warheads to expand Soviet options, and to demonstrate to the Americans their inability to halt the advance of Soviet power in proximity to the United States. Cuban leader Fidel R. Castro agreed to the plan. On this date, Maj. Richard D. Heyser, USAF, piloted CIA high-altitude reconnaissance Mission 3101 over western Cuba in a Lockheed U-2F, designated Article 342, and detected Soviet SS-4 (R-12) Sandal medium-range ballistic missile (MRBM) launchers. Navy specialists processed the film and then delivered it for evaluation to the National Photographic Interpretation Center, Washington, D.C. Additional reconnaissance missions and intelligence data revealed more MRBMs and SS-5 (R-14) Skean intermediate-range ballistic missiles. The discovery of the Soviet deception precipitated the Cuban Missile Crisis because President John F. Kennedy and his advisors considered such a threat to the United States as unacceptable.

16 OCTOBER • Chief of Naval Operations directed the conversion of some RH-46As to aerial minesweepers for use in a mine countermeasures development and training program and eventual assignment to fleet squadrons. The program later substituted RH-3As for the conversion.

17 OCTOBER • Operation Blue Moon—low-level reconnaissance flights over Cuba to help verify Soviet military deployments to that country—became operational. VFP-62 initially prepared ten photo variant RF-8A Crusaders with aerial cameras for high-speed, low-level photo missions, and placed four of the jets on a four-hour alert at NAS Cecil Field, Fla., but subsequently shifted the Crusaders to NAS Key West, Fla. The squadron maintained ten operational aircraft with seven standing by, and also deployed five detachments on board attack carriers operating in the Atlantic and Mediterranean during the Cuban Missile Crisis.

19 OCTOBER • Operational units began moving to stations in Florida to counter the threat posed by Soviet missiles and bombers in Cuba. Aircraft and squadrons there not required for air defense, reconnaissance, and antisubmarine patrols began relocating to prevent overcrowding. About 350 naval aircraft operated ashore in that region including 7 fighters, 12 bombers, and 5 maritime patrol aircraft at NS Guantánamo Bay, Cuba; 18 fighters at Homestead AFB, Fla.; 76 fighters, 57 attack, and 10 patrol aircraft at NAS Jacksonville, Fla.; 26 fighters and 5 antisubmarine planes at NAS Key West, Fla.; 12 EC-121K Constellations at McCoy AFB, Fla.; 15 patrol aircraft at NAS Roosevelt Roads, P.R.; and 11 A-5A Vigilantes of VAH-7 at NAS Sanford, Fla. By 25 October, the number of these aircraft ashore rose to 448 fighters and bombers and 67 reconnaissance and support types.

19 OCTOBER • *Enterprise* (CVAN 65) sortied in response to the Cuban Missile Crisis from NS Norfolk, Va. The emergency compelled the ship to sail with only some aircraft and the balance flew on board as she passed Cape Henry. The Atlantic Fleet provided the cover story that engineering exercises and Hurricane Ella off the southeastern coast of the U.S. imposed the rapid departure. Aircraft flew a daily average of 120 sorties from *Enterprise* during the crisis. The ship returned on 7 December.

20 OCTOBER • The Cuban Missile Crisis coincided with a routine training event designated PHIBBRIGLEX 62 (Quick Kick)—an amphibious brigade landing exercise. More than 40 ships, including *Independence* (CVA 62), *Randolph* (CVS 15), and amphibious assault ships *Okinawa* (LPH 3) and *Thetis Bay* (LPH 6), were scheduled to take part by November. On this date, the Atlantic Fleet publicly used the excuse that Hurricane Ella scattered ships to begin to reassign these forces to respond to the crisis.

20 OCTOBER • Commander in Chief Atlantic Fleet Adm. Robert L. Dennison ordered the A-5A Vigilantes of VAH-7 to transfer from *Enterprise* (CVAN 65) to NAS Sanford, Fla. Twenty-one A-4C Skyhawks of VMA-225 from MCAS Cherry Point, N.C., replaced them on board because they were more suitable for close air support. Cargo aircraft carried maintenance teams and equipment from ashore. On 5 December, these A-4Cs completed the first Marine squadron operations from a nuclear-powered carrier. In addition, *Enterprise* received orders to steam near 25°N,

75°W, and *Independence* (CVA 62) toward 23°10'N, 72°24'W. The next morning the carriers rendezvoused north of the Bahamas.

22 OCTOBER • Intelligence data that unveiled Soviet progress in Cuba and the transfer of arms via Eastern Bloc ships en route to the island prompted the Joint Chiefs to raise the U.S. defense posture from Defense Condition 5 to 3 for all forces worldwide at 1800 EDT—excluding forces in Europe that went to a precautionary stance. The Joint Chiefs of Staff issued the order prior to a televised speech by President John F. Kennedy. The president announced "unmistakable evidence" of the Soviet intrusion into Cuba and emphasized three strategic points: the imposition of a quarantine on all offensive military equipment en route to Cuba effective at 1000 EDT on 24 October; the continuation and increase of the close surveillance of Cuba; and a policy to regard any nuclear missile launched from Cuba against any nation in the Western Hemisphere as an attack by the Soviets on the United States. During the speech, submarines equipped with Polaris fleet ballistic missiles moved to their launch stations to supplement silo-launched intercontinental ballistic missiles and Strategic Air Command bombers.

23 OCTOBER • The first of three pairs of RF-8As of VFP-62 flew the initial mission of Operation Blue Moon—low-level reconnaissance flights over Cuba. Cmdr. William B. Ecker, squadron commanding officer, and Lt. C. Bruce Wilhelmy piloted two camera-equipped Crusaders during the flight from NAS Key West, Fla., over San Cristóbal. The jets completed the mission undamaged; however, Ecker received orders to personally brief at the Pentagon Chairman of the Joint Chiefs Gen. Maxwell D. Taylor, USA, Chief of Naval Operations Adm. George W. Anderson Jr., and Air Force Chief of Staff Gen. Curtis E. LeMay. Four RF-8As from VMCJ-2 together with USAF McDonnell RF-101C Voodoos and Douglas RB-66 Destroyers subsequently reinforced Blue Moon. Twelve sailors including Ecker and Wilhelmy and four Marines received the Distinguished Flying Cross. Through 15 November, aircraft of all the services made 158 low-level photo runs over Cuba.

24 OCTOBER • The blockade of Soviet offensive weapons into Cuba began. Task Force 136, Commander Second Fleet Vice Adm. Alfred G. Ward commanding, established patrol positions in a line designated Walnut to the east of Cuba beyond the known range of Soviet Ilyushin Il-28 Beagles flying from the island. Task Group 136.2, comprising at times *Essex* (CVS 9), *Randolph* (CVS 15), and *Wasp* (CVS 18), provided the principal operating forces. *Essex* operated 22 S-2D Trackers of VS-34 and -39, 14 SH-3A Sea Kings of HS-9, and one E-1B Tracer of VAW-12 Detachment 9. Eleven P-5B Marlins each of VP-45 and -49 of Task Group 81.5 patrolled to the north and east of 25°N, 65°W, and 11 P-2E Neptunes of VP-5 of Task Group 81.7 patrolled east of the quarantine line and south of 25°N. These planes proved crucial to the detection of Eastern Bloc ships and the verification of their cargoes. Commander in Chief Atlantic Fleet Adm. Robert L. Dennison later redesignated the blockade line Chestnut, moving the perimeter closer to Cuba to reduce the number of ships at sea.

24 OCTOBER • Commander NS Guantánamo Bay Rear Adm. Edward J. O'Donnell requested that Task Force 135 including *Enterprise* (CVAN 65) and *Independence* (CVA 62) alternate continuous early warning patrols over the Windward Passage and cover the U.S. enclave from a Cuban attack. *Enterprise* and *Independence* operated south of the Windward Passage between Cuba and Hispaniola and southward. Fleet Air Wing 11 and Marine Aircraft Group 26 deployed to NS Roosevelt Roads at Puerto Rico and to NS Guantánamo Bay, respectively, also supported these ships. Soviet threats against carriers sailing in Caribbean waters included four Foxtrot (Project 641)-class submarines, 3R9/10 Luna (Free Rocket Over Ground or FROG-3/5) tactical surface-to-surface rockets, FKR (*frontoviye krilatiye raketi*—frontal rocket) 1 Metors (SSC-2A Salishes), 12 P-6 Komar (Project 183-R)-class missile boats, up to 42 Ilyushin Il-28 Beagles, and MiG-21F Fishbed-Cs. Many of these were capable of being fitted with nuclear warheads.

24 OCTOBER • The P-2H Neptunes of VP-11 deployed to Argentia, Newfoundland, on 12 hours notice in response to the Cuban Missile Crisis. The squadron's planes completed 1,065 flying hours of surveillance flights through 14 November 1962.

27 OCTOBER • Senior Soviet commander in Cuba Gen. Issa A. Pliyev informed his superiors in Moscow that the SS-4 (R-12) Sandal medium-range ballistic missiles there had

become operational, despite heavy rain that delayed the completion of the final site. Pliyev stated his capability to send two salvoes of 36 missiles against the United States.

27 OCTOBER • Amphibious assault ship *Boxer* (LPH 4) embarked 20 UH-34D Seahorses of HMM-263, four CH-37C Mojaves, five OH-43Ds, and nine O-1 Bird Dogs at New River, N.C. The ship deployed with an additional 16 Seahorses to reinforce HMM-261 and -264, operating from amphibious assault ships *Okinawa* (LPH 3) and *Thetis Bay* (LPH 6), respectively, and sailed for Caribbean waters in response to the Cuban Missile Crisis. Also on this date, *Iwo Jima* (LPH 2) embarked HMM-361 and a detachment of VMO-6 and sailed from the Pacific Fleet via the Panama Canal, reaching the Caribbean in two weeks.

28 OCTOBER • Soviet Premier Nikita S. Khrushchëv accepted U.S. diplomatic overtures to end the Cuban Missile Crisis. Cuban leader Fidel R. Castro initially rejected the U.S. offer but subsequently consented to the agreement.

31 OCTOBER • Geodetic satellite Anna entered orbit from Cape Canaveral, Fla. The Department of Defense developed Anna under Bureau of Naval Weapons management. The satellite contained three independent sets of instrumentation to validate measurements taken by organizations participating in the Anna worldwide geodetic research and mapping program.

31 OCTOBER • By this point during the Cuban Missile Crisis, *Enterprise* (CVAN 65) steamed in a box within 60 miles of 18°N, 80°W.

5 NOVEMBER • Two MiG-21F Fishbeds attacked the two RF-8As Crusaders of VFP-62 comprising Flight 16 flying an Operation Blue Moon low-level reconnaissance mission eight miles west of Santa Clara, Cuba. The Crusaders turned and rolled into the MiGs for a head-on approach, then hit their afterburners and escaped six miles east of their point of entry over Cuba—the MiGs pursued for five minutes. The high combat air patrol observed the action but failed to intervene in time.

5 NOVEMBER • Two Marine helicopter squadrons began a transition training program in which 500 Marine aviators qualified in fixed-wing aircraft were to be trained to operate helicopters. The need for the special program arose from the increased proportion of helicopters in the Marine Corps together with an overall shortage of pilots and the inability of the Naval Air Training Command to absorb the additional training load within the time allotted.

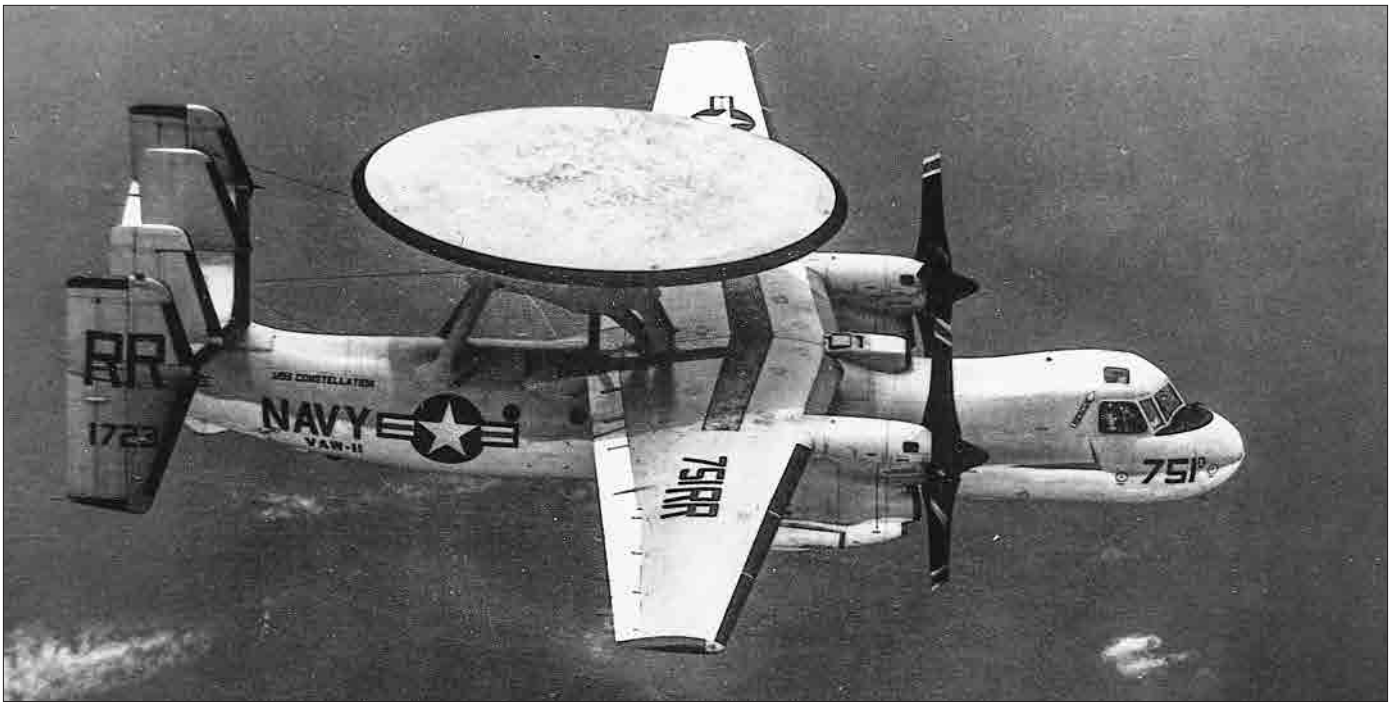
15 NOVEMBER • To date, naval aircraft flew 9,000 sorties during the Cuban Missile Crisis. Sixty-eight squadrons comprising 19,000 sailors participated, and each of the eight deployed carriers steamed at least 10,000 miles.

16 NOVEMBER • *Enterprise* (CVAN 65) and *Independence* (CVA 62) operated to 21 November in a rectangle formed by 18°10'N, 19°30'N, 77°W, and 80°W in response to the Cuban Missile Crisis. During this period the A-4C Skyhawks of VA-34 switched places with the Skyhawks of VA-64 from *Enterprise* onto *Independence*, and VA-64 embarked on board *Enterprise*. Helicopters lifted the balance of the men between the carriers.

16 NOVEMBER • *Saratoga* (CVA 60) began the Cuban Missile Crisis in overhaul at Norfolk Naval Shipyard, Va. On this date, she sailed 15 days ahead of schedule, and on 5 December relieved *Enterprise* (CVAN 65).

20 NOVEMBER • The Atlantic Fleet received direction to discontinue operations concerning the Cuban Missile Crisis, lift the quarantine, and return commands to normal tasks. The Soviets began to stand down their alerted forces. Through 20 December, *Enterprise* (CVAN 65) supported the defense of NS Guantánamo Bay, Cuba. A second carrier was to be ready in the Norfolk, Va., to Mayport, Fla., area against the requirement for sighting Soviet ships sailing from Cuban ports with Ilyushin Il-28 Beagles, and to support air strikes against Soviet and Cuban forces in Cuba in the event of an escalation of the crisis. By 2 December amphibious assault ships *Boxer* (LPH 4), *Okinawa* (LPH 3), and *Thetis Bay* (LPH 6) had returned to Norfolk. In addition, on 1 December *Iwo Jima* (LPH 2) sailed for the Pacific.

30 NOVEMBER • The Bureau of Naval Weapons issued a contract to Bell Aerosystems Company for the construction and flight test of two vertical takeoff and landing (VTOL) research aircraft with dual tandem-ducted propellers. The tri-service VTOL program thereby underwent expansion to include a tilting duct craft for development under Navy



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An E-2A Hawkeye airborne early warning aircraft of VAW-11 operates from *Constellation* (CVA 64) in 1966.

administration in addition to the tilting wing XC-142 and the tilting engine X-19A—both administered by the USAF.

1 DECEMBER • Fleet Air Caribbean and Naval Air Bases, Tenth Naval District, were established and assigned as additional duties to Commander, Caribbean Sea Frontier.

4 DECEMBER • The landing apparatus for the Apollo spacecraft failed during the first test of the program's main parachute system at NAF El Centro, Calif. One parachute failed to inflate fully, another disreefed prematurely, and the disreefing and inflation of the third canopy incurred a delay. The system experienced repeated malfunctions during subsequent testing before its final acceptance in the mid-1960s.

11 DECEMBER • The Department of Defense established a uniform system of designating, redesignating, and naming military rockets and guided missiles with combat or combat-related missions. Each new designation consisted of a combination of eight significant letters and numbers, in sequence of listing: status prefix symbol, launch environment symbol, mission symbol, type symbol, design number, series symbol, manufacturer's [two-letter] code, and serial number.

14 DECEMBER • The Naval Air Material Center at NAS Lakehurst, N.J., was renamed the Naval Air Engineering Center.

15 DECEMBER • In response to the Cuban Missile Crisis, *Enterprise* (CVAN 65) received orders to relieve *Lexington* (CVS 16), which had just completed her conversion from an attack to an antisubmarine carrier but still embarked fighters and bombers. From 30 November, *Lexington* had stayed in the United States on call for the crisis, but because of the conclusion of the confrontation, *Enterprise* did not return to war stations before the New Year.

18 DECEMBER • A four-stage Blue Scout missile launched Navy prototype operational navigation satellite Transit 5A into a polar orbit from Naval Missile Facility Point Arguello, Calif. The satellite's radio failed after 20 hours in orbit and prevented its use for navigation purposes, but certain secondary experiments proved successful.

19 DECEMBER • Lt. Cmdr. Lee M. Ramsey piloting an E-2A Hawkeye catapulted from *Enterprise* (CVAN 65) in the first shipboard test of nose tow gear designed to replace the catapult bridle and reduce launching intervals. A few minutes later Intruder No. 8, a YA-6A, BuNo 148618, followed Ramsey.

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An inert Walleye television-guided air-to-surface glide bomb with string tufts attached to its aft section is mounted on an A-6 Intruder for aerodynamic testing.

7 JANUARY • Helicopters from cruiser *Springfield* (CLG 7), NAS Port Lyautey, Morocco, and NS Rota, Spain, flew rescue and relief missions in the flooded areas of the Beth and Sebou Rivers in Morocco. Through 13 January, the aircraft delivered more than 45,000 pounds of food, medicine, and emergency supplies, and lifted 320 marooned people to safety.

21 JANUARY • Secretary of Defense Robert S. McNamara and NASA Administrator James E. Webb concluded a policy agreement defining the roles of the Department of Defense and NASA in Project Gemini. The agreement provided for the establishment of a joint Gemini Program Planning Board to plan experiments, conduct flight tests, and analyze and disseminate results.

29 JANUARY • A YA-4B released a Walleye television-guided air-to-surface glide bomb that made a direct impact on its target in the first demonstration of the system's automatic homing feature at NOTS China Lake, Calif.

9 FEBRUARY • The Secretary of the Navy approved with minor modification the recommendations of his Advisory Committee on the Review of the Management of the Department of the Navy, commonly known as the Dillon Board for its chairman John H. Dillon. The approval set into motion a series of changes in the lines of authority and responsibility for implementation during the year primarily outlined in a general order issued on 1 July 1963.

22 FEBRUARY • Cmdr. William H. Everett of VX-6 piloted an LC-130F Hercules in the longest Antarctic flight to date. Everett's flight covered 3,470 miles from McMurdo Station south beyond the South Pole to the Shackleton Mountain Range, and then to the pole of inaccessibility—the point on the Antarctic continent most distant from the Southern Ocean—returning to McMurdo in a total time of 10 hours, 40 minutes.

25 FEBRUARY • The United States restarted the transmitter in the Navy-developed Solar Radiation I satellite after 22 months of silence. On 22 June 1960, a Thor Able-Star missile had launched the 42-pound satellite with Transit 2A in the first of the pickaback firings. The device provided detailed data on solar storms for eight months before magnetic drag reduced the satellite's spin to a level too low for useful scanning of the sun. The satellite was shut down on 18 April 1961.

8 MARCH • The Department of Defense and NASA announced an agreement establishing working arrangements concerning the non-military applications of the Transit navigation satellite system. NASA assumed responsibility for determining the suitability of Transit equipment for nonmilitary purposes, while the Navy retained its responsibility for overall technical direction, and for research and development as necessary.

APRIL • Communist Pathet Lao insurgents inflicted a defeat on the royalist and neutral factions within Laos. At times, the Seventh Fleet deployed *Ranger* (CVA 61) and *Ticonderoga* (CVA 14) to the area. The signature of a cease fire later in the month enabled the carriers to depart on 5 May.

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With a centrifuge capable of producing accelerations up to 40g's and used for training the Mercury 7 astronauts, NADC Johnsville officially opened on 17 June 1952.

1 APRIL • To bring their title in line with their functions, replacement air groups (RAG) were redesignated combat readiness air groups (CRAG).

8 MAY • The USAF announced the addition of two squadrons of A-1Es to the 1st Air Commando Group at Hurlburt AFB, Fla. This decision followed field tests of two Skyraiders loaned by the Navy in mid-1962, and led in May 1964 to a further assessment released by the Secretary of the Air Force to deploy 75 Skyraiders to South Vietnam as replacements for B-26 Invaders and T-28 Trojans.

16 MAY • Capt. L. Gordon Cooper Jr., USAF, piloted space capsule *Faith 7* during the launch of Mercury-Atlas 9 from Cape Canaveral, Fla. *Faith 7* splashed down in the Pacific about 80 miles southeast of Midway Island, near 27°20'N, 176°26'W. After more than 34 hours and 22 orbits, the capsule impacted within 7,000 yards of primary recovery ship *Kearsarge* (CVS 33), which retrieved the spacecraft and the astronaut. Additional ships that supported the operation included *Wasp* (CVS 18) in the Atlantic.

12 JUNE • During testimony before the Senate Space Committee, NASA Administrator James E. Webb announced the conclusion of Project Mercury to focus resources on the Gemini and Apollo space programs.

13 JUNE • Lt. Cmdrs. Randall K. Billings and Robert S. Chew Jr., of NATC Patuxent River, Md., in an F-4A Phantom II and an F8D Crusader, respectively, made the first fully automatic carrier landings with production equipment on board *Midway* (CVA 41) off the coast of California. The pilots completed the landings "hands off" with both flight controls and throttles operated automatically by signals from the ship. The event highlighted almost ten years of research and development and followed by about six years the first such carrier landing made with test equipment.

20 JUNE • Pilot and instructor Lt. Phillip H. Flood and student Ens. Arnold J. Hupp of VT-31 marked the end of P-5s in the flight training program when they completed the last student training flight in a Marlin at NAS Corpus Christi, Texas.

29 JUNE • Fleet Air Wing 10 was established at NAS Moffett Field, Calif., Capt. John B. Honan commanding.

1 JULY • General Order No. 5 set forth new policies and principles governing the organization and administration of the Navy and directed their progressive implementation. The order redefined the principal parts of the Navy and added a Naval Military Support Establishment as a fourth part under a Chief of Naval Material, which was responsible directly to the Secretary of the Navy, and with command responsibilities over the four material bureaus and major project managers and an overall task of providing material support to the operating forces.

9 JULY • The Gemini Phase I Centrifuge Program began at the Naval Air Development Center Johnsville, Pa. The Aviation Medical Acceleration Laboratory centrifuge simulated the position of the command pilot in the Gemini spacecraft. The engineering evaluation concluded on 2 August and pilot familiarization occurred between 16 July and 17 August.

15 JULY • NASA's Manned Spacecraft Center announced it had received 271 applications for the astronaut program. Military applicants numbered 71—34 Navy, ten Marine, 26 Air Force, and one Army. Women comprised three of the 200 civilian aspirants.

1 AUGUST • VMF(AW) squadrons equipped with F-4B Phantom IIs were redesignated VMFA.

2 AUGUST • Lt. Roger Bellnap piloted an F-3B during the first of a series of five planned space probes designed to measure the ultraviolet radiation of the stars. The Demon launched a two-stage, solid-propellant Sparoair from a nearly vertical attitude at 30,000 feet over the Pacific Missile Range, and the probe reached a peak altitude of 66 miles.

23 AUGUST • Cmdr. John F. Barlow of VAH-11 piloted an A-3B Skywarrior in a joint Weather Bureau–Navy project entitled Stormfury, seeding Hurricane Beulah with silver iodide particles over a period of two days in an experiment to determine the potential of changing the energy patterns of large storms. The seedings the following day appeared to have some effect, but the indefinite results precluded firm conclusions.

6 SEPTEMBER • Five SH-3A Sea Kings of HS-9 operating from NAS Quonset Point, R.I., rescued 28 workmen from two offshore oil drilling platforms shaken by gales and heavy seas off Cape Cod, Mass.

8 SEPTEMBER • The 16 NASA astronauts selected for the manned space program began training in water and land parachute landings. The possibility of low-level aborts below 70,000 feet requiring the pilots to eject from the spacecraft drove the training. A towed 24-foot diameter parasail carried the men to altitudes up to 400 feet before the release of the towline enabled the astronauts to glide to their landings.

18 SEPTEMBER • To provide the continuing action necessary for effective management of the inactive aircraft inventory, an informal review board was established with representation from the Chief of Naval Operations, Bureau of Naval Weapons, Aviation Supply Office, and the storage facility at Litchfield Park, Arizona. The board was to review the aircraft inventory at least every six months for the purpose of recommending the retention or disposal of specific models.

18 OCTOBER • NASA announced the selection of 14 additional astronauts including five naval aviators—Lt. Cmdrs. Richard F. Gordon Jr. and Roger B. Chaffee, Lts. Alan L. Bean and Eugene A. Cernan, and Capt. Clifton C. Williams, USMC.

25 OCTOBER • After nearly two weeks of relief operations in the wake of Hurricane Flora, Navy ships began to sail from Port-au-Prince, Haiti. Four vessels, including *Lake Champlain* (CVS 39) and amphibious assault ship *Thetis*

Bay (LPH 6), aided by Navy and Marine cargo aircraft flying from East Coast stations, delivered nearly 375 tons of food, clothing, and medical supplies donated by relief agencies.

26 OCTOBER • Submarine *Andrew Jackson* (SSBN 619) completed the first underwater launch of a Polaris A-3 fleet ballistic missile from a position about 30 miles off Cape Canaveral, Fla.

30 OCTOBER • Pilot Lt. James H. Flatley III and copilot Lt. Cmdr. Walter W. Stovall of NATC Patuxent River, Md., and flight engineer AD1 Ed Brennan of VR-1 completed the first of three separate shipboard evaluations of a Marine KC-130F, BuNo 149798, on board *Forrestal* (CVA 59). At times Lockheed-Marietta test pilot Ted H. Limmer Jr. joined the crew of the Hercules. Flatley made a total of 29 touch-and-go landings and 21 full-stop landings and takeoffs on this date and 8, 21, and 22 November. He later received the Distinguished Flying Cross. The Navy concluded that C-130s could carry 25,000 pounds of cargo and people 2,500 miles and land on a carrier, but considered the large planes too risky for use in COD operations.

12 NOVEMBER • Fifteen astronauts commenced a helicopter flight familiarization program at NAS Ellyson Field, Fla., as a phase of their training for lunar landings. The Navy instituted the program at the request of NASA to simulate the operation of the Project Apollo Lunar Excursion Module. The training consisted of a series of two-week courses for two students, with the final pair completing the program on 1 April 1964.

30 NOVEMBER • Secretary of Defense Paul H. Nitze approved the use of funds effective on 1 July 1964 for the purpose of placing naval aviation observers in the same pay status as pilots.

2 DECEMBER • The Chief of Naval Material reported to the Secretary of the Navy for duty as his assistant for Naval Material Support and assumed supervision and command of the four material bureaus: Naval Weapons, Ships, Supplies and Accounts, and Yards and Docks.

6 DECEMBER • A Thor Able-Star missile launched Transit 5BN-2 into polar orbit from Vandenberg AFB, Calif. The launch marked the first operational status of a navigation satellite, providing data for use by ships and submarines.

16 DECEMBER • Phase I of the Apollo Manned Centrifuge Program began at the Navy Aerospace Medical Acceleration Laboratory, Philadelphia, Pa. The testing revealed interface problems between the couch, suit, and astronaut, and concluded on 15 January 1964.

20 DECEMBER • Carrier air groups (CVG) were redesignated carrier air wings (CVW).

21 DECEMBER • *Saratoga* (CVA 60), while moored at NS Mayport, Fla., began to receive weather pictures from weather satellite Tiros 8. This began an operational investigation of shipborne readout equipment in which *Saratoga* continued to receive test readings from Tiros 8 in port and at sea through May 1964 and, in September 1964, from experimental weather satellite Nimbus.

1964

1 JANUARY • Fleet Air Wings, Pacific, was established, Rear Adm. David J. Welsh commanding.

1 JANUARY • *Duxbury Bay* (AVP 38), *Greenwich Bay* (AVP 41), and *Valcour* (AVP 55) were transferred to Cruiser-Destroyer Force Atlantic. The employment of these last three seaplane tenders in service under Commander, Naval Air, Atlantic, had been secondary to their use as flagships for Commander, Middle East Force, for several years, but this transfer completed the phase-out of patrol seaplane operations in the Atlantic Fleet.

15 JANUARY • Fleet Air Southwest Pacific and Fleet Air Japan were disestablished.

15 JANUARY • Carrier Division 15, 17, and 19 were redesignated Anti-Submarine Warfare Group 1, 3, and 5, respectively, and transferred from Commander, Naval Air, Pacific to Commander, Anti-Submarine Warfare Force, Pacific for administrative control. The new groups' mission was the development of antisubmarine carrier

group tactics, doctrine, and operating procedures including coordination with patrol aircraft operations.

17 FEBRUARY • The Office of Anti-Submarine Warfare Programs was established under Chief of Naval Operations to exercise centralized supervision and coordination of all antisubmarine warfare planning, programming, and appraising.

NH 69967

The P-3A Orion antisubmarine patrol plane is a derivative of the Lockheed L-188 Electra passenger airliner.

28 FEBRUARY • During combat store ship *Mars* (AFS 1) shakedown cruise off San Diego, Calif., Cmdr. Dale W. Fisher of HU-1 piloted the first helicopter to land on her deck. Discussions and testing of the concept of vertical replenishment at sea began in 1959 and certain supply ships had received helicopter platforms, but the commissioning of *Mars* provided the first genuine opportunity to incorporate helicopters into the fleet logistic support system.

9 MARCH • The David Taylor Model Basin Aerodynamics Laboratory commemorated the 50th anniversary of its establishment. The laboratory had been created at the Washington Navy Yard, D.C., but in 1944 shifted to Carderock, Md. Aerodynamics authority Capt. Walter S. Diehl (Ret.) received a citation for his contributions to the laboratory's work.

13 MARCH • Heavy attack squadrons (VAH) 3, 5, and 9 were redesignated reconnaissance attack squadrons (RVAH). In addition, VAH-1 was redesignated RVAH-1 on 1 September 1964. The decision also marked the assignment of RA-5C Vigilantes to RVAHs.

23 MARCH • Two VMO-1 OH-43Ds rescued 11 ill and injured members of a road engineering party that had escaped attacks by hostile natives in the dense jungle of the Amazon basin near Iquitos, Peru. Amphibious assault ship *Guadalcanal* (LPH 7) transferred the Marine aircraft ashore in the Panama Canal Zone, and a USAF C-130 Hercules airlifted the helicopters to Iquitos.

28 MARCH • An earthquake of such force that seismic experts identified the incident as a megathrust earthquake rocked Alaska. The quake and consequent tsunamis along the Pacific coast from Alaska to Oregon devastated Anchorage, killing at least 131 people. Within five hours, seaplane tender *Salisbury Sound* (AV 13) sailed from NAS Whidbey Island, Wash., to provide 14 days of power and heat to severely damaged NS Kodiak. Crewmembers also helped victims ashore. In addition, P-3A Orions and C-54 Skymasters deployed from NAS Moffett Field, Calif., transported emergency supplies.

19 APRIL • After an abortive rightist coup against the Laotian government, the communist Pathet Lao launched a series of raids targeting royalist outposts on the Plaine Des Jarres. *Kitty Hawk* (CVA 63) steamed to a position in the South China Sea and, on 18 May, her aircraft began to fly low-level reconnaissance missions over Laos. Three days later, the Navy also initiated a standing carrier presence at Point Yankee, later redesignated Yankee Station—the northernmost area in the Gulf of Tonkin from which carriers operated during the fighting in Southeast Asia. During 130 low-level sorties over the country through 8 June, these aircraft provided verifiable evidence of the North Vietnamese infiltration into Laos.

23 APRIL • The Chief of Naval Operations broadened the opportunities for naval aviators to qualify as helicopter pilots by extending the responsibilities for their transition training to commands outside the Flight Training Command.

1 MAY • Capt. Paul L. Ruehrmund of VX-1 completed an 18-day, 26,550-nautical-mile trans-global flight piloting a P-3A Orion to NAS Key West, Fla. On an overwater leg of the flight the aircraft dropped explosive sound devices to assist scientists from Naval Ordnance Laboratory in their study of the sea's acoustical properties as a medium for long distance sound transmission.

2 MAY • People's Liberation Armed Forces (Viet Cong) sappers detonated a mine against aircraft ferry *Card* (AKV 40) at Saigon, South Vietnam. The ship settled, but subsequently underwent salvage and repair.

7 MAY • The Chief of Naval Operations informed the chief of Naval Personnel of an agreement by which the Air Force and Coast Guard were to train Navy pilots in the techniques of operating HU-16 Albatross amphibious flying boats in search and rescue and requested its implementation.

6 JUNE • Pathet Lao machine gun and 37mm antiaircraft fire shot down Lt. Charles F. Klusmann of VFP-63 Detachment C, while he flew an RF-8A, BuNo 146823, from *Kitty Hawk* (CVA 63) during a reconnaissance mission about ten miles south near Xiengkhouang, east of the Plaine Des Jarres, Laos. Klusmann ejected, but incurred injuries and became the first naval aviator captured by the communists during the war in Southeast Asia. The enemy held him for 86 days before he escaped. On 1 September, an Air America (an "air proprietary" owned and operated by the CIA) Pilatus PC-6A Turbo Porter operating from Udorn Royal Thai AFB, Thailand, rescued him from Baum Long. Klusmann received the Distinguished Flying Cross.

24 JUNE • PHC Clara B. Johnson of VU-7 received the designation of aerial photographer, the first woman in the Navy with the right to wear the wings of an aircrewman.

26 JUNE • Lt. Robert V. Mayer of VX-6 completed a round-trip flight in an LC-130F Hercules from Christchurch, New Zealand, to McMurdo Sound, Antarctica, in the emergency evacuation of BU1 Bethel L. McMullen after the sailor's critical injury in a fall. Two of the transports carried a medical specialist team from NAS Quonset Point, R.I., and one Hercules stood by at Christchurch while the other made the flight.

29 JUNE • The issuance of a new specification for the color of naval aircraft changed the color scheme for patrol aircraft assigned to antisubmarine work to Gull Gray with Insignia White upper fuselage.

1 JULY • The Navy transferred the Pacific Missile Range facilities at Point Arguello, Calif., and on Kwajalein Atoll to USAF and Army command, respectively.

31 JULY • Nuclear Task Force 1 consisting of *Enterprise* (CVAN 65), cruiser *Long Beach* (CGN 9), and frigate *Bainbridge* (DLGN 25) began Operation Sea Orbit—a global circumnavigation by the world's first task force composed entirely of nuclear-powered ships. The goal was to test the ability of these vessels to maintain high speeds for a long voyage in all types of weather and seas without refueling or replenishing. The ships passed from the Mediterranean through the Strait of Gibraltar, sailed down the coast of West Africa, crossed the Indian Ocean and then the South Pacific, and transited up the east coast of South America. On 3 October, *Enterprise* and *Long Beach* arrived at NS Norfolk, Va., and *Bainbridge* reached Charleston, S.C. *Enterprise*—in coincidence with her hull number—completed the 30,216-nautical-mile global voyage in 65 days.

2 AUGUST • Three North Vietnamese motor torpedo boats attacked destroyer *Maddox* (DD 731) in the Gulf of Tonkin. The destroyer returned fire hitting all three. F-8E Crusaders from *Ticonderoga* (CVA 14) strafed all three, leaving one on fire and dead in the water. Commander in Chief Pacific Fleet Adm. Ulysses S. G. Sharp Jr. ordered destroyer *Turner Joy* (DD 951) to close *Maddox* but the North Vietnamese disengaged. On the night of 4 August, *Maddox* and *Turner Joy* detected apparent multiple radar contacts inbound. Despite heavy seas and a moonless and overcast night, lookouts on board *Turner Joy* believed they spotted two torpedo wakes. More recent analysis of the data and additional information now makes it clear that North Vietnamese naval forces did not attack *Maddox* and *Turner Joy* that night.

On 5 August, Operation Pierce Arrow began—retaliatory carrier strikes ordered by President Lyndon B. Johnson. *Constellation* (CVA 64) and *Ticonderoga* launched 64 sorties against vessels and facilities along the North Vietnamese coast at Bai Chay, Cua Hoi, Gianh River, and Lach Truong, and petroleum-oil-lubricants storage areas at Vinh. The attacks sank or damaged an

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Enterprise (CVAN 65), cruiser *Long Beach* (CGN 9), and frigate *Bainbridge* (DLGN 25) complete the first global circumnavigation by nuclear-powered ships during Operation Sea Orbit, 1964.

estimated 25 vessels and destroyed petroleum stores and storage facilities. Antiaircraft fire shot down two *Constellation* aircraft over Hon Gai. Lt. j.g. Everett Alvarez Jr. of VA-144 was captured after ejecting from his A-4C, while Lt. j.g. R. C. Sather died in the crash of his VA-145 A-1H. These clashes led to the Joint Congressional Resolution of 7 August 1964, known as the Tonkin Gulf Resolution, approving the U.S. actions and escalating U.S. involvement in Southeast Asia.

15 AUGUST • President Lyndon B. Johnson announced the existence of a program to develop a counterinsurgency airplane. The Navy functioned as the designated Department of Defense development agency and selected North American Rockwell Corporation as the contractor for the construction of a prototype. The aircraft later was designated OV-10A Bronco.

29 AUGUST • Amphibious assault ship *Boxer* (LPH 4) and two dock landing ships arrived off the coast of Hispaniola to provide medical aid and helicopter evacuation to people in areas of Haiti and the Dominican Republic that had been damaged by Hurricane Cleo.

28 SEPTEMBER • Polaris A-3 fleet ballistic missiles became operational when submarine *Daniel Webster* (SSBN 626) sailed with a full load of the weapons from NWS Charleston, S.C.

30 SEPTEMBER • Three ski-equipped LC-130 Hercules of VX-6 flew individually from Melbourne, Australia; Christchurch, New Zealand; and Punta Arenas, Chile; to Williams Field, McMurdo Sound, Antarctica. The flight from Melbourne passed over the South Pole to drop a 50-pound sack of mail to a wintering party there and landed at Byrd Station before proceeding to McMurdo Sound. On 1 October, the arrival of Commander Naval Support Forces Antarctica Rear Adm. James R. Reedy on this flight marked the opening of Operation Deep Freeze 1965—the Navy's postwar support of Antarctic research.

1 OCTOBER • *Franklin* (AVT 8) became the first *Essex* (CV 9)-class carrier to be labeled unfit for further service and stricken from the Naval Vessel Register.

4 NOVEMBER • Typhoon Iris caused extensive flooding in South Vietnam and Typhoon Joan followed shortly thereafter.

The two storms collectively devastated the provinces of Binh Dinh, Quang Ngai, and Quang Tri, rendering an estimated one million people homeless. On 17 November, UH-34D Seahorses of HMM-162, embarked on board amphibious assault ship *Princeton* (LPH 5), supported relief efforts when they began the delivery of 1,300 tons of food and clothing to storm victims.

26 NOVEMBER • Nine helicopters of HU-2 and four from NAS Lakehurst, N.J., assisted the Coast Guard in the rescue of 17 men from Norwegian tanker *Stolt Dagali*, after a collision with Israeli liner *Shalom* cut the tanker in two off the New Jersey coast.

14 DECEMBER • The United States began Operation Barrel Roll—ground support and interdiction missions to offset tactical disadvantages on the ground in northern Laos. The theater was later divided into zones A, B, and C (from north to south), but United States and Laotian restrictions initially limited Barrel Roll strike missions to no more than four aircraft per raid, a wait of at least three days between strikes, prohibited bombing targets within two miles of the North Vietnamese border, and forbidden to fly from Thai airfields.

17 DECEMBER • Cmdr. Theodore G. Ellyson (Naval Aviator No. 1) became the first naval officer enshrined in the National Aviation Hall of Fame, Dayton, Ohio.

1965

1 JANUARY • All naval air base commands were disestablished in accordance with the provision of general orders prescribing the organization and administration of the Navy.

12 JANUARY • The Department of Defense announced the operational use of the all-weather Transit navigation satellite system since July 1964. The complete development of the system was to consist of four satellites in polar orbit to provide a ship at the equator with a navigational fix once an hour.

19 JANUARY • Unmanned space capsule Gemini 2 launched from John F. Kennedy Space Center, Fla. The suborbital mission's objectives included an evaluation of the adequacy of the reentry module's heat protection during a maximum heating-rate reentry. The capsule splashed down in the Atlantic within 23 miles of *Lake Champlain* (CVS 39), which recovered the spacecraft.

7 FEBRUARY • On 1 November 1964, communist People's Liberation Armed Forces (Viet Cong) insurgents attacked U.S. compounds at Bien Hoa near Saigon, South Vietnam, and on this date at Pleiku in the Central Highlands, followed three days later by an attack on Qui Nhon. From 7 through 9 and on 11 February, the United States carried out retaliatory Operations Flaming Dart I and II. *Hancock* (CVA 19), *Coral Sea* (CVA 43), and *Ranger* (CVA 61) launched strikes against military barracks and staging areas in the southern part of North Vietnam at Dong Hoi, Chanh Hoa, Chap Le, Vit Thu Lu, and Vu Con, and against port facilities at Dong Hoi.

8 FEBRUARY • The title and designation of naval aviation observer, 135X, was changed to naval flight officer, 132X, to be effective on 1 May.

6 MARCH • Cmdr. James R. Williford III piloted an SH-3A Sea King from *Hornet* (CVS 12) berthed at NAS North Island, Calif., and 15 hours, 51 minutes later landed on board *Franklin D. Roosevelt* (CVA 42) at sea off NS Mayport, Fla. The flight surpassed the existing distance record for helicopters by more than 700 miles.

8 MARCH • The Seventh Fleet landed about 3,500 Marines of the 9th Marine Amphibious Brigade including a helicopter squadron without opposition at Da Nang AB, South Vietnam. The Marines deployed to protect the airfield.

12 MARCH • Four enlisted men completed 24 days of living in a rotating room in a test conducted by the Naval School of Aviation Medicine, NAS Pensacola, Fla. The goals of the experiment included a determination of the spinning rate men could endure without discomfort, and checking procedures for conditioning the sailors for space flight.

23 MARCH • Gemini 3 space capsule *Molly Brown* crewed by Maj. Virgil I. Grissom, USAF, and Lt. Cmdr. John W. Young launched from John F. Kennedy Space Center, Fla. The major objectives of the mission included an evaluation of the Gemini spacecraft in manned orbital flight. The capsule splashed down in the Atlantic east of Bermuda

near 22°26'N, 70°51'W within 60 nautical miles of primary recovery ship *Intrepid* (CVS 11). A Coast Guard helicopter spotted the spacecraft, and pilot Lt. Cmdr. Warren H. Winchester, copilot Lt. j.g. James R. Walker, and aircrewmen AX3 J. D. Hightower and J. A. Kerivan of HS-3 picked up Grissom and Young in SH-3A, Aircraft No. 57, and delivered them to the carrier. *Intrepid* hoisted *Molly Brown* on board and later returned the astronauts and the spacecraft to the space center.

26 MARCH • Seventh Fleet aircraft began their participation in Operation Rolling Thunder—the systematic bombing of military targets throughout North Vietnam. President Lyndon B. Johnson initially directed the goals of the campaign to convince the North Vietnamese to cease their support of communist insurgents in South Vietnam, Cambodia, and Laos; however, the bombing subsequently shifted to attacks against enemy lines of communication to reduce the flood of troops and supplies into those countries. Planners numbered the raids sequentially. On this date, *Hancock* (CVA 19) and *Coral Sea* (CVA 43) launched strikes on island and coastal radar stations in the vicinity of Vinh Son, North Vietnam.

3 APRIL • The U.S. began Steel Tiger—a program to cut communist infiltration through the south-central Laotian panhandle near the North Vietnamese border and into northern South Vietnam. The harsh mountain terrain restricted vehicles to one of several passes including Ban Karai, Ban Raving, and Mu Gia, and air strikes initially focused on closing those gateways. Road watch teams on the ground alerted aircraft to targets and discerned a pattern of enemy truck shuttles. After several incidents where aircraft bombed allied Laotian troops because of communication and identification errors, orders restricted aerial attacks to "clearly identifiable" convoys, vehicles, and troops within 200 yards of either side of roads. The Steel Tiger area of operations was later divided into zones D, E, F, and G (from north to south). Allied aircraft flew a total of 43,860 Steel Tiger sorties.

10 APRIL • The deployment of Marine fixed-wing combat aircraft to South Vietnam commenced with the arrival of VMFA-531 F-4B Phantom IIs at Da Nang AB.

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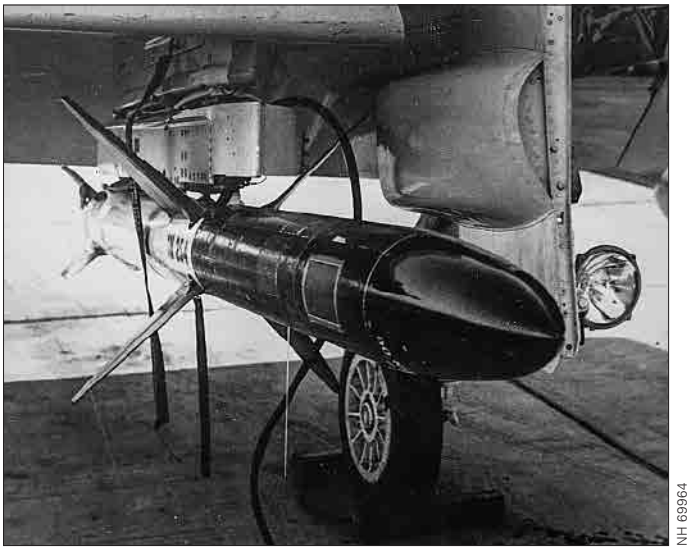
A C-2 Greyhound makes a carrier onboard delivery to *Kitty Hawk* (CVA 63) in Vietnamese waters.



NH 69964

The AGM-45 Shrike antiradar air-to-ground missile is a development of a modified AIM-7 Sparrow. The program began in 1963.

15 APRIL • Seventh Fleet carrier aircraft supported allied troops fighting in South Vietnam with a strike against People's Liberation Armed Forces positions near Black Virgin Mountain. To carry out additional raids into the country, on 16 May 1965, the Navy established Dixie Station about 100 miles southeast of Cam Ranh Bay, South Vietnam. An average of one carrier normally operated there through 4 August 1966, when the expansion of land-based air support provided most of the required air attacks in that area. Dixie nonetheless continued to support operations across South Vietnam because the enemy did not initially develop extensive air defenses there.

4710124

A Mk 11 20mm gun pod is mounted onto an A4D-2 Skyhawk at the 1958 Naval Air Weapons Meet in El Centro, Calif., during the weapon's test phase by the Naval Aviation Ordnance Test Station in Chincoteague, Va.

NH 69956

Navy bombers firing AGM-12 Bullpup air-to-ground missiles knock down a span of the North Vietnamese highway bridge at Xom Ca Trang, 16 April 1965.

19 APRIL • Six Navy and two Marine Corps pilots emerged from two sealed chambers at the Aerospace Crew Equipment Laboratory, Philadelphia, Pa., after a 34-day test to learn the physical effects of prolonged stays in confined quarters with a low-pressure pure oxygen atmosphere.

24 APRIL • A revolt in the Dominican Republic threatened the safety of Americans there. Vessels that responded included amphibious assault ships *Okinawa* (LPH 3), *Boxer* (LPH 4), and *Guadalcanal* (LPH 7), and amphibious transport dock *Raleigh* (LPD 1). Into mid-June, Marines established perimeters ashore while 20 HMM-264 UH-34D Seahorses and two UH-1E Iroquois flying from *Boxer*; and 20 HMM-263 Seahorses, two VMO-1 Iroquois, and two HMM-161 CH-37C Mojaves operating from *Okinawa*; proved instrumental in evacuating more than 1,000 people.

1 MAY • Through 2 May, amphibious assault ship *Iwo Jima* (LPH 2) offloaded 77 Army helicopters, about 850 soldiers, tanker trucks, and other vehicles at Vung Tau, South Vietnam.

10 MAY • Tank landing ship *Tioga County* (LST 1158) fired a surface-to-air version of an AIM-7 Sparrow III air-to-air missile designated Seaspar in the Pacific Missile Range test area, during the first shipboard test of the weapon.

12 MAY • Amphibious assault ship *Iwo Jima* (LPH 2), with HMM-161 UH-34D Seahorses embarked, supported Marines and Seabees during the establishment of an airfield capable of accommodating jets at Chu Lai, 52 miles south of Da Nang AB, South Vietnam. *Iwo Jima* then disembarked the squadron to Hué-Phu Bai and, on 12 June, sailed for Subic Bay, Philippines.

18 MAY • Members of the Naval Air Reserve began a volunteer airlift supporting operations in South Vietnam. These sailors operated Reserve C-54 Skymasters and C-118 Liftmasters carrying personnel and urgently needed cargo to the fighting on weekend and other training flights from their home stations to the West Coast, Hawaii, and Southeast Asia. These airlifts logged more than 19,000 flight hours during the first 18 months of the operation.

1 JUNE • The arrival of the first aircraft and the departure of the first combat missions opened operations at the Marine airfield at Chu Lai, South Vietnam.

3 JUNE • Gemini IV crewed by Maj. James A. McDivitt, USAF, and Maj. Edward H. White II, USAF, launched from John F. Kennedy Space Center, Fla. The major objectives of the mission included the evaluation of the performance of spacecraft systems in a long endurance flight and the effects on the crew of prolonged exposure to the space environment. On 7 June, the capsule splashed down in the Atlantic about 450 miles east of Cape Canaveral, Fla., near 27°44'N, 74°14'W.

1047141

Independence (CVA 62), her flight deck packed with aircraft, refuels during the Vietnam War.

The landing occurred off target about 48 nautical miles of primary recovery ship *Wasp* (CVS 18). Pilot Cmdr. Clarence O. Fiske, squadron commanding officer, and Navy swimmers Lt. j.g. Martin Every, Neil G. Dow, and Everett W. Owl of HS-11 manned the SH-3A Sea King that recovered the astronauts.

10 JUNE • The Naval Air Crew Equipment Laboratory began a study of several physiological aspects of pure-oxygen environments for the space program, including a determination of the possible reversal of lung collapse and the space environment effect upon the enhancement of respiratory infections. The testing concluded on 17 June.

17 JUNE • While escorting a strike against North Vietnamese barracks at Gen Phu, two F-4Bs crewed by pilot Cmdr. Louis C. Page and radar intercept officer (RIO) Lt. John C. Smith Jr., and pilot Lt. Jack E. D. Batson Jr. and RIO Lt. Cmdr. Robert B. Doremus, of VF-21 operating from *Midway* (CVA 41), scored the first U.S. victories against MiGs during the Vietnam War. Each crew shot down one of four MiG-17 Frescoes with AIM-7 Sparrow air-to-air missiles.

17 JUNE • *Independence* (CVA 62) arrived at Subic Bay, Philippines, after a voyage from the Atlantic Fleet around the tip of Africa. *Independence* became the fifth attack carrier operating off Vietnam.

20 JUNE • Two North Vietnamese MiG-17s attacked a flight of four VA-25 A-1H Skyraiders operating from *Midway* (CVA 41) over North Vietnam. Two of the Skyraiders, piloted by Lt. Clinton B. Johnson and Lt. j.g. Charles W. Hartman III, shot down one of the Frescoes with 20mm guns. Johnson and Hartman each received the Silver Star.

23 JUNE • In an unusual mission for a seaplane tender, *Currituck* (AV 7) carried out a shore bombardment of People's Liberation Armed Forces positions in the Mekong Delta, South Vietnam.

30 JUNE • The Pacific extension of the Dew Line national early warning system ceased to operate seven years after its establishment, and Barrier Force, Pacific, and Airborne Early Warning Barrier Squadron, Pacific, went out of existence.

1 JULY • Fleet Air Wing 8, Capt. David C. Kendrick commanding, was established at NAS Moffett Field, Calif.

1 JULY • The Navy's first Oceanographic Air Survey Unit, Cmdr. Harold R. Hutchinson commanding, was established at NAS Patuxent River, Md. Its tasks included aerial ice reconnaissance in the North Atlantic and polar areas and Project Magnet, aerial operations concerned with worldwide magnetic collection and observation.

1 JULY • Helicopter utility squadrons (HU) were redesignated helicopter combat support squadrons (HC), and utility squadrons (VU) were redesignated fleet composite squadrons (VC), as more representative of their functions and composition.

14 JULY • *Yorktown* (CVS 10) sailed on a turnaround trip to deliver urgently needed materials to allied forces fighting in South Vietnam from San Diego, Calif., for Subic Bay, Philippines.

18 AUGUST • Marine aircraft and naval gunfire supported Operation Starlite—amphibious and heliborne landings by elements of the 3d, 4th, and 7th Marines against the People's Liberation Armed Forces (PLAF) on the Van Tuong Peninsula, 14 miles south of Chu Lai, South Vietnam. The assault drove the bulk of the PLAF's 1st Regiment from the area.

21 AUGUST • Gemini V, crewed by Maj. L. Gordon Cooper Jr., USAF, and Lt. Cmdr. Charles Conrad Jr., launched from John F. Kennedy Space Center, Fla. The major objectives of the mission included an evaluation of the rendezvous guidance and navigation system. On 29 August the capsule splashed down in the Atlantic at 29°47'N, 69°4'W. The impact occurred within 89 miles of primary recovery ship *Lake Champlain* (CVS 39) because of incorrect navigation coordinates transmitted to the spacecraft. Navy swimmers assisted the astronauts, a helicopter returned Cooper and Conrad to *Lake Champlain*, and the ship recovered the capsule.

26 AUGUST • The barrier air patrol over the North Atlantic ended when a VW-11 EC-121J Warning Star landed at NAS Keflavik, Iceland. This also signaled a change in which a new and advanced radar system took over from naval aircraft that had maintained vigil over the northern approaches to North America for ten years.

31 AUGUST • President Lyndon B. Johnson approved a policy on the promotion and decoration of astronauts by which each military astronaut was to receive, upon the completion of his first space flight, a one-grade promotion up to and including captain in the Navy and colonel in the USAF and Marine Corps. Gemini astronauts that completed a successful space flight were to receive the NASA Medal for Exceptional Service (or cluster).

1 SEPTEMBER • In accord with the provision of an act of Congress, the Secretary of the Navy authorized additional pay to flight deck sailors for duty performed in the hazardous environment of flight operations on the decks of attack and antisubmarine carriers.

9 SEPTEMBER • Cmdr. James B. Stockdale, commander of Carrier Air Wing 16, embarked on board *Oriskany* (CVA 34), was shot down in Old Salt 352, an A-4E Skyhawk, BuNo. 151134, by automatic weapons fire after completing a Snakeye bombing attack against a group of railroad cars south of Thanh Hoa, North Vietnam. Stockdale endured captivity until his release on 12 February 1973. The naval aviator designed a prisoner communication system and a set of rules, which gave his fellow prisoners strength and hope. Vice Adm. Stockdale (Ret.) died on 5 July 2005 of Alzheimer's disease at his home in Coronado, Calif. His decorations include the Medal of Honor, two Distinguished Flying Crosses, two Purple Hearts, and four Silver Stars.

11 SEPTEMBER • Amphibious assault ship *Boxer* (LPH 4) delivered aircraft and soldiers of the Army's 1st Cavalry Division (Airmobile) to Qui Nhon, South Vietnam, after a voyage via the Suez Canal from NS Mayport, Fla.

S54231-A

A CH-53A Sea Stallion of HMM-361, MAG-16, delivers a 105mm field howitzer to Marines ten miles south of Chu Lai, South Vietnam, 18 August 1965.

24 SEPTEMBER • A flag officer was designated Chief of Naval Operations representative and Navy deputy to the Department of Defense Manager for Manned Space Flight Support Operations because the accelerated frequency of manned space flights placed increasing demands upon Navy recovery capabilities. The assignment comprised additional duty as Commander, Manned Space Recovery Force, Atlantic, and tasking included the coordination and consolidation of operational requirements with all of the commands providing Navy resources in support of manned space flights.

14 OCTOBER • The 1,200-nautical-mile range Polaris A-1 fleet ballistic missile was retired from service when submarine *Abraham Lincoln* (SSBN 602) returned to the United States for overhaul and refitting with 2,500-nautical-mile range Polaris A-3s.

15 OCTOBER • To expand Pacific airlift capabilities, VR-22 shifted from NAS Norfolk, Va., to NAS Moffett Field, Calif.

17 OCTOBER • A VA-75 A-6A Intruder and four A-4E Skyhawks flying from *Independence* (CVA 62) knocked out a North Vietnamese surface-to-air missile site near Kep during the first successful naval air strike against air defense missiles in that country.

25 OCTOBER • The ships that supported the planned launch of Capt. Walter M. Schirra Jr. and Maj. Thomas P. Stafford, USAF, in Gemini VI included *Wasp* (CVS 18) in the Atlantic. NASA scrubbed the mission because of the catastrophic failure of the Gemini Agena 5002 target vehicle.

28 OCTOBER • The People's Liberation Armed Forces attacked the sailors and Marines at the Marble Mountain Air Facility, South Vietnam, destroying six UH-34D Seahorses and 13 UH-1E Iroquois, and damaging 26 Seahorses and four Iroquois.

2 DECEMBER • Twenty-one F-4B Phantom IIs and A-4C Skyhawks launched from *Enterprise* (CVAN 65) against People's Liberation Armed Forces installations near Bien Hoa, South Vietnam, on the first combat strikes from the ship and the first from a nuclear-powered carrier. Aircraft operating from the carrier completed 125 strike sorties and unloaded 167 tons of bombs and rockets on the enemy, and flew 131 sorties the following day.

4 DECEMBER • Gemini VII, crewed by Lt. Col. Frank Borman, USAF, and Cmdr. James A. Lovell Jr., launched from John F. Kennedy Space Center, Fla. The mission accomplished the major objectives of a demonstration of manned orbital flight and an evaluation of the effects of prolonged exposure to the space environment on the astronauts. On 18 December, the capsule splashed down in the Atlantic about 250 miles north of Grand Turk Island near 25°25'N, 70°7'W, within seven miles of primary recovery ship *Wasp* (CVS 18). The proximity to the landing point enabled HS-11 SH-3A Sea Kings to recover the astronauts and the spacecraft separately, and convey them to *Wasp* within an hour.

15 DECEMBER • Gemini VI-A crewed by Capt. Walter M. Schirra Jr. and Maj. Thomas P. Stafford, USAF, launched from John F. Kennedy Space Center, Fla. The mission accomplished the major objective of a successful rendezvous with Gemini VII. On 16 December, the capsule splashed down in the western Atlantic about 300 miles north of Puerto Rico near 23°42'N, 67°48'W, within seven miles of primary recovery ship *Wasp* (CVS 18). Schirra and Stafford remained within the capsule, and SH-3A Sea Kings of HS-11 recovered the astronauts and their spacecraft and delivered them to *Wasp*.

20 DECEMBER • The Secretary of the Navy established a director of Naval Laboratories on the staff of the assistant secretary for Research and Development, and directed the additional responsibilities of director of Laboratory Programs in the Office of Naval Material. The administrative responsibility for laboratories was subsequently transferred to this dual office while NAVAIR assumed command of test and evaluation facilities such as Naval Air Test Center, Naval Missile Center, and Naval Air Engineering Center.

1966

20 JANUARY • A contract for the production of Walleye television-guided air-to-surface glide bombs was issued to the Martin Marietta Corp.

26 FEBRUARY • Apollo-Saturn 201 lifted off via a Saturn IB rocket from John F. Kennedy Space Center, Fla. This first unmanned spacecraft of the Apollo series completed a suborbital flight and splashed down in the South Atlantic about 200 miles east of Ascension Island. A helicopter from amphibious assault ship *Boxer* (LPH 4) recovered the command module.

1 MARCH • Naval Air Transport Wing, Atlantic was disestablished.

2 MARCH • *Constellation* (CVA 64) began receiving weather data from weather satellite Essa 2. The transmission marked the second experimental shipboard installation of receivers capable of presenting a picture of major weather patterns taken from space, and the evaluation continued testing that began in 1963 on board *Saratoga* (CVA 60) with satellites Tiros 8 and Nimbus.

16 MARCH • Gemini VIII crewed by Neil A. Armstrong and Maj. David R. Scott, USAF, launched from John F. Kennedy Space Center, Fla. After only seven orbits, an attitude and maneuver system thruster malfunctioned. The astronauts regained control by using the reentry control system, but the action required the early termination of the mission, and the capsule splashed down in the western Pacific about 500 miles east of Okinawa near 25°12'N, 136°5'E. The landing occurred within seven miles of destroyer *Leonard F. Mason* (DD 852) and she recovered

K31638

A UH-2A Seasprite of HC-1 flies plane guard for *Ranger* (CVA 61) while the ship operates off Vietnam, c. 1965–1966.

the astronauts and their spacecraft. Additional vessels that supported the recovery included amphibious assault ship *Boxer* (LPH 4) in the Atlantic.

17 MARCH • The X-22A research aircraft made its first flight at Buffalo, N.Y.

31 MARCH • A flight test of a helicopter capsule escape system involving the recovery of occupants by separation of the inhabited fuselage section from the aircraft proper, demonstrated the feasibility of its use during inflight emergencies at NAF El Centro, Calif., using a modified H-25.

4 APRIL • NASA announced the selection of 19 astronauts including 11 naval aviators—John S. Bull, Ronald E. Evans, Thomas K. Mattingly II, Bruce McCandless II, Edgar D. Mitchell, and Paul J. Weitz on active duty in the Navy, and Gerald P. Carr and Jack R. Lousma on active service in the Marine Corps. The selectees also included civilians Don L. Lind, USNR, and Marine pilots Vance D. Brand and Fred W. Haise Jr.

5 APRIL • The Secretary of Defense approved a joint request from the secretaries of the Navy and Air Force for the removal of Navy air transport units from the Military Airlift Command. The disestablishment of Navy units during the first half of 1967 accomplished the withdrawal.

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The first of two X-22A vertical takeoff and landing research aircraft, BuNo 151520, was removed from flight status after a hard emergency landing in August 1966.

10 APRIL • Two Navy enlisted men together with a medical officer and a civilian electronics technician acting as observers began spinning at four revolutions per minute in the Coriolis Acceleration Platform of the Naval Aerospace Medical Institute, NAS Pensacola, Fla. The event commenced a four-day test to determine the ability of humans to adapt to a new form of rotation for potential use in space stations to produce artificial gravity.

18 APRIL • The Naval Pre-Flight School was redesignated Naval Aviation Schools Command during a reorganization of Naval Air Basic Training Command schools at NAS Pensacola, Fla. In addition, six existing schools became departments of the new command—Aviation Officer Candidate, Aviation Officer Indoctrination, Flight

NH 69968

The fifth of five experimental XC-142A vertical takeoff and landing transports, SerNo 62-5925, lands on board *Bennington* (CVS 20), 18 May 1966.

Preparation, Indoctrination for Naval Academy and NROTC Midshipman, Instructor Training, and Survival Training.

1 MAY • A reorganization of the Navy Department became effective which placed material, medical, and personnel supporting organizations under the command of the Chief of Naval Operations, abolished the Naval Material Support Establishment and its component bureaus, and in their place set up the Naval Material Command composed of six functional or systems commands: Air, Electronics, Facilities Engineering, Ordnance, Ships, and Supply.

11 MAY • The commanding officer of Marine Aircraft Group 12 piloted an A-4 Skyhawk during a launch from a catapult at the expeditionary airfield at Chu Lai, South Vietnam. The event marked the first combat use of the land-based catapult, which was capable of launching fully loaded tactical aircraft from runways less than 3,000 feet long.

15 MAY • *Intrepid* (CVS 11), with Carrier Air Wing 10 embarked, arrived in Vietnamese waters to operate as an attack carrier although still classified as an antisubmarine carrier. On the first day of battle, aircraft of her air wing composed entirely of attack squadrons flew 97 combat sorties against People's Liberation Armed Forces troop concentrations and supply storage areas around Saigon, South Vietnam.

18 MAY • Lt. Roger L. Rich Jr. piloted the XC-142A tri-service vertical and/or short takeoff and landing transport during its first carrier flights on board *Bennington* (CVS 20) at sea off San Diego, Calif. Additional Navy, Marine, and Army pilots took turns at the controls of the aircraft.

3 JUNE • Gemini IX-A crewed by Lt. Col. Thomas P. Stafford, USAF, and Lt. Cmdr. Eugene A. Cernan launched from John F. Kennedy Space Center, Fla. The mission failed to accomplish the major objective of docking with the augmented target docking adapter because the target's shroud failed to separate, but Cernan spent more than an hour outside the spacecraft. On 6 June, the capsule splashed down in the western Atlantic about 345 miles east of Cape Kennedy near 27°52′N, 75°4′W, within one mile of primary recovery ship *Wasp* (CVS 18). Carrier Air Group commander Cmdr. D. A. Barksdale circled overhead in an S-2E Tracker as "Air Boss One." Six SH-3A Sea Kings from HS-11, including Aircraft No. 57, BuNo 149710, assisted the recovery, but the astronauts remained in their spacecraft and the carrier hoisted them on board. Stafford and Cernan were flown to the space center and *Wasp* returned with the capsule to Boston.

16 JUNE • *Hancock* (CVA 19) launched A-4 Skyhawks and F-8 Crusaders against an area 24 miles west of Thanh Hoa, North Vietnam. The battle marked the first carrier strike on petroleum-oil-lubricants facilities since 1964, and the beginning of what expanded into a systematic effort to destroy the North Vietnamese petroleum storage system.

1 JULY • Three North Vietnamese torpedo boats attacked frigate *Coontz* (DLG 9) and destroyer *Rogers* (DD 876) 40 miles off shore in the Gulf of Tonkin while the ships conducted search and rescue missions. Aircraft from *Hancock* (CVA 19) and *Constellation* (CVA 64) sank all three vessels with bombs, rockets, and 20mm gunfire. *Coontz* pulled 19 survivors from the water.

NASA 66H725

SH-3A Sea Kings from HS-11 hover over astronauts Lt. Col. Thomas P. Stafford, USAF, (right) and Lt. Cmdr. Eugene A. Cernan after the splashdown of Gemini IX-A, 6 June 1966.

18 JULY • Gemini X crewed by Lt. Cmdr. John W. Young and Maj. Michael Collins, USAF, launched from John F. Kennedy Space Center, Fla. The astronauts achieved the major objective during their rendezvous with the target vehicle on their fourth orbit. On 21 July, the spacecraft splashed down in the Atlantic three miles from the planned landing point about 460 miles east of Cape Kennedy, Fla., near 26°45'N, 71°57'W, within sight of the primary recovery vessel, amphibious assault ship *Guadalcanal* (LPH 7). Pilot Lt. Cmdr. Bruce S. Fleming, copilot Lt. j.g. James L. Stewart, and aircrewmen John S. Alman and Warren R. Watkins of HS-3 manned the SH-3A Sea King, BuNo 152132, Aircraft No. 63, that recovered the astronauts.

19 JULY • The Chief of Naval Operations established the LHA program to bring into being a new concept of an amphibious assault ship. The plans developed through preliminary study envisioned a large multipurpose ship with a flight deck for helicopters, a wet boat well for landing craft, the troop carrying capacity of an amphibious assault ship (LPH), and a cargo capacity nearly that of an attack cargo ship (AKA).

25 AUGUST • Apollo-Saturn 202 lifted off from John F. Kennedy Space Center, Fla. The objectives of this second unmanned spacecraft of the Apollo series included the evaluation of the heat shield during a high heat, long-duration entry simulating a lunar return. The spacecraft

NASA 66H1030

Divers recover Lt. Cmdr. John W. Young (right, in raft) and Maj. Michael Collins, USAF, after the splashdown of Gemini X, 21 July 1966.

splashed down in the Pacific about 500 miles southeast of Wake Island and 192 nautical miles from primary recovery ship *Hornet* (CVS 12) near 17°52'N, 171°52'E. *Hornet* retrieved the command module.

26 AUGUST • Cmdr. James R. Williford III, commanding officer of HS-11, made the first helicopter refueling from a ship in the Atlantic Fleet when he rendezvoused with destroyer *Charles P. Cecil* (DD 835) while piloting an SH-3A Sea King, BuNo 149718, designated Aircraft No. 64.

3 SEPTEMBER • Naval Air Test Center pilots completed a two-day open sea suitability trial of an RH-3A Sea King on board mine countermeasures ship *Ozark* (MCS 2). This trial completed the center's evaluation of the helicopters for the minesweeper role. The next year, a mine countermeasures development and training program in the Atlantic Fleet used the ship and a helicopter detachment from newly established HC-6, and a detachment from HC-7 began preparations for training and operation on board *Catskill* (MCS 1) in the Pacific.

8 SEPTEMBER • An A-3A Skywarrior carrying an AIM-54A air-to-air missile and its control system located, locked on at long range, and launched the Phoenix to score an intercept on a jet target drone over the Navy Pacific Missile Range near San Nicolas Island, Calif. A Phoenix had been launched successfully prior to this achievement, but this event marked the first full-scale test employing all functions of the missile control system.

12 SEPTEMBER • Gemini XI, manned by Lt. Cmdrs. Charles Conrad Jr. and Richard F. Gordon Jr., launched from John F. Kennedy Space Center, Fla. The astronauts attained the primary objective of the mission when they docked with the target vehicle. On 15 September, the spacecraft splashed down in the Atlantic 700 miles off Cape Kennedy

NH 69955

Crewmembers of amphibious assault ship *Guadalcanal* (LPH 7) salute their participation in the recovery of Gemini X.

near 24°15'N, 70°00'W, within three miles of the planned landing point. Pilot Lt. Arthur G. Doege, copilot Lt. Herman D. Rotsch, and aircrewmen Robert L. Brugh and Donald Scarborough of HS-3 manned Aircraft No. 63, an SH-3A Sea King, BuNo 152132, embarked on board amphibious assault ship *Guam* (LPH 9), that recovered the astronauts. *Guam* also retrieved the spacecraft.

16 SEPTEMBER • Helicopters operating from *Oriskany* (CVA 34) rescued the entire crew of 44 men from British merchant ship *August Moon*, when she broke up in heavy seas on Pratas Reef, 175 miles southeast of Hong Kong.

7 OCTOBER • Hurricane Inez devastated the northern tip of the Yucatán Peninsula and on 10 October made landfall near Tampico, Mexico. The U.S. Navy, Marine Corps, Air Force, and Army airlifted more than 102,000-pounds of relief supplies and evacuated 80 victims of the resulting flooding, and Navy doctors treated hundreds of additional casualties.

26 OCTOBER • *Oriskany* (CVA 34) canceled the day's strikes over North Vietnam because of inclement weather in the South China Sea. Shortly thereafter, AAs George James and James Sider accidentally ignited a Mk 24 magnesium parachute flare while stowing flares and hurled the device into a storage locker filled with 600 to 700 flares. A fire swept the hangar deck and cooked off ordnance, killing 44 men and wounding 38. *Oriskany* made to Subic Bay, Philippines, for repairs and then to San Francisco, Calif.

3 NOVEMBER • A test flight of the Air Force's Manned Orbiting Laboratory (MOL-B) was launched from John F. Kennedy Space Center, Fla., atop a Titan IIIC. The objectives of the unmanned suborbital flight included the evaluation of the performance of the heat shield during reentry. The splash down occurred in the Atlantic near 9°6'S, 14°15'W. The spacecraft landed 40 nautical miles from amphibious transport dock *La Salle* (LPD 3) that recovered the capsule.

4 NOVEMBER • Eight men were killed when a flash fire erupted in a storage compartment containing paint, oil, and hydraulic fluid four decks below the hangar deck on board *Franklin D. Roosevelt* (CVA 42) while she launched strikes from the South China Sea over North Vietnam.

8 NOVEMBER • The Chief of Naval Operations approved a reorganization of the Naval Air Reserve involving the disestablishment of all air wing staffs, establishing in the

1143453

Ships of Task Force 77 including *Oriskany* (CVA 34), center, maneuver in the Gulf of Tonkin, as viewed from the signal bridge of *Constellation* (CVA 64).

place of each an administrative unit entitled Naval Air Reserve Staff and a training unit as Naval Air Reserve Division (Fleet Air).

11 NOVEMBER • Gemini XII, manned by Capt. James A. Lovell Jr. and Maj. Edwin E. Aldrin Jr., USAF, launched from John F. Kennedy Space Center, Fla. The mission accomplished the major objective of docking with a target vehicle. On 15 November, the capsule splashed down about 600 miles east of Cape Kennedy near 24°36'4"N, 69°56'2"W, within a mile of primary recovery ship *Wasp* (CVS 18). Strong winds, rough seas, and rain plagued the recovery. Three HS-11 SH-3A Sea Kings flew the recovery mission supported by additional aircraft including a photo Sea King, eight VS-28 S-2E Trackers for contingency search, and a VAW-12 Detachment 18 E-1B Tracer. A helicopter, designated Search Three, manned by pilot Lt. Cmdr. Samuel R. Aydelotte, copilot Lt. j.g. J. E. Davis, and aircrewman AT3 Konrad Kerr, hoisted Lovell and Aldrin aloft and returned them to *Wasp*, and the carrier hoisted the spacecraft on board. On 18 November, *Wasp* returned the capsule to Boston, Mass. This operation closed the Gemini program.

1967

27 JANUARY • A fire swept through Apollo 1's Command Module 012 during a simulated launch of the first manned Apollo space flight atop its Saturn IB launch vehicle at John F. Kennedy Space Center, Fla. The blaze killed the crew, Lt. Cols. Virgil I. Grissom, USAF, and Edward H. White II, USAF, and Lt. Cmdr. Roger B. Chaffee. NASA's Apollo 204 (the mission's original designation) Review Board did not discover evidence that suggested sabotage or a single ignition

The fourth YA2F-1 Intruder, BuNo 147867, shown here, was the first fitted with the full set of advanced electronic systems which enabled later version A-6s to penetrate enemy defenses and to bomb through the clouds.

source of the fire, but determined that the most probable initiator resulted from a momentary power failure in the area of an electrical arc. On 31 January, Grissom and Chaffee were buried in the National Cemetery, Arlington, Va., and White at the Military Academy, West Point, N.Y.

26 FEBRUARY • Seven VA-35 A-6As flying from *Enterprise* (CVAN 65) participated in the first Navy aerial mining operations since World War II. Cmdr. Arthur H. Barrie, squadron commanding officer, led the Intruders through light antiaircraft fire to drop two fields of 35 Mk 50-0 and 52-2 mines overnight in the estuaries of the North Vietnamese Song Ca and Song Giang (rivers). This was to disrupt shallow draft coastal and riverine barges and sampans from slipping into otherwise inaccessible areas to supply the People's Liberation Armed Forces and Pathet Lao. F-4B Phantom IIs of VF-96 escorted the Intruders. During subsequent missions, VA-35 dropped 53 mines in 11 sorties altogether, and the following month, aircraft from *Kitty Hawk* (CVA 63) flew additional minelaying missions over the Cua Sot, Kien Giang, and Song Ma (rivers). The North Vietnamese initiated mine clearance efforts, but the missions impeded smuggling and forced its temporary suspension.

14 MARCH • A VP-17 SP-2H Neptune patrolling from NS Sangley Point, Philippines, spotted a steel-hulled North Vietnamese trawler smuggling arms to People's Liberation Armed Forces insurgents during Operation Market Time—the interdiction of enemy supplies into South Vietnam. Destroyer *Brister* (DER 327), Coast Guard cutter *Point Ellis* (WPB 82330), and patrol craft *PCF 78* intercepted the smugglers and they beached the trawler. A boarding party recovered the munitions.

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An SP-2H Neptune, BuNo 150280, of VP-1 inspects a Vietnamese junk during Operation Market Time, c. 1966.

1143447

A UH-1B Iroquois of HAL-3 supports patrol boats in the Mekong Delta, 22 April 1968.

1 APRIL • The status of overhaul and repair departments at six Navy and one Marine air stations was changed to that of separate commands each titled Naval Air Rework Facility.

1 APRIL • Helicopter Attack Squadron (Light) [HAL] 3 was established at Vung Tau, South Vietnam, Lt. Cmdr. Joseph B. Howard commanding. The unit fought as the only armed UH-1 Iroquois Navy helicopter squadron during the Vietnam War, and with Light Attack Squadron (VAL) 4, comprised the only Navy air commands homeported in South Vietnam. HAL-3 uniquely provided gunship support for Navy and Army riverine operations within the Mekong Delta and pioneered tactics in support of patrol boats and shore installations. The squadron operated a mix of UH-1B/L/N and HH-1K helicopters from various bases in the delta and from specially equipped patrol craft tenders (AGP), formerly tank landing ships (LST).

12 APRIL • The Navy approved a wing insignia for aviation experimental psychologists and aviation physiologists. The new design appeared similar to flight surgeon wings except

for the use of the gold oak leaf of the Medical Service Corps in place of the leaf with acorn of the Medical Corps.

24 APRIL • Aircraft from Seventh Fleet carriers launched their first strikes on North Vietnamese MiG bases with an attack on the airfield at Kep, 37 miles northeast of Hanoi. A-6 Intruders and A-4 Skyhawks from *Kitty Hawk* (CVA 63) carried out the attack and Intruders made a further raid that night. While providing cover for the bombers during the first attack, pilot Lt. Cmdr. Charles E. Southwick and radar intercept officer (RIO) Ens. James W. Laing, and pilot Lt. Hugh D. Wisely and RIO Lt. j.g. Gareth L. Anderson, manned two VF-114 F-4B Phantom IIs, and each received credit for a probable MiG-17 kill with AIM-9D/B Sidewinder air-to-air missiles.

1 MAY • *Bon Homme Richard* (CVA 31) and *Enterprise* (CVAN 65) launched a coordinated strike against more than 30 North Vietnamese MiGs at Kep, North Vietnam. The Seventh Air Force also struck MiGs at Hoa Lac. Lt. Cmdr. Marshall O. Wright of VF-211 flew an F-8E Crusader, BuNo 150923, from *Bon Homme Richard* and shot down a MiG-17F with an AIM-9D Sidewinder missile. Lt. Cmdr. Theodore R. Swartz and his wingman, Lt. John M. Waples, of VA-76 flew two A-4Cs, BuNos 148609 and 147792, respectively, from *Bon Homme Richard*, and rocketed two taxiing MiGs. One of the Frescoes exploded and the other stopped. Two additional MiG-17s attacked the two Skyhawks and Swartz shot down one with a Zuni 5-inch rocket, subsequently receiving the Silver Star. Navy and Air Force aircraft together claimed ten Frescoes at the two fields. The North Vietnamese responded by dispersing aircraft and strengthening defenses, and built dummy aircraft and antiaircraft and missile sites to entice U.S. aircraft to squander ordnance.

15 MAY • The Chief of Naval Operations directed the establishment of an aircraft intermediate maintenance department in all operating carriers except the ship operating with the Naval Air Training Command. The new organization was to assume responsibility for maintenance afloat formerly held by the air wing and air group commanders.

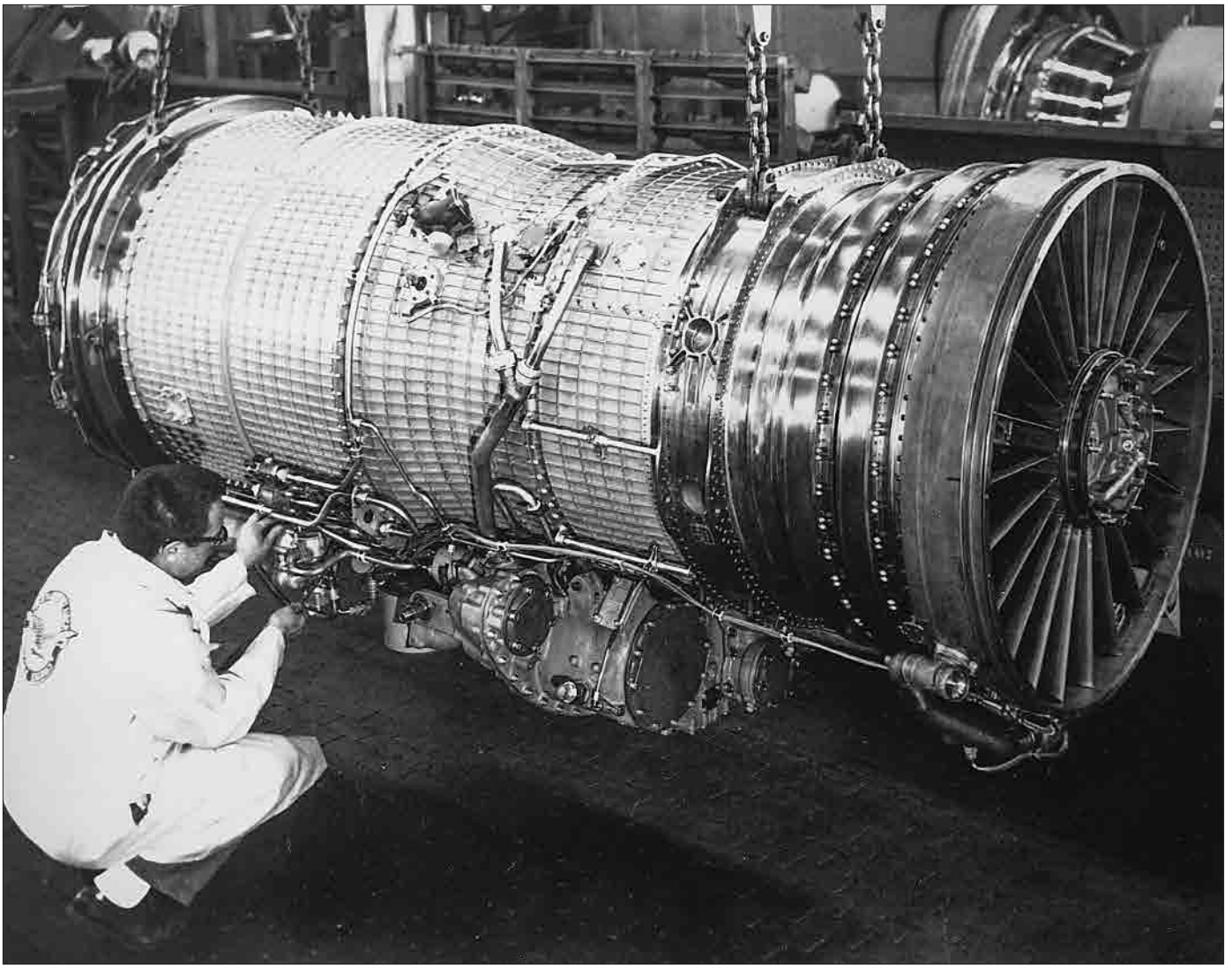
19 MAY • Cmdr. Charles Fritz and Capt. Alex Gillespie, USMC, piloted two A-7A Corsair IIs during a transatlantic crossing from NAS Patuxent River, Md., to Evreux, France. Their 3,327 nautical-mile flight in 7 hours, 1 minute, established an unofficial record for long-distance unrefueled flight by light attack jets.

K 58290

A crewmember reloads an M-60 machine gun on a Marine UH-1E Iroquois.

69970

An A-7 Corsair II of VA-86.



NH 69963

A Pratt & Whitney technician makes an adjustment to a TF30 turbofan engine for an A-7 Corsair II. The engine powered the Navy's A-7A, B, and Cs but was replaced by the more powerful Allison TF41 in the A-7E.

20 MAY • As tensions mounted between Arabs and Israelis, the Sixth Fleet deployed *Saratoga* (CVA 60) to the eastern Mediterranean. On 25 May, *America* (CVA 66) received orders to rendezvous with *Saratoga* north of Crete. *Intrepid* (CVS 11) operated independently within the Fleet while en route to Vietnamese waters and, on 31 May, passed through the Suez Canal southbound. These ships performed a non-combat deterrent role against Soviet naval deployments to the area during the period leading to the Six-Day War.

24 MAY • Following a ten-month deployment to the western Pacific during the last combat tour for ships of her type, seaplane tender *Currituck* (AV 7) returned to NAS North Island, Calif.

5 JUNE • The Arabs and Israelis began the Six-Day War. *Saratoga* (CVA 60) and *America* (CVA 66) maneuvered in the vicinity of Crete. On 8 June, Israeli aircraft and three motor torpedo boats attacked technical research ship *Liberty* (AGTR 5) killing 34 men and wounding 169 while she conducted communications and electronic research 13 nautical miles off the Sinai Peninsula.

The Sixth Fleet ordered *America* and *Saratoga* to respond by using "force including destruction as necessary." *America* embarked A-4Cs of VA-36, -64, and -66 and launched four of the Skyhawks to counterattack the Israelis but directed the jets to remain clear of land. The Israelis apologized and maintained that the attacks resulted from mistaken identity and the A-4s received recall orders.

America (CVA 66) tests her water washdown system for firefighting. The flush-deck nozzles can provide up to 27,000 gallons of water per minute.

Meanwhile, F-4B Phantom IIs of VF-33 and -102 flew combat air patrols over *America* and *Liberty*, and RA-5C Vigilantes of RVAH-5 completed reconnaissance missions. The following day, *Saratoga* steamed south of Cyprus as a show of force.

America aided *Liberty* and made her nearest approach to the fighting about 100 nautical miles north of Alexandria, Egypt. *America* transferred medical teams to destroyers *Davis* (DD 937) and *Massey* (DD 778), and, on 9 June, the destroyers rendezvoused with *Liberty*. Two SH-3A Sea Kings from HS-9 Detachment 66, embarked on board *America*, evacuated casualties to the carrier. *Liberty* completed temporary repairs at Valletta, Malta.

18 JUNE • An LC-130F Hercules of VX-6 completed the first scheduled winter flight to Antarctica by flying from Christchurch, New Zealand, to Williams Field seven miles from McMurdo Station. Earlier winter missions had been made to Antarctica as a result of medical emergencies.

30 JUNE • Naval Air Transport Wing, Pacific, was disestablished at NAS Moffett Field, Calif.

1 JULY • A Titan IIIC carried the Department of Defense Gravity Experiment (DODGE) satellite into orbit from John F. Kennedy Space Center, Fla. The Applied Physics Laboratory developed DODGE under the management of NAVAIR to provide a three-axis passive stabilization system for use on satellites orbiting the earth at synchronous altitudes. On 25 July, DODGE made the first full-disc color photograph of the earth from space.

1 JULY • The Office of the Naval Weather Service was redesignated the Naval Weather Service Command and its mission underwent modification to ensure the fulfillment of Navy meteorological requirements and Department of Defense requirements for oceanographic analyses and to provide technical guidance in meteorological matters. The Naval Weather Service Division, Op-09B7, was disestablished, and its functions were assigned to the new command.

1 JULY • Naval Air Propulsion Test Center was established with its headquarters at Trenton, N.J. The move resulted from the merger of the Naval Air Turbine Test Station, Trenton, and the Aeronautical Engine Laboratory, NAEC Philadelphia, Pa.

19 JULY • Air Transport Squadron 3 was disestablished as the last Navy component of the Military Airlift Command, McGuire AFB, N.J. The decision ended an interservice partnership that began on 1 June 1948 with the combination of Navy and Air Force transport squadrons to form the Military Air Transport Service.

29 JULY • A fire erupted on board *Forrestal* (CVA 59) while she launched strikes against North Vietnamese targets. Pilot Lt. Cmdr. James E. Bangert and radar intercept officer Lt. j.g. Lawrence E. McKay from VF-11 manned an F-4B Phantom II, BuNo 153061, Aircraft No. 110, that inadvertantly launched a Zuni 5-inch rocket that struck an A-4E on the port side of the ship. Some 132 men died in the ensuing fire and weapon explosions, two disappeared (missing, presumed dead), and 62 suffered injuries. Twenty-one aircraft were stricken; seven F-4Bs, 11 A-4Es, and three RA-5C Vigliantes. Investigators revealed maintenance issues but cleared Bangert and McKay, and the flight deck film became mandatory viewing for fire fighting trainees.

Ships that aided *Forrestal* included *Intrepid* (CVS 11), *Bon Homme Richard* (CVA 31), and *Oriskany* (CVA 34). Helicopters from ships and from Da Nang AB, South Vietnam, rescued men from the flames and the sea. Pilot Lt. David Clement, copilot Ens. Leonard M. Eiland Jr., and crew ADJ3 James O. James Jr. and AN Albert E. Barrows of HC-1 Detachment G, flying plane guard in a UH-2A Seasprite, saved five men from the water in the first hour.

Among those who survived the inferno was pilot Lt. Cmdr. John S. McCain III, who climbed from A-4E Skyhawk, Aircraft No. 416. On 26 October 1967, a North Vietnamese surface-to-air missile shot McCain down and he was held captive until 1973. He subsequently received the Distinguished Flying Cross, Silver Star, and Purple Heart, and became an Arizona senator and presidential candidate.

29 JULY • Vice President Hubert H. Humphrey announced the impending release of the Transit Navy Navigation Satellite System for use by merchant ships and for commercial manufacture of shipboard receivers.

15 AUGUST • Adm. James S. Russell (Ret.) convened the first meeting of the Aircraft Carrier Safety Review Panel. The panel examined the actual and potential sources of fire and explosions in aircraft carriers with the objective of minimizing their occurrence and damage, and to propose further improvements in the equipment and techniques used to fight fires and to control damage by explosions.

10 OCTOBER • Rear Adm. Albert C. Read (Ret.) (Naval Aviator No. 24) died in Miami, Fla. Read graduated from the Naval Academy Class of 1907, and contributed to the development of naval aviation from his commencement of flight training on 8 July 1915, including command of NC-4 during the first flight across the Atlantic in 1919, through his retirement on 1 September 1946.

21 OCTOBER • Lt. Cmdr. Wilmer P. Cook and Lt. j.g. Mitchell L. Watson of VA-155 each flying an A-4E Skyhawk from *Coral Sea* (CVA 43) spotted six North Vietnamese torpedo boats among a large group of fishing junks near Thanh Hoa, North Vietnam. The duo sank four of the vessels with 250- and 500-pound bombs, damaged the fifth, and compelled the sixth to escape into a river mouth.

24 OCTOBER • Cmdr. James B. Linder of Carrier Air Wing 15 led a strike group comprising aircraft from *Coral Sea* (CVA 43), *Oriskany* (CVA 34), and the USAF against the airfield at Phuc Yen, 11 miles northwest of Hanoi, North Vietnam. The following day, two additional raids concentrated on MiGs parked in revetments. The attack destroyed an estimated eight MiGs on the ground and cratered the taxiways with 500- and 750-pound bombs. Several airborne MiGs refused to engage, but the defenders fired an estimated 30 surface-to-air missiles that shot down two F-4B Phantom IIs of VF-151 manned by Cmdr. Charles R. Gillespie Jr. and Lt. j.g. Richard C. Clark, and by Lts. (j.g.) Robert F. Frishmann and Earl G. Lewis. Gillespie, Frishmann, and Lewis endured captivity until their release after the war, but Clark died.

25 OCTOBER • A Zuni 5-inch rocket ignited during a routine test in the forward assembly area on board *Coral Sea* (CVA 43) and burned nine sailors, three critically. All nine casualties were flown for treatment to Clark AFB, Philippines.

31 OCTOBER • *Currituck* (AV 7) was decommissioned as the last seaplane tender in service and transferred to the Reserve Fleet, Mare Island, Calif.

NOVEMBER • In 1966, the Navy created a project initially designated Air Launched Acoustical Reconnaissance as part of the Trail Road Interdiction Mission—better known as the "McNamara Line" after Secretary of Defense Robert S. McNamara—to monitor communist infiltration into South Vietnam, Cambodia, and Laos. In August 1966, a scientific study group proposed a broader air-supported barrier system

110794

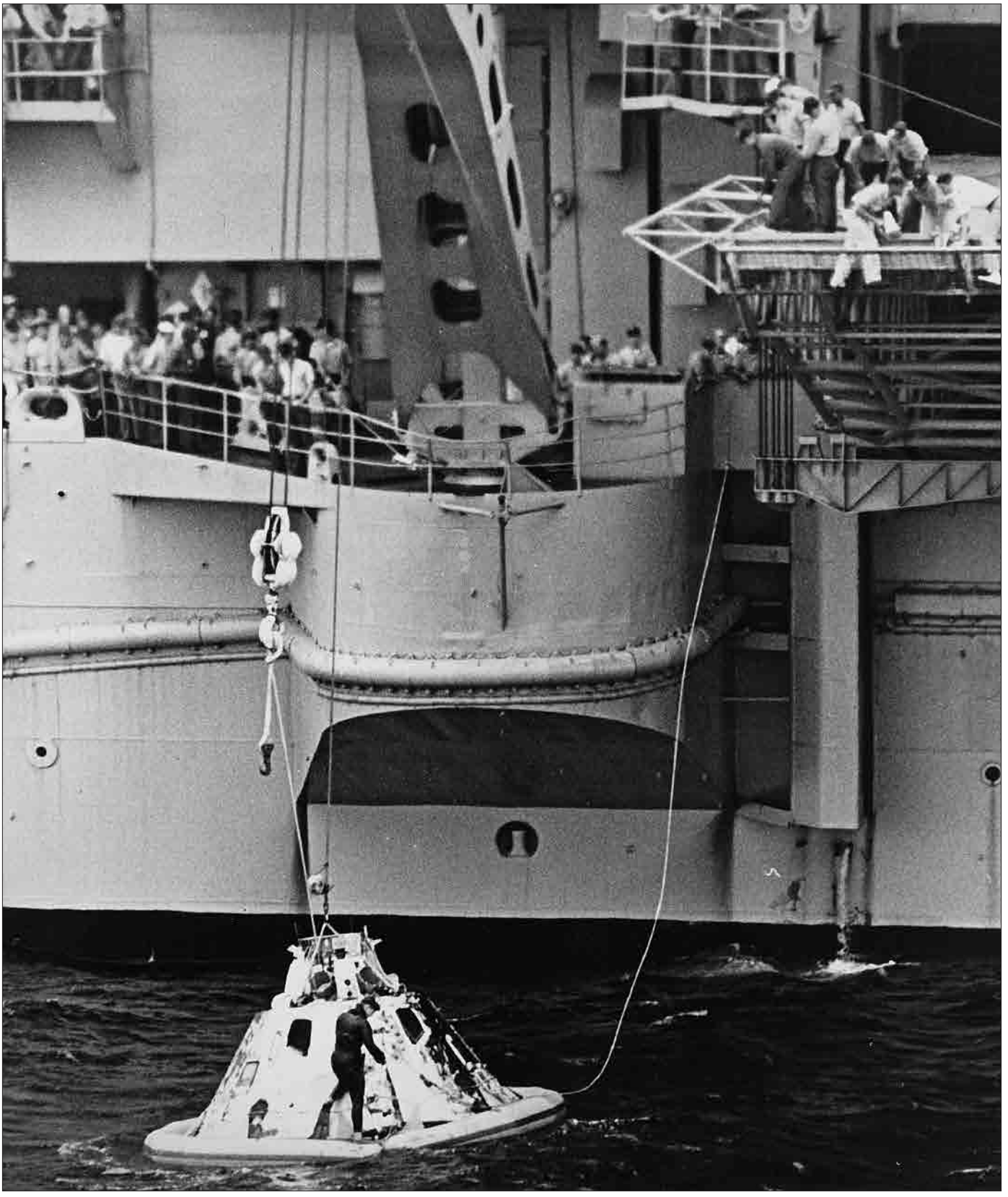
An F-4B Phantom II of VF-143 off *Constellation* (CVA 64) fires Zuni 5-inch rockets over the South China Sea during a 1964 exercise.

and the next month the Secretary of Defense established the Defense Communications Planning Group to implement the concept. Beginning this month, 12 VO-67 OP-2E Neptunes from Nakhon Phanom AB, Thailand, flew the first naval combat missions of the project to seed suspected infiltration routes with sensors. Enemy 37mm gunfire drove the flights to 5,000 feet, and sensors dropped from the higher altitude impacted the soil and were ineffective. The Air Force absorbed the program in June 1968.

6 NOVEMBER • Pilot Cmdr. Joseph P. Smolinski and copilot Cmdr. George A. Surovik of VP-40 completed the last operational flight by seaplanes of the U.S. Navy in an SP-5B Marlin at NAS North Island, Calif.

6 NOVEMBER • Liberian freighter *Loyal Fortunes* en route from Saigon, South Vietnam, to Kaohsiung, Taiwan, ran aground and began to break up on Pratas Reef, 170 miles southeast of Hong Kong. On 7 November, two helicopters operating from *Coral Sea* (CVA 43) rescued all 37 crewmembers and the carrier returned the mariners to Hong Kong.

9 NOVEMBER • Unmanned Apollo 4 launched from John F. Kennedy Space Center, Fla. The mission accomplished the main objectives of the initial all-up test of a Saturn V launch vehicle and of the Command Module Block II heatshield. The spacecraft splashed down in the Pacific about 600 miles northwest of Hawaii and within nine miles of its target point. Heavy seas delayed the recovery of the command module, apex heatshield, and a main parachute by *Bennington* (CVS 20).



NASA 67H1536

A diver prepares the Apollo 4 space capsule for recovery by *Bennington* (CVS 20) after it splashed down 934 nautical miles northwest of Honolulu, Hawaii, on 9 November 1967.

1968

19 JANUARY • A VR-24 C-130 Hercules and helicopters from NAF Sigonella, Italy, delivered food, clothing, and medicine to aid about 40,000 people made homeless by an earthquake in the region of Montevago, Sicily.

23 JANUARY • The North Koreans seized naval intelligence vessel *Pueblo* (AGER 2) in international waters; the ship made her closest point of approach to land at 15.8 nautical miles from the island of Ung-Do. The captors took *Pueblo* into Wŏnsan. The United States alerted commands including Task Group 77.5, consisting of *Enterprise* (CVAN 65), which reached a position in the East China Sea about 550 nautical miles south of Wŏnsan near 31°17'N, 129°8'E, when Commander Seventh Fleet Vice Adm. William F. Bringle ordered her to make "best speed" to the north. Foul weather had damaged aircraft and *Enterprise* could only launch 20 bombers that would have reached the Wŏnsan area too late to affect the outcome. In addition, insufficient numbers of ready Marine Corps and Air Force aircraft existed to support the rescue.

During the succeeding days, retaliatory scenarios ranged from limited strikes against North Korean forces at Wŏnsan to aerial mining of the harbor by A-6 Intruders, a blockade of Wŏnsan or additional ports, or raids against further military targets requiring Navy, Marine, and Air Force aircraft including Boeing B-52D Stratofortresses. Reinforcements included *Yorktown* (CVS 10) and *Ranger* (CVA 61). On 27 January, six carrier squadrons of the Naval Air Reserve reported for active duty. The fighting in Vietnam required a shift in operations and, on 16 February, *Enterprise* received orders to turn around. On 1 March, *Kearsarge* (CVS 33) relieved *Yorktown*. Four days later *Coral Sea* (CVA 43) relieved *Ranger*. On 21 March, the United States ended the standing carrier presence in the area. On

USMC 184967

A Marine UH-34D Seahorse, BuNo 150225, delivers ammunition to Marine gunners in South Vietnam. This helicopter survived the war and was stricken in 1972 at Pensacola, Fla.

NH 69965

The eighth Marine CH-53A Sea Stallion built, BuNo 151691, displays its heavy-lift capability. The type first entered service in 1966.

NAH 002810

A UH-1B Iroquois gunship of HAL-3 searches for People's Liberation Armed Forces (Viet Cong) infiltrators within the Mekong Delta, April 1968.

16 September, the Department of Defense announced the return of the six Naval Air Reserve squadrons to inactive status within the following six weeks. In early December, *Hancock* (CVA 19) sailed in the Sea of Japan just before North Korea released its captives.

28 MARCH • Secretary of the Navy Paul R. Ignatius approved the establishment of a new restricted line officer category (152x) called the aeronautical maintenance duty officer.

31 MARCH • President Lyndon B. Johnson announced the cessation of the bombing of North Vietnamese targets north of the 20th parallel on the following day as an indication of U.S. willingness to make concessions to open the way for peace talks.

4 APRIL • Apollo 6 launched from John F. Kennedy Space Center, Fla. The unmanned mission encountered mechanical and technical problems and splashed down in the mid-Pacific about 380 miles north of Hawaii and 57 miles up-range from the predicted recovery area. Despite heavy swells, amphibious assault ship *Okinawa* (LPH 3) retrieved the spacecraft. In December NASA reported that Apollo 6 was "not a success in accordance with . . . mission objectives."

5 APRIL • Astronauts Capt. James A. Lovell Jr., Stuart A. Roosa, and Charles M. Duke Jr. participated in a recovery test of Spacecraft 007 in the Gulf of Mexico through 7 April. The test crew did not encounter serious habitability problems but also did not "recommend the Apollo spacecraft for any extended sea voyages."

3 MAY • The Navy combined the Aviation and Submarine Safety Centers to form the Naval Safety Center, Norfolk, Va. The establishment of the Office of the Assistant Chief of Naval Operations (Safety) occurred at the same time.

6 MAY • Astronaut Neil A. Armstrong crashed while piloting Lunar Landing Research Vehicle No. 1 during training at Ellington AFB, Texas. Armstrong ejected after losing control of the vehicle and landed by parachute with minor injuries. A loss of attitude control caused the accident. The investigators called for improvements in the vehicle design and operating practices and more stringent control over flying programs.

22 JUNE • The keel for *Nimitz* (CVN 68) was laid at Newport News Shipbuilding and Dry Dock Company, Va.

The first Marine AV-8A, BuNo 158384, demonstrates Harrier hover capabilities while in service with VMA-513, c. 1970. This aircraft was later converted to the YAV-8C and crashed on takeoff from *Tarawa* (LHA 1) on 5 September 1980.

1 JULY • To ensure a more rapid and efficient transition to combat status in the event of mobilization, the Naval Air Reserve was reorganized into wings and squadrons known collectively as the Naval Air Reserve Force. Effective on 1 August, Commander Naval Air Reserve Training assumed additional duty as Commander, Naval Air Reserve Force.

6 JULY • VMO-2 at Da Nang received the first OV-10As to arrive in South Vietnam. The counterinsurgency warfare Broncos flew forward air control, visual reconnaissance, and helicopter escort missions.

18 JULY • *Coral Sea* (CVA 43) completed carrier suitability trials of F-4K Phantom IIs for the Royal Navy off California. On 23 and 24 July, the ship completed carrier suitability trials of the F-111B. Aircraft No. 4, BuNo 151974, carried out ten arrested and eight touch-and-go landings. *Coral Sea* reported that sailors of V-3 Division considered the results "inconsistent" with the size of the ship because F-111Bs proved large and unwieldy and difficult to move.

24 AUGUST • A change in uniform regulations provided a new breast insignia for sailors and Marines qualified as flight officers. Effective on 31 December, the new wings replaced the old naval aviation observer wings.

Maj. Jacob E. Iles, USMC, an exchange pilot with RAF Wittering, England, instructs pilots converting to AV-8A Harriers in their new vocabulary, 23 March 1971.

NASA 68H986

The Apollo 7 astronauts—(from left) Capt. Walter M. Schirra Jr., Lt. Col. Donn F. Eisele, USAF, and Maj. R. Walter Cunningham, USMCR—on board *Essex* (CVS 9) after their splashdown, 22 October 1968.

SEPTEMBER • Col. Thomas H. Miller Jr., USMC, and Lt. Col. Clarence M. Baker, USMC, generated Marine interest in the acquisition of Harrier vertical takeoff and landing jets during a flight of a Harrier in England. On 22 October 1969, NAVAIR and the British government concluded an agreement to acquire AV-8As for the Marine Corps.

11 OCTOBER • Apollo 7, crewed by Capt. Walter M. Schirra Jr., Lt. Col. Donn F. Eisele, USAF, and Maj. R. Walter Cunningham, USMCR, launched from John F. Kennedy Space Center, Fla., as the first manned Apollo flight. It accomplished all the primary mission objectives, and on 14 October, the astronauts made the first live TV broadcast from a manned U.S. spacecraft. On 22 October, it splashed down in the Atlantic about 285 miles south of Bermuda and approximately eight miles from primary recovery ship *Essex* (CVS 9). Helicopters of HS-5 operating from *Essex* returned the astronauts to the carrier.

1 NOVEMBER • In response to previous orders from President Lyndon B. Johnson, all bombing of North Vietnam ceased at 2100 Saigon time. Earlier in the day, Cmdr. Kenneth E. Enney completed the last Navy mission over the restricted area in an A-7A Corsair II from *Constellation* (CVA 64).

6 NOVEMBER • The National Park Service of the Department of the Interior designated the lighter-than-air hangar at NAS Lakehurst, N.J. a National Historic Landmark.

15 NOVEMBER • The intensification of aerial efforts to interdict communist infiltration into South Vietnam, Cambodia, and Laos following the halt of the bombing of North Vietnam included a program designated Commando Hunt. Naval aircraft flew about one-fourth of the program's raids. Commando Hunt II attacked enemy efforts to repair bombed and washed-out roads beginning with the monsoons in May 1969. Commando Hunt III alternated daytime strikes against convoys and nighttime raids on antiaircraft and surface-to-air missile sites from November 1969 to April 1970. Commando Hunts IV and V attacked trucks and transshipment points, repair shops, and supply dumps. Commando Hunts VI and VII bombed the strategic passes leading into Laos and then sowed sensors along likely smuggling routes to identify infiltrators. The campaign cratered the landscape and led to widespread deforestation but failed to halt the infiltration.

21 DECEMBER • Apollo 8, crewed by Col. Frank Borman, USAF, Capt. James A. Lovell Jr., and Maj. William A. Anders, USAF, launched from John F. Kennedy Space Center, Fla. Apollo 8 achieved all mission objectives, and the crew became the first humans to leave the earth's gravitational field and to fly around the moon. On the fourth day, the astronauts temporarily lost communications as they passed behind the moon but became the first men to view the satellite's far side. On 27 December, the spacecraft made a predawn splash down in the Pacific within three miles of primary recovery ship *Yorktown* (CVS 10). As planned, aircraft and pararescue swimmers waited until local sunrise 50 minutes later, and then helicopters of HS-4 recovered and flew the crew to *Yorktown*.

1969

1 JANUARY • Through the New Year, American aircraft had flown 183,821 tactical sorties during the war over Laos including 24,842 Navy and 10,668 Marine missions, claimed the destruction of 4,106 vehicles and 820 bridges, and cut roads almost 13,000 times.

3 JANUARY • VAL-4 was established at NAS North Island, Calif. This first Navy squadron of its type operated OV-10As and deployed to Vietnam in March, where the Broncos flew from two airfields in the Mekong Delta supporting U.S. and South Vietnamese riverine actions.

14 JANUARY • A fire erupted on board *Enterprise* (CVAN 65) while she trained off Hawaii en route to the Vietnam War. The exhaust from a No. 6 MD3A Aircraft Starter Unit overheated a Mk 32 Zuni rocket warhead on an F-4J Phantom II. The conflagration claimed 26 lives, two men were never recovered, and 371 sustained injuries. The fire destroyed 15 aircraft (eight F-4Js, six A-7B Corsair IIs, and an EKA-3B Skywarrior) and heavily damaged 14 (three F-4Js, three A-7Bs, two RA-5C Vigilantes, three EKA-3Bs, two E-2A Hawkeyes, and one UH-2C Seasprite). Frigate *Bainbridge* (DLGN 25), destroyers *Benjamin Stoddert* (DDG 22) and *Rogers* (DD 876), salvage ship *Deliver* (ARS 23), tugs *Hitchiti* (ATF 103) and *Moctobi* (ATF 105), and a Coast Guard vessel together with Navy, Coast Guard, and Air Force aircraft assisted. *Enterprise* completed repairs at Pearl Harbor Naval Shipyard and, on 11 March, continued her voyage.

27 JANUARY • Commander, Naval Air Systems Command directed the phase-out of the Naval Aviation Integrated Logistic Support (NAILS) Task Force. The force had made an in-depth study of aviation logistics with particular emphasis on spares and repair parts support management, and recommended the establishment of a NAILS Center.

3 FEBRUARY • The Naval Air Systems Command issued a contract to Grumman Corporation for the development of high-performance variable-sweep wing F-14A Tomcats to replace F-4 Phantom IIs, together with the manufacture of six experimental jets.

13 FEBRUARY • *Randolph* (CVS 15) was decommissioned and placed in the Reserve Fleet.

3 MARCH • Apollo 9 manned by James A. McDivitt, USAF, Col. David R. Scott, USAF, and civilian Russell L. Schweickart launched from John F. Kennedy Space Center, Fla. The astronauts accomplished all mission objectives, and on 13 March, the command module splashed down in the Atlantic about 180 miles east of the Bahamas. A helicopter

North Korean MiGs shoot down Deep Sea 129, an unarmed EC-121M, BuNo 135749, of VQ-1, similar to this Warning Star, killing all 31 crewmembers, 14 April 1969.

from HS-3 operating from amphibious assault ship *Guadalcanal* (LPH 7) recovered the astronauts.

14 APRIL • North Korean MiGs shot down Deep Sea 129, an unarmed VQ-1 EC-121M, BuNo 135749, while the Constellation flew a routine reconnaissance patrol from NAS Atsugi, Japan, in international airspace over the Sea of Japan near 41°12'N, 131°48'E. The attack killed all 31 crewmembers. The United States prepared contingency plans ranging from tactical air raids against North Korean military targets to aerial mining by A-6 Intruders operating from carriers, a blockade, or expanded strikes. On 16 April, the activation of Task Force 71 to protect such flights initially comprised *Enterprise* (CVAN 65) to sail in an area in the Sea of Japan designated Defender Station. Reinforcements at times included battleship *New Jersey* (BB 62), *Ranger* (CVA 61), and *Ticonderoga* (CVA 14). Negotiations gradually diffused the tension and, on 3 May, *Enterprise* turned for the East China Sea. From 25 to 27 May and on 6 June, *Kitty Hawk* (CVA 63) patrolled Defender Station.

7 MAY • Pilot Lt. Cmdr. Melvin J. Hartman, USCG, and copilot Lt. Larry Minor, USCG, in an HC-130H Hercules designated Coast Guard No. 1453, flew the first Coast Guard aircraft directly over the geographic North Pole from CGAS Kodiak, Alaska. The record was achieved during an ice reconnaissance flight along a potential route to transport oil from the North Slope of Alaska by way of the Northwest Passage.

18 MAY • Apollo 10 crewed by Maj. Thomas P. Stafford, USAF, Cmdr. Eugene A. Cernan, and Lt. Cmdr. John W. Young launched from John F. Kennedy Space Center, Fla. This first lunar orbital mission with a complete spacecraft achieved all the primary mission objectives of evaluating performance and support. On 26 May, the command module splashed down in the Pacific about three miles from amphibious assault ship *Princeton* (LPH 5). A helicopter from HS-4 carried the astronauts to the ship.

26 MAY • A major development in carrier fire prevention occurred when *Franklin D. Roosevelt* (CVA 42) put to sea from Norfolk Naval Shipyard, Va., after an 11-month overhaul that included installation of a deck-edge spray system using a new seawater-compatible, fire-fighting chemical dubbed "Light Water."

1143446

The second YOV-10A Bronco light reconnaissance aircraft flies in the nondescript Tri-Service markings. The type was flown by the Marines, Navy, and Air Force.

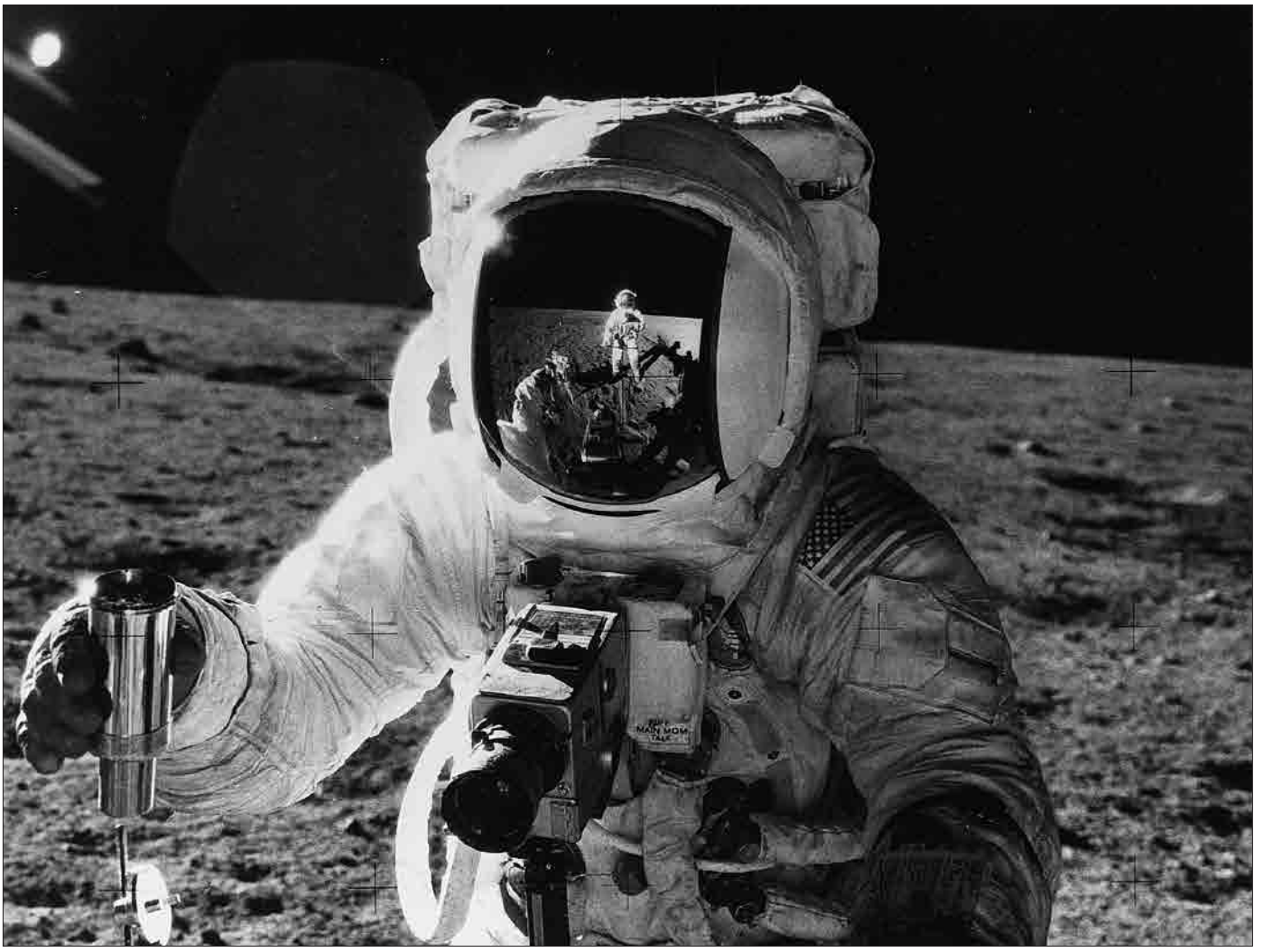
1 JUNE • Lt. Col. R. Lewis, USMC, and Maj. C. L. Phillips, USMC, broke a world record for point-to-point distance by a light turboprop aircraft during a 2,539.78 mile flight in an OV-10 Bronco from Stephenville, Newfoundland, to Mildenhall, England.

24 JUNE • Lt. Dean Smith and Lt. j.g. James Sherlock of VF-103 performed the first operational "hands off" arrested landing using the AN/SPN-42 Automatic Carrier Landing System in an F-4J Phantom II on board *Saratoga* (CVA 60). The AN/SPN-42 had emerged from the AN/SPN-10.

30 JUNE • *Essex* (CVS 9) was decommissioned and assigned to the Reserve Fleet.

14 JULY • Corsair II West Coast training squadron VA-122 at NAS Lemoore, Calif., received the first A-7E assigned to an operational squadron. A-7Es incorporated heads-up and map displays where vital information from flight and navigation instruments projected into the pilots' normal field of vision permitted their concentration without looking down at instruments.

16 JULY • Apollo 11, crewed by Neil A. Armstrong, Col. Edwin E. Aldrin Jr., USAF, and Lt. Col. Michael Collins, USAF, launched from John F. Kennedy Space Center, Fla. On 20 July, Armstrong and Aldrin in lunar module *Eagle* separated from command and service module *Columbia* and descended to the moon. "Houston, Tranquility Base here—the *Eagle* has landed," Armstrong reported to mission control when the lunar module touched down on the moon at 1618 EDT. At 2256 EDT, a naval aviator became the first person to walk on the moon when Armstrong stepped onto the surface. On 24 July, *Columbia* splashed down in the Pacific about 920 miles southwest of Honolulu, Hawaii, and 15 miles from primary recovery ship *Hornet* (CVS 12). Cmdr. Donald S. Jones, commanding officer of HS-4, piloted an SH-3D Sea King, BuNo 152711, designated Recovery One, that retrieved and carried the astronauts to *Hornet*. President Richard M. Nixon was on board the carrier and welcomed the astronauts through a window in their quarantine facility. The recovery force also retrieved *Columbia*. Apollo 11 achieved all the primary mission objectives.



NASA AS12497278

Apollo 12 astronaut Charles P. Conrad snaps a photograph of colleague Alan L. Bean during lunar soil collection activities on the Oceanus Procellarum in November 1969. Three of the first four men to walk on the moon, including Conrad and Bean, have flown for the Navy.

1 AUGUST • NAVAIR issued a contract to Lockheed-California Company for development of all weather carrier antisubmarine warfare S-3A Vikings to replace S-2 Trackers.

17 AUGUST • Hurricane Camille devastated the Gulf Coast with heavy rains and flooding that rendered many people homeless. The 16,500 servicemembers who supported emergency assistance in the wake of the disaster included HT-8, which evacuated more than 820 people on 20 August from Pass Christian, Miss. President Richard M. Nixon subsequently wrote HT-8 a letter praising the squadron for its services.

24 AUGUST • Icebreaker-oceanographic research vessel *Manhattan* sailed from Chester, Pa., to test the feasibility of transporting oil from the North Slope of Alaska by way of the Northwest Passage. Aircraft and vessels that supported the expedition included a Coast Guard HC-130B Hercules, Coast Guard cutters *Northwind* (WAGB 282) and *Staten Island* (WAGB 278), and Canadian icebreakers *Louis S. St-Laurent* and *John A. Macdonald*. *Northwind* and *Staten Island* each normally embarked an HH-52A Seaguard. An NC-121K Constellation, BuNo 141325, of VXN-8 named *Arctic Fox*, provided ice surveillance for *Manhattan* through the Northwest Passage as part of Project Birdseye 6-69—an Arctic ice-survey mission initiated in March 1962 to gather ice flow information for the Naval Oceanographic Office. *Manhattan* returned to New York City on 30 October.

K87381

UH-1N Iroquois approach an LC-130 to refuel from the Hercules during operations in Antarctica. The Huey was first introduced to the continent during Operation Deep Freeze 72.

31 AUGUST • Two LC-130 Hercules of VXE-6 arrived at McMurdo Sound, Antarctica, six weeks in advance of the opening of Operation Deep Freeze 70. The passengers included Commander Naval Support Force Antarctica Rear Adm. David F. Welch and seven scientists.

1 SEPTEMBER • The Naval Aviation Integrated Logistic Support Center was established to provide intensified logistics management at NAS Patuxent River, Md.

23 SEPTEMBER • A UH-2B Seasprite operating from light cruiser *Galveston* (CLG 3) rescued 15 crewmen and passengers from Greek tanker *Angel Gabriel* after she ran aground and began to break up in a storm near St. Thomas Point, Marsascal, Malta.

30 SEPTEMBER • Carrier Anti-Submarine Air Group (CVSG) 57 was disestablished. The disestablishment of Carrier Air Wing 10 followed on 28 November and CVSG-52 on 15 December.

20 OCTOBER • *Ticonderoga* (CVA 14) underwent conversion to an antisubmarine warfare aircraft carrier (CVS 14) through 28 May 1970 at Long Beach Naval Shipyard, Calif.

22 OCTOBER • NAVAIR and the British government executed a memorandum of agreement concerning the purchase of Hawker-Siddely Harriers. A subsequent letter of offer covered the procurement of 12 AV-8As for the Marines with initial delivery scheduled for January 1971.

NH 69969

A CH-46A Sea Knight, BuNo 151911, of HMM-265 lands on board *Okinawa* (LPH 3) in 1968. The medium assault transport helicopter was designed specifically for Marine Corps requirements.

5 NOVEMBER • Liberian tanker *Keo* broke in half 30 miles east of Cape May, N.J. Two C-130 Hercules, frigate *Fox* (DLG 33), destroyers *Hugh Purvis* (DD 709) and *Leary* (DD 879), and two Coast Guard cutters attempted to rescue the crew, but all 36 perished.

14 NOVEMBER • Apollo 12 manned by the all–naval aviator crew of Cmdr. Charles Conrad Jr., Cmdr. Richard F. Gordon Jr., and Lt. Cmdr. Alan L. Bean launched from John F. Kennedy Space Center, Fla. On 18 November, Conrad and Bean separated Lunar Module 6 *Intrepid* from Gordon and Command and Service Module 108 *Yankee Clipper*, and the following day *Intrepid* landed on the moon's Ocean of Storms. After 31 ½ hours on the lunar surface, the astronauts and *Intrepid* rendezvoused with the command module. On 24 November, *Yankee Clipper* splashed down in mid-Pacific within five miles of primary recovery ship *Hornet* (CVS 12). An SH-3D Sea King from HS-4 lifted the astronauts to *Hornet*. Apollo 12 achieved all mission objectives.

NH 69966

A UH-46A Sea Knight, BuNo 150966, of HC-1 makes a vertical replenishment delivery.

1 DECEMBER • Amphibious assault ship *Boxer* (LPH 4) was decommissioned.

Chapter 10

Defeat and Decline

1970–1979

Naval aviation began its seventh decade with the United States embroiled in the Vietnam War, but an uneasy truce resulted in disengagement from the war in 1973. Two years later, naval air power assisted in the evacuation of refugees who fled the North Vietnamese conquest of South Vietnam. During the subsequent years, naval aviation helped rescue thousands of Indochinese who set out in poor vessels to escape tyranny. Eastern Bloc naval expansion challenged Western control of the sea and Soviet cruise missiles threatened aircraft carriers. The Navy struggled to meet its commitments because of a diminishing and aging fleet that eroded through constant use, at the same time confronting declining budgets that hindered the acquisition of replacements; recruitment shortfalls and difficulties in retention; drug and alcohol abuse; and racial unrest. Americans faced recurring crises in the Middle East, and in 1979, Iranian militants captured the United States Embassy in Tehran. The decade concluded with *Midway* (CV 41) and *Kitty Hawk* (CV 63) deployed to the Indian Ocean.

The burden of naval air action in the Vietnam War fell upon the carriers and aircraft of the Seventh Fleet. To meet this responsibility, the service relied upon established weapons and material, but the war also witnessed the introduction of television-guided Walleye glide bombs designed to home automatically to their targets. Helicopters served in combat and land-based patrol aircraft scoured the South Vietnamese coastline in search of infiltrating enemy vessels during Operation Market Time. Operations Linebacker I and II waged heavy interdiction and bombing campaigns against the North Vietnamese. Aircraft carried out extensive aerial minelaying to blockade the enemy's main avenues of supply.

During his tenure, Chief of Naval Operations Adm. Elmo R. Zumwalt Jr. issued mandates, known as "Z-Grams," to change the quality of life for sailors and Marines and improved racial and gender situations in the fleet. During the 1960s and 1970s, U.S. domestic consumption of oil tripled but surplus production capacity disappeared, which made the country increasingly dependent upon foreign energy sources. In 1973, the Organization of the Petroleum Exporting Countries cut off shipments to the United States and reduced the availability of petroleum worldwide in response to President Richard M. Nixon's support of the Israelis during the Yom Kippur War. Their action only removed 10 percent of the available petroleum from the global market, but produced speculative buying by consumer countries that led to a worldwide recession. The crisis generated an acute consciousness among leaders of the position of the United States as a two-ocean nation that reemphasized the reliance upon the Navy to keep sea lanes open and commerce moving unhampered, although the American people largely failed to appreciate the shift until the 1980s.

Naval aviation nevertheless made headway in research and development. The 1970s witnessed the decommissioning of most of the remaining *Essex* (CV 9)-class carriers, the commissioning of nuclear-powered carriers *Nimitz* (CVN 68) and *Dwight D. Eisenhower* (CVN 69), and the launch of *Carl Vinson* (CVN 70). The introduction of F-14A Tomcats and AV-8A vertical and/or short takeoff and landing (V/STOL) Harriers, and the flight trials of F/A-18A Hornets took place. The addition of the Light Airborne Multipurpose System (LAMPS) combined shipboard electronics with SH-2D helicopters to confront the growing threat from submarines. The decade drew to a close with LAMPS testing in new SH-60B Seahawks, while the latest heavy-lift CH-53E Super Stallions reached readiness. Naval aviation began its eighth decade by continuing to integrate aircraft with the fleet to provide the United States with strong and flexible naval power.

NH 90350

Lt. j.g. William Belden safely ejects from A-4E Skyhawk, BuNo 150117, as it rolls into *Shangri-La*'s (CVS 38) port catwalk after suffering a brake failure following recovery, 2 July 1970. The A-4E was assigned to VA-152 of Carrier Air Wing 8.

1970

15 JANUARY • *Bennington* (CVS 20), *Valley Forge* (LPH 8), and aviation base ship *Tallahatchie County* (AVB 2) were decommissioned. The authorization for the decommissioning in 1971 of *Bon Homme Richard* (CVA 31) and *Shangri-La* (CVS 38) also occurred during 1970.

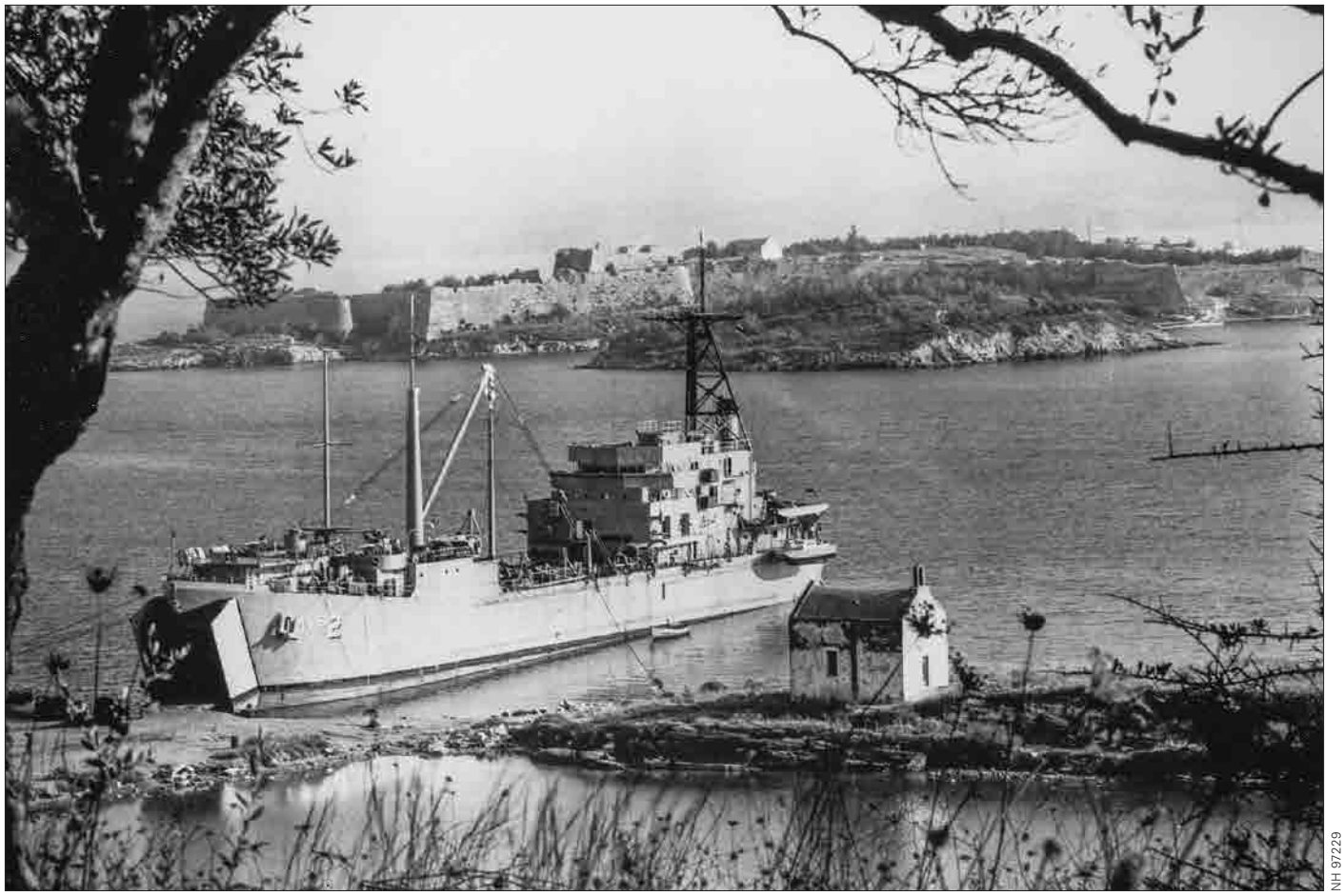
31 JANUARY • *Midway* (CVA 41) recommissioned after a four-year conversion-modernization at San Francisco Bay Naval Shipyard, Calif.

10 FEBRUARY • As part of the U.S. withdrawal from Vietnam, VMFA-542 and VMA-223 returned to MCAS El Toro, Calif. During the same month, Marine Aircraft Group 12 and VMA-211 were reassigned to Japan. In September, VMFA-122 and -314, VMA(AW)-242, Marine Aircraft Base Squadron 13, and Headquarters and Maintenance Squadron 13, returned to the United States. On 13 October, the last Marines departed from Chu Lai.

13 FEBRUARY • Amphibious assault ship *Princeton* (LPH 5) was decommissioned.

16 MARCH • The crash of an EC-121 Constellation took the lives of 23 sailors at Da Nang AB, South Vietnam.

28 MARCH • Pilot Lt. Jerome E. Beaulier and radar intercept officer Lt. j.g. Stephen J. Barkley of VF-142, embarked on board *Constellation* (CVA 64), made the first kill of a North Vietnamese MiG since the 1 November 1968 bombing halt. They shot down a MiG-21 Fishbed with an AIM-9 Sidewinder missile while escorting an unarmed Navy reconnaissance plane in an F-4J Phantom II near Thanh Hoa, North Vietnam.



NH 97229

Advanced aviation base ship *Tallahatchie County* (AVB 2) can beach near existing airfields and support aerial operations, such as here, at Souda Bay, Crete, in November 1968.

1 APRIL • Carrier Air Wing Reserve (CVWR) 20 and CVWR-30 were established, followed on 1 May by the establishment of Carrier Anti-Submarine Air Group Reserve (CVSGR) 70 and CVSGR-80. This move continued a program initiated in July 1968 to improve the combat readiness of the Naval Air Reserve. The reorganization placed all carrier-type squadrons in two Reserve carrier air wings and two carrier antisubmarine groups. Twelve VP and three VR squadrons joined the carrier squadrons under the control of Commander Naval Air Reserve Force.

10 APRIL • An A-4M made the first flight of the improved Skyhawk dedicated to the Marine Corps at the Douglas Aircraft Company plant, Palmdale, Calif. The aircraft included a brake parachute and an engine with 45 percent more thrust than that of the original 1954 Skyhawk design, which made the jets suitable for operations from short airfields in forward areas.

11 APRIL • Apollo 13 crewed by Capt. James A. Lovell Jr., John L. Swigert Jr., USAF, and Fred W. Haise Jr., USMCR, launched from John F. Kennedy Space Center, Fla. On 13 April, the crew reported, "Okay, Houston, we've had a problem here." A loss of oxygen and primary power in Command and Service Module 109 *Odyssey* required an immediate abort of the moon mission. On 17 April, *Odyssey* splashed down in mid-Pacific about four miles from the primary recovery vessel, amphibious assault ship *Iwo Jima* (LPH 2). An SH-3D Sea King of HS-4, Aircraft No. 407, recovered and transported the astronauts to *Iwo Jima*.

2 MAY • ALM (Antilliaanse Luchtvaart Maatschappij) Flight 980, a Douglas DC-9, crashed because of fuel exhaustion 35 miles east of St. Croix, Virgin Islands. Pilot Lt. Cmdr. James E. Rylee, copilot Lt. j.g. Donald Hartman, and aircrewmen MMC William Brazzell and MMAN Calvin Lindley of VC-8 manned an SH-3A Sea King from NS

The disposition of Navy forces and bases in Southeast Asia virtually lines the coast of South Vietnam.

Roosevelt Roads, P.R., and rescued 26 of the 63 people on board. Two Coast Guard HH-52A Seaguards rescued 11 others while a Marine CH-46A Sea Knight picked up the remaining three survivors. Searchers recovered seven bodies, but failed to locate the remaining 16 victims because of harsh weather. The Sea King flew survivors to Alexander Hamilton Airport near Frederiksted, St. Croix. Rylee and Hartman received the Distinguished Flying Cross.

9 MAY • Helicopters, OV-10A Broncos, and about 30 Navy craft participated with the combined South Vietnamese/U.S. Riverine Force in strikes into the Mekong River corridor to neutralize People's Liberation Armed Forces and North Vietnamese sanctuaries in that area. These operations followed the initial series of raids by combined U.S. and South Vietnamese troops against sanctuaries in Cambodia during the first week of May.

31 MAY • An earthquake in Peru took 50,000 lives, injured 100,000 people, and rendered 800,000 homeless. Amphibious assault ship *Guam* (LPH 9), with four CH-53D Sea Stallions, ten CH-46F Sea Knights, and two UH-1E Iroquois of HMM-365 embarked, sailed from Panama and on 12 June arrived off Peru. The ship provided victims with more than 200 tons of relief supplies, and her aircraft made more than 800 mercy flights transporting medical teams into remote areas and evacuating more than 1,000 people. *Guam* departed on 21 June.

1 JUNE • Carrier Air Wings 4 and 12 were disestablished, followed on 30 June by the disestablishment of Carrier Anti-Submarine Air Group 51.

9 JUNE • Sikorsky pilot James R. Wright and copilot Col. Henry Hart, USMC, established a downtown New York, N.Y., to downtown Washington, D.C., record in a CH-53D Sea Stallion for helicopters at 156.43 mph, with an elapsed time of 1 hour, 18 minutes, 41.4 seconds. The next day they established a New York to Boston, Mass., record for helicopters of 162.72 mph, with a city-to-city time of 1 hour, 9 minutes, 23.9 seconds.

9 JUNE • Jordanian King Hussein bin Talal survived an assassination attempt. In addition, terrorists from the Popular Front for the Liberation of Palestine seized 32 hostages including 14 Americans in a hotel in Amman, Jordan. *Forrestal* (CVA 59) sailed to the eastern Mediterranean to provide air cover for a potential rescue of the hostages and evacuation of Americans endangered elsewhere within the country. The situation in Jordan calmed, but terrorists then attacked the Jordanian Embassy in Beirut, Lebanon, and the United States extended the carrier's deployment. On 15 June, the crisis abated, and two days later U.S. forces returned to normal operations.

K84668

The crew of amphibious assault ship *Guam* (LPH 9) and Marines of HMM-365 assist victims of the 31 May 1970 Peruvian earthquake where more than 66,000 people died.

20 JUNE • Amphibious assault ship *Inchon* (LPH 12) was commissioned.

26 JUNE • *Hornet* (CVS 12) was decommissioned, followed the next day by the decommissioning of *Yorktown* (CVS 10).

1 JULY • NAVAIR Liaison Office, Dayton, Ohio, was disestablished. The move marked the end of an office that traced its beginning to October 1920 and the detail of an aviation officer to McCook Field to observe and report on experimental work.

17 JULY • P-3C Orions began deployed operations when VP-49 assumed patrol responsibilities at NAS Keflavik, Iceland.

15 AUGUST • The keel was laid for *Dwight D. Eisenhower* (CVN 69) at Newport News Shipbuilding and Dry Dock Company, Va.

3 SEPTEMBER • Rising tensions in the Middle East triggered an alert of the Sixth Fleet. Three days later, terrorists from the Popular Front for the Liberation of Palestine attempted to hijack four civilian airliners. The terrorists diverted two of the planes to Zarqa, Jordan, and seized and rerouted another to Cairo, Egypt, where they released the hostages and destroyed the airliner. On 8 September, the Joint Chiefs of Staff directed *Independence* (CVA 62) to a position about 100 nautical miles from the Israel-Lebanon coast. The next day, an additional hijacking brought a third aircraft to Zarqa, and on 12 September, the terrorists blew up all three (empty) airliners. On 17 September, fighting erupted between the Jordanians and terrorists, and the next day, the Syrians intervened on behalf of the Palestinians.

On 17 September, *John F. Kennedy* (CVA 67) received orders to make speed for the Mediterranean. By 22 September, *Independence* and *Saratoga* (CVA 60) steamed south of Cyprus and off the coast of Lebanon, and five

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An A-6A Intruder, BuNo 155668, of VA-85 drops a brace of Snakeye bombs over Vietnam. The squadron was on its single cruise with *Constellation* (CVA 64), August 1969 to May 1970.

P-3 Orions patrolled from NS Rota, Spain. *Independence* operated off the coast of Lebanon until 6 October. *Saratoga* sailed there from 17 to 25 September, and *John F. Kennedy* arrived on 24 September. Amphibious assault ship *Guam* (LPH 9), with HMM-365 embarked, reinforced these vessels from late September to 30 October. *Saratoga* departed and, on 28 September, hosted a visit by President Richard M. Nixon. The same day, Egyptian President Gamal A. Nasser died, and overnight *Saratoga* provided the president communications and intelligence support with Secretary of Defense Melvin R. Laird, Secretary of State William P. Rogers, and the joint chiefs. From 5 to 18 October, *Saratoga* returned to the eastern Mediterranean. The hijackers released their hostages, by 6 October the Sixth Fleet reduced operations to one carrier, and by July 1971 the Jordanians drove the Palestinians into Lebanon.

8 SEPTEMBER • The Department of Defense modified its basic space policy (established in March 1961) by providing for the consideration of functional responsibilities of the services in the assignment of programs for development and acquisition of space systems.

14 SEPTEMBER • Combat store ship *Niagara Falls* (AFS 3), with a UH-46A Sea Knight of HC-7 Detachment 112 embarked, rescued artist Julian Ritter and crewmembers Winifried Heiringhoff and Lauren Knox and their ketch *Galilee*, about 400 nautical miles west/northwest of Hawaii. *Niagara Falls* towed *Galilee* 150 miles to rendezvous on 16 September with Coast Guard cutter *Cape Corwin* (WPB 95326), which took the castaways and their sailboat to Oahu.

25 SEPTEMBER • An A-6A launched a Condor television-guided air-to-surface missile at a standoff distance of 56 miles from its target at NWC China Lake, Calif. The missile made a direct hit.

25 OCTOBER • Amphibious assault ship *Okinawa* (LPH 3), dock landing ship *Anchorage* (LSD 36), amphibious transport dock *Duluth* (LPD 6), and sailors and Marines from shore establishments completed four days of assistance to thousands of people following Typhoon Joan, which left 600 people dead and 80,000 without shelter across southern Luzon and Catanduanes Island, Philippines. CH-46D Sea Knights of HMM-164 lifted more than 300 tons of rice, flour, blankets, and fuel in more than 70 sorties. Naval medical teams treated more than 1,000 patients ashore.

29 OCTOBER • After the ravages of Typhoon Kate and flood waters that inundated 140 square miles of South Vietnam south of Da Nang AB, helicopters of 1st Marine Aircraft Wing performed rescue and relief operations for more than 9,000 South Vietnamese. The initial rescues began the first day when Marine Aircraft Group 16 evacuated about 900 people during floods that observers termed the most severe since 1964.

21 NOVEMBER • Aircraft flew 14 diversionary sorties from *Oriskany* (CVA 34) that included dropping flares along the North Vietnamese coast, in order to divert enemy attention from an Army–Air Force attempt to rescue U.S. prisoners from a vacated prisoner-of-war compound at Son Tây, 22 miles from Hanoi. *Oriskany* launched an additional 48 retaliatory strikes. Into 22 November, about 200 Navy and Marine aircraft from *Hancock* (CVA 19), *Oriskany*, and *Ranger* (CVA 61), together with approximately 200 Air Force aircraft also flew protective reaction air strikes—retaliation in response to enemy attacks or radar tracking—against North Vietnamese missile and

antiaircraft sites south of the 19th parallel that fired on unarmed reconnaissance aircraft. President Richard M. Nixon and Assistant to the President for National Security Affairs Henry A. Kissinger thus used protective reaction raids as part of a strategy to pressure the enemy toward peace negotiations and to cover U.S. withdrawal from the war.

24 NOVEMBER • North American Rockwell test pilot Edward A. Gillespie flew a T-2C Buckeye modified with a supercritical wing configuration at Columbus, Ohio. The wing design was derived from theoretical development by Dr. Richard T. Whitcomb of NASA and promised to delay the onset of transonic shock separation, buffeting, and other aerodynamic phenomena, thus giving greater flexibility to aircraft intended for operation in the sonic speed regime.

25 NOVEMBER • The chief of Naval Material established the Navy Space Project Office with responsibility for the integration and coordination of space activities within the purview of the Naval Material Command, and responsibility for management of designated space projects.

21 DECEMBER • Grumman test pilots Robert Smyth and William Miller made the first flight of an F-14A Tomcat at Grumman's Calverton, Long Island, N.Y., plant. The aircraft's design emphasized fighter missions including air-to-air combat and fleet defense, and they became the first variable-sweep-wing fighters accepted into Navy squadron inventory.

1971

1 JANUARY • *Hancock* (CVA 19) and *Ranger* (CVA 61) continued operations with Task Force 77 from Yankee Station off Vietnam by launching interdiction missions against the Ho Chi Minh Trail in Laos, air support for allied ground forces in South Vietnam, photographic reconnaissance, combat air patrol, and electronic warfare sorties.

6 JANUARY • Maj. Gen. Homer S. Hill, USMC, accepted the first AV-8A Harrier for the Marine Corps at Dunsfold, England.

K89288

A Marine AV-8A Harrier lands on board amphibious assault ship *Guadalcanal* (LPH 7) in the Atlantic, 22 March 1971.

Apollo 14 astronauts Capt. Alan B. Shepard Jr. (left) and Maj. Stuart A. Roosa, USAF, await recovery after their splashdown in the Pacific, 9 February 1971. They, along with fellow astronaut Cmdr. Edgar D. Mitchell, and the capsule were brought on board *New Orleans* (LPH 11).

19 JANUARY • *Enterprise* (CVAN 65) completed sea trials with eight newly designed nuclear reactor cores that contained enough energy to power the ship for ten years.

22 JANUARY • Pilot Cmdr. Donald H. Lilienthal established a world record in the heavyweight turboprop class for long-distance flight in a production model P-3C Orion with a flight of 6,857 statute miles over the great circle route from NAS Atsugi, Japan, to NAS Patuxent River, Md. The 15-hour, 21-minute flight topped the Soviet Ilyushin Il-18 turboprop record of 4,761 miles set in 1967.

26 JANUARY • An AV-8A arrived to commence Board of Inspection and Survey trials for Harriers at NATC Patuxent River, Md.

27 JANUARY • Aircraft commander Cmdr. Donald H. Lilienthal established a world speed record in the heavyweight turboprop class in a P-3C Orion of 501.44 mph over a 15/25 kilometer course at NATC Patuxent River, Md.

27 JANUARY • NAVAIR directed the expedited procurement of TCW-33P VWS (ventilated wet suits) to permit their issuance to VS and VP squadrons during the winter of 1971–1972. The evaluation of 3,100 VWSs began in 1969, and enthusiastic acceptance by flight crews led to the decision to procure them for early issue rather than phased in.

29 JANUARY • EA-6B Prowlers entered service with VAQ-129 at NAS Whidbey Island, Wash. The carrier-based electronic warfare aircraft were derived from two-place A-6 Intruders and lengthened to accommodate a four-place cockpit, replacing EKA-3B Skywarriors. VAQ-129 (redesignated from VAH-10 in 1970) became the replacement training squadron when it began instructing aircrew and ground support replacement sailors for all the Navy's Prowler squadrons.

31 JANUARY • *Hancock* (CVA 19), *Ranger* (CVA 61), and *Kitty Hawk* (CVA 63) alternated on Yankee Station off Vietnam and launched a total of 3,214 sorties during January, of which 3,128 bombed in Laos. The enemy operated a seasonally high amount of road transport averaging close to 1,000 trucks per day, and A-6 Intruders and A-7 Corsair IIs proved particularly effective attacking this traffic.

31 JANUARY • Apollo 14, manned by Capt. Alan B. Shepard Jr., Cmdr. Edgar D. Mitchell, and Maj. Stuart A. Roosa, USAF, launched from John F. Kennedy Space Center, Fla. Shepard and Mitchell in Lunar Module 8 *Antares* landed on the moon. On 9 February, the trio in Command Module 110 *Kitty Hawk* splashed down in mid-Pacific, four miles from the primary recovery vessel, amphibious assault ship *New Orleans* (LPH 11). SH-3A Sea Kings of HS-6 operating from the ship recovered the astronauts.

4 FEBRUARY • Aircraft commander Cmdr. Donald H. Lilienthal set a world altitude record in horizontal flight for the heavy turboprop class in a P-3C Orion of 45,018.2 feet from NATC Patuxent River, Md.

5 FEBRUARY • Panamanian-flagged ore ship *Flamingo* lost power and drifted about 100 miles east of Sicily. Sixth Fleet destroyers attempted to take her in tow, but rough seas prevented the endeavor. *Forrestal* (CVA 59), operating in the Ionian Sea, dispatched four SH-3D Sea Kings from HS-3 through winds gusting up to 60 knots to rescue all 20 crewmembers and passengers.

5 FEBRUARY • The Navy announced the successful test firing of a Condor air-to-surface missile armed with a live warhead. An A-6 launched and guided the missile by television to score a direct hit on a target ship sailing out of sight of the Intruder.

8 FEBRUARY • Cmdr. Donald H. Lilienthal established a world altitude record for unlimited weight turboprop planes in a P-3C Orion of 46,214.5 feet, and also time-to-climb records of 3,000 meters in 2 minutes, 51.7 seconds; 6,000 meters in 5 minutes, 46.3 seconds; 9,000 meters in 10 minutes, 26.1 seconds; and 12,000 meters in 19 minutes, 42.2 seconds.

An SH-3A Sea King, BuNo 152121, of HS-6 hoists an Apollo 14 astronaut aloft from command module *Kitty Hawk* during recovery operations approximately 760 miles south of American Samoa.

17 FEBRUARY • The Weapons Systems Explosive Safety Review Board approved the service use of WMU-1/B pyrotechnic rain and snow seeding devices. These consisted of a silver iodide (catalyst) generator, and the system became the first weather modification type released for production and general use by the Navy. Later in 1971, aircraft used the device over Okinawa to enhance rainfall to help replenish the island's water reserves.

24 FEBRUARY • The Navy disclosed the deployment since June 1967 of acoubuoys—modified submarine-detecting sonobuoys—along trails in Southeast Asia to broadcast passing sounds to aircraft up to 20 miles away. The Naval Air Development Center designed the devices at Warminster, Pa.

28 FEBRUARY • Throughout February, two carriers remained on station off Vietnam as strike sorties rose to an average of 122 per day. This was the result of a 40 percent increase in enemy truck movements from the previous month that averaged more than 1,400 vehicles a day. A-7 Corsair IIs flew night all-weather minelaying missions heretofore flown exclusively by A-6 Intruders.

9 MARCH • Construction began on a joint Anglo-American naval air and radio communications station on Diego Garcia, British Indian Ocean Territory. Later in the month, Naval Mobile Construction Battalion 40 initiated the main construction effort.

10 MARCH • On Yankee Station, *Ranger* (CVA 61) and *Kitty Hawk* (CVA 63) set a record of 233 strike sorties for one day. During the ensuing six-day period, the ships scored a strike-effectiveness record that exceeded record performances by Task Force 77 during the previous three-year period.

16 MARCH • The first SH-2D LAMPS (Light Airborne Multi-Purpose System) helicopter test flight took place at the Kaman Aircraft Corporation, Bloomfield, Conn. This flight followed testing on board escort *Sims* (DE 1059) to determine deck strength for helicopter operations. Later in the month, the Navy announced the service's intention to commit 115 H-2 Seasprites to the LAMPS program.

29 MARCH • An NUH-2H Seasprite launched the first active AIM-9G Sidewinder air-to-air missile by the Weapons System Test Division of NATC Patuxent River, Md.

31 MARCH • Carriers sailing on Yankee Station launched 4,535 strike sorties in the Vietnam War during March of which 4,479 dropped bombs. These figures increased from February by 1,074 and 1,065, respectively. Aircraft flew more than 680 acoubuoy seed and interdiction missions during March with unknown results. About 75 percent of the interdiction packages, however, obtained one or more road cuts while emplacing acoubuoys.

1 APRIL • HM-12 was established at NAS Norfolk, Va., as the Navy's first helicopter squadron devoted exclusively to mine countermeasures. Squadron helicopters towed specially designed magnetic and acoustic minesweeping equipment to activate enemy mines. HM-12 flew CH-53A Sea Stallions until the deployment of RH-53D Sea Stallions built specifically for mine countermeasures.

5 APRIL • The modernization of the Naval Air Reserve continued when VA-303 received the first Reserve A-7A Corsair IIs at NAS Alameda, Calif. By the end of June, the squadron received its full complement of 12 aircraft. Less than four months later, VA-303 made the initial Reserve Corsair II deployment and marked the first extended deployment of a Reserve squadron on other than annual active duty training.

16 APRIL • A-4M Skyhawks entered squadron service with VMA-324 and -331 at MCAS Beaufort, S.C. The advanced aircraft featured a new self-contained starter, twice the 20mm ammunition load of previous Skyhawks, and 20 percent more thrust (11,200-pounds) than the latest F-variant. These M-models marked the seventh major version of the Skyhawk.

16 APRIL • VMA-513 at MCAS Beaufort, S.C., took delivery of three AV-8A Harriers, becoming the first operational U.S. high-performance vertical and/or short takeoff and landing (V/STOL) squadron.

30 APRIL • Throughout April, *Hancock* (CVA 19), *Ranger* (CVA 61), and *Kitty Hawk* (CVA 63) provided a constant two-carrier posture for Task Force 77 on Yankee Station off Vietnam with one working daylight missions and the other on a noon-to-midnight schedule. During the month, 3,648 strike sorties were flown along with an additional 12 into North Vietnam. The strikes focused on the interdiction of major Laotian entry corridors to South Vietnam.

10 MAY • *Midway* (CVA 41) relieved *Hancock* (CVA 19) off Vietnam. On 18 May, *Midway* began single-carrier operations, which had not been in effect since January when *Kitty Hawk* (CVA 63) served a solo two-week tour, on Yankee Station until the end of the month. This allowed *Kitty Hawk* and *Ranger* (CVA 61) to undergo maintenance in Japan.

21 MAY • Technical evaluation of a new fire control system with a helmet-mounted sight began at NATC Patuxent River, Md.

28 MAY • The Secretary of Defense announced measures to strengthen the Sixth Fleet by noting his intention to improve Fleet readiness by the almost continuous presence of a helicopter carrier, and by a substantial increase in the hours flown by maritime air patrols and the ship-operating days of sea patrols. The move followed an earlier announcement by the Pentagon on 24 May of the strengthening of the Sixth Fleet in response to growing Soviet naval power.

31 MAY • May strikes during the Vietnam War emphasized interdiction of Laotian entry points to South Vietnam,

Southern Laotian routes leading to Cambodia, as well as corridors throughout the South. Although weather cancellations remained at a comparatively low level, the Seventh Fleet conserved strike sorties by limiting carrier flights to 60–70 per day, resulting in a total of 2,645 sorties that delivered ordnance during the month. North Vietnamese surface-to-air missile (SAM) coverage south of 20°N continued at a high level and the increased SAM threat required additional aircraft in support of strike and reconnaissance flights. Two protective reaction strikes—retaliation in response to enemy attacks or radar tracking—occurred in North Vietnam.

28 JUNE • A proposal by the Naval Training Command Board to consolidate all naval training was approved. The board had convened under the direction of the Chief of Naval Operations on 8 February. Major recommendations included the establishment of a single training command as the chief of Naval Training with headquarters at NAS Pensacola, Fla. The chief of Naval Technical Training was established at Memphis, Tenn. The command of education and programs formerly under the chief of Naval Personnel shifted to the director of Naval Education and Training. The scheme also included the consolidation of three former air training staffs into a single staff with eight training wings to be located at major pilot training bases. Public announcement of the new single training command occurred on 21 July and became effective on 1 August.

29 JUNE • MIL-C-18263F (AS) directed the replacement of matt Light Gull Gray, Federal Standard Color No. 36440, applied to carrier aircraft with glossy Light Gull Gray, Federal Standard Color No. 16440.

30 JUNE • The southwest monsoons with attendant clouds and rain affected the operations of carriers sailing off Vietnam during June, but the realignment of the ships continued. On 5 June, *Kitty Hawk* (CVA 63) relieved *Midway* (CVA 41), and on 16 June, *Oriskany* (CVA 34) began strike operations. A total of 14 two-carrier days and 16 single-carrier days during the month resulted in a monthly strike sortie count of 2,431. The Navy's count for Fiscal Year 1971 totaled 32,230 sorties—or 172 under the annual ceiling.

7 JULY • The retirement of the last active duty Skyraider, an NA-1E (BuNo 132443), occurred at NATC Patuxent River, Md. The aircraft had participated in test programs including slow speed and ordnance release. The plane was restored and hangared at Tyler, Texas.

13 JULY • Deputy Secretary of Defense David Packard issued a new directive defining the policy for acquisition of major defense systems. He sought to return authority to the military departments, subject to approval by the Secretary of Defense at key points in the development acquisition process. The policy included an increased emphasis on the project manager (called program manager in the Department of Defense directive), the reiteration of the importance of maintaining a strong technology base, and the definition of the entire development-acquisition process as three distinct phases: program initiation, full-scale development, and production/deployment.

The new directive emphasized the importance of making accurate cost predictions and realistic schedule forecasts, and of relating the military benefits anticipated from a new technology to the cost of the technology. Prototyping as part of the advanced development effort was to reduce the magnitude of risk, and the operational suitability of a system was to be tested and evaluated before commitment to large-scale production. The policy later acquired the popular description "fly before buy."

24 JULY • Carrier Anti-Submarine Air Group Reserve 80 began antisubmarine operations from *Ticonderoga* (CVS 14). This marked the first time in U.S. Navy history that the Naval Air Reserve demonstrated the capability for immediate employment of fleet-size wings and groups, fully manned, properly equipped, and operationally ready to perform all phases of carrier operations.

26 JULY • Apollo 15 crewed by Col. David R. Scott, USAF; Lt. Col. Alfred M. Worden, USAF; and U.S. Naval Academy graduate, class of 1951, Lt. Col. James B. Irwin, USAF; launched from John F. Kennedy Space Center, Fla. On 30 July, Scott and Irwin in Lunar Module 10 *Falcon* landed on the moon. On 7 August, one of the three main parachutes of Command Module 112 *Endeavor* failed and caused a hard splashdown north of Hawaii and six miles from the primary recovery vessel, amphibious assault ship *Okinawa* (LPH 3). A helicopter carried the astronauts to the ship and *Okinawa* retrieved *Endeavor*. Apollo 15 achieved all primary mission objectives.

28 JULY • HC-7 became the second Navy helicopter squadron to receive the Presidential Unit Citation for duty during the Vietnam War. HAL-3 had previously received the award. The Navy credited HC-7 search and rescue detachments operating from ships at sea on Yankee Station with rescuing 76 aviators. During the early stages of the war, the squadron made several overland rescues in North Vietnam under intense enemy fire.

30 JULY • During July, *Oriskany* (CVA 34), *Midway* (CVA 41), and *Enterprise* (CVAN 65) served intermittently off Vietnam over a total of 22 two-carrier days and nine single-carrier days that resulted in a monthly strike sortie count of 2,001. On three different occasions, Typhoons Harriet, Kim, and Jean disrupted operations. A slight increase in strike sorties into South Vietnam occurred during the month, consisting mainly of visual strikes against enemy troop positions.

30 JULY • The Navy accepted the first operational supersonic BQM-34E Firebee II aerial target. Ryan Aeronautical Corporation developed the aircraft under contract to NAVAIR to maneuver at greater speeds and altitudes than the Firebee variants previously in use. The jet-powered, remote-controlled target system offered sub- and supersonic capabilities up to Mach 1.5.

3 AUGUST • Pilots of VMA-142, -131, and -133 began qualification landings in A-4L Skyhawks on board *Independence* (CVA 62). During a three-day period, four active duty and 20 Reserve pilots operated on board the carrier, marking the first time that Marine Aircraft Reserve squadrons qualified for carrier duty.

26 AUGUST • VAW-124 flew a carrier-based early warning E-2B nonstop across the Atlantic. The Hawkeye left NAS Norfolk, Va., and flew over Newfoundland, Canada, and Lajes, Azores, to reach *America* (CVA 66) while she sailed with the Sixth Fleet in the Mediterranean.

31 AUGUST • Dual carrier operations in the Vietnam War occurred only during the first week of August. Beginning on 16 August, *Enterprise* (CVAN 65) operated alone on station. Thus, a total of eight two-carrier days and 23 single-carrier days represented a near reversal of July's carrier mix and produced a strike sortie count for the month of 1,915.

30 SEPTEMBER • One day of two carriers operating simultaneously marked the only exception to single-carrier operations on Yankee Station throughout September in the Vietnam War. During the first four days, *Enterprise* (CVAN 65) launched raids, replaced through the middle of the month by *Oriskany* (CVA 34), and during the last four days, by *Midway* (CVA 41). The single-carrier posture combined with the low intended sortie rate produced 1,243 strike sorties during the month. On 21 September, *Oriskany* fliers participated in a joint Air Force–Navy protective reaction strike—retaliation in response to enemy attacks or radar tracking—into southern North Vietnam.

5 OCTOBER • HC-4 accepted its first SH-2D LAMPS at NAS Lakehurst, N.J. The squadron became the first command in the fleet to use the new light airborne multi-purpose system–configured Seasprites. One week later, HC-5 became the first West Coast squadron to receive the Seasprites at NAS Imperial Beach, Calif.

8 OCTOBER • C-5A Galaxys of the 437th Military Airlift Wing airlifted four CH-53 Sea Stallions and about 100 men of the Mobile Mine Countermeasure Command from NAS Norfolk, Va., and Charleston, S.C., to the Sixth Fleet at Souda Bay, Crete. The operation demonstrated a global quick reaction mine countermeasures capability. A detachment of four HM-12 CH-53As recorded the first overseas deployment of the new helicopters. The detachment began sweeping operations upon arrival, and from 2 to 7 November, the squadron participated in the first integration of airborne minesweeping operations into an amphibious assault exercise conducted from amphibious transport dock *Coronado* (LPD 11).

29 OCTOBER • HS-15 at NAS Lakehurst, N.J., was established as the first sea control ship squadron. Tactically, the unit was to protect convoys and vessels not operating with or within the protective range of carriers. The HS-15 SH-3H Sea Kings and VMA-513 AV-8A Harriers subsequently carried out tests along these lines on board amphibious assault ship *Guam* (LPH 9). The evaluations included V/STOL and helicopter compatibility, antisurface tactics, bow and cross-axial landings, night operations, and shipboard control of airborne intercepts.

31 OCTOBER • Single-carrier operations dominated Yankee Station activity off Vietnam during October

except for the last day. On 10 October, *Midway* (CVA 41) completed her final line period and the next day *Enterprise* (CVAN 65) renewed her operations for the remainder of the month with *Oriskany* (CVA 34) joining the final day. Together the three carriers recorded a monthly total of 1,024 ordnance delivering strike sorties, including 30 into South Vietnam and the balance over Laos. On 20 October, the deployment of two MiGs each south of 20° N at Bai Thuong, Quan Lang, and Vinh, altered the air war in North Vietnam.

8 NOVEMBER • The first S-3A antisubmarine warfare jet was rolled out at Lockheed-California Company, Burbank, Calif. The Vikings were to replace S-2 Trackers.

17 NOVEMBER • The office of the Assistant Secretary of Defense reported the designation of the Navy as the lead service in making aircraft ready for use in Project Grass Catcher—the interception of drug smugglers. During January and February 1972, four OV-10 Broncos operated with the Bureau of Customs.

30 NOVEMBER • A team from NATC Patuxent River, Md., carried out preliminary evaluations of a prototype F-14A Tomcat at the Grumman Corporation's Calverton, N.Y., facility.

30 NOVEMBER • Carriers launched 1,766 ordnance-bearing strike sorties including 12 and nine into North and South Vietnam, respectively, and the balance into Laos. Two reconnaissance missions were flown over the airfield at Vinh, and escort aircraft on both missions expended ordnance in a protective reaction role against antiaircraft artillery sites near the field that opened fire. Aircraft also executed other protective reaction strikes during November.

2 DECEMBER • NAF Cam Ranh Bay, South Vietnam, was disestablished. Patrol squadron detachments, which had routinely rotated at NAF Cam Ranh Bay then deployed to NAS Cubi Point, Philippines. At Cam Ranh Bay, the patrol squadrons served as part of the Vietnam Air Patrol Unit under the operational control of Commander Fleet Air Wing 8 or 10. Operational tasking also originated from Commander Task Force 77 on Yankee Station or Commander Seventh Fleet. The patrol squadrons worked closely with Commander Vietnam Coastal Surveillance Force, Task Force 115. Their missions included air patrol coverage for South Vietnam along the coastline during Operation Market Time—the detection and interdiction of infiltration by North Vietnamese trawlers that smuggled men and supplies into South Vietnam. Patrol squadrons also provided aerial reconnaissance and antisubmarine patrols for ships operating in Yankee Station and other areas of the Gulf of Tonkin and the South China Sea.

2 DECEMBER • Cmdr. George W. White at NATC Patuxent River, Md., became the first Navy test pilot to fly an F-14A Tomcat. By the end of 1971, nine of the jets operated within various flight test programs. Purchase plans called for an eventual total of 313 aircraft—301 for operations and 12 for research and development.

8 DECEMBER • Amphibious Group Alpha, formed around amphibious assault ship *Tripoli* (LPH 10), received orders to move from Okinawa to the vicinity of Singapore in anticipation of a possible deployment to the Indian Ocean. This action followed indications by the head of the UN relief mission at Dacca, East Pakistan (Bangladesh), of the possible evacuation of foreign civilians as a result of the Indo-Pakistani War of 1971, which began on 3 December. On 10 December, *Enterprise* (CVAN 65) formed Task Force 74 and departed Yankee Station off Vietnam for the Indian Ocean. Two days later, the Royal Air Force evacuated Westerners from East Pakistan, thereby eliminating the requirement for an American evacuation, but on 15 December, Task Force 74 entered the Indian Ocean as a show of force. On 7 January 1972, *Enterprise* received orders to sail from the Indian Ocean, and the next morning turned for the Strait of Malacca. On 12 January, she arrived at Subic Bay, Philippines.

8 DECEMBER • Commander-in-Chief, U.S. Pacific Fleet confirmed a requirement previously enunciated by AirPac for a system of video coverage of the entire launch and recovery sequence of carrier operations.

12 DECEMBER • VX-4 reported on an extensive series of evaluations that had begun in 1969 of the visual target acquisition system—a helmet-mounted sight—in F-4 Phantom IIs. The report cited a number of shortcomings but concluded that the sight proved superior to operational equipment used by fighter pilots in air-to-air combat.

15 DECEMBER • The A-6A Intruders and KA-6D tankers of VMA(AW)-224, embarked on board *Coral Sea* (CVA 43), reached Yankee Station off Vietnam. Their arrival marked the first Marine Corps squadron to fly combat missions from a carrier into North Vietnam.

31 DECEMBER • During 1971, the helicopters of HAL-3, the only light attack helicopter squadron in the Navy, flew 34,746 hours in support of their mission to provide quick-reaction armed helicopter close air support for all naval forces and South Vietnamese forces operating in the southern part of South Vietnam. Over the course of this action, HAL-3 lost six aircraft.

31 DECEMBER • *Constellation* (CVA 64) and *Enterprise* (CVAN 65) operated on Yankee Station together during part of the month. After *Enterprise* was directed on 10 December to sail to the Indian Ocean for the possible evacuation of Americans from East Pakistan (Bangladesh) in connection with the Indo-Pakistani war, the tour of *Constellation* was extended to the end of the month. On 15 December, *Coral Sea* (CVA 43) arrived on the line. During December the carriers launched 2,462 ordnance delivery sorties.

31 DECEMBER • By the end of the month, the North Vietnamese increased the number of surface-to-air missile launches against allied aircraft, and incursions by MiGs into Laos prompted the Air Force and Navy to develop new tactics and combine efforts to suppress these threats. On 26 December, a major combined effort protective reaction strike began, ending on 30 December. Task Force 77 A-6A Intruders, led by A-7E Corsair II pathfinders, flew 423 strike sorties against targets near Dong Hoi, Quang Khe, and Vinh, North Vietnam. In addition, aircraft flying from *Constellation* introduced laser-guided bombs (LGB) to battle. The initial 16 trial LGB drops cut roads and were followed by attacks on antiaircraft artillery sites. During 1972, Air Force aircraft dropped LGBs effectively against heretofore indestructible targets such as heavy steel bridge structures built into solid rock.

1972

JANUARY • The Greek government approved in principle the concept of homeporting Commander Task Force 60 at Athens. Secretary of Defense Melvin R. Laird recommended *Independence* (CVA 62) and CVW-7 as the primary commands of the force, and the operation of a satellite airfield at the Greek station of Elefsis to supplement the existing facilities at Souda Bay, Crete.

1 JANUARY • The area of responsibility assigned to Commander-in-Chief, Pacific was shifted westward to include the Indian Ocean and the Persian Gulf. Construction continued on the U.S. naval communications, refueling, and logistical airstrip facilities on Diego Garcia, British Indian Ocean Territory, to provide communications and logistical support for U.S. forces operating in the Indian Ocean and Persian Gulf.

6 JANUARY • TraWing-5 was established at NAS Whiting Field, Fla. The new wing, the first established under the reorganization of the Naval Air Training Command, consisted of NASs Whiting and Ellyson Fields, VT-2, -3, and -6, and HT-8. It coordinated and supervised training activities that had previously been the responsibility of each of the stations and squadrons.

18 JANUARY • *Enterprise* (CVAN 65) joined *Constellation* (CVA 64) on Yankee Station off Vietnam after her brief tour in the Indian Ocean.

18 JANUARY • Amphibious assault ship *Guam* (LPH 9) began the first in a series of tests to analyze the sea control ship (SCS) concept. The SCS was to operate a smaller complement of aircraft than large carriers (CVA) and to maintain control of the sea lanes in low-threat areas of the world. They were to carry V/STOL aircraft as well as helicopters to protect underway replenishment groups, mercantile convoys, amphibious assault forces, and task groups without aircraft carriers in company.

19 JANUARY • Pilot Lt. Randall H. Cunningham and radar intercept officer (RIO) Lt. j.g. William P. Driscoll of VF-96 shot down a MiG-21 Fishbed with an AIM-9 Sidewinder missile from an F-4J Phantom II, embarked with CVW-9 on board *Constellation* (CVA 64). Their victory accounted for

the Navy's 33rd MiG shoot-down in the Vietnam War since 17 June 1965, when pilot Cmdr. Louis C. Page and RIO Lt. John J. Smith Jr., of VF-21 embarked on board *Midway* (CVA 41), downed a MiG-17 Fresco with an AIM-7 Sparrow missile from an F-4B.

21 JANUARY • An S-3A Viking made the type's maiden test flight at Lockheed-California Company, Palmdale, Calif. Vikings met the Navy's requirement for aircraft capable of flying in excess of 400 knots to replace aging S-2s, and their enhanced speed, range, and sensors enabled them to search nearly three times the area covered by Trackers.

31 JANUARY • The withdrawal of U.S. ground troops from the Vietnam War and light fighting ashore ensured a low level of air operations during January, a situation that continued generally throughout the first three months of the year. During the month, only eight Navy tactical air attack sorties occurred over South Vietnam and a handful of protective reaction strikes over North Vietnam.

11 FEBRUARY • As a result of the shift from piston engine to jet aircraft, the Navy announced the closure of the Aviation Machinist's Mate Class B School on reciprocating engines at NATC Memphis, Tenn.

11 FEBRUARY • The Navy announced that the development and installation of mufflers on engine test cells had eliminated 85 percent of the audible noise in testing jet engines for A-3 Skywarriors at Naval Air Rework Facility Alameda, Calif.

29 FEBRUARY • During the month, naval air attack sorties into South Vietnam rose to 733 because of allied preemptive operations in preparation for an expected large-scale enemy offensive during Tet, which did not materialize. *Hancock* (CVA 19), *Coral Sea* (CVA 43), and *Constellation* (CVA 64) served overlapping tours on Yankee Station to assure the availability of at least two carriers on station at a time.

10 MARCH • During the period from 5 January through this date, protective reaction strikes increased. Navy and Air Force aircraft flew 90 such strikes against surface-to-air missile and antiaircraft artillery installations, compared to 108 similar raids during all of 1971.

16 MARCH • HAL-3 was disestablished.

23 MARCH • VMA-513 completed the Harrier Department of Defense sortie rate validation and demonstrated the capability of Harriers to respond rapidly and repeatedly to requests for close air support while operating from austere forward bases. During the ten-day test, the squadron flew 376 sorties with six operational AV-8As.

24 MARCH • A QF-4B target aircraft arrived for testing at the Naval Missile Center Point Mugu, Calif. The Phantom II had undergone conversion from combat configuration at Naval Air Development Center, Warminster, Pa. The aircraft fulfilled the requirement for a full-size, high-altitude, supersonic, maneuvering aerial target capable of flying at altitudes in excess of 50,000 feet and at airspeeds exceeding twice the speed of sound.

29 MARCH • The Atlantic Fleet Weapons Range used a supersonic BQM-34E for the first time during missile defense exercises with frigate *Wainwright* (DLG 28). A DP-2E Neptune launched the Firebee II from an altitude of 20,000 feet, and the target accelerated to Mach 1.52 to test the ship's ability to withstand penetrations by high-altitude, high-speed enemy aircraft.

29 MARCH • The Naval Air Technical Training Unit's Photographer's Mate Class "A" School renewed flight training as part of the course. Fleet demand for qualified aircrew drove the action after a 16-year suspension of the requirement.

30 MARCH • Naval air attack sorties over South Vietnam dropped to 113 during March. On 23 March, the United States canceled further peace negotiations in Paris, France, because of a lack of progress in the talks. On this date, the North Vietnamese launched the Nguyen Hue Campaign into South Vietnam, dubbed by journalists the "Easter Offensive." President Richard M. Nixon activated Tactical Air Command Operation Plan 100 known as Constant Guard—support for the remaining U.S. advisors in South Vietnam and the South Vietnamese forces. *Hancock* (CVA 19) and *Coral Sea* (CVA 43) sailed on Yankee Station when the offensive began, and during the month, *Kitty Hawk* (CVA 63) and *Constellation* (CVA 64) rotated through the fighting.

1 APRIL • VAL-4 departed South Vietnam. The squadron, which flew OV-10A Broncos, primarily from Binh Thuy, comprised the last Navy combat force in that country.

5 APRIL • In reaction to the North Vietnamese invasion of South Vietnam, Operation Freedom Trail involved Navy tactical air sorties against enemy military and logistic targets in the southern part of North Vietnam between 17° and 19°N. At times, aircraft also bombed special targets above the 19th parallel. The magnitude of the North Vietnamese offensive required an extended logistics network and increased resupply routes to sustain their invasion. The Americans gradually lifted many target and geographical restrictions that had been in effect since October 1968 and expanded the list of authorized targets. By the end of April the revised directives permitted attacks throughout the region below 20°25'N and special strikes above the 20th parallel.

6 APRIL • VMFA-115 F-4B and VMFA-232 F-4J Phantom IIs arrived at Da Nang AB, South Vietnam, from MCAS Iwakuni, Japan. The Marines deployed as part of the reinforcements to support the South Vietnamese, particularly around An Loc, Kontum, Pleiku, and Quang Tri. On 14 April, VMFA-212 F-4Js arrived from MCAS Kaneohe, Hawaii. Targets for Marine sorties included enemy tanks, trucks, and troops, and enabled the South Vietnamese to regroup north and west of Hué.

6 APRIL • An F-14A Tomcat arrived at NATC Patuxent River, Md., for a series of catapult launches, automatic carrier landing system checks, airspeed system calibrations, and weight and balance checks to determine the suitability of the fighters for naval operations.

7 APRIL • During the week ending this date, Navy aircraft flew 680 sorties in South Vietnam to counter North Vietnamese troop concentrations and their equipment flow, and to assist the South Vietnamese with close air support, direct air support, and interdiction missions. This week marked a five-fold increase in naval air sorties since March.

11 APRIL • A P-3 performed the first drop test of a BGM-84A Harpoon stand-off antiship missile from 20,000 feet over the Naval Missile Center Point Mugu, Calif. An AGM-84 air-to-ground version subsequently entered the fleet.

12 APRIL • The P-3C Acoustic Sensor Operator Trainer (Device 14B44) became available for training aircrew at the Fleet Aviation Specialized Operational Training Group, Pacific Detachment. The simulator duplicated the real world conditions of underwater acoustical data and the detection, classification, and localization procedures of the Orion AQA-7 Jezebel system.

14 APRIL • For the week ending this date, Navy aircraft averaged 191 sorties per day, primarily against targets to the west and north of Quang Tri, South Vietnam, a 97 percent increase over the previous week.

16 APRIL • Apollo 16, manned by Capt. John W. Young; Lt. Col. Charles M. Duke Jr., USAF; and Lt. Cmdr. Thomas K. Mattingly II; launched from John F. Kennedy Space Center, Fla. On 19 April, Young and Duke in Lunar Module 11 *Orion* landed on the moon. On 27 April, Command Module 112 *Casper* splashed down in the mid-Pacific several miles from primary recovery ship *Ticonderoga* (CVS 14). An SH-3G Sea King of HC-1, embarked on board *Ticonderoga*, retrieved the astronauts. Apollo 16 achieved all primary mission objectives of lunar and space exploration and experimentation.

16 APRIL • Aircraft from *Coral Sea* (CVA 43), *Kitty Hawk* (CVA 63), and *Constellation* (CVA 64), flew 57 sorties in the Haiphong area of North Vietnam in support of Air Force B-52 strikes on petroleum storage facilities during Operation Freedom Porch.

25 APRIL • During the final six days of April, A-4F Skyhawks of VA-55, -164, and -211 flying from *Hancock* (CVA 19) struck the North Vietnamese and People's Liberation Armed Forces around Kontum and Pleiku, South Vietnam. A-6A Intruders from VA-165 and A-7E Corsair IIs of VA-146 and -147, embarked on board *Constellation* (CVA 64), attacked the enemy around An Loc in support of South Vietnamese troops, in some cases only 40 miles outside the capital of Saigon.

28 APRIL • An F-14A Tomcat over the Naval Missile Center Point Mugu, Calif., launched an AIM-54A Phoenix air-to-air missile for the first time.

30 APRIL • The expansion of naval air operations in the Vietnam War led to a total of 4,833 Navy sorties over South

Vietnam and 1,250 sorties into North Vietnam during April. The Marines flew 537 sorties over South Vietnam. The increased effort included the deployment of four carriers. *Hancock* (CVA 19) and *Coral Sea* (CVA 43) had sailed to Yankee Station when the North Vietnamese spring offensive began. On 3 April, *Kitty Hawk* (CVA 63) arrived at Yankee Station, followed on 7 April by *Constellation* (CVA 64). Between 8 and 30 April, the Navy effort grew gradually from 240 sorties a day to a peak of more than 300, resulting in a monthly average of 270 sorties per day.

1 MAY • Improved weather conditions during the first seven days of May facilitated a daily average of 97 Navy attack sorties into North Vietnam and 168 into South Vietnam. The first week also witnessed the enemy's deployment of SA-7 Grail infrared-seeker surface-to-air missiles.

4 MAY • The Navy unveiled its first night carrier landing trainer, for A-7E Corsair IIs, at NAS Lemoore, Calif.

5 MAY • The P-3Bs of VP-9 departed NAS Moffett Field, Calif., for NAS Cubi Point, Philippines. The Orions subsequently augmented aircraft tasked with ocean surveillance patrols concerning the mining of North Vietnamese harbors and the corresponding movement of Eastern Bloc ships.

6 MAY • In the second most active Navy dogfight day of the Vietnam War, two F-4B Phantom IIs, crewed by pilot Lt. Gary L. Weigand and radar intercept officer (RIO) Lt. j.g. William Freckleton of VF-111, and pilot Lt. Cmdr. Jerry B. Houston and RIO Lt. Kevin T. Moore of VF-51, both jets embarked on board *Coral Sea* (CVA 43), each shot down a MiG-17 Fresco with an AIM-9 Sidewinder air-to-air missile. Two F-4Js manned by pilot Lt. Robert G. Hughes and RIO Lt. j.g. Adolph J. Cruz, and pilot Lt. Cmdr. Kenneth W. Pettigrew and RIO Lt. j.g. Michael J. McCabe, from VF-114 embarked on board *Kitty Hawk* (CVA 63), each shot down a MiG-21 Fishbed with a Sidewinder.

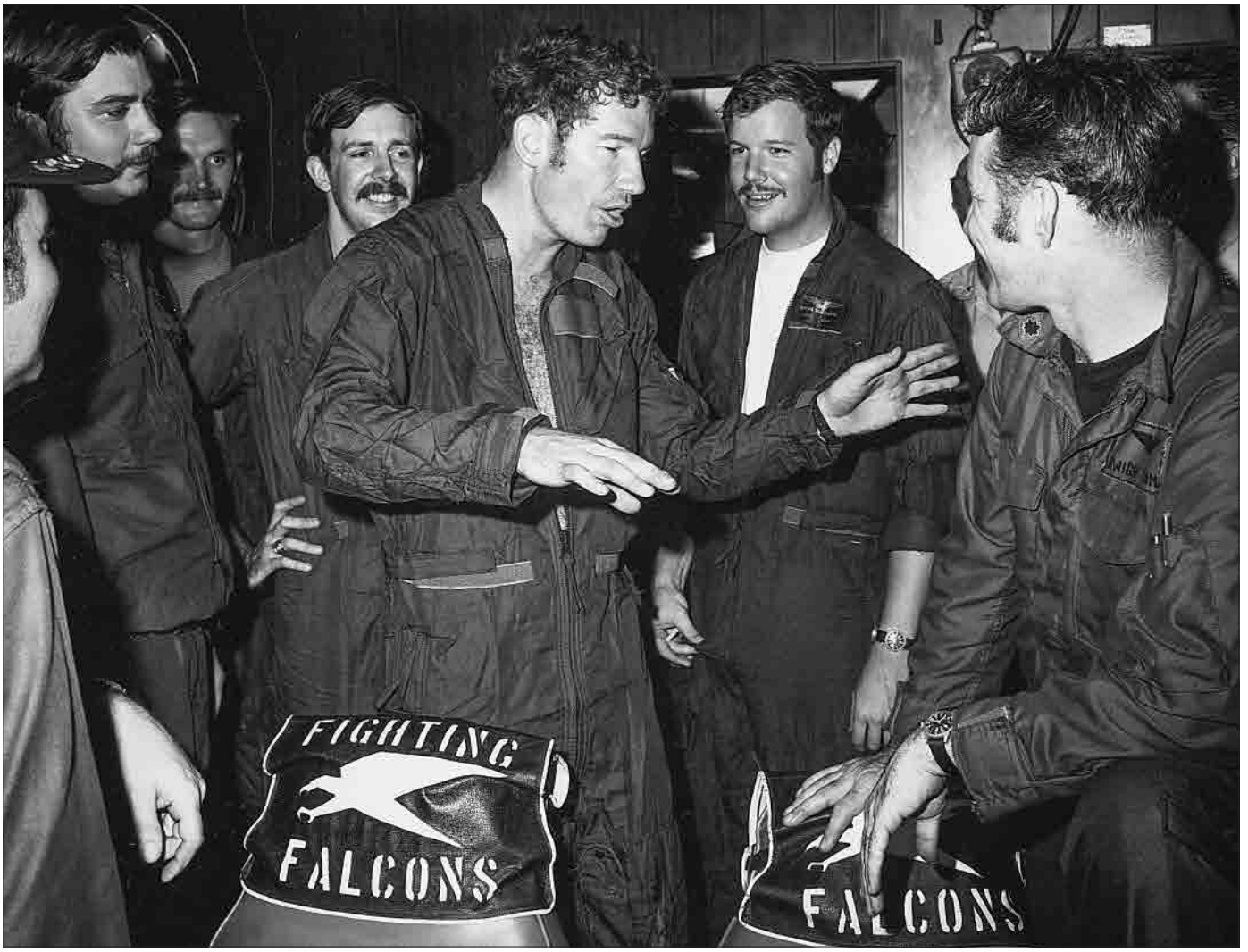
7 MAY • A tank cart defueling Apollo 16 Command Module 112 *Casper* after its return from the lunar mission exploded because of overpressurization at NAS North Island, Calif. Forty-six people suspected of inhaling of toxic fumes underwent hospitalization but examination did not reveal symptoms of inhalation.

8 MAY • For the first time in more than three weeks, U.S. air power, including 50 Navy sorties, attacked targets in the vicinity of Hanoi, North Vietnam. Naval aircraft flew another 96 sorties into southern North Vietnam between Hanoi and the Demilitarized Zone, while 99 sorties were directed against the enemy in South Vietnam.

9 MAY • Operation Pocket Money—the mining of the principal North Vietnamese ports—began. An EC-121M Constellation from Da Nang Air Base and an EKA-3B Skywarrior of VAQ-135 Detachment 3 from *Coral Sea* (CVA 43) supported the minelaying. *Kitty Hawk* (CVA 63) launched 17 diversionary ordnance delivering sorties against a railroad siding at Nam Dinh, but poor weather compelled the aircraft to divert to secondary targets at Thanh and Phu Qui.

Cmdr. Roger E. Sheets, commander of Carrier Air Wing 15, led three A-6As from VMA(AW)-224, and Cmdr. Leonard E. Guiliani led six A-7Es of VA-22 and -94 from *Coral Sea*. Each Intruder and Corsair II carried four 2,000-pound Mk 52-2 magnetic mines. Bombardier/navigator Capt. William R. Carr, USMC, flew in the lead Intruder to establish the critical attack azimuth and timed the release of the mines. The Marines dropped 12 mines in the inner channel of Haiphong Harbor and the Corsair IIs placed 24 in the port's outer channel. All the mines were set with 72-hour arming delays to permit merchant ships time for departure or a change in destination consistent with a public warning by President Richard M. Nixon. Supporting aircraft flew 150 fighter escort, bombing of surface-to-air missile sites, diversionary strike, and electronic countermeasures sorties. The raiders surprised the North Vietnamese and met minimal resistance.

These missions initiated a campaign that sowed 108 Mk 52-2s and at least 11,603 Destructor (DST) mines in 1,149 sorties from ten carriers at Cam Pha and Hon Gay, and in the river estuaries of Cap Mui Ron, Cua Sot, Dong Hoi, Quang Khe, Thanh Hoa, and Vinh, along with Cua Day and Cua Lac Giang, south of Don Son and Haiphong. On Christmas Eve, an A-7E Corsair II from *Ranger* (CVA 61) was lost on a reseeding mission to Cam Pha. On 14 January 1973, a VA-35 Intruder from *America* (CVA 66) flew the last mining mission. The Air Force also dropped 2,048 DSTs to interdict trains and trucks. Pocket Money played a significant role in bringing about a peace arrangement, because the mining hampered the enemy's ability to receive war supplies.



1151717

In the VF-96 ready room on board *Constellation* (CVA 64), Lt. Randall H. Cunningham demonstrates how he and Lt. j.g. William P. Driscoll shot down three MiG-17 fighters over North Vietnam on 10 May 1972. Damage to their F-4J Phantom II forced them to eject after their combat, but they were quickly rescued by a helicopter from *Okinawa* (LPH 3).

10 MAY • On 9 May, President Richard M. Nixon announced an air campaign against the North Vietnamese named Operation Linebacker—subsequently designated Linebacker I. This counteroffensive emerged as an outgrowth of Operation Freedom Trail and the chief executive's mining declaration during Operation Pocket Money. Its three principal objectives were the destruction of military supplies within North Vietnam, the isolation of North Vietnam from external suppliers, and stoppage of the supply flow to their troops in South Vietnam. On this date, the Navy launched the first attacks of Linebacker I during a shift from targets in southern North Vietnam to the coastal region from Haiphong north to the Chinese border. Carriers launched 173 attack sorties into North Vietnam and 62 into South Vietnam.

Navy flyers shot down eight MiGs during a day of intense air-to-air combat. Pilot Lt. Randall H. Cunningham and radar intercept officer Lt. j.g. William P. Driscoll of VF-96, embarked on board *Constellation* (CVA 64), shot down three MiG-17 Frescoes with AIM-9 Sidewinder air-to-air missiles from their F-4J Phantom II. These victories, combined with their claims of a MiG-21 on 19 January and a Fresco on 8 May, made Cunningham and Driscoll the first MiG aces of the Vietnam War.

Most of the raids consisted of armed reconnaissance flights against targets of opportunity within three main areas near Hanoi, Haiphong, and the Chinese border, and of preplanned strikes against fixed targets. During Linebacker I, the Navy contributed more than 60 percent

of the total sorties into North Vietnam, with about 25 percent of them at night. A-6 Intruders and A-7 Corsair IIs comprised the principal Seventh Fleet bombers and accounted for roughly 15 and 60 percent of the naval attack sorties, respectively. The heaviest tactical air operations occurred from July to September with 12,865 naval sorties. On 22 October, the imposition of restrictions on operations above 20°N because of ongoing peace negotiations curtailed Linebacker I.

10 MAY • NAVAIR promulgated a plan for the management of advanced prototype development and demonstration of a thrust-augmented wing attack plane-fighter V/STOL aircraft. The planned establishment of a prototype development manager under the deputy commander for Plans and Programs was to be assisted by a small cadre of management and technical people located in the assistant commander for research and technology's organization and at the contractor's facility.

13 MAY • CH-46D Sea Knights and CH-53D Sea Stallions of HMM-164, embarked on board amphibious assault ship *Okinawa* (LPH 3), airlifted 1,000 members of the South Vietnamese 369th Marine Brigade from a landing zone near Hué to an area 24 miles northwest of the city behind North Vietnamese lines.

17 MAY • A-4E Skyhawks of VMA-211 and -311 arrived from Japan at the recently reactivated base at Bien Hoa, South Vietnam. The Marines concentrated air strikes against enemy troops surrounding An Loc and responded to calls from counterattacking South Vietnamese forces in adjacent areas.

18 MAY • The scope of the air war in Vietnam changed when aircraft bombed an electric power plant at Uong Bi near Haiphong, North Vietnam. This raid marked the beginning of strikes on a class of targets formerly avoided including power plants, shipyards, and a Haiphong cement plant. Over 60 of the more than 200 naval sorties into North Vietnam that day occurred in the Haiphong region, the first since 10 May.

25 MAY • Secretary of the Navy John W. Warner signed the Incidents at Sea Agreement between the United States and Soviet Union. There were 15 serious incidents of Eastern Bloc aircraft firing on U.S. Navy planes since 1945. This agreement was designed to help prevent unintentional incidents between the two navies and to reduce tension on and over the high seas.

1151760

Lt. Curt Dose explains how he and Lt. Cmdr. James McDevitt of VF-92 shot down a North Vietnamese MiG-21, 10 May 1972. Their victory was one of ten that day by *Constellation* (CVA 64) aircraft.

31 MAY • During the month, Navy aircrew flew 3,949 attack sorties into North Vietnam as compared to 1,250 during April; those into the South numbered 3,290 for May compared to 4,833 the previous month. While naval sorties into South Vietnam dropped by more than 500 from the previous month, Marine missions over South Vietnam increased from 543 in April to 1,502 during May. Targets in North Vietnam hit by naval planes increased to 2,416 in May from 719 during April. Railroads accounted for 16 percent of the targets bombed, roads and trucks 14, storage areas 13, and bridges 10 percent. During May, naval flyers shot down 16 enemy jets including 11 MiG-17 Frescoes, two MiG-19 Farmers, and three MiG-21 Fishbeds over North Vietnam. The Navy lost six aircraft including two F-4 Phantom IIs and two A-7 Corsair IIs to SA-2 surface-to-air missiles, and one F-8 Crusader and one RA-5 Vigilante to unknown causes.

Saratoga (CVA 60) joined five other carriers on Yankee Station during the month to raise carrier strength to six ships—the greatest number since the war began. The fighting reached a stalemate as air power and the regrouped South Vietnamese halted the North Vietnamese forward thrust.

20 JUNE • The A-6A Intruders of VMA(AW)-533 arrived at Nam Phong, Thailand, as a reaction to the North Vietnamese attacks in the South Vietnamese highlands. A joint Navy/Marine engineering team prepared the advance base by hacking roads and aircraft parking and storage areas from the jungle. Marine Task Force Delta, KC-130 Hercules of VMGR-152 Detachment D, CH-46 Sea Knights of H&MS-36 Detachment D, and VMFA-115 F-4B and VMFA-232 F-4J Phantom IIs arrived at the base from 23 May to 18 June.

21 JUNE • Pilot Cmdr. Samuel C. Flynn Jr. and radar intercept officer (RIO) Lt. William H. John of VF-31, embarked on board *Saratoga* (CVA 60), shot down a MiG-21 Fishbed with an AIM-9 Sidewinder air-to-air missile from an F-4J Phantom II. Their victory marked the third MiG downed by Navy pilots during June. Earlier, on 11 June, pilot Cmdr. Foster S. Teague and RIO Lt. Ralph M. Howell, and pilot Lt. Winston W. Copeland with RIO Lt. Donald R. Bouchoux, all of VF-51 embarked on board *Coral Sea* (CVA 43), shot down two MiG-17 Frescoes with Sidewinders from their F-4Bs in the Nam Dinh area of North Vietnam.

21 JUNE • The chief of Naval Material directed Commander, Naval Electronic Systems Command (ELEX) to assume the responsibility and authority for final decisions in development, acquisition, and support for equipment and capabilities that provided platform-to-platform command, control, and communications involving satellites, air, surface, and subsurface elements. The directive included a proposal to rename the ELEX to reflect this assignment and prohibited large-scale lateral movements between the systems commands.

Despite these qualifications, a dispute arose as to whether ELEX was to undertake the detailed management of most of the electronic material program or to apply control through broadly gauged decisions. The decision transferred project management offices for Space (PM-16) and Reconnaissance, Electronic Warfare, and Special Operations (REWSON PM-7) from the chief of Naval Material to Commander, ELEX (PME-107), and redesignated NAVAIR's Electronic Warfare Project Management Office as REWSON, followed by the physical merging of the two REWSON project management offices with a double hatting of the incumbents.

23 JUNE • HS-2, -15, -74, and -75 aided flood victims in the Wilkes-Barre, Scranton, and Pottstown areas of Pennsylvania. The squadrons carried out evacuation, and medical, food, and clothing supply flights.

29 JUNE • NAVAIR announced the formation of a "Buddy-Up" program whereby Reserve officers attached to NAVAIR Reserve Units were to establish a working relationship with various NAVAIR activities. Planners envisioned the program as a means for Reserve officers to identify and undertake meaningful project work for the activities.

30 JUNE • Naval aircraft flew 2,021 tactical air attack sorties into South Vietnam during June, a decrease in comparison to the figures for April and May that reflected the stalemated fighting on the ground. The Navy launched 3,844 attack sorties in June against Operation Linebacker I targets in North Vietnam. Attacks against the road transport system, water transport craft, and storage targets increased from pre-June levels. The greatest number of Navy concentrated strikes that involved ten or more attack aircraft striking a compact cluster of targets took place from April through June, and comprised 40 percent of its total attack effort.

1 JULY • A reorganization of the Naval Air Training system occurred with the disestablishment of Naval Air Advanced Training Command and the relocation of chief of Naval Air Training to NAS Corpus Christi, Texas. This was part of the Navy's effort to consolidate training under the "single base training" concept—the assignment of pilots after their completion of primary training to a specific program training in jets, propeller-driven aircraft, or helicopters. The pilots were to complete this training at one specific base before receiving their wings. The new structure/organization fell under the control of the chief of the Naval Air Training Command.

1 JULY • Tactical Electronic Warfare Wing 13 was disestablished at NAS Whidbey Island, Wash. The wing had been established to introduce EA-6B Prowlers into the fleet.

15 JULY • A three-day test demonstration of the ability of a UH-2C to fire Sparrow III air-to-air missiles configured to attack surface targets concluded at the Pacific Missile Range, Sea Test Range, Calif. The modified Seasprite carried a single missile mounted on a rail launcher, and fired a total of four Sparrow IIIs during the demonstration.

22 JULY • Typhoon Rita caused disastrous flooding that affected tens of thousands of people across the central Luzon valley between Manila and Lingayen Gulf, Philippines. Amphibious assault ship *Tripoli* (LPH 10), with HMM-165 embarked, arrived in Subic Bay to provide relief support. The Marine helicopters evacuated more than 2,000 flood victims to *Tripoli*.

31 JULY • On 24 May, the Navy began regular night operations in the Vietnam War. During June and July, night sorties constituted 30 percent of the total Navy attack effort into North Vietnam. These raids relied primarily on A-6 Intruders and A-7 Corsair IIs. The Intruders flew more night than day armed reconnaissance sorties during the summer months, and the Corsair IIs flew about as many night as day sorties. About 45 percent of the Navy armed reconnaissance effort took place at night during June and July. The total number of Navy night sorties during those months numbered 1,243 and 1,332, respectively. During the summer, an operational average of three to four carriers sailed on Yankee Station.

31 JULY • During the summer months, a dramatic change in the North Vietnamese air defense effort occurred. In April and May, the Navy air effort into the North involved intensive air-to-air combat and a large number of surface-to-air missile (SAM) launches. In contrast, during June and July, the number of Linebacker I Navy attack sorties increased, but the number of air-to-air battles and SAM firings decreased. MiG kills by Navy aircraft decreased to three in June and zero in July compared to 16 in May. After mid-June, almost all North Vietnamese aircraft sighted or engaged consisted of MiG-21 Fishbeds. Navy aerial encounters took place primarily against Fishbeds and represented a considerable change from the 11 MiG-17 Frescoes of 16 Navy kills that occurred in May.

5 AUGUST • Amphibious assault ship *New Orleans* (LPH 11) relieved *Tripoli* (LPH 10) during Typhoon Rita flood relief operations in the Philippines. HMM-165 transferred to *New Orleans* to continue support because of the Marines' knowledge of terrain and problems inherent in the operations.

6 AUGUST • A North Vietnamese surface-to-air missile shot down A-7A Corsair II, BuNo 153147, piloted by Lt. James R. Lloyd of VA-105 operating from *Saratoga* (CV 60), during a night armed reconnaissance mission about 20 miles northwest of Vinh. Pilot Lt. Harry J. Zinser, crew chief AE3 Douglas G. Ankney, and aircrewman AN Matthew Szymanski of HC-7 Detachment 110, manned an HH-3A that rescued Lloyd, supported by aircraft from *Midway* (CVA 41) and *Saratoga*. Zinser flew the Sea King inland over mountains the following day and used its searchlight to assist in locating and rescuing the downed man despite heavy ground fire. This retrieval marked the deepest penetration of a SAR helicopter into North Vietnam since 1968. Over all of 1972, the detachment completed 48 rescues including 35 under combat conditions.

17 AUGUST • The Naval Material Command and the Air Force Systems Command reached an agreement relating to Navy and Air Force responsibilities for aircraft engine production at the Pratt & Whitney Aircraft Divisions, East Hartford, Conn., and West Palm Beach, Fla. The memorandum of agreement provided the assignment of an Air Force deputy plant representative and staff to the Naval Plant Representative Office (NAVPRO) to represent the F-15 Eagle program director on F-15 matters and to advise the NAVPRO on the in-plant management of Air Force engine programs.

29 AUGUST • Vought Aeronautics test pilot John Konrad made the first flight of a modified A-7E Corsair II in a two-seat version under development by the company to demonstrate to the Air Force and Navy the advantages of the configuration for use as an advanced trainer or for such tactical duties as electronic countermeasures.

31 AUGUST • Navy aircraft flew 4,819 sorties into North Vietnam in August as the downward trend of Navy attack sorties over the South continued. A stepped-up campaign in the Mekong Delta accounted for a sharp rise in Marine Corps air activity in South Vietnam—from 8 percent of the total allied air effort during May to 43 percent during

August. In August, the Marines concentrated their air efforts in the South but contributed significantly to U.S. efforts in the North to prevent the offloading and transportation of supplies from Chinese merchant ships at Hon La and Hon Nieu. In late June, seven AH-1Js of HMA-369 operated from amphibious transport dock *Denver* (LPD 9) against water transport traffic, and in early August from *Cleveland* (LPD 7). In August, the operations of HMA-369 expanded to include night surveillance and attack, and the helicopters also served as air spotters for naval gunfire and as airborne tactical controllers.

11 SEPTEMBER • Pilot Maj. Lee T. Lassiter, USMC, and radar intercept officer Capt. John D. Cummings, USMC, in a VMFA-333 F-4J Phantom II operating from *America* (CVA 66), downed a MiG-21 Fishbed with an AIM-9 Sidewinder air-to-air missile near Phuc Yen, North Vietnam. This victory marked the only MiG kill for the Navy/Marine Corps during September, and brought the total of MiGs downed by naval aircrew since the beginning of the war to 55.

30 SEPTEMBER • The number of Navy tactical air attack sorties in the Vietnam War decreased during September from the level flown in August. Navy aircraft flew 3,934 sorties into North Vietnam, some 800 fewer that the previous month. During July and August, more than 45 percent of the Navy armed reconnaissance sorties occurred at night, but that figure dropped to 31 percent in September. There was a similar decline in sorties flown in the South—1,708. About half the Navy's tactical air sorties consisted of close and direct air support missions in South Vietnam. Marine Corps activity stayed relatively high during the month—1,296 sorties—because of increased fighting in the Mekong Delta.

1 OCTOBER • VF-1 and -2 at NAS Miramar, Calif., were established as the first two F-14A Tomcat squadrons.

8 OCTOBER • VF-124, the lone training squadron that served all Tomcat fighter squadrons of the Atlantic and Pacific Fleets, received its first F-14A.

11 OCTOBER • A series of racially motivated disturbances occurred on board *Kitty Hawk* (CVA 63) while she operated in support of Operation Linebacker I off Vietnam. Extended deployments and long line periods compounded the strain generated by the racial tension endemic throughout the armed forces. On this date, a series of incidents led to fighting between whites and blacks across a number of areas of the ship including the sick bay and hangar deck. Marines, officers, chief petty officers, and the ship's master-at-arms force helped restore order. Commanding officer Capt. Marland W. Townsend and African American executive officer Cmdr. Benjamin W. Cloud several times addressed rioters including African American sailors armed with aircraft tie-down chains. Cloud's efforts in particular helped defuse the situation, and the crowd dispersed and threw their weapons overboard. The Medical Department reported 47 injuries and, on 13 October, the ship resumed air strikes. The riot on board *Kitty Hawk* and conflicts during this period on several other ships including *Constellation* (CVA 64) caused the Navy to place more emphasis on equal opportunity and diversity.

23 OCTOBER • The United States ended all tactical air sorties into North Vietnam above the 20th parallel and brought to a close Operation Linebacker I raids as a goodwill gesture to promote the peace negotiations in Paris, France. From May through October, Navy aircraft flew a total of 23,652 attack sorties into North Vietnam, which helped stem the flow of supplies into South Vietnam.

31 OCTOBER • Navy aircraft flew 2,661 tactical sorties into North Vietnam and 2,097 into the South, along with 1,599 by Marines, during October. Air operations there followed the general pattern of the ground war. The North Vietnamese increased their small-scale attacks throughout the South in an apparent effort to gain territory before a cease-fire. The main objective of Navy and Marine tactical air sorties thus became close and direct air missions in support of allied ground troops.

22 NOVEMBER • Adm. Arthur W. Radford (Ret.) officiated at groundbreaking ceremonies for the new Naval Aviation Museum building at NAS Pensacola, Fla. The former chairman of the Joint Chiefs of Staff also served as the chairman of the Naval Aviation Museum Association, Inc.

30 NOVEMBER • Close and direct air support attacks comprised more than 75 percent of all known targets of the Navy tactical air sorties flown into South Vietnam during

October and November. The percentage of Navy sorties flown for interdiction purposes there decreased markedly during that period compared to the previous spring and summer months.

7 DECEMBER • The final manned lunar mission, Apollo 17, crewed by Capt. Eugene A. Cernan, Cmdr. Ronald E. Evans, and geologist Harrison H. Schmitt, launched from John F. Kennedy Space Center, Fla. On 11 December, Cernan and Schmitt in Lunar Module 12 *Challenger* landed on the moon. On 19 December, command module *America* splashed down in the mid-Pacific several miles from the primary recovery ship *Ticonderoga* (CVS 14). An SH-3G Sea King of HC-1 Detachment 3 recovered and returned the crew to *Ticonderoga*, the mission having achieved all the primary objectives. Naval aviation squadrons and ships performed all the recovery operations for the 11 Apollo missions, and 22 of the 33 astronauts involved in the Apollo program had Navy backgrounds.

13 DECEMBER • An SH-3G from HC-1 Detachment 5 rescued Lt. Thomas B. Scott of VFP-63 Detachment 4 when he crashed in an RF-8G Crusader, BuNo 144608, while launching from *Oriskany* (CVA 34) in the Gulf of Tonkin. Scott was the 15th pilot rescued by HC-1 detachments while operating on board Yankee Station carriers during 1972 and, over the year, the squadron rescued a total of 36 men including the 15 pilots.

17 DECEMBER • From 23 October through 17 December, the United States halted bombing above the 20th parallel in North Vietnam.

18 DECEMBER • President Richard M. Nixon attempted to force the communists into earnest peace negotiations by launching Operation Linebacker II. This intensified version of Linebacker I resumed strikes above the 20th parallel including raids against hitherto restricted areas near Hanoi and Haiphong. The Americans reseeded mine fields and carried out concentrated strikes against surface-to-air missile and antiaircraft artillery sites, army barracks, petroleum storage areas, naval and shipyard areas, and railroad and truck stations. The Navy flew 505 sorties centered on the coastal areas around Hanoi and Haiphong. Between 18 and 22 December, it conducted 119 Linebacker II strikes into North Vietnam with harsh weather limiting the number of attacks flown. On 29 December, the operation concluded when the North Vietnamese returned to the Paris, France, peace table.

23 DECEMBER • VA-56 concluded its seventh line period while deployed with Carrier Air Wing 5 on board *Midway* (CVA 41). The squadron recorded 180 days on the line, flew 5,582.9 combat hours on more than 3,000 sorties, performed 2,090 day and 781 night carrier landings, and amassed 6,301 flight hours. The squadron lost four A-7B Corsair IIs to antiaircraft artillery fire and surface-to-air missiles, with two pilots taken prisoner-of-war, one listed as missing in action, and one rescued.

25 DECEMBER • Beginning at 2400 on Christmas Eve, none of the U.S. air services flew sorties in the Vietnam War during a 24-hour holiday bombing halt. The North Vietnamese used the truce to repair damage, draw lessons, and analyze tactics. Since the beginning of Operation Linebacker II, B-52s had carried out 420 raids, with 122 on 18 December, the highest number. Task Force 77 carrier strikes and tactical aircraft from Thailand supplemented the raids, mainly to suppress missile sites and confuse North Vietnamese air defense systems. Heavy attacks resumed on 26 December with 113 B-52 raids, the next highest sortie count.

28 DECEMBER • Pilot Lt. j.g. Scott H. Davis and radar intercept officer Lt. j.g. Geoffrey H. Ulrich, in an F-4J Phantom II of VF-142 embarked on board *Enterprise* (CVAN 65), downed a MiG-21 Fishbed with an AIM-9 Sidewinder air-to-air missile. Their victory marked the 24th MiG downed by Navy/Marine aircrews during 1972.

29 DECEMBER • Heavy raids around Hanoi, which had resumed the day after the Christmas bombing halt, eased when the North Vietnamese showed indications of returning to the conference table. More than 700 sorties by B-52 Stratofortresses during the 11 heavy-bombing days strongly influenced the communist decision to resume negotiations, which led to the peace agreement and the release of U.S. POWs. American bombing and electronic warfare virtually paralyzed North Vietnamese air defenses, which failed to shoot down a single B-52 during the 160 raids flown on 28 and 29 December. Only 2 percent—15 B-52s—were lost during more than 700 Operation Linebacker II raids.

30 DECEMBER • The United States called another bombing halt in North Vietnam and the Navy ended all tactical air sorties above the 20th parallel because of the resumed peace talks.

31 DECEMBER • In summary for 1972, the Navy conducted more than 60 percent or 28,093 of the tactical air attack sorties flown into North Vietnam where the Navy and Marine Corps lost 49 aircraft. Carriers spent a total of 1,403 on-line days at Yankee Station, with an average period of slightly more than 25 days for each ship. The Navy conducted 33.9 percent of all tactical air attack sorties flown into South Vietnam, where its fixed-wing aircraft flew 23,802 tactical air attack sorties and dropped 160,763 general-purpose bombs, and Marine fixed-wing aircraft delivered 111,859 general-purpose bombs. The Navy and Marine Corps each lost five fixed-wing aircraft in the South.

1973

1 JANUARY • A major reorganization in Naval Reserve affairs began as a result of the announcement two days earlier by the Secretary of the Navy of the consolidation of the Naval Surface and Air Reserve Commands into Commander Naval Reserve Force located in New Orleans, La.

8 JANUARY • Representatives of the U.S. and Greek navies signed an accord in Athens formally granting the Sixth Fleet homeport facilities in the Athens vicinity. The arrangement provided for the stationing of one of the Sixth Fleet's two carrier task forces in the Athens area.

12 JANUARY • Pilot Lt. Victor T. Kovaleski and radar intercept officer Lt. James A. Wise of VF-161, embarked on board *Midway* (CVA 41), shot down a North Vietnamese MiG-17 Fresco with an AIM-9 Sidewinder air-to-air missile from their F-4B Phantom II. Theirs was the last victory of the war, making a total of 62 enemy aircraft shot down by Navy and Marine Corps pilots during the Vietnam War.

27 JANUARY • The Vietnam cease-fire, announced four days earlier, came into effect. *Oriskany* (CVA 34), *Ranger* (CV 61), *Enterprise* (CVAN 65), and *America* (CVA 66) sailed on Yankee Station and cancelled all combat sorties into North and South Vietnam. During the major U.S.

The family of Cmdr. William R. Stark joyfully greets the freed POW upon his arrival at NAS Miramar, Calif., after nearly six years in captivity.

involvement in the Vietnam War from 1961 to 1973, the Navy lost 526 fixed-wing aircraft and 13 helicopters to hostile action and the Marine Corps lost 193 fixed-wing aircraft and 270 helicopters. Operation Homecoming—the repatriation of U.S. POWs between 27 January and 1 April 1973—began and the North Vietnamese and the People's Liberation Armed Forces released 591 prisoners. Sailors numbered 145 of the POWs freed during the operation, all but one of whom served within naval aviation.

27 JANUARY • Task Force 78 was formed to conduct Operation End Sweep—minesweeping operations in North Vietnamese waters stipulated by the Paris Peace Accords. An air mobile mine countermeasures command comprised the principal aviation strength of the force and consisted of elements of HM-12, HMH-463, and HMM-165.

On 3 February, amphibious assault ship *New Orleans* (LPH 11) and the flagship of Task Force 78 began a six-day mine countermeasures exercise at Subic Bay, Philippines, in preparation for End Sweep. Two days later, Commander, Task Force 78 and other Navy mine demolition experts met with North Vietnamese leaders in Haiphong to discuss the operation. Task Force 78 surface minesweepers swept for an anchorage in deep water off the approaches to Haiphong harbor on 6 February. The task force at this point included amphibious assault ships *Inchon* (LPH 12) and *New Orleans*.

On 27 February, a CH-53 Sea Stallion from HM-12 made two sweeps in the Haiphong shipping channel during the first U.S. airborne minesweeping of live mines. President Richard M. Nixon abruptly halted the operations

and the minesweeping task force moved to sea, while the chief executive called for "clarification . . . on a most urgent basis" of North Vietnamese delays in releasing American POWs. After North Vietnamese overtures to release the prisoners, the withdrawal of U.S. troops from Vietnam and minesweeping resumed on 4 March. On 27 July, Operation End Sweep concluded and Task Force 78 was disbanded. Helicopters made 3,554 sweeping runs totaling 1,134.7 sweeping hours in 623 sorties. Three helicopters were lost in accidents. Minesweeping ships completed 208 sweeping runs over 308.8 hours.

28 JANUARY • On the first day of the Vietnam cease-fire, aircraft from *Ranger* (CV 61) and *Enterprise* (CVAN 65) flew 81 combat sorties against lines-of-communication targets in Laos. The corridor for their overflights stretched between Hué and Da Nang, South Vietnam. These sorties were flown because the Laotian government requested the assistance and the missions were not related to the Vietnam cease-fire.

1 FEBRUARY • The merger of the First Fleet and Anti-Submarine Warfare Forces, Pacific Fleet resulted in the activation of the Third Fleet at NS Pearl Harbor, Hawaii. The change took place to reduce fleet staffs and achieve economies while retaining control of operational units including 100 ships and submarines and 60,000 sailors and Marines that served a 50-million-square-mile area from the West Coast to beyond Midway Island.

6 FEBRUARY • NAVAIR established a policy stipulating the design of new avionics equipment for troubleshooting by the computerized general-purpose Versatile Avionics Shop Test (VAST) equipment with the capability to test the majority of avionics within the naval aviation inventory.

11 FEBRUARY • Aircraft from *Oriskany* (CVA 34) and *Constellation* (CVA 64) operating on Yankee Station flew strikes against targets in southern Laos. Combat sorties from carriers against Laotian targets had continued since the cease-fire in the Vietnam War, and the station's location was shifted to a position off the coast of the northern part of South Vietnam.

14 FEBRUARY • The Pentagon announced a step-up of U.S. air strikes in Laos from 280 to 380 daily sorties. On this date, aircraft from *Oriskany* (CVA 34) and *Enterprise* (CVAN 65) flew about 160 of these missions into Laos.

A helicopter tows a minesweeping sled off Haiphong, North Vietnam, during Operation End Sweep, which began in February 1973.

25 FEBRUARY • Aircraft from *Oriskany* (CVA 34) and *Ranger* (CV 61) flew combat support missions over Cambodia at the request of that country's government.

4 MARCH • *America* (CVA 66) received orders to sail from the Far East for the United States, as an initial move to reduce the number of carriers deployed off Southeast Asia from six to three by mid-June 1973.

21 MARCH • VXN-8 returned to NAS Patuxent River, Md., from a deployment to the Southern Hemisphere. The squadron completed the operation as part of Project Magnet under the direction of the Naval Oceanographic Office. Its aircraft completed two flights around the world within the hemisphere and, on 4 March, an RP-3D Orion flew over the South Pole—the first flight over the pole by that aircraft type.

29 MARCH • The Military Assistance Command, Vietnam was disbanded, and the remaining U.S. combat troops left South Vietnam. The last phase of Operation Homecoming concluded with the release of the final group of 148 American POWs.

29 MARCH • *Forrestal* (CVA 59) received orders to proceed to Tunisia at speed to assist victims of a flood in the Medjerda River Valley. The carrier led an amphibious assault

ship and a destroyer from the Sixth Fleet, and appeared off Tunis at first light 13 hours after receiving orders. SH-3D Sea Kings of HS-3 flying from *Forrestal* evacuated about 200 people and airlifted four tons of relief supplies to flood victims. French, Italian, Libyan, and Tunisian teams also supported the efforts of the Sixth Fleet into 31 March.

1 APRIL • Air Anti-Submarine Wing One with VS-22, -24, -27, -30, -31, and -32, and Helicopter Anti-Submarine Wing One with HS-1, -3, -5, -7, and -11 were established. The move completed the final phase of the functional wing concept in the reorganization of the AirLant community.

13 APRIL • The Secretary of the Navy announced an agreement with the British for an eight-month joint study of an enhanced V/STOL Harrier. The plan was to determine the feasibility of the joint development of the aircraft incorporating a Rolls-Royce Pegasus 15 engine and an advanced wing.

16 APRIL • The Cruise Missile Project Office was established within NAVAIR with the responsibility to develop both tactical and strategic versions of the weapons.

30 APRIL • MGySgt Patrick J. O'Neil, USMC, who had enlisted during World War II, retired as the last Marine enlisted naval aviation pilot.

3 MAY • The Palestinian Yarmuk Brigade entered Lebanon from Syria, leading to fighting between Lebanese soldiers and the Palestinian guerrillas and the declaration of martial law. The U.S. forces in the Mediterranean including *Forrestal* (CVA 59) and *John F. Kennedy* (CV 67) were alerted for possible contingencies. By 9 May, a cease-fire agreement stabilized the situation.

8 MAY • The Navy accepted the first C-9B Skytrain IIs, military versions of the DC-9, during a ceremony at Douglas Aircraft Division, Long Beach, Calif. VR-1 and -30 received the initial squadron deliveries.

18 MAY • A four-day trial of a prototype glide slope indicator concluded on board cruiser *Truxtun* (CGN 35). The Naval Air Engineering Center developed the device as one of several steps taken to achieve an all-weather capability with LAMPS helicopters.

25 MAY • The first production RH-53D Sea Stallion specially configured for airborne mine countermeasures arrived for weapons systems trials at NATC Patuxent River, Md. The Navy preliminary evaluation and the initial phase of the Board of Inspection and Survey trials had begun at Sikorsky Aircraft Division on 15 May.

25 MAY • The all-Navy crew of Capt. Charles Conrad Jr., and Cmdrs. Joseph P. Kerwin, MC, and Paul J. Weitz in Skylab II rendezvoused with the earth-orbiting Skylab workshop. The first tasks of the astronauts included the repair of the lab's solar shield and solar array system, which were damaged during launch from John F. Kennedy Space Center, Fla. On 22 June, Skylab II splashed down in the Pacific. An SH-3G Sea King of HC-1 Detachment 1, embarked on board primary recovery ship *Ticonderoga* (CVS 14), retrieved the astronauts.

7 JUNE • The Deputy Secretary of Defense directed the Navy to produce preliminary plans for a $250-million prototype development plan for a jet fighter aircraft costing less than an F-14 Tomcat.

13 JUNE • The National Aeronautic Association presented the Robert J. Collier Trophy for 1972 jointly to the Navy's Task Force 77 and to the Seventh and Eighth Air Forces for their "demonstrated expert and precisely integrated use of advanced aerospace technology" during Operation Linebacker II against the North Vietnamese during December 1972.

30 JUNE • Fleet Air Wing 1 and 2 were redesignated Patrol Wings (PatWings) 1 and 2. The move marked the end of the use of the FAW (Fleet Air Wing) designation and the return of the PatWing designation.

28 JULY • Capt. Alan L. Bean; Maj. John R. Lousma, USMC; and civilian Dr. Owen K. Garriott launched with Skylab 3 from John F. Kennedy Space Center, Fla. Mission commander Bean set a new record for the most time in space by eclipsing that of naval aviator Capt. Charles Conrad Jr. of 49 days, 3 hours, 37 minutes, by more than 20 days, 12 hours. After a 59-day flight, Skylab 3 splashed down in the Pacific on 25 September. An SH-3G Sea King of HC-1 Detachment 4, embarked on board amphibious assault ship *New Orleans* (LPH 11), recovered the astronauts.

31 JULY • HSL-33 was established as the first squadron dedicated solely to providing LAMPS detachments for LAMPS-configured ships of the Pacific Fleet at NAS Imperial Beach, Calif.

15 AUGUST • The United States ended its combat involvement in Cambodia after six months of intensive bombing in adherence to a vote by Congress on 30 June. During February, aircraft from *Oriskany* (CVA 34) and *Ranger* (CV 61) had conducted combat sorties into Cambodia. From March 1973, aircraft from carriers operating on Yankee Station had flown air, electronic intelligence, surface, subsurface, and surveillance coordinator patrols; and training, tanker, communications relay, and reconnaissance sorties.

16 AUGUST • An F-14 demonstrated the Tomcat's quick-reaction dogfight capability when the jet shot down a maneuvering QT-33 target drone with a Sparrow III air-to-air missile from a distance of less than a mile at the Pacific Missile Range Point Mugu, Calif.

29 AUGUST • HM-12 received the first RH-53D Sea Stallions configured for minesweeping.

6 SEPTEMBER • A BQM-34E target drone equipped with a graphite-epoxy composite wing was test flown at the Point Mugu Sea Test Range, Calif. The Firebee II reached a speed of Mach 1.6 at an altitude of 40,000 feet. The Naval Air Development Center designed and fabricated the test wing at Warminster, Pa. Designers calculated that the composite saved 40 percent of the weight of metal counterparts.

7 SEPTEMBER • The Navy announced the intention to switch the F-4J Phantom IIs that the Navy Flight Demonstration Team—Blue Angels—had flown since 1969 with the slower, smaller, and less expensive A-4F Skyhawks.

1 OCTOBER • The Board of Inspection and Survey service acceptance trials of the S-3A Viking began at NATC Patuxent River, Md.

5 OCTOBER • *Midway* (CVA 41), with CVW-5 embarked, entered Yokosuka, Japan. This marked the first homeporting of a complete carrier task group in a Japanese port as a result of the of 31 August 1972 accord between the United States and Japan. The forward deployment facilitated the continuous positioning of three carriers in the Far East at a time when the economic situation demanded the reduction of carriers in the fleet.

6 OCTOBER • The Yom Kippur (or October) War began between Arabs and Israelis. On 11 October, the ships of the Sixth Fleet available to respond to the crisis included Task Force 60.1 with *Independence* (CV 62) south of Crete, Task Force 60.2 with *Franklin D. Roosevelt* (CVA 42) in the vicinity of the Strait of Bonifacio, and Task Force 61/62 with amphibious assault ship *Guadalcanal* (LPH 7). On 13 October, *John F. Kennedy* (CV 67) sailed from Edinburgh, Scotland, to a holding area 100 miles west of Gibraltar.

One SH-2D Seasprite each embarked with HSL-32 Detachment 1 on board frigate *Belknap* (DLG 26) and Detachment 3 on board escort *Edward McDonnell* (DE 1043), and an SH-2F of HSL-32 Detachment 4, embarked on board escort *W. S. Sims* (DE 1059), provided additional aerial antisubmarine capabilities. Aircraft that supported the Sixth Fleet included nine VP-10 P-3B Orions operating from NS Rota, Spain; eight VP-45 P-3Cs flying from NAS Sigonella, Sicily; and two EC-121M Constellations, four (later six) EA-3B Skywarriors, three EP-3E Aries Is, and one P-3A from VQ-2 deployed to various locations. From 19 to 24 October, the United States provided 50 A-4Ns to the Israelis via the Azores and *Franklin D. Roosevelt*. *Independence* and *John F. Kennedy* assisted Israeli-bound Skyhawk IIs that suffered malfunctions. The Skyhawk pilots returned on board USAF C-5A Galaxys to Dover AFB, Del.

The Israelis rallied and drove the Arabs back and a cease fire ended the war on 23 October. Egyptian President Anwar as-Sadat asked the Americans and Soviets to dispatch forces to enforce the truce. The United States feared Soviet intervention and shifted to Defense Condition (DEFCON)–3 alert status early the next morning. On 24 October, amphibious assault ship *Iwo Jima* (LPH 2) entered the Mediterranean, and the next day *John F. Kennedy* reinforced the Sixth Fleet. By 28 October, *Franklin D. Roosevelt*, *Independence*, *John F. Kennedy*, *Guadalcanal*, and *Iwo Jima* steamed in the Mediterranean. Negotiations defused the tensions and, on 31 October, European Command (less the Sixth Fleet) returned to DEFCON-5. The Arabs and Israelis accepted the diplomatic arrangements, and on 17 November, the Sixth Fleet stood down.

29 OCTOBER • Prompted by the Yom Kippur War and the consequent Arab oil embargo, the Defense Department announced the deployment of *Hancock* (CVA 19) from the South China Sea to the Indian Ocean. She became the first of four carriers to sail in the Indian Ocean through 1974 to focus on such areas as the Strait of Hormuz entrance to the Persian Gulf and the Bab-al-Mandeb entrance to the Red Sea.

16 NOVEMBER • Mission Commander Lt. Col. Gerald P. Carr, USMC; Lt. Col. William R. Pogue, USAF; and civilian Edward G. Gibson launched in Skylab 4 from John F. Kennedy Space Center, Fla. The goals of their scheduled 56-day open-ended space flight included the study of the Comet Kohoutek, earth resources, and the sun. On 8 February 1974, Skylab 4 splashed down in the Pacific after a record-setting 84 days in space. An SH-3G Sea King of HC-1 Detachment 4, embarked on board the primary recovery vessel, amphibious assault ship *New Orleans* (LPH 11), recovered and returned the men to the ship. This event marked the 32nd astronaut retrieval by naval aviation since the beginning of the manned space program in 1961.

21 NOVEMBER • An F-14A Tomcat fired six AIM-54A Phoenix air-to-air missiles and guided them simultaneously to six separate targets 50 miles away over the Pacific Missile Sea Test Range, Calif. The Tomcat obtained four direct hits during this first test of its full Phoenix arsenal.

1 DECEMBER • The Blue Angels became the Navy Flight Demonstration Squadron (Blue Angels) and was designated a shore activity located at NAS Pensacola, Fla.

7 DECEMBER • The launching of *Tarawa* (LHA 1) at Pascagoula, Miss., heralded the first of a new class of amphibious assault ships.

17 DECEMBER • Amphibious assault ship *Iwo Jima* (LPH 2) departed Tunisia after three days of flood relief assistance by her helicopters that included the rescue of people and deliveries of equipment and other flood-associated missions to victims.

20 DECEMBER • Lts. Jane O. McWilliams and Victoria M. Voge became the first women naval flight surgeons upon their graduation from the Naval Flight Surgeon Training Program.

20 DECEMBER • The relocation of the Naval Air Engineering Center from Philadelphia, Pa., to NAS Lakehurst, N.J., occurred, and the authority and responsibility for the air station was reassigned to the chief of Naval Material to be exercised through NAVAIR. On 8 January 1974, the air station was placed under the Naval Air Engineering Center. This concluded the basic organization arrangements involving the relocation of the center from Philadelphia's League Island to NAS Lakehurst, although the physical transfer continued into 1974. The relocation was part of the shore establishment realignment announced by the Secretary of Defense in March 1973.

31 DECEMBER • Ellyson Field, NAS Pensacola, Fla., became the Naval Education and Training Program Development Center, responsible for the administration of the Navy's enlisted advancement system including the development of examinations as well as administering and conducting courses, studies, and training programs.

1974

4 JANUARY • On board *John F. Kennedy* (CV 67), VT-4 students conducted the final flights of TF-9J Cougars.

5 JANUARY • The Naval Aerospace Institute, NAS Pensacola, Fla., announced the scheduling of periodic checks of the physical and mental status of repatriated Navy and Marine prisoners-of-war from the Vietnam War.

18 JANUARY • The Secretary of the Navy named the fourth nuclear-powered carrier *Carl Vinson* (CVN 70), in honor of the Georgia congressman's contributions to national defense during his 50 years in the House of Representatives.

20 JANUARY • VS-41 accepted the first S-3A Vikings introduced to the fleet during ceremonies at NAS North Island, Calif.

22 FEBRUARY • Lt. j.g. Barbara A. Allen became the Navy's first designated female aviator during a ceremony at NAS Corpus Christi, Texas.

161723

An F-14A of VF-1 lands on board *Enterprise* (CVAN 65) during the introduction of Tomcats to the fleet in 1974.

1 MARCH • The YCH-53E Super Stallion, a growth version of the CH-53D Sea Stallion that had been in service since 1965, made its first flight. The new helicopter had three turbine engines instead of two as fitted in Sea Stallions, carried mission loads of 16 tons compared to nine tons, used seven rotor blades in place of six, and accommodated up to 55 troops.

1 MARCH • *John F. Kennedy* (CV 67) began a year-long conversion to accommodate the new CV concept (an air wing capable of performing strike and antisubmarine operations and to operate F-14 Tomcats and S-3A Vikings) at Norfolk Naval Shipyard, Va.

2 MARCH • Two naval aircraft searched an area of 1,230 square miles southwest of the Azores for balloonist Thomas L. Gatch during his unsuccessful attempt to cross the Atlantic.

15 MARCH • *Intrepid* (CVS 11) was decommissioned and placed in the Reserve Fleet after 30 years of service. Since her commissioning on 16 August 1943, *Intrepid* had seen duty as a CV, CVA, and CVS. During World War II, aircraft flying from her flight deck claimed the destruction of 266 enemy planes in the air and 298 more on the ground, and the damage of 178 others. The ship subsequently served as the centerpiece of the nonprofit Intrepid Sea, Air & Space Museum, which opened in New York in 1982.

18 MARCH • The maiden F-14A Tomcat carrier landing was made by pilot Lt. Cmdr. Grover Giles and radar intercept officer Lt. Cmdr. Roger McFillen of VF-1 on board *Enterprise* (CVAN 65). Later that day, a pair of Tomcats also landed from NATC Patuxent River, Md. VF-1 and -2 of CVW-14 led the introduction of Tomcats to the fleet.

1151672

An RH-53D Sea Stallion of HM-12 using Mk 105 minesweeping gear sweeps the Suez Canal during Operation Nimbus Star in May 1974.

22 MARCH • Commander Task Force 65, Rear Adm. Brian McCauley, arrived with a small staff in Cairo, Egypt, to help plan the clearing of the Suez Canal of unexploded ordnance. The Americans, British, Egyptians, and French participated in this operation, Operation Nimbus Star.

2 APRIL • The last C-54Q in naval flying inventory was retired to storage. The Skymaster, BuNo 56501, had flown almost 15,000 hours and more than 2,500,000 nautical miles since its acceptance on 24 March 1945. Its last service was with the Naval Test Pilot School, NAS Patuxent River, Md.

11 APRIL • A P-3A fired the first BGM-84A Harpoon from an Orion at Naval Missile Center Point Mugu, Calif. The missile scored a direct hit on a remote-controlled SEPTAR target boat.

14 APRIL • The Navy donated *Yorktown* (CVS 10) to the National Naval Museum, Charleston, S.C. The carrier had operated with the Pacific Fleet for 25 years before her transfer to the Atlantic Fleet in 1969. She was decommissioned on 27 June 1970.

22 APRIL • A detachment of 12 RH-53D Sea Stallions from HM-12 began sweeping mines from the Suez Canal as part of Operation Nimbus Star.

20 MAY • VQ-4 received the first fleet EC-130G Hercules, BuNo 151889, later used in TACAMO (Take Charge And Move Out) IV low-frequency communication tests.

4 JUNE • NAVAIR established an aircraft survivability/vulnerability branch, which answered the need for a thoroughly coordinated Navy technical program addressing better aircraft survivability in combat.

5 JULY • Majs. John H. Pierson, USMC, and David R. Shore, USMC, flew an OV-10A Bronco 4,480 kilometers from NAS Whidbey Island, Wash., to Homestead AFB, Fla. This set a new world record for distance in a straight line by a Class C-1-F, Group II aircraft, which was sanctioned by the National Aeronautic Association.

15 JULY • Greek Cypriot factions seeking union with Greece overthrew Archbishop Makarios III on Cyprus. On 22 July, U.S. Ambassador to Cyprus Roger Davies requested the evacuation of American citizens. *America* (CVA 66) augmented the Sixth Fleet, and *Forrestal* (CV 59) provided air cover while HMM-162 CH-46F Sea Knights, embarked on board amphibious assault ship *Inchon* (LPH 12), evacuated 466 people including 384 Americans from Dhekelia to amphibious transport dock *Coronado* (LPD 11). Additional evacuation ships included amphibious transport dock *Trenton* (LPD 14) and dock landing ship *Spiegel Grove* (LSD 32). *Trenton* and British carrier *Hermes* (R 12) then proceeded to Akrotiri, Cyprus. On 24 July, they evacuated an additional 286 people including 114 Americans, using medium landing craft and Westland Sea King HAS.1/2 helicopters from No. 814 Squadron and Westland Wessex HU.5s from a detachment of No. 845 Squadron operating from *Hermes*. *Coronado* and *Trenton* disembarked the evacuees in Beirut, Lebanon. The Sixth Fleet forces were released on 2 September.

5 AUGUST • The world's largest unmanned balloon launched from Fort Churchill, Manitoba, Canada. The Office of Naval Research and NASA's Office of Space Science sponsored the flight, which used the Navy's Skyhook program facilities. The entire flight train—balloon, an 800-pound instrument package, and a parachute—lifted to an altitude of 155,000 feet. As the balloon rose, it assumed a fully inflated form of 512 feet in diameter with a volume of 50.3 million cubic feet. A DC-3 of Project Skyhook tracked the balloon during its 500-mile westerly flight.

10 AUGUST • Sikorsky's YCH-53E, designated Aircraft No. 1, flew in a hover at a gross weight of 71,700-pounds. The helicopter carried an external load of 17.8 tons and hovered at a height of 50 feet. This was the heaviest gross weight ever flown and the heaviest payload ever lifted by a helicopter in the Western world.

18 AUGUST • After major flooding in Central Luzon in the Philippines, HMM-164 CH-46D Sea Knights and CH-53D Sea Stallions, embarked on board amphibious assault ship *Tripoli* (LPH 10), and Navy and Marine helicopters operating from combat stores ship *San Jose* (AFS 7) and NAS Cubi Point, together with Air Force aircraft from Clark AFB, flew rescue missions and airlifted emergency food supplies during 244 sorties through 24 August.

28 AUGUST • The Chief of Naval Operations released a formal advanced experimental fighter aircraft (VFAX) operational requirement directing NAVAIR to solicit bids and oversee full-scale development. The VFAX concept resulted in the F/A-18 Hornet.

8 SEPTEMBER • TWA Flight No. 841, a Boeing B-707-331B, from Athens, Greece, en route from Tel Aviv, Israel, to Rome, Italy, crashed into the Ionian Sea, 50 nautical miles west of Cephalonia, Greece. All 88 people on board perished. The National Transportation Safety Board determined that the probable cause of the loss was the detonation of a bomb within the aft cargo compartment. *Independence* (CV 62) and frigate *Biddle* (DLG 34) diverted to the scene and, despite 15- to 20-foot swells, located 24 bodies. SH-3D Sea Kings of HS-5 operating from *Independence* and Greek and Italian sailors assisted boat crews from *Biddle* in the recovery of 12 of the bodies from the shark-infested water. The SAR concluded on 10 September.

10 SEPTEMBER • A boiler explosion ripped through Liberian registered tanker *Eliane* in the Atlantic. *Forrestal* (CVA 59) responded and evacuated two crewmembers.

12 SEPTEMBER • A fire erupted on board liner *Ambassador* in the Caribbean. Oiler *Tallulah* (T-AO 50) rescued 256 crewmembers from the burning ship, and aircraft from NAS Key West, Fla., and three Coast Guard cutters also supported the firefighting efforts.

14 SEPTEMBER • The SEU-3/A Lightweight Ejection Seat manufactured by Stencel Aero Engineering Co. primarily for AV-8A Harriers was approved for service use.

17 SEPTEMBER • VF-1 and -2 began the initial deployment of F-14As Tomcats while embarked on board *Enterprise* (CVAN 65), when she sailed from NAS Alameda, Calif.

17 SEPTEMBER • The prototype LAMPS Mk III H-2/SR helicopter arrived for flight certification tests at Kaman Aircraft Corporation. The aircraft received extensive design modifications to incorporate the LAMPS Mk III avionics package at Naval Air Development Center, Warminster, Pa.

2 OCTOBER • The joint logistics commanders signed an agreement making Dupont's HT-4 the standard fabric for all naval flight suits.

19 NOVEMBER • The Central Treaty Organization exercise Midlink 74 began in the Arabian Sea. *Constellation* (CVA 64) and seven U.S. ships joined British, Iranian, Pakistani, and Turkish vessels during the large-scale training problem.

2 DECEMBER • The Navy's advanced low volume ramjet (ALVRJ) successfully completed its first free flight at Pacific Missile Range Point Mugu, Calif. LTV developed the engine for use by NAVAIR in high performance missiles.

1975

3 JANUARY • The Association of Naval Aviation was founded "to stimulate and extend appreciation of Naval Aviation . . . past, present and future." The nonprofit organization was opened to officers, enlisted persons, or civilians who contributed to, or were interested in, U.S. naval aviation.

17 JANUARY • VX-1 received the first production model of an updated P-3C Orion with new avionics and software at NAS Patuxent River, Md.

18 JANUARY • After violent demonstrations on Cyprus that included disturbances outside the U.S. Embassy in Nicosia, the joint chiefs ordered the Sixth Fleet to deploy *Saratoga* (CV 60) to a position southwest of the island for possible assistance in the evacuation of Americans. On 21 January, the situation quieted and the chiefs released *Saratoga* from her contingency response.

28 JANUARY • Escort *Meyerkord* (DE 1058), with an SH-2F Seasprite from HSL-35 Detachment 4 embarked, rescued all 31 crewmembers from Panamanian-flagged freighter *Gulf Banker* when she sank in the South China Sea. *Meyerkord* returned the survivors to Subic Bay, Philippines.

28 JANUARY • The AIM-54A Phoenix air-to-air missile was approved for service use.

6 FEBRUARY • Cyclone Gervaise killed at least nine people as it cut a path of destruction across Mauritius. The island's Prime Minister Sir Seewoosagur Ramgoolan accepted U.S. offers of aid, and, on 9 February, combat support ship *Camden* (AOE 2) began disaster relief operations at the capital of Port Louis, followed on 12 February by the arrival of *Enterprise* (CVAN 65) and cruiser *Long Beach* (CGN 9). Combat store ship *Mars* (AFS 1) sent two HC-3 Detachment 104 CH-46D Sea Knights to the carrier, which enabled sailors to transport heavy loads including large sections of water pipe into inaccessible remote areas. On 15 February, *Enterprise* sailed from Mauritius.

15 FEBRUARY • The Sikorsky YCH-53E completed Navy preliminary evaluation conducted by HMX-1 and NATC Patuxent River, Md.

2 MARCH • The F-14A Tomcat and AIM-54A Phoenix air-to-air missile received approval for integrated service use.

17 MARCH • The S-3A Viking was approved for service use.

18 MARCH • NAVAIR established an assistant commander for Test and Evaluation (T & E). This came from a mid-1960s Secretary of Defense decision that stressed the need for adequate T & E data to help determine the level of development of new equipment to warrant procurement.

23 MARCH • *Hancock* (CVA 19) embarked HMH-463 at NS Pearl Harbor, Hawaii, while en route from Subic Bay, Philippines, to relieve *Enterprise* (CVAN 65) in the South China Sea. The squadron was to support the potential evacuations of Americans and others from Southeast Asia. Meanwhile, the North Vietnamese continued their southward advance and prepared to cut off the entire northern quarter of South Vietnam, 300 miles north of Saigon.

1 APRIL • Chief Aviation Pilot Eugene T. Rhoads died at Veterans Hospital, San Diego, Calif. In May 1919, Rhoads

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An S-3A catapults from *Forrestal* (CVA 59) during the Viking's initial carrier suitability tests.

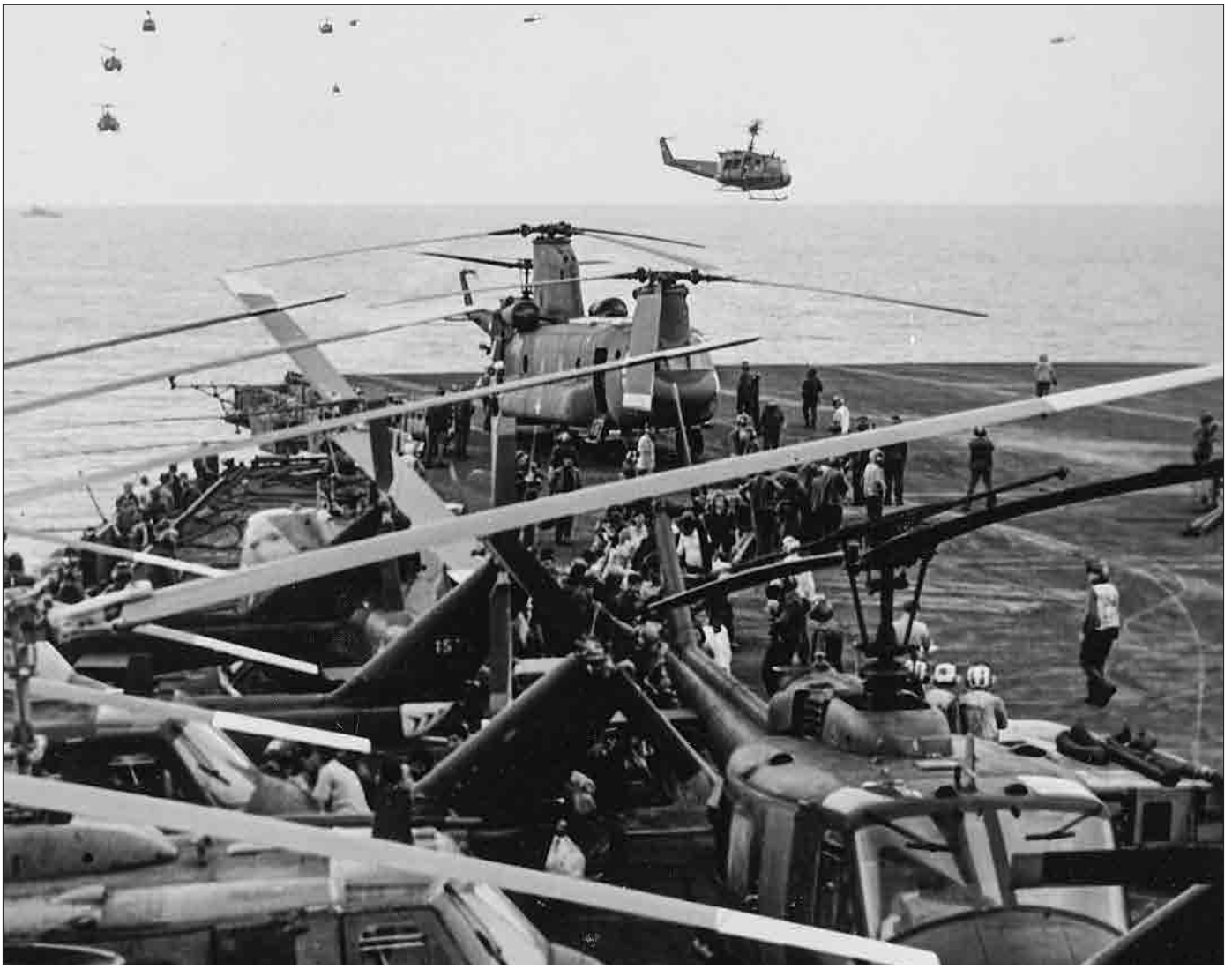
had served as a crewmember in the NC-4 during the first transatlantic flight.

12 APRIL • Operation Eagle Pull—the extraction of Americans and allied Cambodians from Cambodia—was activated. Marines of the 31st Marine Amphibious Unit established a perimeter from which to rescue the evacuees within the capital of Phnom Penh. Twelve HMH-462 CH-53D Sea Stallions, embarked on board amphibious assault ship *Okinawa* (LPH 3), evacuated 287 people including U.S. Ambassador John G. Dean and Cambodian President Saukhm Khoy. Upon completion of these flights, HMH-463 CH-53Ds embarked on board *Hancock* (CVA 19), retrieved the Marines.

13 APRIL • The Naval Aviation Museum, NAS Pensacola, Fla., was dedicated, and the Naval Aviation Museum Foundation, Inc. presented the building to the Navy. It replaced the small temporary museum set up in 1962. Seventy-two vintage aircraft were displayed, including the NC-4, the first airplane to fly the Atlantic Ocean.

19 APRIL • *Hancock* (CVA 19), *Midway* (CVA 41), *Coral Sea* (CVA 43), *Enterprise* (CVAN 65), and amphibious assault ship *Okinawa* (LPH 3) deployed to Vietnam for possible evacuation of Americans and allied nationals trapped by the North Vietnamese invasion of South Vietnam. The enemy pronounced the presence of these ships a brazen challenge and violation of the 1973 Paris Peace Accords. During a brief period at NAS Cubi Point, Philippines, *Enterprise* hosted CVW-21 from *Hancock*, thus making possible the use of *Hancock* as a helicopter platform for the evacuations.

29 APRIL • Navy and Marine helicopters from the Seventh Fleet and Army and South Vietnamese helicopters carried out Operation Frequent Wind—the evacuation of Americans and allied nationals from Saigon, South Vietnam. North Vietnamese and People's Liberation Armed Forces mortar and rocket fire compelled the closure of Tan Son Nhut airport. President Gerald R. Ford Jr. consequently ordered the evacuations by helicopter. Marines of the 9th Amphibious Brigade established a perimeter around the

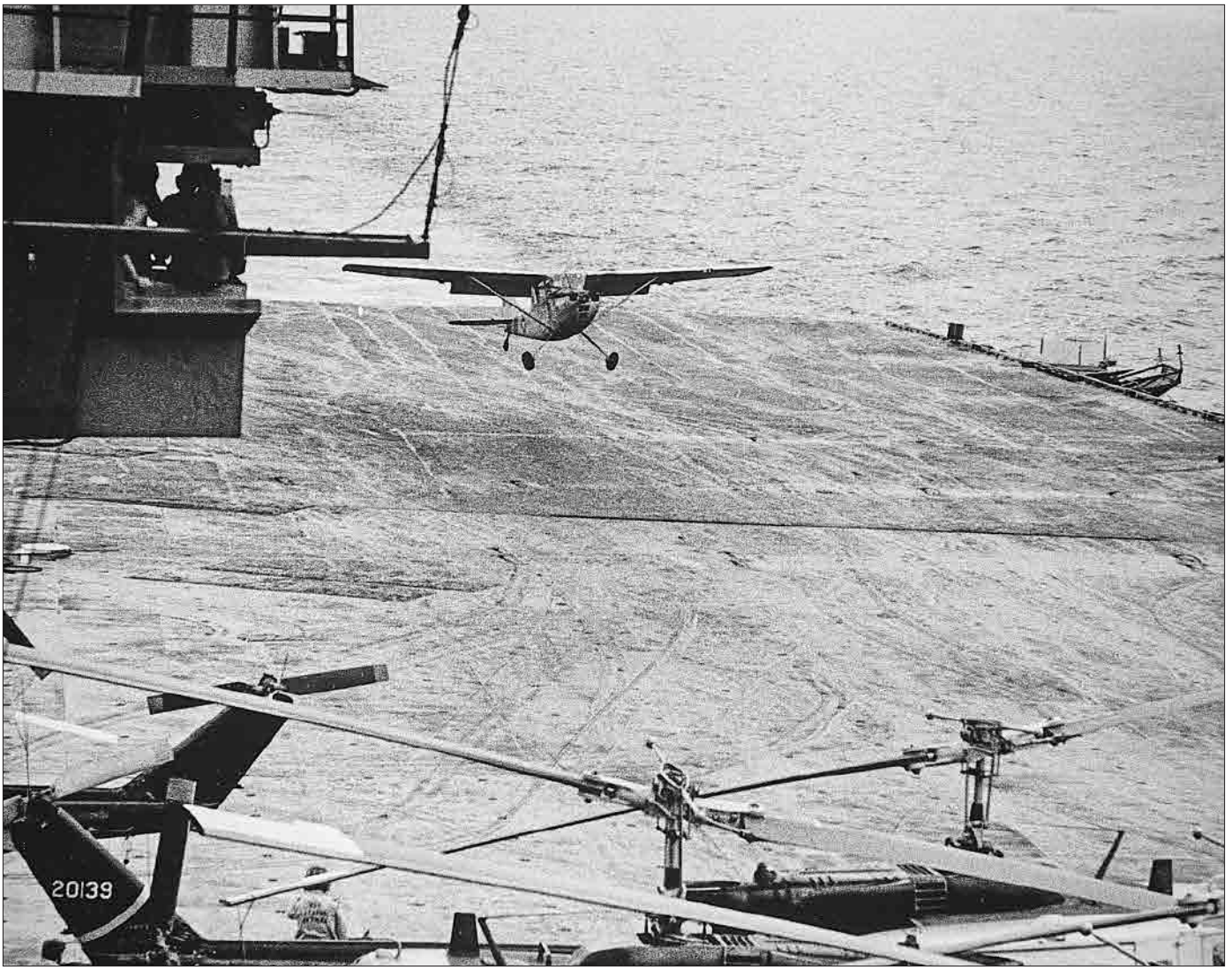


At least nine Vietnamese Air Force UH-1 Huey helicopters packed with people frantically fleeing the communist conquest of South Vietnam approach *Midway* (CVA 41) during Operation Frequent Wind, the evacuation of Saigon, 29 April 1975.

main helicopter landing zone at Tan Son Nhut, and *Hancock* (CVA 19) launched the first evacuation helicopter from a position about 17 miles off Vung Tau.

Aircraft from *Coral Sea* (CVA 43) and *Enterprise* (CVAN 65) flew 173 sorties that covered 638 Air Force and Marine fixed-wing and about 250 CIA rotary-wing missions. Frequent Wind evacuated 395 Americans and 4,475 South Vietnamese and others from Tan Son Nhut as well as 978 Americans, including Ambassador Graham A. Martin and his family, and 1,120 South Vietnamese and allied nationals from the embassy. Helicopters recovered on board vessels including *Midway* (CVA 41) and command ship *Blue Ridge* (LCC 19), but to reduce top hamper and to make room for more aircraft, sailors heaved helicopters overboard. Aircraft from *Coral Sea*, *Enterprise*, and *Hancock* covered the exodus of a floating city totaling almost 80,000 people, including those who had already reached the ships, en route to the Philippines and Guam.

30 APRIL • VW-4 was disestablished as the Navy's last squadron specifically detailed for hurricane reconnaissance. VJ-2 was established on 15 November 1952 and redesignated VW-4 in 1953. The squadron made major contributions to meteorological science, oceanographic research, the National Weather Service, and the Naval Weather Service Command.

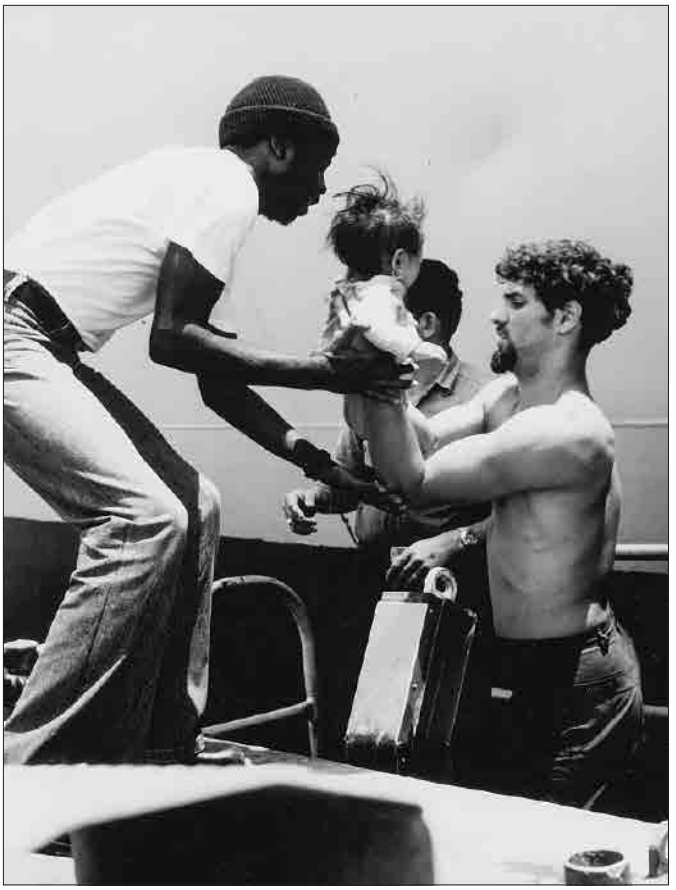


South Vietnamese Air Force Maj. Buang-Ly lands an O-1B Bird Dog carrying his wife and five children on *Midway* (CVA 41) during Operation Frequent Wind, 29 April 1975.

2 MAY • *Midway* (CVA 41) at U'Tapao, Thailand, off-loaded more than 40 Air Force helicopters used in the evacuation of South Vietnam. Crewmembers assisted in the recovery and loading there of more than 95 South Vietnamese Air Force aircraft including F-5A Tigers and A-37B Dragonflies that had been flown there during the fall of Saigon. *Midway* transported the aircraft to Guam.

2 MAY • NAVAIR announced the development of a new carrier-based fighter by the McDonnell Douglas and Northrop aircraft corporations with emphasis on improved maneuvering performance, reliability, and maintainability. The design criteria included speed in excess of Mach 1.5, a combat ceiling of more than 45,000 feet, and a radius of action greater than 400 nautical miles.

5 MAY • The first training class for a new type of physician designated aviation medical officer (AMO) commenced at the NAS Pensacola, Fla., Naval Aerospace Medical Institute. An acute shortage of flight surgeons prompted the program. The AMOs were not scheduled to undergo flight training nor assignment to duty involving flying, but instead were to augment the efforts of flight surgeons during heavy aeromedical workloads, performing flight physicals, and providing routine medical care.



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Sailors from amphibious cargo ship *Durham* (LKA 114) lend a hand with people evacuated from Saigon.

12 MAY • Soldiers from a Khmer Rouge gunboat illegally seized U.S. flagged container ship *Mayaguez* in international waters. The communists held her master, Charles T. Miller, and 39 sailors captive near the island of Koh Tang. On 15 May, *Coral Sea* (CVA 43) and Air Force aircraft operating from Thailand launched protective air strikes against Cambodian naval and air installations on the mainland. Air Force helicopters carried 288 Marines of Battalion Landing Teams 2 and 9 from U'Tapao, Thailand. They assaulted Cambodian troops on Koh Tang, and 60 Marines and sailors from escort *Harold E. Holt* (DE 1074) boarded the deserted merchantman. The Americans freed *Mayaguez* but the Khmer Rouge had already released their hostages. The battle cost the lives of 18 Marines and sailors, the wounding of 50, and the loss of three helicopters and damage to two. *Hancock* (CVA 19) received orders to support the rescue by operating as a helicopter platform with amphibious assault ship *Okinawa* (LPH 3), but neither ship participated.

1 JULY • The termination of all naval gunfire training activities at Culebra Island, P.R., occurred through a joint U.S.–Puerto Rican Commonwealth agreement. Air-to-ground weapons training at Culebra Cays would continue for a limited time because of previously scheduled activities.

1 JULY • The aircraft carrier designation CVA was replaced with CV to improve the accuracy of designations. By removing the letter A, which stood for attack, the new CV designation denoted a multipurpose air, surface, and antisubmarine role, depending on the type of aircraft carried.

23 JULY • The Department of Defense announced the conclusion of U.S. participation in mine-clearing operations in the Suez Canal. From August to October, however, aircraft and ships of the Sixth Fleet assisted the Egyptians in clearing additional mines from Damietta.

24 JULY • Astronauts Col. Thomas P. Stafford, USAF; Vance D. Brand, a former Navy pilot; and Capt. Donald K. Slayton, USAF; splashed down in their Apollo spacecraft after participating in the joint U.S.-Soviet Apollo-Soyuz space mission. Helicopters from HS-6, embarked on board amphibious assault ship *New Orleans* (LPH 11), recovered the astronauts and their spacecraft. This event marked the conclusion of the Apollo-Soyuz mission, the end of the Apollo Program, and the final planned at-sea recovery in the U.S. space program.

28 JULY • The Senate cleared the way for construction at Diego Garcia by voting to expand the U.S. support facility on the British Indian Ocean Territory. The action ended a long dispute over construction at the installation, and permitted the Navy to begin an $18.1 million expansion to include aircraft runway extension, petroleum-oil-lubricants storage areas, a pier, and additional power plant facilities.

29 JULY • The Navy created the lighter-than-air project office at the Naval Air Development Center, Warminster, Pa., to enhance expertise in lighter-than-air technology within the fleet.

1 AUGUST • A KA-3B attached to VAQ-208 completed the longest nonstop flight to date by a carrier-based tactical aircraft. The Skywarrior took off from NS Rota, Spain, and after a 13-hour flight that covered approximately 6,100 miles, landed at NAS Alameda, Calif.

2 AUGUST • The Commandant of the Marine Corps announced that the 12 Marine fighter/attack squadrons were to continue to operate only F-4 Phantom IIs until their replacement by F/A-18 Hornets, beginning in the early 1980s. The Marines had originally intended to equip four squadrons with F-14A Tomcats.

8 AUGUST • Frigate *Capodanno* (FF 1093), with an SH-2F Seasprite of HSL-32 Detachment 4 embarked, rescued all 18 crewmembers of Liberian freighter *Brilliant* when the merchantman sank 35 miles east of Sicily. *Capodanno* returned the survivors to Augusta Bay, Sicily. Additional ships involved in the rescue included destroyer *Stribling* (DD 867), frigate *Donald B. Beary* (FF 1085), and salvage ship *Hoist* (ARS 40).

14 AUGUST • The newly commissioned *Nimitz* (CVN 68) completed refresher training at NS Guantánamo Bay, Cuba, before beginning her cruise with a nuclear task force to northern European waters. The Navy's second nuclear-powered carrier was named in honor of former Chief of Naval Operations Flt. Adm. Chester W. Nimitz.

26 SEPTEMBER • The Chief of Naval Operations approved the popular name Tomahawk for the Navy's sea/surface-launched cruise missile.

3 OCTOBER • VMGR-352 took delivery of the first fleet KC-130R Hercules refueler/transport.

27 OCTOBER • As increased fighting among rival Lebanese political factions led to U.S. concerns for Americans within the country, on this date the State Department advised Americans to evacuate their dependents from Lebanon. The Sixth Fleet dispatched amphibious assault ship *Inchon* (LPH 12) as a contingency evacuation ship, supported by *John F. Kennedy* (CV 67).

1 NOVEMBER • Effective on this date, Naval Aerospace Recovery Facility was disestablished at NAF El Centro, Calif. The National Parachute Test Range at El Centro absorbed the facility's functions. The NAF was assigned to Chief of Naval Operations for command and support.

8 NOVEMBER • Aircraft and more than 100 sailors and Marines from amphibious assault ship *Inchon* (LPH 12) and amphibious transport dock *Shreveport* (LPD 12) extinguished a fire on board Spanish freighter *Cuidad de Valencia* at Palma de Mallorca, Spain.

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Nimitz (CVAN 68), the second nuclear-powered carrier to be commissioned, steams in Chesapeake Bay, 28 February 1975.

22 NOVEMBER • At 2159, *John F. Kennedy* (CV 67) and guided missile cruiser *Belknap* (CG 26) collided during maneuvers, approximately 70 nautical miles east of Sicily. The carrier's firefighters controlled her fires, but heavy smoke forced the temporarily evacuation of the fire rooms and she went dead in the water. Embarked HS-11 SH-3D Sea Kings rescued survivors, and the ship diverted her other flights to NAF Sigonella. *John F. Kennedy*'s angled deck sliced into *Belknap*'s superstructure from her bridge aft as the cruiser passed beneath, and fuel from the carrier's ruptured lines ignited an inferno on board the cruiser. One man died on board *John F. Kennedy* and seven on board *Belknap*. The cruiser was later rebuilt at Philadelphia Naval Shipyard, Pa.

25 NOVEMBER • The first launch in the XJ521 program took place at Point Mugu, Calif. The XJ521 medium-range air-to-air missile resulted from British modifications to U.S. AIM-7E-2 Sparrows. An F-5A Tiger fired the missiles at QT-33 targets.

6 DECEMBER • CH-46s from NAS Whidbey Island, Wash., began search and rescue operations in areas of northwestern Washington flooded by heavy rains. The sailors evacuated 113 people during four days of this humanitarian work.

8 DECEMBER • The production prototype CH-53E Super Stallion made its first flight—about 30 minutes of low-altitude hovering and limited maneuvering—at the Sikorsky Aircraft Division's Stratford, Conn., plant.

1976

28 JANUARY • The Navy awarded a contract for an initial funding of $16 million to McDonnell Douglas Corporation to begin full-scale development of the F/A-18 Hornet.

11 FEBRUARY • The first flight of a terrain contour matching (TERCOM) guidance test vehicle using a modified Navy Firebee drone occurred. TERCOM was subsequently introduced into Tomahawk cruise missiles.

18 FEBRUARY • The night attack weapons system scored a direct hit on a moving M-48 tank during a test at NWC China Lake, Calif. The system, which consisted of a modified AGM-65 Maverick air-to-surface missile, was designed to enhance the performance of tactical and strike aircraft during night operations.

2 MARCH • Two VS-22 S-3As completed the first Atlantic crossing by Vikings when they landed on board *Saratoga* (CV 60) off the coast of Italy. The aircraft departed NAS Cecil Field, Fla., and made stops at NAS Bermuda, NAS Lajes in the Azores, and NS Rota, Spain. The flight validated rapid long-range augmentation by Vikings.

15 APRIL • Offshore drilling platform *Ocean Express* capsized and sank while moving in 15-foot seas in the Gulf of Mexico east of NAS Corpus Christi, Texas. *Lexington* (CVT 16) assisted Coast Guard rescue efforts, hoisted on board a collapsed survival capsule, and recovered the bodies of 16 victims.

6 MAY • An earthquake rocked the Tagliamento River valley northeast of Venice, Italy. Navy C-130 Hercules flew more than ten tons of relief supplies to victims of the disaster.

20 MAY • An AH-1T Sea Cobra made its first flight. The next week, a Sea Cobra flew at 120 knots indicated airspeed, and performed mild sideslips, climbs, and descents.

26 MAY • A contract for a new Navy multi-engine aircraft trainer to be designated T-44A and replace TS-2A Trackers was awarded to Beech Aircraft.

28 MAY • Following the devastation caused by Typhoon Olga across Central Luzon, Philippines, helicopters from HS-4 operating from *Ranger* (CV 61), detachments from HC-3 flying from *Camden* (AOE 2), combat store ships *Mars* (AFS 1) and *White Plains* (AFS 4), and others from NAS Cubi Point and the Air Force assisted in disaster relief efforts. The sailors and airmen evacuated more than 1,900 people, and delivered over 370,000 pounds of disaster relief supplies and 9,340 gallons of fuel.

29 MAY • Amphibious assault ship *Tarawa* (LHA 1) was commissioned at Ingalls Shipbuilding, Pascagoula, Miss.

5 JUNE • The Navy launched the first fully guided Tomahawk cruise missile over the White Sands Missile Range, N.M. An A-6 Intruder of Pacific Missile Test Center launched the missile at an altitude of 11,500 feet and it flew for 61 minutes. This was the first in a series of flights to test the weapon's capability to perform navigation, guidance updates, and low-terrain following maneuvers. It was also the first flight using a turbofan engine; previous tests used a turbojet.

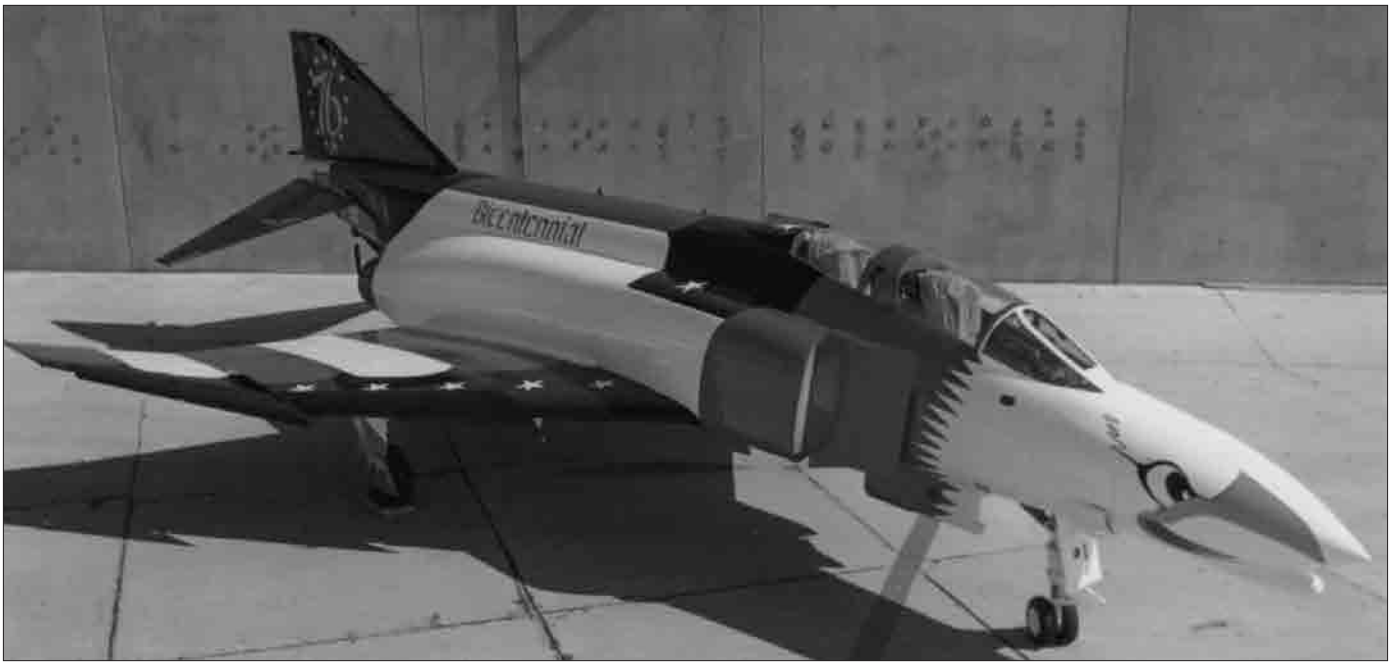
6 JUNE • An A-6 Intruder successfully test fired the tactical version of a Tomahawk cruise missile using the terrain contour matching navigation system.

24 JUNE • The Navy accepted its first T-34C Mentor. The new planes were to replace aging T-34B Mentors and T-28B/C Trojans used in primary and basic flight training. They were also to be the first training command aircraft to have maintenance and supply support provided by civilian contractors.

24 JUNE • The Navy's air-launched low volume ramjet set a distance record traveling more than 100 nautical miles at sustained speeds of over 1,700 miles per hour. This was the fifth flight for the ramjet at Pacific Missile Test Center, Point Mugu, Calif.

30 JUNE • A new major caliber lightweight gun mounted in destroyer *Hull* (DD 945) successfully fired an 8-inch laser-guided projectile developed jointly by the Navy and the Marines.

Tarawa (LHA 1) is the first of a new class of five amphibious assault ships. These combined in one ship type the functions previously performed by four different types: the amphibious assault ship (LPH), amphibious transport dock (LPD), amphibious cargo ship (LKA), and dock landing ship (LSD).



An F-4J Phantom II, BuNo 153088, of VX-4 awaits the final touches on its colorful 1976 bicentennial markings. Its final scheme included a blue stripe down the fuselage side with U.S. Navy and VX-4 in gold lettering.

The radome of an E-2B Hawkeye, BuNo 149819, of VAW-116, embarked on board *Nimitz* (CVN 68), displays the "Spirit of 76" in honor of the nation's 1976 bicentennial.

An SH-3D Sea King, BuNo 154111, of HS-8 bears the squadron's celebratory markings during the nation's 200th anniversary. The American Bicentennial Committee honored HS-8 as a bicentennial command.

30 JUNE • A naval aviation tradition came to an end when the Navy struck brown shoes from the uniforms of officers and chiefs. The practice initially distinguished the brown shoes of naval aviators from the black shoes of surface officers. On 20 October 1986, however, the Navy authorized the restoration of the tradition.

1 JULY • The Navy's Sea-Air Operations Gallery within the new National Air and Space Museum of the Smithsonian Institution opened to the public. This featured depictions of naval aviation history events and contained a mock-up of an aircraft carrier hangar deck, bridge, and preflight operations room. The bridge areas included audio/visual presentations of takeoffs and landings from a carrier, and the hangar deck included Navy aircraft past and present.

9 JULY • The delivery of the first two CH-46Es extended the effectiveness and useful life of the Sea Knight program. The major addition and modifications to CH-46A, D, and Fs to E standards included T-58-GE-16 engines, an Omega-Doppler navigation system, crashworthy pilot and copilot seats, a combat crashworthy fuel system, rescue hoist, and an infrared engine exhaust suppressor.

12 JULY • On 3 July, Israeli commandoes rescued more than 100 hostages held by Palestinian terrorists at the Entebbe, Uganda, airport. Ugandan President Idi Amin lashed out at the Israelis and anyone he perceived as supporting them. On this date, *Ranger* (CV 61) of Task Group 77.7 entered the Indian Ocean from the South China Sea and made for the coast of Kenya in response to a threat of military action by Amin. A VP-17 P-3A Orion that visited the Kenyan capital of Nairobi and the visit of a Middle East Force ship to Mombassa further demonstrated U.S. friendly ties and support for Kenya during the crisis. The United States released *Ranger* from this tasking on 27 July.

An F-4J Phantom II, BuNo 155752, of VF-21 slams into the barricade on board *Ranger* (CVA 61) during Carrier Air Wing 2's Vietnam War operations between 14 October 1969 and 1 June 1970. Both crewmen were uninjured and the aircraft received minimal damage.

12 JULY • The Navy retired the last C-117 Skytrain.

27 JULY • *America* (CV 66) and other elements of Task Force 61 supported the evacuation of 160 Americans and 148 other nationals from Beirut, Lebanon. Amphibious transport dock *Coronado* (LPD 11) removed the evacuees from Lebanon and, on 29 July, arrived in Athens, Greece. *Nimitz* (CVN 68) stood ready to support the evacuations. From January through July 1976, contingency evacuation forces for the Lebanese Civil War involved at different intervals *America*, *Independence* (CV 62), *Nimitz*, and *Saratoga* (CV 60), and amphibious assault ships *Guadalcanal* (LPH 7) and *Iwo Jima* (LPH 2).

27 JULY • The Department of Defense approved the first phase of a program to develop the AV-8B Harrier II, with improved payload and range over the AV-8A.

13 AUGUST • An HU-16 Albatross, the Navy's last operational seaplane, made its final water landing in Pensacola Bay, Fla.

18 AUGUST • North Korean border guards murdered two U.S. Army officers and wounded four other officers and five South Korean soldiers during the so-called Korean Tree Incident. *Midway* (CV 41) received orders to sail from Yokosuka, Japan, and from 21 August to 8 September made a show of force in the Korea Strait.

20 AUGUST • Frigate *Ainsworth* (FF 1090) became the first ship to undergo the installation of a production version of the Harpoon command and launch missile system.

29 AUGUST • The Navy withdrew from VS-37 the last S-2 Tracker in active service. The type entered service with VS-26 in February 1954.

15 SEPTEMBER • Test flights began on the Air Combat Maneuvering Range (ACMR) under construction off the coast of Cape Hatteras, N.C. The range provided air combat training for East Coast squadrons and followed a Navy ACMR at Yuma, Ariz.

17 SEPTEMBER • NASA publicly unveiled the new space shuttle program. Twelve of the 28 astronauts in the program had Navy or Marine Corps aviation backgrounds.

29 SEPTEMBER • The ship-deployable, tactical airborne remotely-piloted vehicle (RPV) made the first automatically closed-loop recovery of an RPV into a net arresting assembly at the National Parachute Test Range, NAF El Centro, Calif.

30 SEPTEMBER • *Oriskany* (CV 34) was decommissioned as the last *Essex*-class carrier at San Francisco, Calif. The ship then entered the Mothball Fleet.

4 OCTOBER • The first overseas operational commitment for the AV-8A on a carrier began when the Harriers of VMA-231, embarked with CVW-19 on board *Franklin D. Roosevelt* (CV 42), sailed for a deployment to the Sixth Fleet in the Mediterranean.

5 NOVEMBER • The Marine Corps received an AH-1T from Bell Helicopter Textron for further testing. This version of the Sea Cobra offered an improved payload of 4,392 lbs over previous versions' 2,739 lbs.

13 NOVEMBER • Cruiser *Wainwright* (CG 28) completed the first at-sea firing tests of RIM-66 SM-2 (extended range) guided missiles. *Wainwright* used a modified Terrier fire control system to control the flight of a Standard missile, and the test capped a five-year program that demonstrated its accuracy.

1 DECEMBER • NAF China Lake, Calif., was disestablished after more than 30 years of operation as a separate facility and became part of the Naval Weapons Center.

1 DECEMBER • Naval Auxiliary Air Station Saufley Field, Fla., was disestablished.

1977

6 JANUARY • The first General Electric F404 development engine underwent testing at the company plant in Lynn, Mass.

13 JANUARY • NAS Jacksonville, Fla., announced that two AV-8A Harriers had made a bow on approach and landing on board *Franklin D. Roosevelt* (CV 42). The event marked the first time in U.S. naval history that fixed-wing aircraft made a bow-on, downwind landing on board a carrier at sea. The Harriers completed their landings and demonstrated the capabilities of V/STOL aircraft to land on board carriers without many of the conditions necessary for fixed-wing conventional aircraft.

14 JANUARY • The simultaneous operations of *Enterprise* (CVN 65) within the Seventh Fleet and *Nimitz* (CVN 68) within the Sixth Fleet marked the first all-nuclear-powered task group operations in both deployed fleets.

31 JANUARY • The Navy accepted delivery of two-seat TA-7C Corsair IIs converted from earlier models and designated combat crew and instrument trainers for replacement pilots of the light attack squadrons that flew Corsair IIs at NAS Cecil Field, Fla., and NAS Lemoore, Calif.

25 FEBRUARY • Ugandan President Idi Amin criticized the United States and directed that all Americans living in Uganda were to meet with him personally. The issue caused concern for the safety of these people, and the joint chiefs ordered *Enterprise* (CVN 65) to maintain station 300 nautical miles east of Kenya. Negotiators persuaded Amin to lift the travel restrictions on Americans, and on 3 March the chiefs released *Enterprise*.

1 MARCH • NARF and NAS Lakehurst, N.J., were disestablished. The modification of the mission of the Naval Air Engineering Center, Lakehurst, enabled the center to absorb their functions.

1 MARCH • The F/A-18 was officially named Hornet.

24 MARCH • The initial service acceptance trials for the CH-53E Super Stallion concluded at NATC Patuxent River, Md.

25 MARCH • NAVAIR announced the testing of the Aerocrane lighter-than-air craft by the Advanced Concepts Division and the Naval Air Development Center, Warminster, Md. The project represented the first government-sponsored study of lighter-than-air flight in several years.

5 APRIL • The Navy took delivery of T-44A Pegasus (King Air 90) trainers at NAS Corpus Christi, Texas.

8 APRIL • VAW-121 received the first fleet E-2C automatic radar processing system (ARPS)–equipped Hawkeye at NAS Norfolk, Va. The new aircraft was designed to improve the radar capability in its airborne early warning mission.

12 APRIL • An operational requirement was established for night vision capability in Marine Corps transport helicopters.

21 APRIL • *Franklin D. Roosevelt* (CV 42) returned to the United States from the Mediterranean after her final overseas deployment prior to decommissioning on 1 October 1977.

22 JUNE • An OV-10D Bronco equipped with a forward-looking infrared (FLIR) imaging system underwent testing and evaluation at NATC's Strike Aircraft Test Directorate, Patuxent River, Md. FLIR allowed the two-man crew to pinpoint targets obscured by dark, camouflage, dust, smoke, haze, and light fog by detecting thermal radiation they emitted compared to their surroundings. The system also proved useful for navigation, terrain avoidance and surveillance, target detection, recognition and tracking, gun laying, and as a landing aid.

13 JULY • A pilot in an F-4J Phantom II from NATC Patuxent River, Md., made the first landing using the microwave landing system (MLS) at the FAA Test Facility, Atlantic City, N.J. The system was designed to reach out electronically, catch target aircraft, and fly them to safe landings without the pilots touching the controls.

23 JULY • The National Aviation Hall of Fame, Dayton, Ohio, inducted Rear Adm. Alan B. Shepard Jr.

11 AUGUST • Marine Corps pilots flew the first of 400 CH-46E Sea Knights retrofitted with newly developed fiberglass rotor blades that were less susceptible to corrosion and fatigue damage.

26 AUGUST • The Navy unveiled the XFV-12A V/STOL research aircraft at the Rockwell International facility in Columbus, Ohio. The single-engine single-seat thrust-augmented wing prototype high-performance fighter was designed to operate from small ships.

29 AUGUST • The first production model P-3C Update II arrived for technical evaluation at NATC Patuxent River, Md. The upgraded Orions incorporated enhanced avionics and weapons systems including a turret-mounted infrared detection device to identify targets day or night, and AGM-84 Harpoon air-to-ground missiles.

1 SEPTEMBER • The Navy selected LAMPS Mk III helicopter contractors; Sikorsky Aircraft Division to build the aircraft and General Electric's Aircraft Engine Group to provide the engines.

30 SEPTEMBER • The Joint Cruise Missile Project Office was established in the Naval Material Command. The Navy and Air Force shared responsibility for developing cruise missiles. The Cruise Missile Project Office had been a NAVAIR project.

1 OCTOBER • The Naval Aviation Logistics Center became fully operational at NAS Patuxent River, Md. It was responsible for the implementation, coordination, and management of Navy-wide depot-level aviation maintenance programs.

31 OCTOBER • The Department of Defense directed a significant relocation of the essential mission of the National Parachute Test Range, El Centro, Calif. The range had been responsible for research, development, training, and evaluation (RDT&E) for parachute systems and for providing common airfield support to aviation units. The RDT&E mission shifted to NWC China Lake, Calif., while the airfield support mission remained at NAF El Centro.

14 NOVEMBER • The chief of Naval Air Training formally accepted turboprop T-34C Mentor trainers. The planes subsequently were renamed Turbomentors.

1978

7 JANUARY • A fire erupted on board Indian freighter *Jagat Padmini* 30 miles southeast of Sicily, Italy. An HS-9 SH-3H Sea King, embarked on board *Nimitz* (CVN 68), spotted the blaze and alerted rescuers. *Nimitz*, cruiser *South Carolina* (CGN 37), and destroyer *Bigelow* (DD 942) battled exploding oil drums, heavy seas, and 25- to 30-knot winds to rescue 43 crewmembers and extinguish the blaze. A Sea King struck an obstruction and crashed, but the four crewmembers survived. Italian tug *Monte Priolo* took the stricken ship in tow.

2 FEBRUARY • Submarine *Barb* (SSN 596) successfully launched a Tomahawk cruise missile that flew a fully guided land attack test flight that terminated at Edwards AFB, Calif. This was the first launch of a Tomahawk from a submarine.

9 FEBRUARY • The first satellite of the Navy Fleet Satellite Communications System was launched. The system satisfied the need for worldwide tactical command, control, and communications for the entire fleet.

27 FEBRUARY • A contract for full-scale production of the CH-53E Super Stallion was awarded to Sikorsky Aircraft.

28 FEBRUARY • The Department of Defense authorized the full-scale development of the SH-60B LAMPS Mk III Seahawk.

FEBRUARY • During the latter part of the month, ships began surveillance operations of the Somali invasion of the Ogaden region of Ethiopia. The invasion quickly collapsed and *Kitty Hawk* (CV 63) received orders to a holding point north of Singapore until 23 March.

17 MARCH • NASA selected four two-man crews for early flights of the space shuttle. The first scheduled orbital test included Navy Capt. John W. Young as commander and Cmdr. Robert L. Crippen as pilot, while Col. Joe H. Engle, USAF, and Cmdr. Richard H. Truly comprised the backup crew. The first group of two-man crews also included Lt. Col. John R. Lousma, USMC.

10 APRIL • The first TA-7C Corsair II attack trainer arrived for Board of Inspection and Survey trials at NATC Patuxent River, Md.

14 APRIL • The first of 12 C-2A Greyhounds rolled off the service life extension program (SLEP) line at NARF North Island, Calif. SLEP added seven to ten years of service to the carrier-on-board-delivery planes.

9 JUNE • Commander NWC Rear Adm. William L. Harris accepted the Daedalian Weapons Systems Award in San Antonio, Texas. The Order of Daedalians, a national fraternity of military pilots, selected NWC and NAVAIR as co-winners in recognition of the success of the commands in working as a team on the Sidewinder family of heat-seeking guided missiles.

JULY • During growing unrest in Afghanistan, *Enterprise* (CVN 65) operated until 31 July in the vicinity of Diego Garcia, British Indian Ocean Territory.

8 JULY • The Naval Air Test and Evaluation Museum opened its doors to the public at NAS Patuxent River, Md.

21 JULY • The final flight of the service acceptance trials for the AH-1T Sea Cobra took place at NATC Patuxent River, Md.

22 JULY • Capt. Holden C. Richardson, CC (Naval Aviator No. 13), was inducted into the National Aviation Hall of Fame, Dayton, Ohio. He was the first naval aviation engineering officer so honored.

25 JULY • Through the following day, a mock-up of an SH-60B Seahawk underwent shipboard compatibility trials on board frigate *Oliver Hazard Perry* (FFG 7). On 2 and 3 August, evaluators carried out additional similar trials with destroyer *Arthur W. Radford* (DD 968).

3 AUGUST • NAVAIR announced that testing of a vertical-seeking ejection seat took place during the summer at NWC China Lake, Calif. While carrying a dummy crewmember, the seat was fired downward from a suspended test module. The seat traveled less than 45 feet before reversing direction and traveling upward, and then parachuted safely to the ground. These tests demonstrated the capabilities of vertical-

seeking seats to safely eject while upside down within 50 feet of the surface, and thus increase the safety envelope of ejection seats.

14 SEPTEMBER • A 60-hour technical test of CH-53Es undertaken to determine if changes made since the initial trials had altered the performance of the Super Stallions ended successfully.

15 SEPTEMBER • A test bed P-3C for the Update III program arrived at Naval Air Development Center, Warminster, Pa. The Orion featured an advanced signal processor developed by IBM, which provided a four-fold improvement in isolating sounds of submerged targets from ocean background noise.

9 NOVEMBER • An AV-8B Harrier II flew for the first time at McDonnell Douglas Corporation, St. Louis, Mo.

18 NOVEMBER • An F/A-18A Hornet flew for the first time at McDonnell Douglas Corporation, St. Louis, Mo.

18 DECEMBER • Commander NAVAIR established the undergraduate Jet Pilot Training System Project. This was designed to provide naval aviation with an integrated intermediate and advanced jet training program consisting of aircraft, simulators, academics, and training management.

27 DECEMBER • The United States directed *Constellation* (CV 64) to the vicinity of Singapore in response to the Iranian hostage crisis and because of vital U.S. interests in the Persian Gulf area. On 2 January 1979, President James E. Carter Jr. ordered the ship to remain in the South China Sea. On 16 January, the crisis temporarily abated when Iranian Shah Mohammad R. Pahlavi departed for exile. The ongoing situation nonetheless prompted the State Department to order the evacuation on 30 January of all U.S. government dependents and nonessential Americans from the country. On 28 January, *Constellation* was released from her tasking, and on 18 and 21 February, the British evacuated many Westerners from Iran.

1979

2 JANUARY • A Soviet Aeroflot Ilyushin Il-14FKM Crate crashed near Molodezhnaya, Antarctica, killing four of the seven crewmembers. An LC-130 Hercules of VXE-6 rescued the survivors.

16 JANUARY • The first F/A-18 Hornet arrived for evaluation trials at NATC Patuxent River, Md. Testing was to include in-flight refueling, land-based catapult launchings and arrested landings, speed tests, and at-sea carrier takeoffs and landings on board *America* (CV 66).

25 JANUARY • The Navy's YAV-8B Harrier II prototype arrived to test its aerodynamic improvements at NATC Patuxent River, Md.

9 FEBRUARY • Secretary of the Navy W. Graham Claytor Jr. announced the decision to name the helicopter portion of the Navy's SH-60B LAMPS Mk III program as the Seahawk. The name honored the Curtiss F7C and SC-1 Seahawks.

14 FEBRUARY • Submarine *Guitarro* (SSN 665) launched a Tomahawk missile from off the California coast. This successful evaluation was part of a planned series of three submarine launches and flight tests of Tomahawks conducted in February and June that demonstrated the over-the-horizon capability of the missiles to carry out simulated searches of, and attacks on, target ships at sea.

22 FEBRUARY • The Chinese invaded Vietnam in retaliation for the Vietnamese invasion of China's ally Kampuchea (Cambodia). On 25 February, *Constellation* (CV 64) entered the South China Sea to monitor the crisis and increased Soviet naval deployments to the region.

27 FEBRUARY • The Navy took delivery of the last A-4—an A-4M assigned to VMA-331—from McDonnell Douglas Corporation. The delivery ended a continuous Skyhawk production run of 2,960 aircraft over 26 years.

7 MARCH • The United States directed *Constellation* (CV 64) from the South China Sea to the Gulf of Aden to monitor fighting between North and South Yemen. Tankers carrying oil to the United States and its allies passed through the gulf. An aircraft carrier operated in the area until 6 June.

A P-3A Orion, BuNo 152170, of VP-17 patrols over a Soviet *Boris Chilikin*–class replenishment oiler in the Sea of Japan, c. 1976.

11 MARCH • A P-3B Orion from NATC Patuxent River, Md., flew the first transoceanic flight guided by the space-based NavStar radio navigation system on a six-hour mission from NAS Barbers Point, Hawaii, to NAS Moffett Field, Calif. The NavStar system comprised 24 satellites in earth orbit providing radio navigational information.

20 MARCH • The last variant of the P-2 Neptune rolled off the production line during ceremonies in Japan. This concluded a manufacturing run of 34 years.

26 MARCH • An AV-8A at NATC Patuxent River, Md., tested a ski jump ramp developed by the British to reduce Harrier takeoff distance. The 130-foot-long ramp with a 12 degree inclination reduced the total takeoff distance for Harriers from 930 to 230 feet.

16 APRIL • *Midway* (CV 41) relieved *Constellation* (CV 64) as the Indian Ocean contingency carrier. Ongoing crises involving Iran and Yemen prompted the carrier deployments.

21 APRIL • The Navy's supersonic tactical missile test vehicle made its first flight at the Pacific Missile Test Center.

Naval officers examine one of two Northrop YF-17 lightweight fighters, c. 1974–1975, most likely 72-1570, the second aircraft, which was painted in Navy colors. The design served as the basis for the later F/A-18 Hornet.

Vought developed this advanced integral rocket/ramjet test vehicle, which the designers intended as a major step toward development of a new generation of high performance, air-to-surface tactical standoff missiles.

NAH 002785

With his sole possessions clasped in his teeth, a Vietnamese refugee climbs netting to combat store ship *White Plains* (AFS 4). He and 28 other Vietnamese boat people were found floating in a 35-foot wooden boat in the South China Sea, 30 July 1979.

23 APRIL • Vice Adm. Forrest S. Petersen transferred ownership of the sole remaining Kawanishi H8K2 flying boat to the Japanese Museum of Maritime Science during a ceremony at NAS Norfolk, Va. The Navy brought the Emily to the United States late in 1945 to undergo tests at Patuxent River, Md. After test completion, the plane was stored at Norfolk and outlasted all its sister aircraft. In July 1979, the museum transported the Emily to Tokyo.

30 APRIL • Lt. Rodney M. Davis of HM-12 set a transcontinental long-distance, non-stop flight record by piloting an RH-53D, Aircraft No. 430, from NAS Norfolk, Va., to San Diego, Calif. Davis flew the Sea Stallion 2,077 nautical miles in 18.5 hours, refueling in the air from an Air National Guard HC-130 Hercules.

5 MAY • After pirates repeatedly attacked a vessel packed with Vietnamese refugees in the South China Sea, on this date *Robert E. Peary* (FF 1073) rescued the 442 survivors adrift about 400 miles south of Thailand. Three days later, the frigate transferred the refugees to amphibious assault ship *Tarawa* (LHA 1). On 12 May, *Tarawa* put the people ashore in Thailand.

22 MAY • The first of two AV-8Cs arrived for service acceptance trials at NATC Patuxent River, Md. Improvements in these Harriers included a new UHF radio, a chaff and flare dispensing system, lift improvement devices, a radar warning system, and secure voice equipment.

30 MAY • The United States released *Midway* (CV 41) from contingency operations in the Arabian Sea and the ship sailed for the Pacific.

12 JUNE • The Deputy Secretary of Defense approved the mission element need statement for the Jet Pilot Training System Project. The system facilitated the provision of undergraduate pilot training for student naval aviators and transition students of the Navy and Marine Corps.

20 JUNE • Lt. Donna L. Spruill of VRC-40 became the first female naval aviator to carrier qualify in a fixed-wing aircraft. Spruill and copilot and squadron commanding officer, Cmdr. Jerry L. Wright, made ten landings and three catapult launches in a C-1A Trader on board *Independence* (CV 62) in the Atlantic.

1 JULY • The deactivation of the Army's Executive Flight Detachment left HMX-1 as the single source of helicopter support for the White House.

17 JULY • Amphibious assault ship *Saipan* (LHA 2) operated off the coast of Nicaragua for possible evacuation of Americans because of the turmoil surrounding the fall of that government to the Marxist Sandinistas.

18 JULY • A P-3C Orion of VP-23 fired an AGM-84 Harpoon air-to-ground missile. VP-23 was the first operational fleet patrol squadron to receive, fire, and make an operational deployment with Harpoons. On 17 August, the announcement of the entry of Harpoons into operational

service as air-launched weapons occurred during a ceremony at NAS Brunswick, Maine.

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Vietnamese refugees displaying an SOS sign from their fragile craft signal the crew of a VP-22 P-3B Orion in the Western Pacific, August 1979.

19 JULY • President James E. Carter Jr. announced that he had instructed the Seventh Fleet to aid Vietnamese refugees, dubbed "boat people" by the media, and assist them to safety. Aircraft and ships of the Seventh Fleet thus stepped up patrolling, assistance, and rescue efforts.

21 JULY • The National Aviation Hall of Fame in Dayton, Ohio, inducted Neil A. Armstrong. He served as a Navy pilot during the Korean War and later, as commander of the Apollo 11 mission, became the first man to step on the moon.

24 JULY • The Bell XV-15 successfully transitioned in flight from helicopter- to fixed-wing mode. The joint Navy/Army/NASA XV-15 flight test program evaluated the tilt-rotor concept.

27 JULY • A turbojet-powered Northrop BQM-74C aerial target successfully completed its first flight over the Pacific Missile Test Center, Point Mugu, Calif. The 33-minute flight also marked the first airborne launch of the type from an A-6 Intruder.

30 AUGUST • The first prototype of an SH-60B Seahawk was unveiled at the Sikorsky Aircraft Division, Stratford, Conn.

30 AUGUST • A CH-53D Sea Stallion of VR-24 lifted a 12-foot bronze statue of the Madonna and Child to the top of Mt. Tiberius on Capri, Italy. Lightning had destroyed the original statue and the replacement proved too large for overland transportation.

15 SEPTEMBER • The first naval UC-12B Huron arrived for preliminary evaluation tests at NATC Patuxent River, Md.

18 SEPTEMBER • The circulation control rotor made its first flight using the airframe and propulsion system from an HH-2D helicopter. The Navy's advanced rotor system project was to improve performance, reduce maintenance requirements, and reduce vibration levels over extant rotor systems.

28 SEPTEMBER • RVAH-7 was disestablished as the last RA-5C Vigilante squadron. The Navy planned to use some of the Vigilantes as drones.

1 OCTOBER • AV-8A shipboard trials began on board amphibious assault ship *Saipan* (LHA 2). The testing consisted of 33 flights involving short and vertical takeoffs, and vertical landings by the Harriers through 8 October.

2 OCTOBER • In the wake of reports concerning a possible build-up of Soviet troops in Cuba, the joint chiefs ordered the establishment of a Caribbean contingency task force. On 11 October, amphibious assault ship *Nassau* (LHA 4) and other amphibious ships made for NS Guantánamo Bay, Cuba. President James E. Carter Jr. ordered the ships to make a show of force in response to maneuvers by Soviet troops on the island. On 17 October, 1,800 Marines landed in Guantánamo Bay as a demonstration of naval power in the wake of the Soviet refusal to withdraw their combat brigade.

Later in the month, *Forrestal* (CV 59) transited close to Cuba in conjunction with the U.S. policy of an increased presence in the Caribbean.

14 OCTOBER • A-6E target recognition attack multisensor-equipped all-weather Intruders began fleet operations at NAS Oceana, Va.

26 OCTOBER • South Korean President Park C. Lee was assassinated. On 28 October, *Kitty Hawk* (CV 63) received orders to operate in the East China Sea off Cheju Do in the Korean Strait. Aircraft from the ship completed flight operations within the detection envelope of North Korean early warning radars to demonstrate U.S. support of the South Koreans. *Kitty Hawk* left the area on 5 November.

30 OCTOBER • An F/A-18 made the first landing of a Hornet at sea on board *America* (CV 66). The plane completed 32 catapult and arrested landings during five days of sea trials.

4 NOVEMBER • A mob of revolutionaries seized 66 Americans including one naval aviator and 14 Marines at the U.S. Embassy and the Iranian Foreign Ministry in Tehran, Iran. Their demands included the return to Iran from the United States of deposed Shah Mohammad R. Pahlavi.

18 NOVEMBER • *Midway* (CV 41), which had been operating in the Indian Ocean, arrived in the northern Arabian Sea in connection with the ongoing hostage crisis in Iran.

20 NOVEMBER • The last RA-5C in the Navy departed on its final flight from NAS Key West, Fla. The mission completed the phase-out of the entire reconnaissance inventory of 156 Vigilantes.

21 NOVEMBER • The United States directed *Kitty Hawk* (CV 63) to sail to the Indian Ocean to join *Midway* (CV 41) in the northern Arabian Sea in response to the Iranian hostage crisis. On 3 December, *Kitty Hawk* arrived, marking the first time since World War II that the United States had deployed two carriers in the Indian Ocean in response to a crisis situation. *Kitty Hawk* recorded continual Soviet surveillance by Antonov An-12 Cubs flying from Aden, Yemen, supplemented at three-day intervals by Il-38 Mays. On 21 and 22 January 1980, Soviet spy trawler *No. 477* conducted what *Kitty Hawk* reported as "provocative maneuvers close aboard." *Kitty Hawk* left the area on 24 January.

12 DECEMBER • The development program for SH-60B LAMPS Mk IIIs reached a milestone when one of the Seahawks completed its first flight at Sikorsky's West Palm Beach, Fla., test facility.

17 DECEMBER • The first two-seat F/A-18B Hornet arrived for armament and stores separation testing at NATC Patuxent River, Md. During 1979, the center conducted 416 F/A-18 flights for a total of 555 hours testing. On 12 December, it completed a successful live firing of an AIM-9 Sidewinder air-to-air missile from a Hornet.

21 DECEMBER • The Department of Defense announced the deployment of *Nimitz* (CVN 68) from the Sixth Fleet in the Mediterranean to the Indian Ocean to relieve *Kitty Hawk* (CV 63).

24 DECEMBER • The Soviets airlifted 5,000 airborne troops into Kabul, Afghanistan. The United States protested the move, which the Soviets claimed had been conducted at the request of the Afghan government. On 27 December, a Soviet-backed coup installed a new regime in the country. The Soviet invasion reinforced the U.S. decision to maintain two carriers in the region, and *Kitty Hawk* (CV 63) and *Midway* (CV 41) extended their contingency operations in the northern Arabian Sea.

31 DECEMBER • Ships and aircraft of the Seventh Fleet continued their patrols and rescue assistance efforts connected with the Vietnamese boat people. During the final six months of 1979, Navy ships rescued more than 800 Vietnamese refugees, and P-3 Orions directed merchant vessels to the rescue of more than 1,000 others.

Chapter 11

The 600-Ship Navy

1980–1989

A build-up of naval aviation, the rise of global acts of terrorism, and the U.S. response to global crises characterized the eighth decade of naval aviation. As the decade began, aircraft carriers sailed ready to project U.S. power against extremists who held Americans hostage in Tehrān, Iran. These ships had increasingly deployed to the Indian Ocean during the latter part of the 1970s, and strengthened the trend into the 1980s as a result of ongoing and growing problems in the Middle East, East Africa, and Asia.

Eastern Bloc naval expansion threatened Western control of the sea, and the United States countered by developing a maritime strategy that focused on the three pillars of deterrence, forward defense, and alliance solidarity. To accomplish this plan, the Navy developed a maritime component in which carriers were to thrust toward strategic points encircling the Eastern Bloc and contain the Soviet fleet to enable U.S. warships to patrol the open oceans and reinforce allies.

Naval aviation experienced resurgence in strength and capabilities through building programs and new technology research. A number of naval aircraft joined the fleet, including F/A-18 Hornets, SH-60B LAMPS (Light Airborne Multi-Purpose System) Mk III Seahawks and their derivatives, MH-53E Sea Dragons, and AV-8B Harrier IIs. The rollout of fixed-wing, tilt-rotor V-22 Ospreys capable of vertical takeoff and landing (VTOL) and high-speed horizontal flight introduced new aircraft concepts.

Missile development kept pace with aircraft progress. New introductions included AGM-88 High-speed Anti-Radiation Missiles (HARM), AGM-114 Hellfire precision strike air-to-ground missiles, and R/UGM-109 Tomahawk Land Attack Missiles (TLAM, originally known as cruise missiles) capable of attacking ships and targets ashore. The platforms for these missiles also kept pace. Additional *Nimitz* (CVN 68)-class nuclear-powered aircraft carriers and *Wasp* (LHD 1)-class multipurpose amphibious assault ships were commissioned, and Congress authorized more of these ships for construction. Naval aviation celebrated its 75th anniversary in 1986, and throughout the year the Navy lauded the men and women who had contributed to the force.

Involvement in confrontations during the decade began with the Iranian hostage crisis from 1979 to 1981. Clashes with the Libyans demonstrated naval aviation's air-to-air and strike capabilities, and Operation Urgent Fury reestablished democracy on the Caribbean island of Grenada. Operations in and around Lebanon kept naval aviation occupied during the mid-1980s, and responding to terrorist crimes and hijackings around the Mediterranean basin became an ongoing requirement for most of the decade.

The Persian Gulf War between Iran and Iraq escalated and the fleet became involved in short but fierce battles in that area. Escorting reflagged oil tankers and monitoring the fighting kept naval aviation on the line in the region from the mid-1980s. As the decade ended, Saddam Hussein invaded Kuwait and the UN imposed an economic blockade on Iraq to force its withdrawal.

In 1982 the Navy began working with U.S. Customs and the Coast Guard to curb the influx of drugs into the United States, and E-2C Hawkeyes became permanent participants in the detection of drug smuggling aircraft. Other activities included continued involvement in the manned space program and assistance during natural disasters. As the 1980s ended, the détente between the Americans and Soviets continued. During these years, naval aviation demonstrated diverse capabilities.

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CNO Adm. Thomas B. Hayward delivers remarks at the launching of *Carl Vinson* (CVN 70), 15 March 1980. The third *Nimitz*-class carrier was named after the long serving Georgia congressman.

1980

1 JANUARY • VP-23 deployed from Keflavik, Iceland, to Diego Garcia, British Indian Ocean Territory. The squadron made its first operational flight from the atoll within ten days of its receipt of orders.

2 JANUARY • A detachment of P-3B Orions from VP-10 deployed to NS Rota, Spain, flew photoreconnaissance missions to locate areas damaged by an earthquake that struck the Azores the previous day, killing 50 people and injuring about 500 others.

4 JANUARY • *Nimitz* (CVN 68) rendezvoused with her nuclear-powered escort ships in the Mediterranean and made for the Indian Ocean via the Cape of Good Hope to relieve *Kitty Hawk* (CV 63) during contingency operations in the Indian Ocean. The departure of *Nimitz* left *Forrestal* (CV 59) as the only U.S. carrier operating in the Mediterranean.

4 JANUARY • The test flight of the first TA-7C Corsair II assigned to the Pacific Missile Test Center occurred at Point Mugu, Calif.

7 JANUARY • Reconnaissance Attack Wing One was disestablished. The wing had consisted of nine fleet squadrons, one training squadron, and a support command that provided tactical reconnaissance for deployed carriers. The phase out coincided with the disestablishment of the last RVAH squadron on 28 September 1979, in preparation for the final retirement from the fleet of all RA-5C Vigilantes on 20 November 1979.

22 JANUARY • *Nimitz* (CVN 68) rendezvoused with *Midway* (CV 41) and *Kitty Hawk* (CV 63) in the Arabian Sea.

5 FEBRUARY • *Coral Sea* (CV 43) relieved *Midway* (CV 41) in the Arabian Sea.

29 FEBRUARY • VMO-1 at New River, N.C., began flying OV-10D Broncos equipped with forward looking infrared and laser rangefinder designator systems.

1 MARCH • The Navy confirmed that Chief of Naval Operations Adm. Thomas B. Hayward had proposed to Secretary of Defense Harold Brown a plan to reactivate *Oriskany* (CV 34) and several other mothballed ships, to help fulfill the Navy's missions in the Indian Ocean and other areas.

6 MARCH • Amphibious assault ship *Nassau* (LHA 4) began a month-long cruise to the Caribbean to demonstrate U.S. capabilities to defend the Panama Canal in accordance with the 1979 Panama treaty.

16 APRIL • *Dwight D. Eisenhower* (CVN 69) sailed from the East Coast to relieve *Nimitz* (CVN 68) in the Indian Ocean. Two days later, *Constellation* (CV 64) departed Subic Bay, Philippines, to relieve C*oral Sea* (CV 43) in the Indian Ocean.

24 APRIL • The United States launched Operation Blue Light (Eagle Claw) to rescue the 53 Americans held hostage by Iranian militants in Tehrān, Iran. Eight RH-53D Sea Stallions lifted off from *Nimitz* (CVN 68) in the Arabian Sea to rendezvous with Special Forces troops and with six USAF C-130 Hercules flying from al Masirah Island, Oman. A *haboob*—a huge dust cloud—forced helicopters No. 2 and 5 to land short of their objective, and mechanical problems compelled No. 6 to put down at a secret refueling site within Iran designated Desert One. Planning called for a minimum of six operational helicopters to rescue the hostages, and with only five capable of continuing, commanders aborted the mission. During the withdrawal of a helicopter, it collided with a Hercules when they repositioned to refuel, killing eight men. The remaining Hercules evacuated the survivors.

25 APRIL • A P-3B of VP-4 deployed to NAS Cubi Point, Philippines, spotted a vessel carrying Vietnamese refugees 300 miles northeast of Ho Chi Minh City (Saigon), Vietnam. The Orion directed oiler *Sealift Antarctic* (T-AOT 176) to the rescue of 59 people.

30 APRIL • *Constellation* (CV 64) relieved *Coral Sea* (CV 43) in the Indian Ocean.

30 APRIL • President James E. Carter Jr. ordered the Navy to divert ships scheduled for exercise Solid Shield 80 in the Atlantic and Caribbean to assist the Coast Guard in the rescue of Cuban refugees, who fled their country en masse in dangerously overcrowded boats through the Florida Strait for the United States. Amphibious assault ship *Saipan* (LHA 2), and amphibious transport docks *Ponce* (LPD 15) and *Shreveport* (LPD 12) led a combination of amphibious vessels and minesweepers that supported the Coast Guard, and P-3 Orions flew patrols primarily from NAS Key West, Fla. Eleven Navy ships ultimately took part in what became known as the Mariel boatlift. On 8 July, the Navy terminated its support. More than 125,000 Cuban refugees fled to the United States by 12 June, when the tempo of Solid Shield 80 diminished.

8 MAY • Following a voyage from the United States via the Cape of Good Hope, *Dwight D. Eisenhower* (CVN 69) relieved *Nimitz* (CVN 68) in the Arabian Sea.

27 MAY • *Coral Sea* (CV 43) was diverted to operate south of Cheju-do in the Korea Strait in response to South Korean civil unrest. *Midway* (CV 41) relieved *Coral Sea* on 30 May.

28 MAY • The Naval Academy Class of 1980 graduated the first group of students to include women—55 of the 770 graduates.

3 JUNE • A Marine A-4M launched the first AGM-65E Maverick air-to-ground missile from a Skyhawk during tests at Eglin AFB, Fla. Hughes Aircraft Company had developed the laser-guided version of the Maverick with a heavier warhead for use by the Marines in close air support.

6 JUNE • Ens. Brenda E. Robinson, USNR, became the first African American female naval aviator at NAS Corpus Christi, Texas. Robinson was the 59th woman to enter naval flight training and the 42nd to earn her wings. On 23 March 1979, she graduated from Aviation Officer Candidate School, NAS Pensacola, Fla. Robinson later flew C-1A Traders of VRC-40 at NAS Norfolk, Va.

10 JUNE • A P-3 Orion discovered a vessel carrying 28 Vietnamese in the South China Sea and directed U.S. merchant ship *Point Margo* to the area to rescue the refugees.

23 JUNE • The Navy granted approval for service use for two advanced sonobuoys, the AN/SSQ-2 Directional Command Active Sonobuoy System and the AN/SSQ-77 Vertical Line Array DIFAR, which represented the first major improvements in the sonobuoy field since the introduction of the AN/SSQ-53 DIFAR in 1968.

15 JULY • A P-3 flying from NAS Cubi Point, Philippines, spotted a vessel carrying 43 Vietnamese refugees adrift in the South China Sea about 115 miles northwest of Lingayen Gulf. The Orion directed cruiser *Joseph Strauss* (DDG 16) to the area to rescue the refugees, and the cruiser disembarked the survivors at Subic Bay.

18 JULY • NASA astronaut Charles Conrad Jr. became the 12th naval aviator enshrined at the National Aviation Hall of Fame, Dayton, Ohio.

30 JULY • The Navy announced that SEAPAC, developed by Vought Corporation, had seawater-activated switches that automatically released a parachute harness when a pilot entered the water.

31 JULY • A T-2C Buckeye launched successfully from a 3-degree angle ski jump at NATC Patuxent River, Md. The launch was the first of feasibility demonstrations to evaluate the use of ramps for takeoffs by conventional aircraft.

31 JULY • A limited duty officer aviator program for second class, first class, and chief petty officers, pay grades E-5 through E-7, was established with the first 35 enlisted sailors selected and scheduled to report in April 1981 to NAS Pensacola, Fla. After completion of aviation officer indoctrination, primary flight, and maritime (propeller) training, the new officers served an initial three-year tour as primary flight instructors. The major objectives of the program included the improvement of use and retention of aviators, provision of further upward mobility for enlisted personnel, improvement of the flight instructor program, and provision for replacement of aviators in selected shipboard billets.

31 JULY • The number of refugees fleeing Southeast Asia rose during this period, and in July, VP-1 P-3C Orions spotted nine vessels and directed rescuers to assist. On 15 August, a tenth vessel was spotted and British tanker *Staffordshire* was directed to the rescue of the 205 refugees on board. From 20 May to 10 November, VP-1 participated in the rescue of more than 4,000 people.

17 AUGUST • *Midway* (CV 41) relieved *Constellation* (CV 64) and supported *Dwight D. Eisenhower* (CVN 69) as both carriers performed contingency operations in the Arabian Sea.

21 AUGUST • Soviet *Echo I*–class nuclear-powered submarine *K-122* suffered a fire that killed at least nine sailors, about 85 miles east of Okinawa. During the subsequent three days, P-3C Orions from VP-26 flew around the clock surveillance of the boat as she made for Soviet waters.

22 AUGUST • A VP-1 P-3B Orion and a VP-26 P-3C guided oiler *Passumpsic* (T-AO 107) to the rescue of 28 Vietnamese refugees in the South China Sea.

8 SEPTEMBER • Four Navy ships and three patrol boats received orders to assist the Coast Guard in a patrol to blockade Cuban refugee boats from reaching the United States.

22 SEPTEMBER • Iraq invaded Iran. *Dwight D. Eisenhower* (CVN 69) and *Midway* (CV 41) continued their contingency operations in the north Arabian Sea.

30 SEPTEMBER • *Saratoga* (CV 60) became the initial carrier to undergo the Aircraft Carrier Service Life Extension Program (CV SLEP).

1 OCTOBER • The Office of Anti-Submarine Warfare and Ocean Surveillance Programs was redesignated Office of Naval Warfare.

4 OCTOBER • An engine room fire erupted on board Dutch cruise ship *Prinsendam* and the crew abandoned ship in the Gulf of Alaska, 120 miles south of Yakutat, Alaska. A Coast Guard HH-3F Pelikan and an HC-130B Hercules from CGASs Kodiak and Sitka; Coast Guard cutters *Boutwell* (WHEC 719), *Mellon* (WHEC 717), and *Woodrush* (WLB 407); Air Force aircraft flying from Elmendorf AFB; and Canadian Coast Guardsmen—a total of 13 U.S. and Canadian aircraft—along with three merchantmen responded. Tanker *Williamsburg* took 175 people on board from lifeboats via the Pelikan. The next morning, *Boutwell* spotted a flare from a lifeboat containing the final 20 passengers and two Air Force technicians, completing the rescue of all 519 crewmembers and passengers.

6 OCTOBER • Command ship *Blue Ridge* (LCC 19), and her embarked SH-3A Sea King of HC-1 Detachment 6, rescued 91 Vietnamese refugees in the western Pacific.

12 OCTOBER • Ships of the Amphibious Force, Sixth Fleet, including amphibious assault ship *Guadalcanal* (LPH 7), assisted the victims of a massive earthquake that devastated Al Asnam, Algeria.

6 NOVEMBER • *Ranger* (CV 61) relieved *Midway* (CV 41) in the northern Arabian Sea.

8 NOVEMBER • Frigate *Francis Hammond* (FF 1067), and her embarked SH-2F Seasprite, rescued 85 Vietnamese refugees in the South China Sea, 200 miles southeast of Vietnam.

11 NOVEMBER • For the first time, a LAMPS SH-60B Seahawk worked with the recovery assist, securing and traversing system (RAST) on board an underway ship. Frigate *McInerney* (FFG 8) conducted the shipboard aspect of the exercise, which included primarily electronic communications and not an actual landing, from the Bath Iron Works yard, Maine.

13 NOVEMBER • VFA-125 at NAS Lemoore, Calif., was established as the first squadron to train sailors and Marines to fly and maintain F/A-18 Hornets.

22 NOVEMBER • Aircraft carrier suitability tests of the Tomahawk II medium range air-to-surface missile concluded successfully.

25 NOVEMBER • RH-53D Sea Stallions from VR-24, together with Army and Air Force elements, began disaster relief assistance to victims of an earthquake that killed more than 3,000 people on 23 November at Avellino, Italy. Commander Fleet Air Mediterranean directed the U.S. military support efforts.

8 DECEMBER • *Independence* (CV 62) relieved *Dwight D. Eisenhower* (CVN 69), which had been involved in Iranian contingency operations since 8 May. Cruisers *South Carolina* (CGN 37) and *Virginia* (CGN 38) also departed after their operations with *Dwight D. Eisenhower*.

22 DECEMBER • *Dwight D. Eisenhower* (CVN 69) returned to NS Norfolk, Va., after a 251-day deployment, including an underway period of 152 continuous days.

1981

1 JANUARY • The Naval Aviation Museum announced the first group of selectees for the newly inaugurated Naval Aviation Hall of Honor, NAS Pensacola, Fla. On 10 July 1980, the Chief of Naval Operations approved 12 men for the honor: Adm. John H. Towers; Vice Adm. Patrick N. L. Bellinger; Rear Adms. Richard E. Byrd Jr., William A. Moffett, and Albert C. Read; Capt. Holden C. Richardson, CC; Lt. Col. Alfred A. Cunningham, USMC; Cmdr. Theodore G. Ellyson; Lt. Cmdr. Godfrey de C. Chevalier; Machinist Warrant Officer Floyd Bennett; and civilians Glenn H. Curtiss and Eugene B. Ely.

6 JANUARY • The LAMPS Mk III antisubmarine warfare system went to sea for the first time. An SH-60B Seahawk landed on board *McInerney* (FFG 8) by using recovery assist, securing and traversing system (RAST) gear as the frigate sailed off the northeastern coast of Florida. Designers intended RAST to recover helicopters in seas with ship movements of up to 28-degree rolls, 5 degrees of pitch, and heaves of 15 feet per second.

10 JANUARY • Aircraft from NS Guantánamo Bay, Cuba, and NS Roosevelt Roads, P.R., responded to a request by the Jamaican government for assistance to fight a fuel oil storage tank fire in the Montego Bay area. The aircraft transported firefighters, equipment, and water.

14 JANUARY • Ens. Brenda E. Robinson, USNR, of VRC-40 became the first African American female naval aviator to be carrier qualified, when she trapped in a C-1A Trader on board *America* (CV 66) in the Atlantic.

15 JANUARY • Submerged submarine *Guitarro* (SSN 665) launched a BGM-109 Tomahawk cruise missile from off the California coast. The missile struck its target at a range of more than 100 miles. The Navy repeated the test six days later with the same results. In a third test conducted on 20 March, a missile hit its target at a range of more than 200 miles. These trials demonstrated the Tomahawk's capability to search for, locate, and attack targets at sea.

20 JANUARY • Iranian students and militants released 52 Americans who had been held hostage since the seizure of the United States Embassy in Tehrān on 4 November 1979. Twelve of the hostages served as active duty members of the Navy and Marine Corps including naval flight officer Cmdr. Don A. Sharer, a naval advisor at the time of the embassy takeover. Sharer became the senior leader of the naval hostages.

31 JANUARY • The era of enlisted naval aviators came to a close when the last enlisted pilot, ACCM Robert K. Jones, retired after 38 years of service. Enlisted pilots had performed their duties for more than 61 years as naval aviators on combat missions, as transport pilots, and instructors. The enlisted naval aviator program had ended in 1947.

The last U.S. Navy enlisted pilot, ACCM Robert K. Jones (right) conducts a pre-flight of a US-2B Tracker. Jones retired 31 January 1981 with more than 11,000 flight hours and qualification in over 25 different aircraft.

FEBRUARY • Despite the conclusion of the Iranian hostage crisis, the strategic importance of the region influenced the U.S. decision to maintain two carriers deployed to the Indian Ocean.

5 FEBRUARY • John F. Lehman Jr., a Reserve naval flight officer, took office as the Secretary of the Navy.

19 FEBRUARY • VFA-125 became the first squadron to receive the F/A-18A for fleet operations. Hornets had undergone extensive operational tests and evaluations at Patuxent River, Md., and additional testing by VX-4 at Point Mugu, Calif. VFA-125 trained technicians and pilots for future Hornet squadrons.

8 MARCH • A P-3 Orion and a Coast Guard HC-130H Hercules rescued 11 survivors from Israeli merchant ship *Masada* when she sank in a gale 96 miles southeast of Bermuda. *Forrestal* (CV 59), destroyer *Edson* (DD 945), and frigates *Miller* (FF 1091) and *Paul* (FF 1080) assisted.

10 MARCH • During Merlion exercises with the Singaporeans, an A-6E Intruder from VA-115, embarked on board *Midway* (CV 41), sighted a downed Gulf Oil Co. helicopter and three life rafts afloat in the South China Sea, 27 miles northeast of Singapore. *Midway* dispatched an SH-3G Sea King manned by pilot Lt. Cmdr. Ludwig K. Tande, copilot Lt. j.g. Lawrence D. Mizak, and, at times, aircrewmen AM1 D. C. Piper, AE2 R. N. Dains, AM2 W. Reynolds, AM3 M. A. Velazquez, and AMAN M. J. Sanguigni of HC1 Detachment 2, that rescued all 17 people on board the downed helicopter. Sailors also plucked the chartered helicopter from the water to *Midway*'s flight deck. Two days later *Midway* returned the survivors to Singapore.

An F/A-18A Hornet undergoes climatic testing at the Air Force's 3246th Test Wing at the McKinley Climatic Laboratory, Eglin AFB, Fla. The tests, begun in March 1981, evaluated the aircraft's ability to withstand wide temperature ranges and climatic conditions.

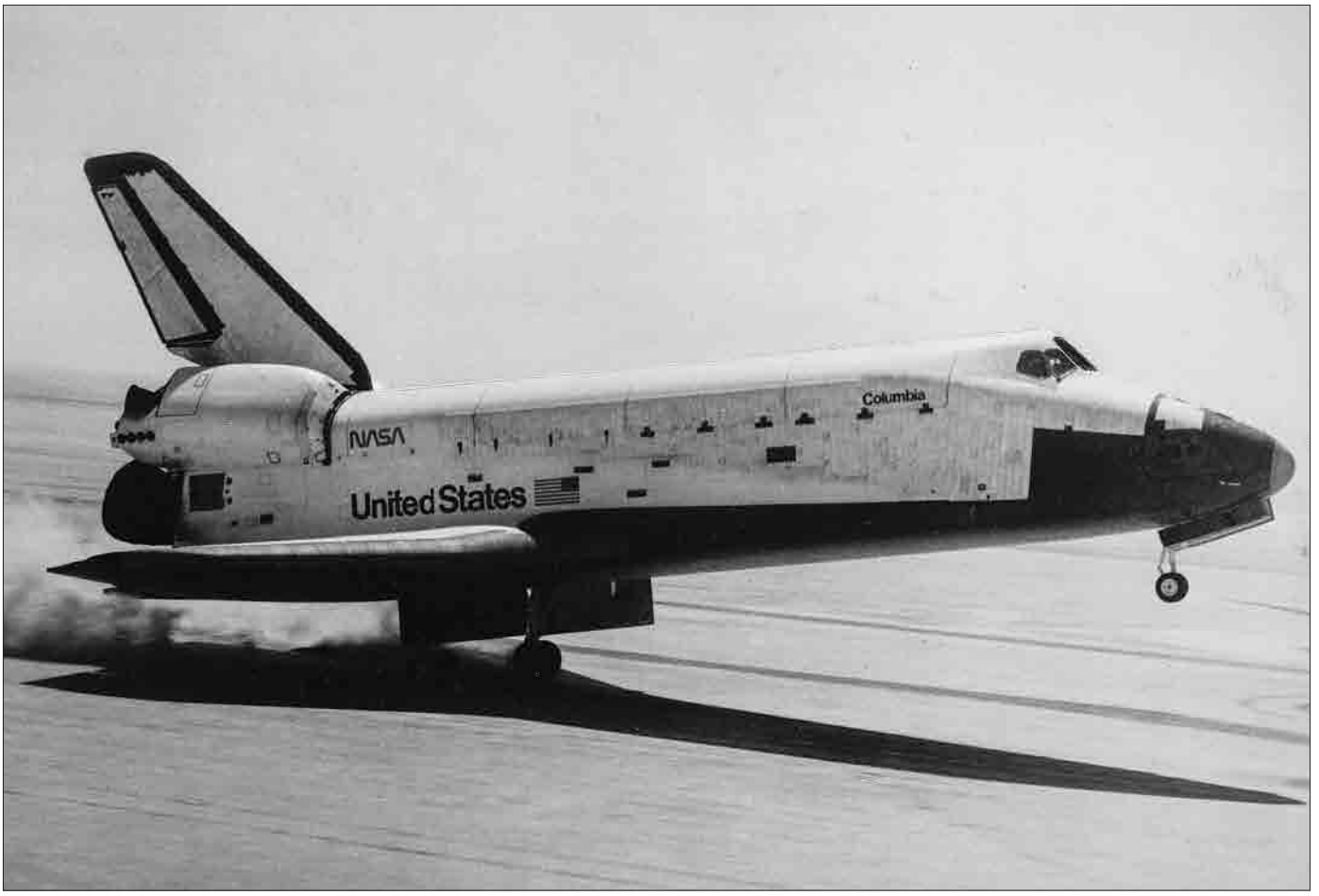
23 MARCH • F/A-18As began testing by the Air Force's 3246th Test Wing at the McKinley Climatic Laboratory, Eglin AFB, Fla. The tests evaluated the ability of Hornet airframes to withstand wide ranges of temperatures and climatic conditions.

12 APRIL • Space shuttle mission STS-1, orbiter *Columbia*, launched from John F. Kennedy Space Center, Fla., crewed by naval aviators Capt. John W. Young, USN (Ret.), and Capt. Robert L. Crippen. After 36 orbits, *Columbia* touched down on 14 April at Edwards AFB, Calif. On 19 May, President Ronald W. Reagan presented medals to Young and Crippen at the White House. Young received the Space Medal of Honor, the seventh person so honored, and the fifth of Navy or Marine Corps recipients.

13 APRIL • AV-8A Harriers deployed as a group with an LHA for the first time when Marine Aircraft Group 32, composed of VMA-231 and -542, sailed to the Mediterranean on board amphibious assault ship *Nassau* (LHA 4).

15 APRIL • Adm. John S. Thach, one of the Navy's early fighter tacticians, died. The commanding officer of VF-3 when World War II began, Thatch developed a two-plane fighter tactic, which proved to be effective against highly maneuverable Japanese Mitsubishi A6M Zero fighters. American pilots quickly adopted the innovation, which became known as the "Thach Weave."

3 MAY • Following Israeli reprisals against Syrian surface-to-air missile batteries in southern Lebanon, *Forrestal* (CV 59) received orders to sail to the eastern Mediterranean. The ship steamed for 53 consecutive days.



The all-Navy crew of John W. Young and Robert L. Crippen lands space shuttle *Columbia* at Edwards AFB Calif., after its two-day maiden space voyage, 14 April 1981.

4 MAY • *America* (CV 66) transited the Suez Canal as the first U.S. carrier to travel through the channel since *Intrepid* (CVS 11) had navigated the waterway on 1 June 1967.

20 MAY • TACGRU 1 and its subordinate commands TACRONS 11 and 12 were established. These three commands performed functions relating to tactical control of aircraft in support of amphibious operations.

26 MAY • Pilot Capt. Elwood M. Armstrong Jr., USMC, along with 1st Lt. Lawrence D. Cragun and 1st Lt. Steve E. White, USMC, of VMAQ-2 Detachment Y, crashed in an EA-6B Prowler, BuNo 159910, on board *Nimitz* (CVN 68) off eastern Florida. In addition to the three Marines, AB3 Robert W. Iser, F3 Dennis R. Driscoll, AAs Thomas E. Barnhart and Frank J. Swider Jr., and ARs Peter R. Iannetti and Jackie L. Gothard from the ship's company, together with AO3 Lewis J. McLaurin of VF-41, ANs Alberto Colon and Arthuro Hinojosa Jr. of VF-84, and AN Patrick D. Louis and AEAN Ronald L. Wildermuth of VF-41, died. The tragedy also injured 48 sailors and Marines. On 30 May, *Nimitz* returned to operations at sea after two days of repairs at Norfolk, Va.

26 MAY • *Independence* (CV 62) left contingency operations in the eastern Mediterranean after passing through the Suez Canal from the Indian Ocean in response to a Middle East crisis.

1 JUNE • Patrol Wing 10 was established at NAS Moffett Field, Calif. The operational wing was to serve as the link between patrol squadrons and Commander Patrol Wings Pacific. The action marked the third use of the Patrol Wing 10 designation. It had originally been established in December 1940, disestablished in June 1947, reestablished in June 1963, and disestablished in 1973.

A Marine AV-8A Harrier vertical/short takeoff and landing attack plane hovers over amphibious assault ship *Tarawa* (LHA 1).

15 JUNE • The Navy Flight Demonstration Squadron (Blue Angels) celebrated its 35th anniversary. Since its establishment in 1946, the squadron had flown F6F-5 Hellcats, F8F-1 Bearcats, F9F-2 and -5 Panthers, F9F-6 and -8 Cougars, F11F-1 Tigers, F-4J Phantom IIs, and A-4F Skyhawks.

16 JUNE • The first fleet operational CH-53E arrived at Marine Aircraft Group 26 for assignment to HMH-464. E-version modifications included the addition of a third engine, a larger main rotor system, and changes to the tail rotors, which allowed the Super Stallions to carry three times the payload of their predecessor RH-53D Sea Stallions. The CH-53E could transport cargoes of more than 16 tons or ferry 55 fully equipped Marines.

29 JUNE • Secretary of Defense Caspar W. Weinberger approved full production of the F/A-18 Hornet.

1 JULY • VS-0294 was established at NAS North Island, Calif. The Reserve command's mission was to train and qualify pilots, naval flight officers, aircrewmen, and technicians to augment fleet carrier antisubmarine squadrons. The squadron, with the exception of maintainers, was to train on simulators or realistic mockups of S-3A Vikings to reduce the cost of using operational aircraft.

7 JULY • A strike by the Professional Air Traffic Controllers Organization led President Ronald W. Reagan to assign 116 Navy and Marine air traffic controllers to man civilian airport towers across the nation. Some servicemembers continued their tasks through the summer.

8 JULY • A newly modified Learjet 24 arrived for use as part of the Naval Test Pilot School's fleet of flying teaching aids at NAS Patuxent River, Md.

The CH-53E Super Stallion is the largest and heaviest U.S. military helicopter. Designed specifically for the Marines, the first one flew in 1974.

9 JULY • During ceremonies at NAS Pensacola, Fla., American and West German representatives—including the chief of Naval Air Training and the Deputy Commander-in-Chief German Fleet—marked the 25th anniversary of the program established in 1956 for training German naval pilots, flight officers, and flight surgeons at U.S. naval aviation facilities.

16 JULY • An S-3A of Carrier Air Wing 11, embarked on board *America* (CV 66), spotted burning merchant ship *Irene Sincerity* about 180 miles southwest of Karachi, Pakistan. The Viking directed *California* (CGN 36) to the rescue of its 39 crewmembers.

23 JULY • VMFA-312 received a camouflaged F-4S sporting a new paint scheme tested by NAVAIR. The new camouflage consisted of a scientifically designed, countershaded gray tactical paint scheme to help Phantom IIs escape visual detection.

19 AUGUST • Cmdr. Henry M. Kleeman and Lt. David J. Venlet and Lts. Lawrence M. Muczynski and James Anderson of VF-41 manned two F-14As that shot down two Libyan Sukhoi Su-22 Fitter-Js with AIM-9L Sidewinder air-to-air missiles over international waters. The Tomcats flew a reconnaissance mission for a missile-firing exercise during freedom of navigation operations from *Nimitz* (CVN 68), sailing with *Forrestal* (CV 59), when the Libyans opened fire.

18 SEPTEMBER • The first night flight of a conventional AGM-109L Medium Range Air-to-Surface Missile (MRASM) occurred over White Sands Missile Range, N.M. A Navy A-6 equipped with the weapon took off from the Pacific Missile Test Center, Point Mugu, Calif., and flew to White Sands. The Intruder used the Tomahawk's terrain contour matching updates for guidance. Once inside the range, the jet launched the missile, which flew a complex night land attack mission.

20 SEPTEMBER • During Typhoon Clara, Philippine frigate *Datu Kalantiaw* (PF 76) ran aground while at anchor near Clayan Island, 340 miles north of Manila. The next day, helicopters from NAS Cubi Point assisted ammunition ship *Mount Hood* (AE 29) in the rescue of 18 survivors and the recovery of 40 bodies.

5 OCTOBER • An A-7E Corsair II from the Pacific Missile Test Center Point Mugu, Calif., fired an AGM-88A High-speed Anti-Radiation Missile against destroyer *Savage* (DER 368) during the first live warhead launch of one of the missiles.

14 OCTOBER • The dedication of the Naval Aviation Hall of Honor and enshrinement of the first 12 selectees took place at the Naval Aviation Museum, NAS Pensacola, Fla.

21 OCTOBER • With enhanced security measures, *America* (CV 66) transited the Suez Canal northbound in the wake of the assassination of Egyptian President Anwar As-Sadat.

28 OCTOBER • Walter K. Hinton, the last surviving participant in the historic NC-4 flight of May 1919, died.

31 OCTOBER • The Navy announced the name for carrier CVN-71 as *Theodore Roosevelt* and her keel was laid at Newport News Shipbuilding and Dry Dock Company, Va. Secretary of Defense Caspar W. Weinberger delivered the address.

5 NOVEMBER • An AV-8B flew for the first time. The U.S.-developed Harrier IIs with British Aerospace participation as advanced versions of the Hawker-Siddeley AV-8A Harriers in Marine service. The AV-8B design provided twice the performance of their predecessors and, with more than 25 percent of their structural weight composed of carbon epoxy composite material, they offered twice the payload and combat radius.

7 NOVEMBER • VMAQ-4 was established at NAS Whidbey Island, Wash., as the first Marine Reserve squadron to fly EA-6A Intruders.

12 NOVEMBER • Space shuttle *Columbia* on mission STS-2 launched from John F. Kennedy Space Center, Fla. On 14 November, it returned to Edwards AFB, Calif. The two astronauts, Capt. Richard H. Truly, who had been designated a naval aviator in October 1960, and Col. Joe H. Engle, USAF, became the first men to fly into and return from space in a previously used spacecraft.

13 NOVEMBER • Secretary of the Navy John F. Lehman Jr. announced the forthcoming retirement of Director of the Division of Naval Reactors Adm. Hyman G. Rickover. The Navy had recognized Rickover for his tireless efforts to develop nuclear-powered ships including carriers and submarines by awarding him honorary wings on 21 July 1970.

17 NOVEMBER • Destroyer *Fletcher* (DD 992) fired the first Harpoon Block 1B missile from a ship. The air-launched version of Harpoons had made their initial carrier deployment in October 1981 with VA-65 on board *Constellation* (CV 64).

2 DECEMBER • Capt. Cecil E. Harris, (Ret.), died. The Navy's second-highest scoring ace during World War II, he had received credit for downing 24 enemy aircraft.

1982

8 JANUARY • An F/A-18 made a Hornet's first fully automatic landing on a simulated carrier deck at NATC Patuxent River, Md.

28 JANUARY • CY Douglas L. McGowan Jr. and AW1 Michael A. Gray inaugurated the Limited Duty Officer Aviator Program, which enabled enlisted sailors to receive flight training and commissions. McGowan and Gray were the first noncommissioned officers to complete flight training since the end of the NAVCAD program in 1968.

3 FEBRUARY • *John F. Kennedy* (CV 67) transited the Suez Canal from the Mediterranean Sea to the Red Sea, en route to the Indian Ocean for an extended deployment. She was the largest carrier to pass through the canal to date.

13 FEBRUARY • VF-84 returned from the Mediterranean on board *Nimitz* (CVN 68) to NS Norfolk, Va. The squadron completed the first operational deployment of the tactical air reconnaissance system fitted on F-14 Tomcats for low- to medium-altitude photoreconnaissance missions.

5 MARCH • The Navy assumed command of the government plant representative office at McDonnell Douglas Corporation's facilities, St. Louis, Mo. The Navy thereby replaced the Air Force plant representative office, which had been responsible for contract administration there for the previous 11 years.

16 MARCH • Vice President George H. W. Bush announced that the Navy was to work actively with customs officials and the Coast Guard to curb the influx of illicit narcotics into the United States. E-2C Hawkeyes subsequently began ongoing participation in the detection of drug smugglers.

18 APRIL • The Navy celebrated the 40th anniversary of the Doolittle raid on the Japanese home islands during World War II. On 14 April, four rebuilt North American B-25 Mitchells had flown over Washington, D.C., and Gen. James H. Doolittle, USAF (Ret.), greeted the pilots when they landed.

2 JUNE • An AV-8B made the first Harrier II flight of its Navy preliminary evaluation.

7 JUNE • The Navy began receiving advanced Block 1B versions of the Harpoon missile, which had been in service since 1977. These had improved radar-guidance systems and were capable of flying at lower altitudes than the initial versions.

One of four AV-8B full-scale development Harrier IIs is used for heavy load tests c. 1983 prior to the first flight of a production model. The test craft first flew in November 1981.

24 JUNE • Lebanon had collapsed into civil war among Muslims, Christians, and Jews. On this date, *Dwight D. Eisenhower* (CVN 69), dock landing ship *Hermitage* (LSD 34), and amphibious transport dock *Nashville* (LPD 13), began the extended evacuation of U.S. Embassy staff and civilians from Beirut. The forces involved included HC-4 CH-53E Sea Stallions, which carried more than 1,200 people and 380,000-pounds of cargo to ships offshore. Meanwhile, a multinational peacekeeping force including U.S. Marines worked to maintain an uneasy truce among Lebanon's warring factions.

25 JUNE • The history of the Navy's C-121 Constellations—whose previous designations included PO, R7O, R7V, and WV—ended after 33 years when the last Warning Star retired from active service with VAQ-33.

25 JUNE • The Lebanese crisis prompted reinforced deployments as *Forrestal* (CV 59) and *Independence* (CV 62) rendezvoused with *John F. Kennedy* (CV 67) and *Dwight D. Eisenhower* (CVN 69) in the Mediterranean Sea. After steaming together in the eastern Mediterranean for several days, *Forrestal* and *Independence* relieved *Dwight D. Eisenhower* and *John F. Kennedy*, enabling those ships to sail home to NS Norfolk, Va.

30 JUNE • VFP-63 was disestablished as the last active duty photographic squadron. This also brought to a close the era of active duty F-8 Crusader squadrons in the Navy. The only F-8

Lt. j.g. Barbara A. Allen, the first woman to be designated as a naval aviator, receives part of her equipment at NAS Corpus Christi, Texas, May 1974.

and photographic squadrons still in existence, VFP-206 and -306, defaulted to Reserve squadrons at NAF Washington, D.C.

30 JUNE • Chief of Naval Operations Adm. Thomas B. Hayward, the Navy's number one aviator, retired. A graduate of the U.S. Naval Academy in 1947, Hayward had been designated a naval aviator on 26 July 1950, and became the 21st Chief of Naval Operations on 1 July 1978.

7 JULY • Walter Wagner became NAVAIR's first civilian project manager when he relieved Capt. John E. Hock Jr. as project manager for the E-2/C-2 airborne tactical data system.

13 JULY • Instructor Lt. Cmdr. Barbara A. Rainey and student Ens. Donald B. Knowlton of VT-3 crashed in a T-34C Turbomentor while avoiding another aircraft during touch-and-go landings at NAS Whiting Field, Fla., killing both crewmembers. On 22 February 1974, Rainey (then Allen) had become the first woman to be designated a naval aviator.

30 JULY • Ens. Jannine Weiss became the first enlisted woman to receive her wings and to receive a commission under the new Limited Duty Officer Aviator Program.

31 JULY • GMU-41 was disestablished as the last guided missile unit after 29 years of service. It had been established on 11 May 1953, with a varied mission of providing missile training and technical support to ships and squadrons and supporting commands that tested and evaluated missiles and associated equipment in the fleet environment.

2 AUGUST • Navy test pilot Lt. Cmdr. John Ball and Bell Helicopter Textron test pilot Dorman Cannon flew the first at-sea shipboard landings and takeoffs of the Bell XV-15 on board amphibious assault ship *Tripoli* (LPH 10). The experimental vertical lift tilt-rotor aircraft had a conventional fixed wing, with engines and rotors mounted on the wingtips capable of swiveling to provide either vertical or horizontal flight.

5 AUGUST • The Naval Air Test Center successfully completed evaluations on the first aircraft tire made entirely of guayule natural rubber. The Goodyear tire was mounted on the right main landing gear of an F-4J Phantom II and underwent a series of maximum gross weight—56,000 pounds—takeoffs and landings.

8 AUGUST • The Chief of Naval Operations established the first naval plant representative office outside the United States in Melbourne, Australia. The office was to administer U.S. contracts with Australian companies involved in building F/A-18 Hornets for the Royal Australian Air Force.

14 SEPTEMBER • A bomb killed Lebanon's Christian President Bashir Gemayel, and on 22 September, his Phalangist followers retaliated by killing Muslim Palestinian refugees at camps at Sabra and Shatila, Lebanon. From 27 September through 21 January 1983, an average of two carriers at a time sailed in the eastern Mediterranean to support Marines deployed ashore during the crisis.

24 SEPTEMBER • The Navy awarded a pre-full-scale development contract for the fixed-wing experimental training aircraft training system (VTXTS) to McDonnell Douglas, which was teamed with British Aerospace and Sperry. The program was designed around the British Aerospace Hawk, with appropriate simulators, academics, training management system, and support equipment.

30 SEPTEMBER • NAVAIR acted as executive agent for a tri-service program that signed a $400,000 contract with the Gila River Apache Native American community at Sacaton, Ariz., to research, develop, and establish a prototype guayule rubber industry in the United States. The program was intended to reduce U.S. dependence on imported natural rubber. Potential military applications for guayule rubber included aircraft tires, jet engine mounts, hydrophone arrays, truck tires, tank treads, submarine acoustic tiles, and medical supplies.

1 OCTOBER • AVCM Billy C. Sanders assumed the duties of Master Chief Petty Officer of the Navy. Sanders became the second man with an aviation background that filled the billet following its establishment on 1 March 1967—CM Thomas S. Crow had been the first.

1 OCTOBER • Helicopter Tactical Wing 1 was established at NAS Norfolk, Va., Capt. John W. Osberg commanding. The wing consisted of HC-6 and -16, and HM-12, -14, and -16, and assumed responsibility for the administrative and operational activities of these helicopter squadrons with regard to training, material support, and overall readiness.

7 OCTOBER • ARAPAHO—a research and development project to demonstrate the feasibility of equipping merchant ships with emergency aviation support in wartime, and of operating antisubmarine helicopters and other combatant aircraft—at-sea testing concluded when 18,000-ton container ship *Export Leader* returned to Norfolk International Terminal, Va. The ship had been configured with a portable modular aviation facility and logged 178 day and 45 night helicopter landings.

16 OCTOBER • *Saratoga* (CV 60) completed the final phase of SLEP (service life extension program) when she conducted her first sea trials since entering the shipyard as the initial carrier to undergo the program.

28 OCTOBER • Naval aviation celebrated the 30th anniversary of the first flight of the A-3 Skywarrior. The versatile aircraft had served in the fleet since 1956 in heavy attack, radar bomber training, electronics reconnaissance, tanker, electronics jamming, photoreconnaissance, dedicated electronics jamming, airborne weapons testing, and VIP transport roles.

11 NOVEMBER • Astronauts Vance D. Brand, Robert F. Overmyer, Joe P. Allen, and William B. Lenoir manned space shuttle *Columbia* during the launch of mission STS-5 from John F. Kennedy Space Center, Fla. Brand and Overmyer were former Navy and Marine Corps aviators, respectively, and Lenoir and Allen were civilians. This was the first operational flight of *Columbia* and the first time four astronauts crewed a mission. Previous flights carried only two astronauts.

3 DECEMBER • *Nimitz* (CVN 68) and cruisers *Mississippi* (CGN 40) and *Arkansas* (CGN 41) assisted the sinking Greek cargo vessel *Andalusia*. A P-3C from VP-49 vectored *Mississippi* to *Andalusia* where the cruiser rescued all 19 crewmembers. Two Sea Kings of HS-9 from *Nimitz*—an SH-3H with pilot Lt. Michael G. Mulcahy, copilot Lt. j.g. Randall K. Ewald, and aircrewmen AW2 Robert S. Chronister and AWAN Henry J. Miller; and an SH-3G with pilot Lt. Cmdr. David B. Small Jr., copilot Lt. Cmdr. Larry W. Zimmer, and aircrewmen AW2 Richard M. Lane and AWAN Allen L. Estel—transferred survivors from *Mississippi* to the carrier.

15 DECEMBER • *Naval Aviation News* celebrated its 65th year of publication as the Navy's oldest periodical in continuous print and one of the oldest aviation magazines in the country. It began as a weekly bulletin published by the Office of Chief of Naval Operations.

1983

1 JANUARY • From this date to 26 June 1989, aircraft and ships of the Pacific Fleet rescued a total of 1,380 Vietnamese refugees in the western Pacific.

7 JANUARY • The first F/A-18s—excluding those in operational training squadrons—entered operational service and replaced F-4s in VMFA-314. This transition marked the beginning of the replacement of Phantom IIs and A-7 Corsair IIs with Hornets.

21 JANUARY • HSL-41 was established, Cmdr. Michael B. O'Connor Jr. commanding. Equipped with SH-60Bs as the LAMPS Mk III fleet readiness squadron, HSL-41 trained aircrew and maintainers for Seahawk fleet squadrons.

11 MARCH • The first fleet CH-53E Super Stallion arrived at HM-12.

21 MARCH • An all-female flight crew from VRC-30 consisting of pilot Lt. Elizabeth M. Toedt, copilot Lt. j.g. Cheryl A. Martin, and aircrewmen AMM3 Gina Greterman and AMMAN Robin Banks conducted an operational mission in a C-1A Trader that concluded with an arrested landing on board *Ranger* (CV 61).

25 MARCH • Fighter attack squadrons were redesignated strike fighter squadrons during their transition to F/A-18 Hornets. The VFA designation was retained.

1 APRIL • Naval Air Reserve Units (NARUs) were redesignated Naval Air Reserve (NAR) Alameda, Calif.; Jacksonville, Fla.; Memphis, Tenn.; Norfolk, Va.; North Island, Calif.; Point Mugu, Calif.; and Whidbey Island, Wash.

7 APRIL • Reserve squadrons VF-201 and -202 participated in National Week '83 exercises with the Sixth Fleet. Their F-4N Phantom IIs deployed from NAS Dallas, Texas, to NAS Sigonella, Sicily, via NAS Oceana, Va.; Gander, Newfoundland; Lajes, Azores; and NS Rota, Spain.

1 MAY • RVAW-110 and -120 were redesignated VAW-110 and -120, respectively. Responsible for training sailors in early warning services for future assignment to fleet units, VAW-110 was based at Norfolk, Va., and VAW-120 at NAS Miramar, Calif.

2 MAY • Naval aviator Lt. Leslie E. Provow of VRC-40 became the first woman to be designated a landing signal officer.

6 MAY • HC-4 was established at NAS Sigonella, Sicily. The squadron operated CH-53E Super Stallions and provided vertical on-board delivery for the Sixth Fleet.

23 MAY • An S-3A Viking made the first launch of an EX-50 advanced lightweight torpedo at NATC Patuxent River, Md.

10 JUNE • Lt. Colleen Nevius became the first female naval aviator to graduate from the Naval Test Pilot School, NAS Patuxent River, Md., and be designated a Navy test pilot.

23 JUNE • A British-built airship, Skyship 500, arrived for test and evaluation at NATC Patuxent River, Md. Navy and Coast Guard officials had considered the airship for possible maritime patrol, search and rescue, and geo-survey missions.

1 JULY • Civilian technician Dr. Angelo J. DiMascio was appointed to the newly established position of deputy commander, bringing a new alignment to NAVAIR headquarters.

In 1983, Lt. Colleen Nevius becomes the first female naval aviator to graduate from the Naval Test Pilot School and be designated a Navy test pilot. She began her naval aviation career in 1977 and retired as a captain.

6 JULY • A Marine CH-53E flew coast-to-coast in a 15-hour flight from Patuxent River, Md., to MCAS Tustin, Calif. Marine KC-130s refueled the Super Stallion four times.

18 JULY • U.S. concerns over the threat posed by expansion of the leftist Sandinista National Liberation Front in Nicaragua led to the diversion of *Ranger* (CV 61) from her intended deployment to the Indian Ocean to the vicinity of Central America through 12 August. On 16 August, *Coral Sea* (CV 43) arrived in the area, followed ten days later by battleship *New Jersey* (BB 62). In mid-September, these vessels departed the region.

20 JULY • Through 28 July, P-3 Orions directed merchant ships to the rescue of 80 Vietnamese refugees in the western Pacific, while cruiser *Sterett* (CG 31) and destroyer *Callaghan* (DDG 994) rescued 262 and 284 others, respectively.

23 JULY • The National Aviation Hall of Fame in Dayton, Ohio, enshrined the Navy's only World War I ace, David S. Ingalls. He was honored for his service during that war, in the Naval Air Transport Service during World War II, and for his postwar role in commercial aviation.

1 AUGUST • A Marine OV-10A landed on board the flight deck of amphibious assault ship *Nassau* (LHA 4). The event marked the first time that a Bronco landed on an LHA, and the recovery opened up the possibility of a future role for OV-10As in amphibious operations.

1 AUGUST • Following Libyan aggression against Chad, aircraft from *Dwight D. Eisenhower* (CVN 69) operated over the Gulf of Sidra. In addition, the Navy delayed the departure of *Coral Sea* (CV 43) from the Mediterranean because of uncertainty over the situation.

25 AUGUST • The Navy accepted a production prototype of the P3-C Update III. The Orion was flown for test and evaluation by VX-1 to NATC Patuxent River, Md. Planners anticipated that it would be twice as effective in submarine detection as the Update II because of the increased effectiveness of its acoustic processing system owing to state-of-the-art computer integration equipment, an improved infrared detection system, Harpoon air-to-surface missile capabilities, and its ability to carry a variety of other weapons.

26 AUGUST • In reaction to increased terrorist attacks against Marines deployed as peacekeepers in Lebanon, the Navy dispatched *Dwight D. Eisenhower* (CVN 69) to render assistance. Those trapped within the devastated city could see the ship as she arrived off Beirut, bringing respite to the Marines and civilians ashore. During the following days, *Dwight D. Eisenhower* aircraft flew 39 reconnaissance missions over Lebanon to identify frequently shifting artillery batteries that fired sporadically at peacekeepers.

29 AUGUST • The first flight of a production model AV-8B Harrier II was made at the McDonnell Douglas plant, St. Louis, Mo.

30 AUGUST • Space shuttle *Challenger* launched on mission STS-8 from John F. Kennedy Space Center, Fla., and returned on 5 September to Edwards AFB, Calif. One of the crewmembers, Lt. Cmdr. Dale A. Gardner, served in naval aviation and became the first naval flight officer in space.

31 AUGUST • A Soviet Sukhoi Su-15 Flagon shot down Korean Air Lines 007, a Boeing 747-230B, west of Sakhalin Island, killing all 269 crewmembers and passengers, including 61 Americans, when the airliner allegedly strayed into Soviet air space. Despite acrimonious allegations between the rival superpowers and repeated Soviet interference with the searchers, P-3C Orions of VP-40 deployed to northern Japan searched for survivors, while the Air Force maintained operational control of the search and rescue.

1 SEPTEMBER • An MH-53E Sea Dragon production prototype made its first flight. The MH version of the CH-53E heavylift helicopter was developed to meet the Navy's needs for airborne mine countermeasures missions that provided tow tension capabilities, longer on-station times, and new digital automatic flight control systems. The Sea Dragons would also augment vertical on-board delivery requirements.

20 SEPTEMBER • An A-7E Corsair II launched the Navy's first AGM-65F IR Maverick air-to-ground missile. The weapon was designed to enhance antiship capabilities and made a direct hit on a destroyer target in its first use.

26 SEPTEMBER • The first takeoffs of F/A-18 Hornets from a ski-jump ramp occurred at NAS Patuxent River, Md. The tests were part of an evaluation of conventional jet aircraft, employing an upward curved ramp to shorten takeoff rolls.

28 SEPTEMBER • HSL-41 received its first production SH-60B Seahawk.

1 OCTOBER • A reorganization of Commander Naval Reserve Force (formerly Chief of Naval Reserve) included a change in which Commander Naval Air Reserve Force reported to Commander Naval Reserve Force instead of to the Chief of Naval Operations. The restructuring was intended to improve command and control of the Reserves and enhance readiness.

1 OCTOBER • The Naval Space Command was established, former astronaut Capt. Richard H. Truly commanding. The new authority consolidated the Navy's space-related activities under one organization, including the Naval Space Surveillance System, Naval Astronautics Group, and activities supporting the Fleet Satellite Communications System.

3 OCTOBER • Ens. Don E. Slone received his wings as a naval flight officer, becoming the first former enlisted man to complete the Enlisted Commissioning Program and the Aviation Officer Candidate School.

4 OCTOBER • *Dwight D. Eisenhower* (CVN 69) received authorization to leave Lebanese waters.

9 OCTOBER • Assassins detonated a bomb amid a South Korean delegation led by President Chun D. Hwan as they prepared to visit the Martyr's Mausoleum, Rangoon, Burma, killing 21 and injuring 48 others. The president escaped, but the bombing caused widespread geopolitical repercussions, and *Carl Vinson* (CVN 70) delayed her departure from Korean waters off Pusan (Busan) to perform contingency operations as a demonstration of U.S. support for the South Korean regime.

10 OCTOBER • After an 18 September Iranian threat to block oil exports from the Persian Gulf, *Ranger* (CV 61) had been diverted from Australian port calls and, on this date, arrived in the northern Arabian Sea. *Ranger* fulfilled 122 days of extended tasking in that area as a result of a gap in power projection because of multiple crises.

23 OCTOBER • A suicide bomber identified with the Free Islamic Revolutionary Movement, a group affiliated with Hizballah, drove a truck packed with explosives into a barracks at Beirut International Airport, and detonated its cargo killing 241 servicemembers, mostly Marines from the 1st Battalion, 8th Marines, 24th Marine Amphibious Unit. A second bomber drove a vehicle into the nearby French barracks and killed 56 French paratroopers. On 26 October, *Dwight D. Eisenhower* (CVN 69) sailed from Naples, Italy, for the eastern Mediterranean. At various times during the following weeks, *Independence* (CV 62) and *John F. Kennedy* (CV 67) rendezvoused with *Dwight D. Eisenhower* for operations off Lebanon. *Independence* had originally been scheduled to relieve *Dwight D. Eisenhower* but responded initially to the onset of Operation Urgent Fury in Grenada.

25 OCTOBER • The United States began Operation Urgent Fury—an invasion of Grenada to reestablish democracy on the embattled Caribbean island. Maurice Bishop, the island's leader, was killed in a power struggle, and Cubans had infiltrated the ensuing power vacuum, arming Marxist

Lieutenant Robert O. Goodman of VA-85, shot down over Beirut, Lebanon, on 4 December 1983, speaks to journalists after his release from Syrian captivity a month later.

rebels. Aircraft from Carrier Air Wing 6 embarked on board *Independence* (CV 62) and amphibious assault ships *Guam* (LPH 9) and *Saipan* (LHA 2) supported the U.S. landings, and a number of shore-based squadrons flew surveillance and support missions.

1 NOVEMBER • A fire broke out in the engine room of *Ranger* (CV 61) as she operated in the Arabian Sea, killing 6 men and injuring 35.

23 NOVEMBER • A modified CH-46 Sea Knight lifted off for its first flight from Boeing Vertol's ramp at Philadelphia, Pa. The helicopter had been fitted with improvements that, when incorporated in all Navy and Marine Sea Knights, would extend their service lives through the end of the century.

3 DECEMBER • The Syrians fired at two F-14A Tomcats of VF-31, embarked on board *John F. Kennedy* (CV 67), while they flew a reconnaissance mission for peacekeepers over Lebanon. The next day, after additional reconnaissance flights to identify Syrian positions, 16 aircraft from *Independence* (CV 62) and 10 from *John F. Kennedy* bombed artillery and air defense sites east of Beirut despite what VA-85 described as "heavy opposition." A surface-to-air missile shot down Cmdr. Edward K. Andrews of VA-15, embarked on board *Independence*, in an A-7E Corsair II, but he survived. The Syrians also downed Lts. Mark A. Lange and Robert O. Goodman of VA-85, embarked on board *John F. Kennedy*, in an A-6E Intruder, BuNo 152915. Lange died, and the Syrians captured Goodman and took him to Damascus. These actions marked the first Navy fixed-wing aircraft lost to hostile fire since the Vietnam War.

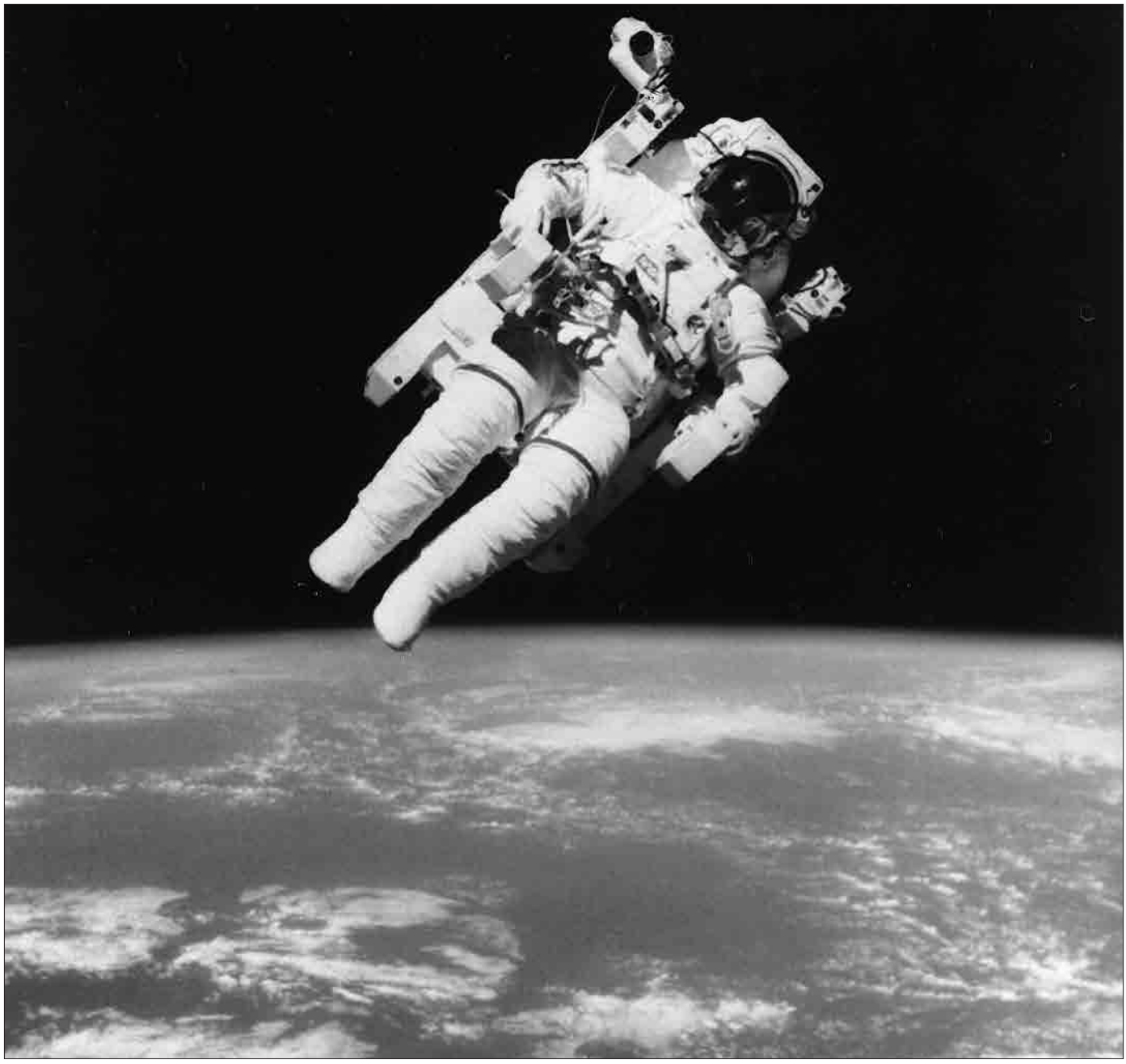
27 DECEMBER • The Secretary of the Navy announced the assignment of the name *Wasp* to LHD-1. *Wasp* was the first of a class of multipurpose amphibious assault ships designed to deploy and land elements of a Marine air and ground task force during an assault, by employing aircraft, air cushion and conventional landing craft, and amphibious vehicles.

1984

4 JANUARY • Lt. Robert O. Goodman of VA-85 was returned to the United States after a month of captivity as a POW in Syria. His A-6E Intruder had been one of the two jets shot down by the Syrians on 4 December 1983, while participating in a retaliatory strike into Lebanon.

10 JANUARY • HC-1 received its first two CH-53Es, becoming the only Navy West Coast squadron to fly Super Stallions. The squadron also continued to operate SH-3G Sea Kings.

12 JANUARY • VMAT-203 received its first AV-8B Harrier II at MCAS Cherry Point, N.C.



Capt. Bruce McCandless II becomes the first person to walk untethered in space, as an astronaut of space shuttle *Challenger,* February 1984. His father and grandfather were Medal of Honor recipients.

3 FEBRUARY • Space shuttle *Challenger* launched from John F. Kennedy Space Center, Fla., on mission STS-41B, and on 11 February, landed back at the center—a first for any shuttle. It flew with a crew of five that included naval aviators: its commander, Vance D. Brand, had been a Marine Corps flier for five years, and two Navy officers, Capt. Bruce McCandless II and Cmdr. Robert L. Gibson, also comprised the crew.

13 FEBRUARY • Ens. Michael L. Gierhart of VT-27 made the last instructional flight of a T-28 Trojan, ending the 31-year career of the aircraft as a naval aviator trainer.

12 MARCH • A Beech Aircraft AQM-37 variant target drone attained a speed of Mach 4.2 (2,775 mph) at an altitude of 102,000 feet over the Pacific Missile Test Center Point Mugu, Calif.

The display of the last T-28B Trojan in the Training Command, BuNo 137796, at NAS Anacostia marks the end of an era. Now a memorial near the main gate, it was retired in March 1984.

13 MARCH • In late January, Secretary of Defense Caspar W. Weinberger had authorized an increase in operations off Central America from 1 February to 31 July to demonstrate U.S. support for El Salvadoran elections, and to deter expansion of the leftist Sandinista National Liberation Front in Nicaragua. On this date, *America* (CV 66) sailed for several weeks of operations in those waters.

14 MARCH • The last T-28 Trojan in the Training Command, BuNo 137796 of VT-27, departed for display at NAS Anacostia, D.C.

20 MARCH • Lt. Catherine H. Osman piloted an HH-46A Sea Knight on board *Iowa* (BB 61), making her the first female pilot to land a helicopter on a battleship.

21 MARCH • While *Kitty Hawk* (CV 63) conducted night operations during Exercise Team Spirit 84-1, she collided with a Soviet Victor I–class sub, tentatively identified as *K-314* (610), in the Sea of Japan, 150 miles east of Pohang, South Korea. The submarine broached the surface ahead of the carrier and failed to display navigation lights. Two SH-3H Sea Kings of HS-2 inspected the unlit submarine through AN/PVS-5A night vision goggles and with sonobuoys without noting serious damage. *Kitty Hawk* sustained minor damage and attempted by flashing light to contact Soviet task force flagship cruiser *Petropavlovsk*, but she did not respond. The Soviet boat received damage that required her to be taken under tow to Vladivostok, Soviet Union.

26 APRIL • The Navy received the first EA-6B Improved Capability (ICAP) II Prowler, BuNo 161776. The service intended to upgrade 15 Expanded Capability (EXCAP) models already serving witht the fleet.

28 APRIL • The first master augmentation unit (MAU) was established at NAS Brunswick, Maine. Similar in composition to a Reserve VP squadron, MAUs trained reservists in the same type of aircraft operated by active duty

patrol squadrons, so Reserve crews could rapidly augment those squadrons in emergencies. Squadron augment units, MAU predecessors, were scheduled to consolidate into the MAUs when they established.

8 MAY • During the 73rd annual Aviation Ball, Deputy Chief of Naval Operations (Air Warfare) Vice Adm. Robert F. Schoultz presented the first aviation supply wings to Vice Adm. Eugene A. Grinstead Jr., SC; Rear Adm. Andrew A. Giordano, SC (Ret.); and Commodore John H. Ruehlin, SC, commanding officer Aviation Supply Office, Philadelphia, Pa. The establishment of a naval aviation supply officer program and the authorization of a breast insignia for qualifying officers had been planned since 1982.

2 JULY • Reserve Carrier Air Wing (CVWR) 20 concluded its first deployment at sea since 1978, after a week on board *Dwight D. Eisenhower* (CVN 69). This also marked the first time in four years that CVWR-20 had operated as a complete wing as well as the first deployment of A-7E Corsair IIs with a Reserve squadron, VA-203.

21 JULY • The National Aviation Hall of Fame in Dayton, Ohio, enshrined four individuals including World War II Marine ace Joseph J. Foss. From 9 October 1942 to 25 January 1943 Foss downed 26 Japanese aircraft.

25 JULY • ComPatWingsPac Commodore Oakley E. Osborn accepted the first P-3C Update III from Lockheed at NAS Moffett Field, Calif. VP-31 was to train aviators in the operation of the updated Orions beginning with VP-40, the first fleet operational squadron scheduled to receive the planes.

3 AUGUST • The United States began Operation Intense Look—minesweeping the Gulf of Suez—after a series of mysterious underwater explosions struck 19 ships there and, on 31 July, Islamic terrorists linked to Iran claimed to have lain 190 mines in the gulf and Bab el-Mandeb. Egypt requested international assistance. On 6 August, four RH-53D Sea Stallions of HM-14 embarked on board amphibious transport dock *Shreveport* (LPD 12) for deployment to the Gulf of Suez. Other aircraft from the squadron's detachment and a Super Stallion of HM-12 later augmented the deployment. On 17 August, HM-14 began 22 consecutive days of minehunting operations. The British, French, Italians, and Soviets also participated.

13 SEPTEMBER • A newly configured S-3B made its first flight at Lockheed facilities in Palmdale, Calif. The latest version of the Viking featured improved avionics and weapons systems, including AGM-84 Harpoon air-to-ground missiles.

20 SEPTEMBER • Terrorists detonated a truck bomb at the U.S. Embassy Annex at Awkar near Beirut, Lebanon, killing 20 people including two U.S. servicemembers, and wounding more than 75. Amphibious transport dock *Shreveport* (LPD 12), destroyer *Semmes* (DDG 18), and frigate *John L. Hall* (FFG 32) sailed to the eastern Mediterranean to render assistance. Four RH-53D Sea Stallions of HM-14, embarked on board *Shreveport*, and a CH-53E Super Stallion flew logistical, medical, and embassy staff evacuation missions.

26 SEPTEMBER • The XV-15 tiltrotor aircraft demonstrator completed two weeks of concept tests at NATC, Patuxent River, Md.

2 OCTOBER • The Navy signed a contract to initiate full-scale development of the T-45TS Goshawk jet flight training system by McDonnell Douglas. The system's aircraft—T-45—were to replace the T-2C Buckeye and TA-4J Skyhawk used by the Chief of Naval Air Training in the intermediate and advanced phases of jet flight training.

12 OCTOBER • VF-301's acceptance of its first F-14 marked the introduction of Tomcats into the Naval Air Reserve Force as part of the service's total force defense concept.

28 NOVEMBER • Four months after McDonnell Douglas had announced that it would bear the costs of modifications to correct a fatigue-related problem in the tail area of F/A-18s, Hornet deliveries resumed.

30 NOVEMBER • U.S. Navy chartered oceanographic research ship *Seaward Explorer* broke down and drifted into Cuban waters en route from Haiti to Miami, Fla. The Cubans denied Coast Guard cutter *Reliance* (WMEC 615) permission to enter Cuban territorial waters to tow *Seaward Explorer*, but a Cuban patrol boat would tow her to international waters. A fire erupted on board the research ship that released the towing hawser, which fouled the patrol boat's propellers. *Reliance* rushed in, put out the fire, and towed *Seaward Explorer* to Miami. *Nimitz* (CVN 68) received an emergency

sortie notice while at Charlotte Amalie, St. Thomas, U.S.V.I., but the situation was concluded before her arrival.

8 DECEMBER • VA-105 returned from a six-month deployment to MCAS Iwakuni, Japan. The squadron's assignment to MAG-12 in the 1st Marine Aircraft Wing initiated the Navy's participation in the Marine Corps Unit Deployment Program, and marked the first time that a Navy squadron had served under Marine operational control since World War II.

28 DECEMBER • During the relocation of the field camp of scientific field team S-079, a VXE-6 LC-130 Hercules crashed in the vicinity of Nimrod Glacier, Antarctica, stranding survivors in a crevasse on Starshot Glacier. Within 16 hours, another squadron Hercules rescued the victims under extreme environmental conditions. Sailors later repaired the crashed LC-130 and, on 12 January, flew the plane from the site.

31 DECEMBER • Under a five-year agreement with Cessna Aircraft Company that encompassed a total training concept, the first T-47A for naval flight officer navigation training arrived at the Naval Air Training Command.

1985

7 JANUARY • The Navy selected the F-16N as aggressor surrogate to simulate Soviet tactical aircraft during air-to-air combat training. The purchase of an initial 14 Fighting Falcons from General Dynamics included support material and services.

24 JANUARY • Lt. Cmdr. John Parker of VA-83 piloted an A-7E Corsair II at NWC China Lake, Calif., during the first successful fleet operational squadron firing of an AGM-88A High-speed Anti-Radiation Missile.

30 JANUARY • The AV-8B Harrier II began operational service with VMA-331 at MCAS Cherry Point, N.C.

21 FEBRUARY • F/A-18A Hornets and SH-60B LAMPS helicopters deployed overseas for the first time, with Battle Group Delta headed by *Constellation* (CV 64), to the Seventh Fleet in the western Pacific and Indian Ocean. The Hornets replaced A-7E Corsair IIs operated by VFA-25 and -113 of Carrier Air Wing 14, making *Constellation* the first carrier to have F/A-18s assigned to her air wing. The Seahawks deployed on board frigate *Crommelin* (FFG 37).

1 MARCH • The undergraduate naval flight officer (NFO) training system upgrade began with the first class training in Cessna T-47A Citations at NAS Pensacola, Fla.

6 MARCH • NAVAIR and United Technologies' Sikorsky Aircraft signed a contract for full-scale development and production options for a carrier-borne version of the SH-60B Seahawk. Designated SH-60F, the variant was to replace the SH-3H Sea King for protection from enemy submarines within a carrier battle group's perimeter.

7 MARCH • After terrorist threats against the U.S Embassy in Beirut, Lebanon, *Dwight D. Eisenhower* (CVN 69) sortied from Palma de Mallorca, Spain, and made for the eastern Mediterranean. Helicopters subsequently evacuated personnel from Beirut to Cyprus.

29 MARCH • The Navy awarded a contract to McDonnell Douglas for development of F/A-18 night attack capabilities. About 750 Hornets were to receive navigational forward-looking infrared pods, television-like heads-up displays, and night-vision goggles for pilots.

1 APRIL • VP-68 completed its move from NAS Patuxent River, Md., to NAF Washington, D.C. (at Andrews AFB). Relocation of the Reserve squadron, which operated P-3B Orions, made room for the JVX test program at Patuxent River and also helped balance base loading at Washington. Planners scheduled the V-22 Osprey—formerly JVX—for testing at the Naval Air Test Center starting in 1988.

12 APRIL • VAQ-133 returned the last fleet EA-6B Expanded Capability (EXCAP) Prowler, BuNo 159585, for Improved Capability (ICAP) II modification at Grumman Aircraft Corp., Long Island, N.Y. VAQ-133 had begun transitioning to ICAP II Prowlers in January 1985.

26 APRIL • David S. Ingalls (Naval Aviator No. 85), the Navy's only World War I ace, died at his home in Chagrin Falls, Ohio, following a stroke. A member of the First Yale Unit before being ordered to the British Royal Flying Corps, he

Twenty-two F-16N Fighting Falcons—modified Air Force F-16s—delivered between 1987 and 1988, were used by Navy adversary squadrons, but all had been retired by 1995.

An F/A-18A of VFA-113 prepares to launch from *Constellation* (CV 64) during the first deployment of Hornets, with CVW-14 to the western Pacific and Indian Oceans, 21 February to 24 August 1985.

served with the Royal Air Force's No. 213 Squadron, located in Berguess, France. Ingalls shot down four enemy planes and one balloon. He later served as Assistant Secretary of the Navy for Aeronautics during the Hoover administration.

30 MAY • The keel was laid for amphibious assault ship *Wasp* (LHD 1) at Ingalls Shipbuilding, Pascagoula, Miss.

14 JUNE • Two Lebanese Shi'a Muslim gunmen hijacked Trans World Airlines Flight 847 from Athens, Greece, and flew the airliner to Beirut, Lebanon. The terrorists murdered SW2 Robert D. Stethem of Navy Underwater Construction Team 1 and held 37 other Americans hostage. *Nimitz* (CVN 68) cancelled a visit to Livorno, Italy, and steamed at flank speed to the eastern Mediterranean, where she conducted contingency operations off the Lebanese coast. On 30 June, the hijackers released the last of the hostages, and on 1 August, after 68 consecutive days at sea, *Nimitz* departed for Egyptian waters.

19 JUNE • The Navy announced the selection of Goshawk as the popular name for T-45A trainers, a part of the T-45 training system (formerly VTXTS) scheduled to replace the T-2C Buckeye and TA-4J Skyhawk operated by the Training Command. Curtiss Aircraft had previously applied the name Goshawk to its F11C-2 and BF2C-1 beginning in 1933.

19 JUNE • A modified C-2A with more powerful engines than those of fleet Greyhounds arrived for three months of flight testing at NATC Patuxent River, Md.

8 JULY • VAW-120—traditionally an E-2C Hawkeye training squadron—received its first upgraded C-2A Greyhounds for the training of replacement sailors. The plane's initial operational capability was achieved on time, after the delivery in October of five Greyhounds to VR-24 at NAS Sigonella, Sicily.

An F/A-18A Hornet, BuNo 161705, fires an AIM-120 Advanced Medium-Range Air-to-Air Missile over the Pacific Missile Test Center, Point Mugu, Calif. The missile entered fleet service in 1993.

15 JULY • The Pacific Missile Test Center successfully demonstrated the maintainability phase of AIM-120 Advanced Medium Range Air-to-Air Missiles (AMRAAMs) at Point Mugu, Calif. The evaluation for the Navy and Air Force was under the auspices of the Air Force Systems Command, Joint Systems Program Office at Eglin AFB, Fla. The demonstration, repeated several times a day through 17 July, proved it possible to load four AMRAAMs onto the wings of F/A-18 Hornets in less than 15 minutes. The unloading procedures, designed not to exceed four minutes, were completed in an average of two minutes.

29 AUGUST • The Secretary of the Navy announced the decision to homeport *Nimitz* (CVN 68) at Everett, Wash., which was envisioned as a base for up to 15 vessels.

2 SEPTEMBER • Reserve squadron HSL-84 completed a deployment of two detachments on board Reserve frigates, marking the first time that a Reserve LAMPS detachment remained embarked. While at sea for two weeks beginning on 16 August, Detachment 1 assigned to frigate *Grey* (FF 1054), and Detachment 2 on board *Lang* (FF 1060), operated as part of a five-ship all-Reserve squadron.

3 OCTOBER • Space shuttle *Atlantis* launched on its maiden voyage, mission STS-51J, from John F. Kennedy Space Center, Fla., and on 7 October landed at Edwards AFB, Calif. The crew included naval flight officer Col. David C. Hilmers, USMC (Ret.), during this second shuttle mission dedicated to Department of Defense tasking.

7 OCTOBER • Palestinian terrorists hijacked Italian cruise ship *Achille Lauro*. They alternately threatened and negotiated with Western diplomats and journalists, but subsequently murdered U.S. citizen Leon Klinghoffer. On 10 October, four of the terrorists attempted to escape on board an Egypt Air Boeing 737 airliner, but four of seven F-14As of VF-74 and -103 launched from *Saratoga* (CV 60) intercepted the aircraft

The prototype S-3B Viking, BuNo 159742, and full scale engineering flight test aircraft, undergoes testing at NATC Patuxent River, Md. It made its first flight on 13 September 1984.

over international waters and directed it to NAS Sigonella, Sicily. KA-6D tankers refueled the Tomcats. Other aircraft that assisted in the interception included E2-C Hawkeyes of VAW-125, EA-6B Prowlers, and an Air Force KC-135 Stratotanker.

13 OCTOBER • *Coral Sea* (CV 43), Capt. Robert H. Ferguson commanding, returned to the Mediterranean for her first Sixth Fleet deployment since 1957. This cruise marked the first deployment of Hornets to the Mediterranean, with VFA-131 and -132.

15 OCTOBER • Research ship *Norton Sound* (AVM 1) fired an RGM/UGM-109B Tomahawk antiship missile from the Pacific Missile Test Center's Sea Test Range off the California coast. The test successfully demonstrated the missile's vertical launch system, as well as its ability to search for, find, and strike a target at sea.

19 OCTOBER • VFA-303, the first Reserve squadron to transition to the F/A-18, received its initial Hornet during ceremonies at NAS Lemoore, Calif. Delivery of the eight jets ended two years of preparation at NAS Alameda, Calif., where the squadron had homeported until its move to Lemoore in 1983 for Hornet training. On 31 October, Lt. Bram B. Arnold of VFA-303 landed on board *Ranger* (CV 61) to become the first Reserve pilot to land a Hornet on board a carrier.

28 OCTOBER • The first prototype model S-3B Viking arrived for developmental test and evaluation at NATC Patuxent River, Md. The operational capability upgraded B configurations included state-of-the-art avionics, a new acoustic processor, electronic support measures system, target imaging radar, AGM-84 Harpoon air-to-ground missiles, and an electronic countermeasures system to counter the threat of sophisticated Soviet submarines, and to enhance the Vikings' multi-mission capabilities.

31 OCTOBER • Chief of Naval Operations Adm. James D. Watkins ordered cuts in deployment schedules to eliminate excessive at-sea periods for ships and aircraft squadrons. The decision was intended to enhance efficient use of the expanded Navy and, at the same time, allow crews more time at home with their families. He announced major turnaround ratios of 2:1 or better, assuring sailors that battle groups would spend a maximum of six months at sea.

9 NOVEMBER • A detachment from VP-66 operating from NS Roosevelt Roads, P.R., participated through 17 November in Operation Hat Trick II—a coordinated operation with the Coast Guard involving general area surveillance and location of vessels suspected of illegal drug trafficking.

23 NOVEMBER • Three Palestinian terrorists of the Abu Nidal Organization hijacked Egypt Air Flight 648, a Boeing 737-266, en route from Athens, Greece, to Cairo, Egypt, and flew it to Malta. *Coral Sea* (CV 43) sailed to the area for contingency purposes. On 25 November, Egyptian commandoes stormed the jet, and 60 of the 98 people on board perished in addition to the terrorists. *Coral Sea* subsequently departed.

13 DECEMBER • VC-10 was tasked to fly cover for a U.S. warship exercising rights of navigation in international waters off the southern coast of Cuba. The squadron's regular mission included air service for Atlantic Fleet ships and aircraft and air defense of Guantánamo Bay, Cuba.

DN-ST-85-08601

The Navy and Marines leased 25 Israeli F-21A Kfirs for adversarial training from 1985 to 1989.

1986

8 JANUARY • Capt. Frederick L. Lewis relieved Capt. Daniel L. Rainey Jr., as Commander Carrier Air Wing (CVW) 8 at NAS Oceana, Va. CVW-8 became the first to incorporate the wing commander/deputy commander concept (Super CAG), which provided an improved focus on power projection and enhanced tactical development and strike planning. The system restructured the chain of command and made wing commanders directly responsible to battle group commanders ashore and afloat, and additionally to carrier commanding officers when embarked. As part of the restructuring, CVW-8 was redesignated a major sea command and reported to Commander Carrier Group 8 and additionally to commanding officer *Nimitz* (CVN 68) when embarked.

13 JANUARY • After 20 years and 300,000 hours of service within the naval flight officer program, the T-39 Sabreliner ended its utility as a Navy training aircraft when VT-86 retired its last T-39D, BuNo 150983, at NAS Pensacola, Fla. This aircraft and five of the eight remaining Sabreliners were sent to Davis Monthan AFB, Ariz. The last two were scheduled for use as VIP transports at other Navy and Marine air stations.

15 JANUARY • VA-27 became the first recipient of the Grampaw Pettibone Trophy during a ceremony at the Officer's Club, Washington Navy Yard, D.C. Commanding officer Cmdr. Joseph P. Sciabarra of the NAS Lemoore, California-based squadron, accepted the award from Secretary of the Navy John F. Lehman Jr. Paul Warner, son of the originator of Grampaw Pettibone, had commissioned the trophy for an annual award to the individual or organization that contributed the most toward aviation safety awareness through written communications.

22 JANUARY • Vice President George H. W. Bush was the key participant at the inaugural marking the year-long observance of the 75th anniversary of naval aviation held at the National Air and Space Museum, Washington, D.C. Secretary of Defense Caspar W. Weinberger and Secretary of the Navy John F. Lehman Jr. also attended.

Aviation ordnancemen roll Rockeye cluster bombs across the flight deck of *Coral Sea* (CV 43) for use against Libyan targets in the spring of 1986.

A Libyan *Nanuchka II*–class corvette burns after a hit by an AGM-84 Harpoon air-to-ground missile fired by an A-6E Intruder of VA-85, 24 March 1986.

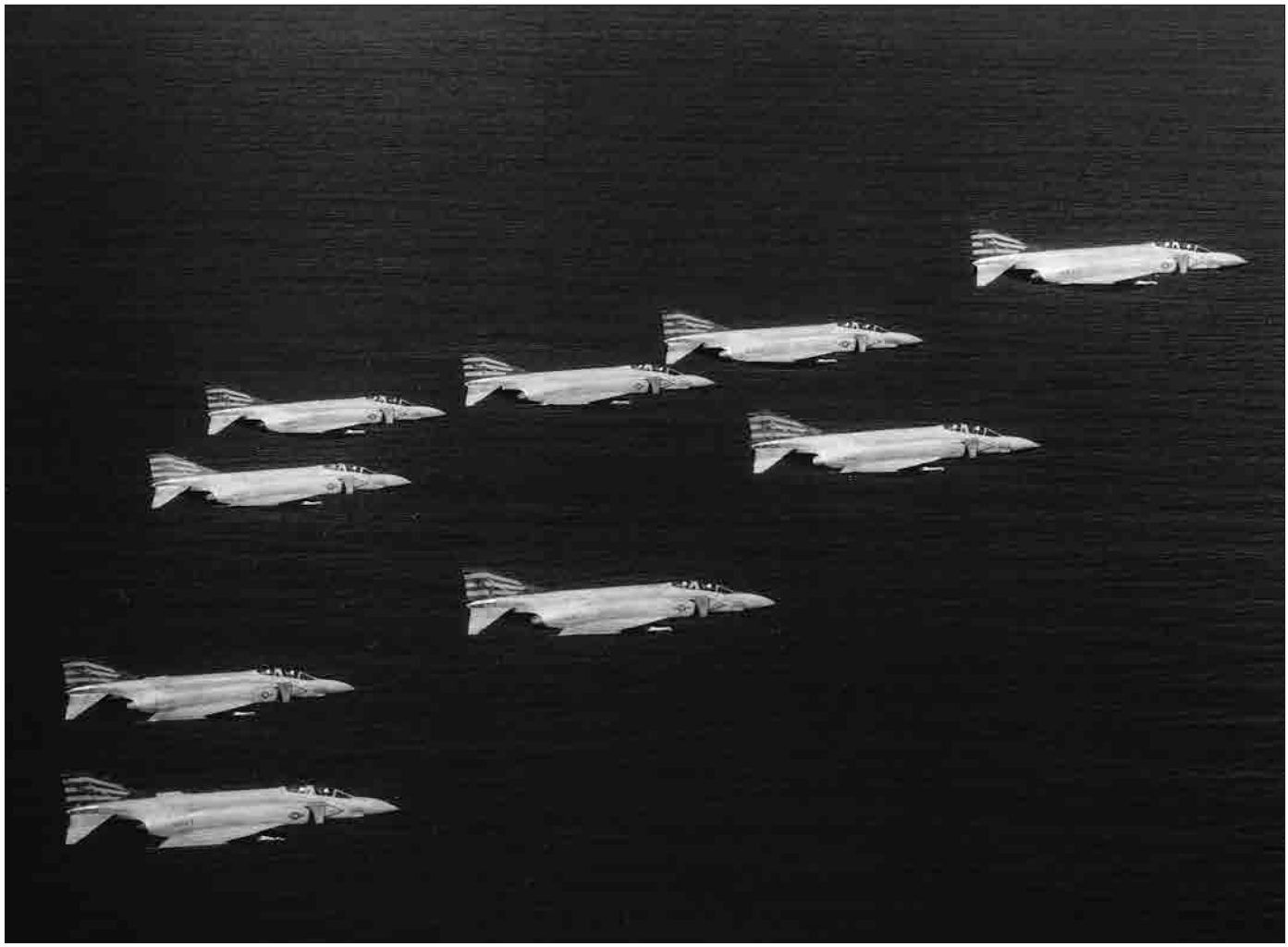
28 JANUARY • At 1138, space shuttle *Challenger* launched from John F. Kennedy Space Center, Fla., on mission STS-51L. Its payload included NASA Tracking and Data Relay Satellite B and the Spartan 203 satellite. A solid rocket booster seal failed allowing burning gasses to cut into the shuttle's external liquid fuel/oxidizer tank that, 73 seconds after launch, triggered a massive explosion. *Challenger* was destroyed and all seven astronauts on board died: Lt. Col. Francis R. Scobee, USAF, shuttle commander; pilot naval aviator Cmdr. Michael J. Smith; mission specialists Lt. Col. Ellison S. Onizuka, USAF; Judith A. Resnik; Ronald E. McNair; and payload specialists Capt. Gregory B. Jarvis, USAF; and S. Christa McAuliffe. Smith had graduated from the Naval Academy.

20 FEBRUARY • Rear Adm. Richard H. Truly was appointed the associate administrator of space flight within NASA. Truly had led the Naval Space Command since its establishment in 1983.

10 MARCH • *America* (CV 66) deployed to the Mediterranean. When she returned on 10 September, her voyage marked the first time that a carrier spent not longer than six months overseas as part of an initiative to reduce deployments. *John F. Kennedy* (CV 67) later relieved *America*.

18 MARCH • VMFT-401 was established at MCAS Yuma, Ariz., as the second squadron equipped with F-21A Kfirs and the first assigned to the Marine Corps. The squadron provided adversary training support to the Fleet Marine Force and other commands. In March 1985, VF-43 at NAS Oceana, Va., had been the first Navy squadron to receive the Israeli-built fighters.

24 MARCH • After Libyan strongman Col. Muammar al-Qadhafi announced a "line of death" that stretched across the Gulf of Sidra at 32°30'N, the United States initiated a series of freedom of navigation exercises in the gulf below the line. On this date, Operation Attain Document III (Prairie Fire) began—an armed response to Libyan-sponsored acts of terrorism. Into the following day, Commander Sixth Fleet Vice Adm. Frank B. Kelso II deployed elements of Task Force 60 including *Coral Sea* (CV 43), *Saratoga* (CV 60), and *America* (CV 66), with upward of 250 aircraft and 26 ships and submarines across the line and triggered Libyan action.



The F-4S Phantom IIs of VF-151 cross the eastern Pacific from *Midway* (CVA 41) toward NAS North Island, Calif., during the retirement of the last Phantoms in the fleet, from VF-151 and -161, 24 March 1986.

Libyan SA-2 Guideline and -5 Gammon surface-to-air missiles at Surt fired ineffectively at the Americans. A-6E Intruders of VA-34 and -85 sank La Combattante II G–class missile boat *Waheed* with two AGM-84 Harpoon air-to-ground missiles and Mk 20 Rockeye cluster bombs, marking the first operational use of Harpoons in combat. Additional strikes from VA-85 damaged Nanuchka II–class corvette *Ean Mara* with a Harpoon and Rockeyes, and compelled her to return to Benghazi. Two Intruders of VA-55 attacked but missed a second Nanuchka II–class corvette with Rockeyes, and an Intruder from VA-85 sank it with a Harpoon. Aircraft also damaged a corvette. VAQ-137 co-authored a plan to attack an SA-5 battery at Surt. EA-6B Prowlers flying from the carriers executed the plan using principally electronic warfare capabilities, and VA-81 A-7E Corsair IIs acted as decoys for VA-83 Corsair IIs that knocked out the battery with AGM-88 High-speed Anti-Radiation Missile. P-3C Orions of VP-56 hunted for Libyan submarines, and amphibious assault ship *Guadalcanal* (LPH 7) acted as the primary casualty receiving/treatment ship. Naval aircraft completed 1,546 sorties, 375 of them south of the line.

25 MARCH • Lts. Alan S. Colegrove and Gregory Blankenship of VF-151 made the final carrier launch of a fleet Phantom II in an F-4S, BuNo 153879, from *Midway* (CV 41) in the East China Sea.

28 MARCH • VFA-106, the Atlantic Fleet Hornet readiness squadron, graduated its first class of replacement pilots. Nine of the ten graduates then served with VFA-137.

DN-SN-86-03931

An A-6E Intruder, BuNo 155712, of VA-55 returns to *Coral Sea* (CV 43) after a mission over Libya, 29 January 1986. Intruders from VA-34 off *America* (CV 66) joined the fight.

29 MARCH • Lt. Cmdr. Donnie L. Cochran, the first African American member of the Flight Demonstration Squadron, completed his initial performance during the team's air show at Luke AFB, Ariz. Cochran had been selected in September 1985 for the Blue Angels number three position.

14 APRIL • After additional terrorist attacks sponsored by Libyan dictator Col. Muammar al-Qadhafi, the United States launched Operation El Dorado Canyon—attacks against Libyan military targets. Overnight into 15 April, U.S. aircraft struck three target areas near Tripoli: a frogman school at Murat Sidi Bilal, a military zone at Tripoli International Airport, and a command and control building at Bab al-Azziziyyah barracks. Jets also bombed the al-Jamahiriyyah barracks and Benina Airfield, both near Benghazi.

F/A-18A Hornets from *Coral Sea* (CV 43) and A-7E Corsair IIs from *America* (CV 66) suppressed Libyan radars electronically and with AGM-88 High-speed Anti-Radiation Missiles and AGM-45 Shrike air-to-ground missiles. F-14A Tomcats from *America* and Hornets from *Coral Sea* flew fighter support, and A-6E Intruders from VA-34 and -55 conducted low-level bombing. Eighteen USAF F-111F Aardvarks of the 48th Tactical Fighter Wing and four EF-111A Ravens of the 20th Tactical Fighter Wing flew a round trip of nearly 6,000 miles from England because of French and Spanish air restrictions.

The attacks struck at least three Ilyushin Il-76 Candids, 14 MiG-23 Floggers, one Fokker F-27 Friendship transport, and two Mil Mi-8 Hip helicopters on the ground, and killed 37 Libyans and wounded 93 more, including some civilians. One bomb also hit the French Embassy. The Libyans shot down one Aardvark killing both crewmembers. Qadhafi ineffectually launched two SS-1 Scud-B surface-to-surface missiles at a Coast Guard long-range navigation station on the island of Lampedusa.

DN-SC-87-03198

A restored PBY-6A Catalina—registered N4NC—takes part in the 75th anniversary of naval aviation with a reenactment flight of the 1919 NC-4 crossing of the Atlantic, May 1986. The aircraft's color scheme is reminiscent of that of the original NC-4 and carries its silhouette on the fin and rudder.

28 APRIL • *Enterprise* (CVN 65) became the first nuclear-powered carrier to pass through the Suez Canal when she steamed from the Red Sea to relieve *Coral Sea* (CV 43) in the Mediterranean.

2 MAY • A Navy board determined the feasibility of blimps for active duty, and later presented recommendations to the Secretary of the Navy for funding. Studies had been completed earlier in 1985 concerning the usefulness of Navy airships to provide airborne early warning capabilities for non-carrier battle groups, with the secondary missions of antisubmarine warfare and search and rescue.

2 MAY • The Navy initiated a contract for co-developers of joint services V-22 Ospreys with Bell Helicopter Textron, Fort Worth, Texas, and Boeing-Vertol Co. Philadelphia, Pa.

5 MAY • Secretary of the Navy John F. Lehman Jr. designated 1986 as the Diamond Anniversary of naval aviation. The planning for the celebration during this year included the recognition of significant historical naval aviation achievements.

5 MAY • As one of the naval aviation 75th anniversary commemorative events, two privately owned PBY Catalinas, one painted with NC-4 colors, made a reenactment flight of the NC-4's 1919 transatlantic crossing. The flight originated from NAS Pensacola, Fla., and followed the original route from NAS Rockaway Beach, N.Y., to Lisbon, Portugal.

27 MAY • After testing with UH-1N Iroquois, SH-3H Sea Kings, SH-60B Seahawks, and TH-57 Sea Rangers, the Navy approved helicopter landing trainer *IX-514* for use by student naval aviators. The craft provided a platform to qualify student helicopter pilots on board a ship before they joined the fleet.

The helicopter landing trainer, *IX-514*, begins operations in April 1986. The former Army yard freight utility craft, *YFU-79*, provided an FFG-7–size landing deck and relieved *Lexington* (AVT 16) of rotary-wing training responsibilities.

1 JUNE • Medium Attack Weapons School Pacific (MAWSPAC), previously composed of sailors from VA-128, was designated as a separate shore command. Fifteen days later, Cmdr. Richard P. Dodd became the first commanding officer of the combat readiness training school at NAS Whidbey Island, Wash. The school operated under the operational and administrative control of Commander Medium Attack Tactical Electronic Warfare Wing Pacific Fleet.

6 JUNE • The first naval aviation cadet in 17 years began active duty when Sean D. Farrar was sworn in by his father, Deputy Commander Navy Recruiting Command Capt. Bobby C. Farrar. The program, which allowed people to enter aviation officer candidate school and eventually flight training without a college degree, had been suspended in 1969.

28 JUNE • As a tribute to the 75th anniversary of naval aviation and Glenn H. Curtiss, a week of festivities began at Hammondsport, N.Y. Events included a reenactment of the Navy's first flight of the A-1, and a permanently mounted scale model of the aircraft, which was unveiled on the shore of Keuka Lake on 29 June.

1 JULY • The Helistat, a Piasecki Aircraft Company lighter-than-air craft flight demonstrator designed for use by the Forestry Service, crashed during flight tests at NAEC Lakehurst, N.J. The aircraft was a composite of fuselages, engines, and main rotors of four SH-34J Seahorses attached to a ZPG-2 airship envelope.

1 JULY • Secretary of the Navy John F. Lehman Jr. approved a formal naval airship development program.

5 AUGUST • Cmdr. William F. Headridge, Lt. Cmdr. Kenneth P. Parks, and Lts. Robert E. Smith and Michael J. Quinlan of VAQ-131 performed the first fleet launch of an AGM-88A High-speed Anti-Radiation Missile from an EA-6B Prowler at NWC China Lake, Calif.

18 AUGUST • A modified F/A-18 fired an AIM-120 AMRAAM (Advanced Medium-Range Air-to-Air Missile) that shot down a QF-86 target flying at low altitude in a high-clutter radar environment. The Hornet flew 890 feet above sea level over the Pacific at Mach .49, and the drone at Mach .68 was 625 feet above the water.

19 AUGUST • *Carl Vinson* (CVN 70), with Carrier Air Wing 15 embarked exercised in the Bering Sea, making her the first carrier since World War II to operate in that part of the world. On 5 February 1987, *Carl Vinson* returned to NAS Alameda, Calif.

19 AUGUST • Tests of the close-in approach indicator (CAI) Mod 2, an optical system for landing operations by AV-8B Harrier IIs on board LHAs, began on board amphibious assault ship *Belleau Wood* (LHA 3). The tests ran through 29 August, and again from 6 to 23 October.

1 SEPTEMBER • The initiation of the *Coral Sea* concept—approved by the Secretary of the Navy to provide *Coral Sea* (CV 43) and *Midway* (CV 41) with two squadrons of eight A-6E Intruders each—commenced with VA-65's assignment from Carrier Air Wing (CVW) 7 to CVW-13 on board *Coral Sea*.

5 SEPTEMBER • At Karachi, Pakistan, four Abu Nidal terrorists hijacked Pam Am Flight 73, a Boeing 747-121, en route from Bombay (Mumbai), India, to New York City.

An AV-8B Harrier II demonstrates the type's unique abilities by operating from a road within a heavily wooded area.

Some of the flight crew escaped and the hijackers demanded the release of Palestinian terrorists. *Forrestal* (CV 59) sortied from Naples, Italy, and made for the Tyrrhenian Sea. Pakistani commandoes stormed the airliner and 22 people died in addition to the hijackers and another 150 sustained injuries. *Forrestal* then returned to her original operations.

29 SEPTEMBER • Grumman test pilot Joe Burke completed the maiden flight of an F-14A Plus during engine compatibility and flutter tests. He flew the Tomcat to Mach 1.1 at 25,000 feet and a maximum altitude of 35,000 feet. The improved Tomcat's new F110-GE-400 turbofan engines provided approximately 35 percent more thrust than the TF30s in fleet use.

1 OCTOBER • VRF-31 was disestablished at NAS Norfolk, Va., as the Navy's last aircraft ferry squadron. It had been established as VRF-1 and was redesignated in 1957. In 1972, it became the fleet's only ferry squadron with the disestablishment of VRF-32 on the West Coast.

17 OCTOBER • On board *America* (CV 66), Lt. Cmdr. Barry D. Gabler of VFP-206, the Navy's last photoreconnaissance squadron, made the final catapult takeoff and carrier landing of an F-8 Crusader.

20 OCTOBER • ALNAV message 202001Z Oct authorized naval aviation sailors and Marines to wear brown shoes and khaki socks with summer khaki uniforms, effective 1 April 1987. A part of naval aviators' uniforms since 1913, brown shoes had been removed from the uniform regulation on 1 July 1976.

3 NOVEMBER • A VR-57 C-9B Skytrain II flew into Quingdao, China, becoming the first naval aircraft to do so since the Chinese closed the port to the United States in 1949. The flight preceded by two days the visit of three naval ships. Cmdr. A. W. Boyce led the Reserve squadron, which was based at NAS North Island, Calif.

31 DECEMBER • A fire engulfed the Dupont Plaza Hotel and Casino, San Juan, P.R., killing an estimated 98 people and injuring at least 140. Three SH-3G Sea Kings of VC-8 launched on short notice and saved 75 persons stranded on the hotel roof in twilight and darkness, and rescued 24 more when the fire reignited after dusk.

1987

5 JANUARY • The first extended deployment for AV-8B Harrier IIs began when VMA-331 deployed on board *Belleau Wood* (LHA 3) for a six-month western Pacific cruise.

6 JANUARY • Reserve Carrier Air Wings 77 and 78 loaned E-2C Hawkeyes to the Customs Service and Coast Guard to bolster their drug enforcement efforts.

12 JANUARY • The airfield at MCAS Camp Pendleton, Calif., was designated Munn Field in honor of Lt. Gen. John C. Munn, a former assistant commandant of the Marine Corps and the first Marine aviator to command Camp Pendleton.

29 JANUARY • *John F. Kennedy* (CV 67) anchored for a four-day visit off Malaga, Spain. Growing tension concerning hostages held by terrorists in Lebanon compelled the Sixth Fleet to cut the carrier's visit short and to dispatch her on a high-speed transit to the eastern Mediterranean. On 2 February, the ship arrived off Lebanon, beginning intermittent dual operations with *Nimitz* (CVN 68). On 17 February, *John F. Kennedy* left the area.

13 FEBRUARY • Ens. Kamin A. Bell of HT-8 at NAS Whiting Field, Fla., became the Navy's first female African American helicopter pilot.

19 FEBRUARY • The Navy's E-6A prototype flew for the first time. The Hermes, a militarized version of Boeing's 707-320B, was scheduled to replace the EC-130Q TACAMO in VQ-3 with the Pacific Fleet and VQ-4 with the Atlantic Fleet. These aircraft provided airborne communications links between ballistic missile subs and national command authorities. Flight testing of the new aircraft began on 1 June.

18 MARCH • VF-301 took part in an AIM-54A air-to-air missile launch at the Pacific Missile Test Range Point Mugu, Calif. This marked the first time that a Reserve squadron had used a Phoenix.

19 MARCH • An SH-60F carrier inner zone helicopter made its first flight.

29 MARCH • VFP-206 was disestablished at NAF Washington, D.C., as the Navy's last light photographic

The first E-6A Hermes, BuNo 162782, enters flight testing at Boeing Field in Seattle, Wash. in 1988. The type, later renamed Mercury, entered Navy service in August 1989.

squadron. The action signaled the end of F-8 Crusaders in naval aviation. Some VFP-206 RF-8Gs went into storage at Davis-Monthan AFB, Ariz., one was transferred to the National Air and Space Museum, and the final two provided test support for NAVAIR.

30 MARCH • The Navy conducted the first flight of a BQM-126A target drone at Pacific Missile Test Center Point Mugu, Calif. Designed as lower cost, state-of-the-art replacement targets, the BQM-126As could fly from sea level up to 40,000 feet.

31 MARCH • As part of a reorganization for centralized support of fleet aviation maintenance approved by the Under Secretary of the Navy, NARFs were redesignated naval aviation depots (NADEP), the Naval Aviation Logistics Center became the Naval Aviation Depot Operations Center, and the Aircraft Intermediate Maintenance Support Office assumed the new title Naval Aviation Maintenance Office.

1 APRIL • HM-12 became the first fleet squadron to receive an MH-53E Sea Dragon.

6 APRIL • The Navy received the first of 26 F-16N Fighting Falcon aggressor jets.

25 APRIL • The Navy Flight Demonstration Squadron held its first air show using F/A-18 Hornets.

17 MAY • An Iraqi Dassault F.1EQ-5-200 Mirage fired two AM.39 Exocet air-to-ground missiles into frigate *Stark* (FFG 31) near 26°47'N, 51°55'E, killing 36 sailors plus one missing, and wounding 21. The Iraqis claimed that the attack resulted from mistaken identity. Vessels that aided *Stark* included command ship—former amphibious transport dock—*La Salle* (AGF 3), destroyers *Coontz* (DDG 40), *Conyngham* (DDG 17), and *Waddell* (DDG 24), and frigate *Reid* (FFG 30). An SH-3G Sea King of HC-2 Detachment 2 flew flight surgeon Lt. Cmdr. Terry A. Miller and supplies

A C-20G Gulfstream IV, BuNo 165094, assigned to VR-48 flies from Naval Air Facility, Andrews Air Force Base, Washington, D.C.

to the stricken ship from NSA Bahrain, and then searched unsuccessfully for survivors in the water. *Conyngham* towed *Stark* to Bahrain.

18 MAY • Oscar 13—a satellite designed to function as part of the Navy's Transit Satellite Navigation System—became the oldest active U.S. satellite when it celebrated its 20th year of service.

22 MAY • Marine Corps Aviation celebrated its 75th anniversary. On 22 May 1912, 1st Lt. Alfred A. Cunningham, USMC, had reported for "duty in connection with aviation" to an aviation camp at Annapolis, Md.

JUNE • NASA selected Lt. Cmdr. Bruce E. Melnick, USCG, as the first Coast Guard astronaut. He subsequently completed two space shuttle flights.

5 JUNE • The Navy awarded a contract to Westinghouse Airship Industries to build a prototype airship as an airborne early warning and communications platform. The Navy had terminated its lighter-than-air program in 1961 and ceased operation of its last airship the next year.

22 JUNE • Fleet Logistics Support Wing Detachment, NAF Washington, D.C., received its first C-20D Gulfstream IV.

26 JUNE • A night attack equipped AV-8B Harrier II conducted its maiden flight at the McDonnell Douglas St. Louis, Mo., facility. Operational tests and evaluation of the aircraft continued later that summer. The upgrade greatly expanded the operational envelope of Harrier IIs by using state-of-the-art navigation equipment and night-vision devices.

30 JUNE • The Navy received its first SH-60F carrier inner zone helicopter. Operational tests and evaluation of the aircraft began in December.

30 JUNE • A VX-5 A-6E conducted the first successful firing of an AGM-88A High-speed Anti-Radiation Missile from an Intruder. This marked the first in a series of missile launches planned to test the A-6E System Weapons Integration Program configuration. This also allowed Intruders to carry AGM-65 Maverick and AGM-84 Harpoon air-to-ground missiles, which increased the stockpile of standoff weapons for carrier air wings.

The RQ-2A Pioneer remotely piloted vehicle is based on the Israeli-designed Mastiff drone. The American version served with both the Navy and Marines.

6 JULY • SH-2F Seasprites and SH-60B Seahawks deployed for special Middle East Force duties were modified with additional defensive equipment such as M-60 machine guns, special countermeasures, and infrared electronic devices.

10 JULY • The Navy awarded a contract to Boeing to upgrade a P-3 Orion to an Update IV version, which was to include an advanced avionics suite to address the problems that newer, quieter submarines posed.

14 JULY • VAQ-131 on board *Ranger* (CV 61) began the first Pacific Fleet deployment of EA-6B Prowlers equipped with AGM-88 High-speed Anti-Radiation Missiles.

15 JULY • Commander Naval Air Force Pacific Fleet initiated extensive modifications to LAMPS Mk I and Mk III helicopters to increase their survivability and surface surveillance capabilities during Persian Gulf operations.

25 JULY • The National Aviation Hall of Fame, Dayton, Ohio, enshrined naval aviator Adm. Thomas H. Moorer.

27 JULY • For some time, the Iranians had laid mines that imperiled international shipping in the Persian Gulf. To combat this, on this date, HM-14 received tasking for rapid deployment to the region and three days later departed with eight RH-53D Sea Stallions. Eight USAF Lockheed C-5A Galaxies and two Lockheed C-141A Starlifters from Travis AFB, Calif., carried some men and gear to Diego Garcia, British Indian Ocean Territory. The sailors reassembled and embarked on board amphibious assault ship *Guadalcanal* (LPH 7), which had sailed with the 24th Marine Amphibious Unit. HM-14 conducted minesweeping and hunting operations in the Persian Gulf until six minesweepers relieved the squadron.

1 AUGUST • To counter the emerging threat that lasers presented, the Pacific Fleet began to distribute laser eye protection devices to its aviation commands.

1 AUGUST • Commander Naval Air Force Atlantic Fleet began support of an average of five to seven LAMPS helicopter detachments operating on convoy duty in the Persian Gulf.

10 AUGUST • The first of four new P-3 Orion weapons systems trainers (2F140) arrived at NAS Moffett Field, Calif. These provided state-of-the-art capabilities for antisubmarine warfare crew training.

The Marine's AH-1-4BW Supercobra begins testing its new four-bladed rotor with VX-5 in January 1989. Originally an AH-1T Sea Cobra that became the prototype AH-1W, BuNo 161022 later also became the prototype AH-1Z.

21 AUGUST • Commander Naval Air Force Pacific Fleet Vice Adm. James E. Service retired, relinquishing his Gray Eagle title to Commanding General Marine Corps Development and Education Command Lt. Gen. Frank E. Petersen at Quantico, Va. Petersen, the first African American aviator in the Marine Corps, had been designated a naval aviator in October 1952. He was the first African American to receive the Gray Eagle.

10 SEPTEMBER • VC-6 Detachment 1, Lt. Cmdr. Wayne T. Moore officer in charge, deployed on board *Iowa* (BB 61) with an RQ-2A Pioneer RPV (remotely piloted vehicle). This began battleship-operated RPVs (later redesignated unmanned aerial vehicle or UAV) that provided independent reconnaissance and naval gunfire support capabilities. During operations ranging from the area off Puerto Rico to the Norwegian Sea, Mediterranean, north Arabian Sea, and Persian Gulf, the Pioneer identified ships, enhanced threat assessments, and greatly reduced the number of rounds that the battleship required to destroy simulated targets. In 1987, the Pioneer made 54 flights, continuing operations into the New Year. On 10 March 1988, *Iowa* returned to NS Norfolk, Va.

19 SEPTEMBER • *Wasp* (LHD 1) was christened.

21 SEPTEMBER • The Navy received its first F/A-18C. The upgraded Hornets included AIM-120 AMRAAM (advanced medium-range air-to-air missiles) and infrared imaging AGM-65 Maverick air-to-ground missiles.

29 SEPTEMBER • *Coral Sea* (CV 43) sailed for a Mediterranean cruise while operating under a new plan called the *Coral Sea* concept. The two attack squadrons on board relied on a shared maintenance concept to streamline the process.

30 SEPTEMBER • *Nassau* (LHA 4) sailed from NS Norfolk, Va. The AV-8Bs from VMA-231 embarked on board the amphibious assault ship, thus beginning the deployment of the first Harrier IIs to the Mediterranean.

8 OCTOBER • HMLA-169 became the first Marine squadron to deploy operationally with the AH-1W when the squadron sailed to the Persian Gulf on board amphibious assault ship *Okinawa* (LPH 3). Super Cobras employed AGM-114 Hellfire air-to-ground and BGM-71 tube-launched, optically tracked, wire command-link (TOW)

The 558th F-14 Tomcat—and the first purpose-built F-14B—BuNo 162910, awaits delivery to the Navy at Grumman's Calverton, N.Y. flight test facility in November 1987. The B-models, originally designated F-14A (Plus), received much needed uprated engines.

anti-tank missiles, AIM-9 Sidewinder air-to-air missiles, and new heads-up displays and bigger engines to increase their ground support capabilities.

16 OCTOBER • The Iranians launched a Chinese HY-2G Silkworm (CSS-C-2 Sea Eagle-2) surface-to-surface missile from the al-Fāw Peninsula that damaged reflagged Kuwaiti tanker *Sea Isle City* (renamed from *Umm al Maradex*). Two days later, the Americans began Operation Nimble Archer—retaliation against the Iranian-occupied Rashadat rig, 120 miles east of Bahrain. Gunners on the rig had previously shot at U.S. aircraft. Navy and Marine helicopters supported destroyers *Kidd* (DDG 993), *Hoel* (DDG 13), *John Young* (DD 973), and *Leftwich* (DD 984), when they blasted the platform with gunfire, and as SEALs then searched the rig. The flames started by the bombardment prevented the special operations forces from boarding the complex, but the Iranians abandoned a third nearby rig, which SEALs boarded and searched.

18 OCTOBER • Battleship *Iowa* (BB 61) recovered an RQ-2A Pioneer remotely piloted vehicle from VC-6 Detachment 1 at night for the first time.

30 OCTOBER • The Navy established the designation C-28A for the Cessna 404 (Titan Ambassador) eight- to ten-passenger, twin-engine planes.

16 NOVEMBER • The service accepted the first production F-14A (Plus) Tomcat.

5 DECEMBER • VP-62 became the first Reserve squadron to transition to P-3C Update III Orions. At times during 1987,

the Naval Air Reserve Force consisted of 52 operational squadrons comprising more than 400 aircraft.

7 DECEMBER • The Naval Test Pilot School at NAS Patuxent River, Md., received the first of three HH-65A Dolphins on loan from the Coast Guard.

10 DECEMBER • The Navy established the X-31A designation and applied it to the enhanced fighter maneuverability (EFM) technology demonstrator aircraft. The EFM was not planned for production, but to provide significant improvements in fighter aircraft agility during close-in aerial combat, as well as in transonic and supersonic engagements, and in ground-attack applications.

12 DECEMBER • Iranian speedboats sank Cypriot tanker *Pivot* in the Persian Gulf. Destroyer *Chandler* (DDG 996), with an SH-2F Seasprite of HSL-33 Detachment 5 embarked, rescued 11 people from the tanker.

15 DECEMBER • The YEZ-2A designation was established and assigned to the Navy's operational development model airship. The vehicle was to be an organic asset of surface action groups to serve as a fuel-efficient, long-endurance airborne platform for area surveillance and communications, command, and control.

17 DECEMBER • The first fleet S3A Vikings retro-fitted to S-3B configuration entered service with VS-27 at NAS Cecil Field, Fla.

21 DECEMBER • Changes to the Office of Chief of Naval Operations, required by the Goldwater-Nichols Department of Defense Reorganization Act of 1986, resulted in redesignation of the Deputy Chief of Naval Operations (Air Warfare) as Assistant Chief of Naval Operations (Air Warfare). On 18 August 1943 this organization had been established as Deputy Chief of Naval Operations (Air), and on 15 July 1971 was modified to Deputy Chief of Naval Operations (Air Warfare).

21 DECEMBER • The Secretary of the Navy announced the approval of the opening of aircrew assignments to women for the Navy's two shore-based fleet air reconnaissance squadrons flying EP-3 Orions.

25 DECEMBER • An Iranian speedboat attacked South Korean tanker *Hyundai No. 7* with rocket-propelled grenades near Abū Mūsá, 20 miles southwest of Sharjar. Pilot Lt. Neil W. T. Hogg, copilot Lt. Gregory P. Curth, and aircrewmen AW2 Charles Crissman and AWAN Robert Bauch of HSL-44 Detachment 3, manned an SH-60B operating from frigate *Elrod* (FFG 55), and rescued and flew 11 of the 20 crewmembers to British frigate *Scylla* (F 71). A Westland Lynx HAS.3 from *Scylla* recovered the remaining nine.

1988

11 JANUARY • Col. Gregory Boyington, the top Marine ace of World War II and Medal of Honor recipient, died at age 75. Boyington received credit for destroying 28 Japanese aircraft. On 3 January 1944, he was shot down over Rabaul, and held as a POW for the next 20 months.

17 MARCH • *Vanguard I*—built by the Naval Research Laboratory—the world's longest orbiting man-made satellite and the first to be solar powered, marked its 30th anniversary in space. The satellite had provided information on air density, temperatures, and micrometeorite impact during the nearly seven years its radio transmitter functioned.

11 APRIL • VF-101 at NAS Oceana, Va., accepted the first F-14A (Plus) Tomcat assigned to an operational squadron.

14 APRIL • An Iranian mine damaged frigate *Samuel B. Roberts* (FFG 58) in the Persian Gulf. The vessels that assisted included amphibious transport dock *Trenton* (LPD 14). On 18 April, the United States launched Operation Praying Mantis—retaliation against the Iranian-occupied Rakhsh, Salman (Sassan), and Sīrrī-D (Nassr) oil platforms.

From the north Arabian Sea, *Enterprise* (CVN 65) launched VAW-117 E-2C Hawkeyes that provided airborne early warning, and VAQ-135 EA-6B Prowlers that jammed Iranian radar and fire control systems. P-3C Orions of VP-46 flying from NSA Bahrain took part, and naval aircraft and frigate *Gary* (FFG 51) protected Mobile Sea Bases *Hercules* and *Wimbrown VII*. Four AH-1T Sea Cobras, two UH-1N Iroquois, and two CH-46E Sea Knights of Contingency Marine Air-Ground Task Force 2-88 supported the assaults.

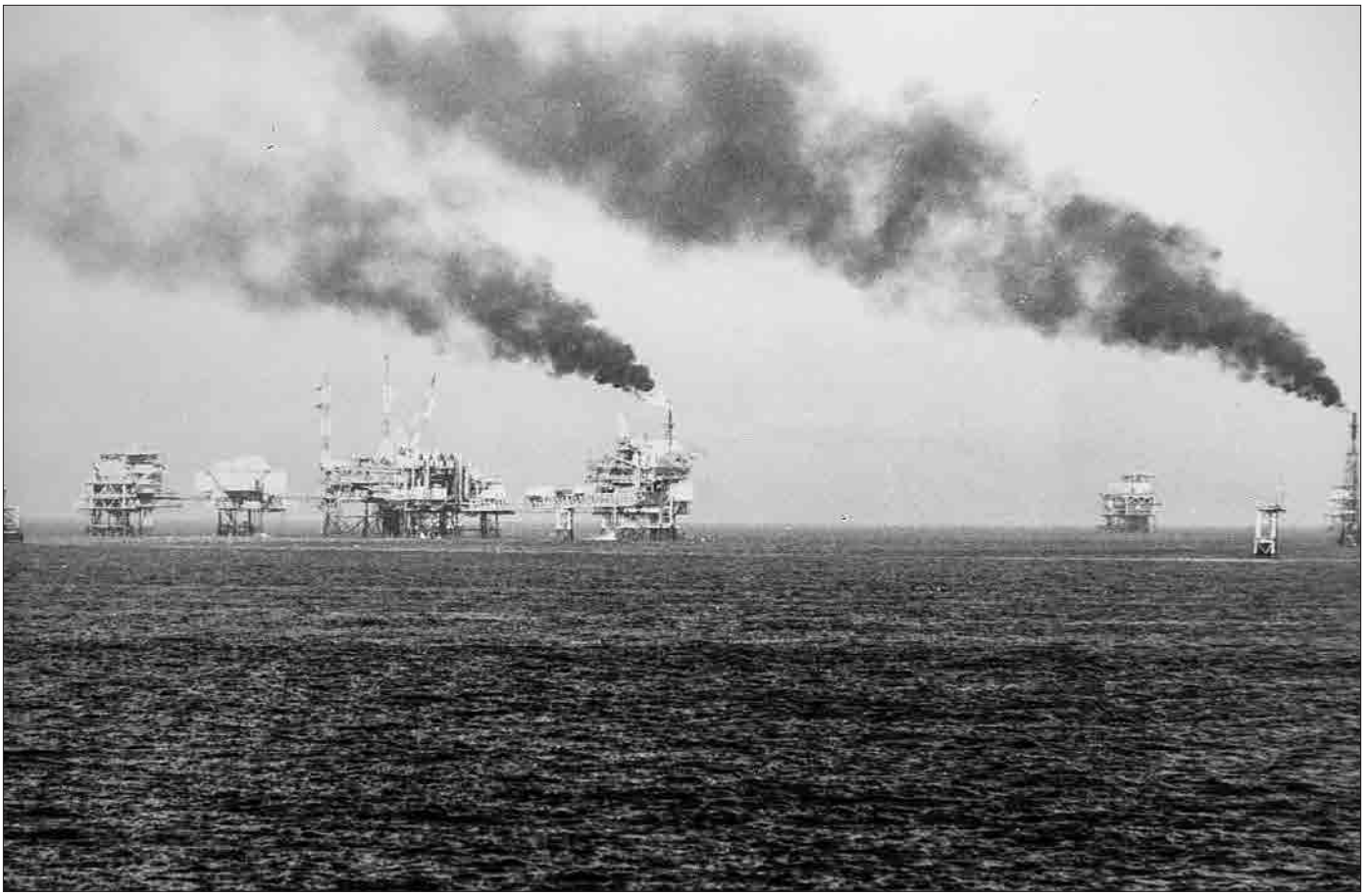
The first service test T-45A Goshawk trainer, BuNo 162787, the Navy version of the British Aerospace Hawk, is delivered in 1988.

Five Iranian F-4s attempted to intercept a Hawkeye, but four F-14A Tomcats drove them off. The Americans attacked an orbiting Hercules that Iranians had modified to provide targeting data to their Chinese HY-2G Silkworm surface-to-surface missiles, but the plane escaped. Cruiser *Wainwright* (CG 28) and frigates *Bagley* (FF 1069) and *Simpson* (FFG 56) sank missile boat *Joshan* (P 225).

Wainwright fired a Standard SM-2ER surface-to-air missile that damaged an Iranian Phantom II. The Iranian *Sepah-e Pasdaran-e Enqelab-e Islami* (Islamic Revolutionary Guard Corps) dispatched at least seven RL-120-2A Boghammar gunboats from Abū Mūsá against the Mubarak oil field southeast of the United Arab Emirates, damaging an oil rig, British tanker *York Marine*, and U.S.-flagged supply ship *Willi Tide*. Two A-6E Intruders of VA-95 sank one of the Boghammars, and the survivors beached two of the boats on Abū Mūsá. An Intruder damaged Iranian frigate *Sahand* (F 74), and a second Intruder, six A-7E Corsair IIs of VA-22 and -94, and destroyer *Joseph Strauss* (DDG 16) sank *Sahand*. An Intruder disabled frigate *Sabalan* (F 73) with a 500-pound Mk 82 laser-guided bomb.

An AH-1T, manned by pilot Capt. Kenneth W. Hill, USMC, and copilot Capt. Stephen C. Leslie, USMC, of HMLA-167, crashed from undetermined causes. Both

Col. Gregory Boyington is the top Marine ace of World War II. He died in 1988 at the age of 75.



The Americans retaliate against these platforms in Iranian territorial waters, which were used by Iran as bases during attacks on Persian Gulf shipping, during Operation Praying Mantis, 18 April 1988.

Marines posthumously received the Distinguished Flying Cross. Cmdr. Arthur N. Langston, Lt. Cmdrs. James H. Engler and Joseph E. Nortz, and Lt. Robert P. Papadakis of VA-95 also received the Distinguished Flying Cross.

16 APRIL • The maiden flight of a T-45A Goshawk took place at Douglas Aircraft Company, Long Beach, Calif.

6 MAY • A night attack prototype F/A-18D made its first flight at McDonnell Douglas, St. Louis, Mo. Equipped with a new forward looking infrared sensor, the two-seat Hornets were designed to help pilots and naval flight officers navigate and assist in locating, identifying, and attacking ground targets at night.

16 MAY • A production model E-6A Hermes communications aircraft arrived for extensive electromagnetic testing at NATC Patuxent River, Md.

23 MAY • The V-22 Osprey debuted during rollout ceremonies at Bell Helicopter's Arlington, Texas, facility.

14 JUNE • Cmdr. John T. Meister and Lt. Cmdr. Richard D. Jaskot of VA-75, flew the latest Intruder variant, an A-6E SWIP (System Weapons Integration Program), when they launched an AGM-88 High-speed Anti-Radiation Missile (HARM) and struck a target ship, becoming the first fleet A-6E to do so. Upgrades to the Intruders included the ability to launch HARM, AGM-65 Maverick, and AGM-84 Harpoon air-to-ground missiles.

14 JUNE • During coordinated fleet operations with the Second Fleet, Reserve squadron VP-62 fired the first AGM-84 Harpoon air-to-ground missile from a P-3C Update III Orion and hit its target. The squadron had been selected earlier as the first Reserve patrol squadron to receive the Orions as part of the horizontal integration program at NAS Jacksonville, Fla.

The first V-22 Osprey, BuNo 163911, makes its maiden flight, 19 March 1989. It was a decade before the first production model was delivered to the Marines on 25 May 1999.

2 JULY • As the United States pressed freedom of navigation rights within the Strait of Hormuz and the Persian Gulf, an Iranian RL-120-2A Boghammar and two Boston Whaler–type armed speedboats fired three rockets at Danish tanker *Karama Maersk*, 20 nautical miles southwest of Abū Mūsá. Frigate *Elmer B. Montgomery* (FF 1082) fired an illumination round and the Iranians fled. The next morning, *Forrestal* (CV 59) sailed into the Gulf of Oman and launched a VAW-122 E-2C Hawkeye, escorted by F-14A Tomcats of VF-11 and -31. Tomcats also flew photoreconnaissance missions over Iranian coastal and island defense sites. *Elmer B. Montgomery* detected up to 13 Iranian speedboats that approached a Pakistani merchantman. Cruiser *Vincennes* (CG 49) dispatched an HSL-43 SH-60B, designated Oceanlord 25, to investigate the vessels. The Americans also monitored an orbiting Iranian P-3F Orion, and a *Hengam*-class tank landing ship that acted as a mother ship for speedboats. The speedboats fired at—but missed—Oceanlord 25, and the Seahawk returned to *Vincennes*. Four speedboats exchanged fire with *Vincennes*, and in error, the cruiser fired two Standard SM-2 Block II surface-to-air missiles that shot down Iran Air Flight 655, a civilian Airbus A300B2-203, en route from Bandar-e Abbās to Dubai, killing all 290 people on board. *Vincennes* sank two speedboats and possibly damaged a third.

Two to three Iranian F-4D/E Phantom IIs operating from Bandar-e Abbās attempted to lock onto *Vincennes*, but U.S. electronic jamming compelled their retirement. A Soviet Ilyushin Il-38 May observed these operations during a flight from Aden, Yemen.

13 JULY • The Carrier Airborne Early Warning Weapons School was established as a separate command on the same principles as Top Gun and Strike University with emphasis placed on E-2C Hawkeye aircrew warfare training.

22 JULY • VA-304 took delivery of a KA-6D, marking the introduction of Intruders to the Naval Air Reserve. By September 1988, the squadron had three KA-6Ds and two A-6Es.

2 AUGUST • Using installed halon firefighting equipment, *Constellation* (CV 64) successfully fought a severe fire in her main engineering space. This action marked the first use of the system by a carrier in fighting a fire.

5 AUGUST • Dwaine L. Lyon received his wings and was commissioned an ensign, becoming the first NAVCAD to complete the jet strike training pipeline since the reinstitution of the program in 1986. Begun in 1935, it had become an important source of naval aviators until it ended 30 years later. Under the revived NAVCAD, aviation cadets with a minimum of two years of college or its equivalent could undergo flight training as noncommissioned officers.

17 AUGUST • The HH-60H Seahawk made its maiden flight at Sikorsky Aircraft, Stratford, Conn. Derived from the SH-60F, the new variant's primary mission was strike rescue, with secondary tasks involving special warfare missions. The HH-60Hs were the first new aircraft purchased for and operated exclusively by the Naval Air Reserve.

25 AUGUST • A NASA-designed Scout rocket launched two Navy navigation satellites from Vandenberg AFB, Calif. The event marked the culmination of the planned launch program for the Transit system, also known as the Navy Navigation Satellite System, which had begun in 1962. The Navy relied on Transit for precise position information anywhere on the earth and in all weather conditions. The two satellites were launched piggyback style using the Stacked Oscars on the Scout system.

13 SEPTEMBER • *Midway* (CV 41) and *Nimitz* (CVN 68) sailed at times through 2 October off the Korean Peninsula to provide security during the Games of the XXIV Olympiad at Seoul, South Korea.

29 SEPTEMBER • Space shuttle *Discovery* on mission STS-26 launched from John F. Kennedy Space Center, Fla. On 3 October, it returned to Edwards AFB, Calif. Naval aviators Capt. Frederick H. Hauck and Col. David C. Hilmers, USMC, former naval aviator John M. Lounge, and Col. Richard O. Covey, USAF, and George D. Nelson comprised the crew. Their principal payload included NASA Tracking and Data Relay Satellite 3, which was propelled into orbit after being deployed from *Discovery*. Vice President George H. W. Bush greeted the astronauts upon their return.

30 SEPTEMBER • The Navy's last operational reciprocating-engine aircraft, a C-1A, BuNo 146048, retired from active service and was transferred to the Naval Aviation Museum, NAS Pensacola, Fla. The Trader had provided carrier onboard delivery support from the station for *Lexington* (AVT 16).

1 OCTOBER • HAL-5 was redesignated HCS-5 at NAS Point Mugu, Calif. Established on 1 March 1977 at Point Mugu, the Reserve squadron, commanded by Cmdr. Robert W. Womble, had fulfilled a primary mission of combat search and rescue (strike rescue) and special warfare support. The squadron operated eight HH-1K helicopters that year, which were later replaced with HH-60H Seahawks. On 31 December 2006, HCS-5 was deactivated at NAS North Island, Calif.

3 OCTOBER • The aircraft designation A-12A, denoting a new carrier-based attack aircraft with a two-man crew, was established.

14 OCTOBER • The Navy selected Lockheed Aeronautical Systems Co. to develop a replacement aircraft for P-3C Orions. The new plane—initially designated LRAACA (long-range, air antisubmarine warfare–capable aircraft) and later redesignated P-7A—was to possess new fuel-efficient, modern-technology turboprop engines to boost range and efficiency, increased payload capacity, and improved avionics suites. The program was cancelled on 20 July 1990.

3 NOVEMBER • The Navy's initial AGM-84E Standoff Land Attack Missile (SLAM) was rolled out at McDonnell Douglas' St. Charles, Mo., facility. The weapons were derived from AGM-84 Harpoons for deployment from carrier-based aircraft to allow them to attack land targets and ships from ranges in excess of 60 nautical miles.

10 NOVEMBER • Ens. Joy D. Warner became the first woman to earn her wings through the newly reinstated NAVCAD program. Warner had joined the program in June 1987 and completed her basic flight training with HT-8.

29 NOVEMBER • The Navy transferred a F-4S, BuNo 157307, to the Smithsonian's National Air and Space Museum after its arrival at Dulles International Airport, Va. This jet had seen action in Vietnam and was a MiG killer. On 21 June 1972, pilot Cmdr. Samuel C. Flynn Jr. and radar intercept officer Lt. William H. John of VF-31, flying from *Saratoga* (CV 60), shot down a MiG-21 Fishbed. The museum planned to display the Phantom II in a future Vietnam War exhibit.

31 DECEMBER • The Aviation Officer Continuation Pay program concluded. On 1 January 1989, a new program—Aviation Continuation Pay (ACP)—began, and applied only to pilots and naval flight officers below pay grade O-5. The ACP payment reached up to $12,000 for each year of contracts if officers agreed to remain on active duty to complete 14 years of continuous service.

1989

4 JANUARY • Two F-14As crewed by pilot Cmdr. Joseph B. Connelly and radar intercept officer (RIO) Cmdr. Leo F. Enwright Jr., and pilot Lt. Herman C. Cook III and RIO Lt. Cmdr. Steven P. Collins of VF-32, embarked with Carrier Air Wing 3 on board *John F. Kennedy* (CV 67), shot down two Libyan MiG-23s. The carrier sailed in routine training exercises off the northeastern tip of the Libyan coast when the two Floggers launched from a field at Al Bumbah and approached the carrier. After repeated attempts to intercept the aggressive Libyans peacefully, the Tomcats fired AIM-7 Sparrow and AIM-9 Sidewinder air-to-air missiles, downing the MiGs over international waters in the central Mediterranean north of Tobruk, Libya.

20 JANUARY • George H. W. Bush (Naval Aviator No. C5907) was inaugurated as the 41st President of the United States.

23 FEBRUARY • The Navy's Mid-InfraRed Advanced Chemical Laser/SeaLite Beam Director (an experimental high-energy laser system) destroyed an MQM-8G Vandal supersonic missile during a test at White Sands Missile Range, N.M. This marked the first time that a high-energy laser system had successfully engaged and destroyed a Vandal flying low and fast in a cruise missile profile.

19 MARCH • A V-22 made its first flight at Bell Helicopter Textron's Flight Research Center, Arlington, Texas. In Phase 1 of the flight tests, the Osprey reached a maximum speed of 20 knots and an altitude of 30 feet during a 15-minute flight in the helicopter mode.

31 MARCH • VP-62 completed transition to the P-3C Update III, marking the first time that a Reserve patrol squadron had received the latest state-of-the-art Orions.

3 APRIL • An A-6E modified with a new composite wing made its first flight at Wichita, Kans. Manufactured by Boeing from graphite/epoxy composite materials, the new wing proved stronger than the Intruder's original metal structure.

16 APRIL • VS-30 became the first fleet S-3 Viking squadron to fire an AGM-84 Harpoon air-to-ground missile when a detachment participated in exercise North Star '89 on board *America* (CV 66). The launch resulted in a direct hit on the target.

19 APRIL • While operating in the Caribbean, *Coral Sea* (CV 43) responded to a call for assistance from *Iowa* (BB 61) after an explosion in the battleship's number two gun turret killed 47 crewmembers. The explosive ordnance disposal team from *Coral Sea* removed volatile powder charges from the ship's 16-inch guns and flooded powder magazines. *Coral Sea* also dispatched a surgical team and medical supplies, and SH-3G Sea Kings of VC-8 performed medical evacuations and logistical support to *Iowa*.

15 MAY • H. Lawrence Garrett III was sworn in as the Secretary of the Navy. Garrett was commissioned as a naval

aviation cadet in 1964, and had served as a naval flight officer with VP-50 during the Vietnam War.

22 JUNE • HS-10 accepted the Navy's first SH-60F carrier inner zone helicopter at NAS North Island, Calif. In October, HS-10 became the Navy's only SH-60F Seahawk fleet readiness squadron when it transferred all SH-3 Sea King training to HC-1 and HS-1.

24 JUNE • The initial development freeflight test of an AGM-84E Standoff Land Attack Missile (SLAM) resulted in a direct hit on a simulated surface-to-air missile communication site at San Nicholas Island, Pacific Missile Test Center Range, Calif. An A-6E System Weapons Integration Program Intruder launched the missile, and an F/A-18 Hornet using the Walleye data link for man-in-the-loop control guided the SLAM during its flight.

1 JULY • Associate Administrator for Space Flight, Office of Space Flight, NASA Rear Adm. Richard H. Truly retired from the Navy and was confirmed by Congress as the administrator of NASA. A naval aviator, Truly had been selected as an astronaut in 1965, and received credit for bringing the United States back into an active space program after the space shuttle *Challenger* accident.

1 JULY • The Naval Aviation Museum at NAS Pensacola, Fla., changed its name to the National Museum of Naval Aviation.

8 JULY • HCS-5 accepted its first HH-60H Seahawk strike rescue and special warfare operations helicopters at NAS Point Mugu, Calif.

22 JULY • The National Aviation Hall of Fame in Dayton, Ohio, enshrined Adm. Marc A. Mitscher (Naval Aviator No. 33). In 1919, Mitscher commanded flying boat NC-1 during the first airborne transatlantic crossing, and nine years later in a Vought UO-1, made the first takeoff and landing on board *Saratoga* (CV 3). His service during World War II included the commissioning and command of *Hornet* (CV 8), and command of Patrol Wing 2; Fleet Air, Noumea; and elements of the USAAF, Navy, Marine Corps, and Royal New Zealand Air Force contingents. Of particular significance was his command of Task Force 58, the fast carrier task force, during 1944 and 1945.

1 AUGUST • Arab terrorists in Beirut hanged Lt. Col. William R. Higgins, USMC, a member of the UN peacekeeping forces in Lebanon, and threatened to murder additional hostages they held. *America* (CV 66) departed early from a visit to Singapore and made for the Arabian Sea, and *Coral Sea* (CV 43) steamed from Alexandria, Egypt, to the eastern Mediterranean as a show of force. *Midway* (CV 41) had originally been scheduled to participate in Pacific Exercise–89, but sailed to fill a carrier commitment in the Indian Ocean, where she operated until mid-October.

3 AUGUST • An A-6E Intruder from VA-145 spotted 37 Vietnamese refugees adrift in a barge in heavy seas and monsoon rains in the South China Sea. Eight people had drifted in the barge for ten days, and 29 other refugees from a sinking boat had clambered on board. SH-3H Sea Kings from HS-14, deployed on board *Ranger* (CV 61), assisted in their rescue from the derelict boat's final position 80 miles from NAS Cubi Point, Philippines.

3 AUGUST • VQ-3 took delivery of two E-6As at Seattle, Wash. The arrival of the new strategic communications Hermes aircraft marked the entry into the fleet of the newest generation of TACAMO aircraft.

6 SEPTEMBER • Cruiser *Bunker Hill* (CG 52), with an SH-60B Seahawk of HSL-45 Detachment 7A embarked, rescued 49 Vietnamese refugees in an overcrowded boat 130 nautical miles northeast of Singapore. *Bunker Hill* sank the derelict vessel with gunfire to prevent a navigational hazard, and the following day transferred the people to ammunition ship *Kilauea* (T-AE 26) for transportation to a resettlement center.

7 SEPTEMBER • An NS-3A modified as the aerodynamic prototype of an ES-3A Shadow made its first flight. Sixteen ES-3As eventually replaced EA-3B Skywarriors in fleet air reconnaissance squadrons.

12 SEPTEMBER • The Coast Guard retired its last HH-52A. Sea Guard helicopters had served more than 26 years as the Coast Guard's primary short-range, search and rescue aircraft, and were replaced by Aerospatiale HH-65A Dolphins.

14 SEPTEMBER • The first HH-60J medium-range, search and rescue helicopters were rolled out in Stratford, Conn. The Jayhawks replaced HH-3Fs in Coast Guard service.

14 SEPTEMBER • A V-22 made its first flight in full airplane mode. The Osprey was airborne for about one hour over Bell Helicopter Textron's Arlington, Texas, facility.

14 SEPTEMBER • The Aircrew Common Ejection Seat successfully completed a 600-knot dual ejection from an F-14D Tomcat test sled at China Lake, Calif.

17 SEPTEMBER • *Enterprise* (CVN 65) deployed from NAS Alameda, Calif., for World Cruise 89–90. On 16 March 1990, the ship concluded her global circumnavigation at NS Norfolk, Va.

17 SEPTEMBER • Responding to the destruction caused in the Caribbean by Hurricane Hugo, a number of Navy and Marine Corps squadrons under the direction of Commander Fleet Air Caribbean, including HC-2 Detachment 6, VC-8, and VP-93, flew needed supplies to Puerto Rico and evacuated seriously injured people to hospitals. Commands that responded included eight CH-53E Super Stallions, two KC-130s, and dock landing ships *Gunston Hall* (LSD 44), *Pensacola* (LSD 38), and *Whidbey Island* (LSD 41).

22 SEPTEMBER • VMFT-401 transferred its last F-21A Kfir, marking the retirement from U.S. naval aviation of these Israeli-built fighters that had been used as aggressor aircraft.

30 SEPTEMBER • VAK-208 was disestablished as the last Navy squadron dedicated solely to aerial refueling. Assigned to Reserve Carrier Air Wing 20, the squadron had provided aerial refueling and pathfinder support since its establishment in July 1970 as VAQ-208. On 1 October 1979, it had been redesignated VAK-208. VA-304 and -205, transitioning to A-6E and KA-6Ds, assumed Reserve carrier air wing aerial refueling responsibilities.

1 OCTOBER • Reserve squadron HAL-4, the last naval gunship squadron, was redesignated HCS-4, with an added mission of strike rescue.

3 OCTOBER • Through 5 October, frigates *Wadsworth* (FFG 9), *Duncan* (FFG 10), *Lewis B. Puller* (FFG 23), and *Mahlon S. Tisdale* (FFG 27), withdrew from an exercise in the North Pacific and rescued 20 crewmembers from stricken South Korean merchantman *Pan Dynasty* south of Attu, Aleutians.

17 OCTOBER • An earthquake measuring 7.1 on the Richter scale devastated northern California killing 62 people. HM-15 Detachment 3, HC-1, and HC-11 Detachment 3 conducted lifts of food, water, and relief materials to the heavily damaged areas from ammunition ship *Flint* (AE 32) and fast combat support ship *Kansas City* (AOE 3). Amphibious assault ship *Peleliu* (LHA 5) provided food and shelter to 300 homeless earthquake victims.

29 OCTOBER • A developmental prototype of the advanced capability version of the EA-6B Prowler made its first flight.

29 OCTOBER • Student aviator Ens. Steven E. Pontell of VT-19 crashed in a T-2C Buckeye onto the flight deck of *Lexington* (AVT 16) during carrier qualifications in the Gulf of Mexico. The accident killed Pontell, ABM3s Timmy L. Garroutte and Burnett Kilgore Jr., and AN Lisa L. Mayo of the ship's company, together with contractor Byron G. Courvelle, and injured 15 people.

30 OCTOBER • An F/A-18A Hornet operating from *Midway* (CV 41) accidentally dropped a 500-pound bomb on cruiser *Reeves* (CG 24), which wounded five sailors during a night bombing exercise 32 miles south of Diego Garcia, British Indian Ocean Territory.

1 NOVEMBER • NAS Pensacola, Fla., became the last Chief of Naval Air Training command to fully convert to the use of civilian contractors for aircraft maintenance. Sailors in maintenance ratings had normally performed this work, but planners considered that civilians would be more cost-effective.

3 NOVEMBER • The Navy approved the designation VH-60N for the version of Seahawks to be used as executive transports by HMX-1.

6 NOVEMBER • VX-1 set a naval aviation record for flying the longest nonstop, air-refueled flight in an E-6A TACAMO

A Marine F/A-18 Hornet, BuNo 161248, displays an early maximum payload. In addition to four Mk 83 1,000-pound bombs, it carries two AIM-9L Sidewinder missiles, three 315-gallon fuel tanks, an ASQ-173 Laser Spot Tracker on its starboard fuselage station, and an AAS-38 forward looking infrared pod on its port.

aircraft, refueling twice in flight from Air Force Boeing KC-10A Extenders operating from March AFB, Calif.

1 DECEMBER • *Enterprise* (CVN 65) rendezvoused with *Midway* (CV 41) for Operation Classic Resolve—support of Philippine President Corazon Aquino against an attempted Philippine military coup and the potential evacuation of Americans trapped by the fighting. *Enterprise*, *Midway*, and Marine forces operated off Luzon's west coast. The carriers launched E-2C Hawkeyes to provide continuous radar coverage of the Manila Bay area, and to support Air Force F-4 Phantom IIs flying from Clark AFB to deter Filipino aircraft from taking off and attacking Manila and its environs. After the situation was stabilized, *Midway* returned to Yokosuka, Japan, and *Enterprise* continued her deployment to the Indian Ocean.

2 DECEMBER • VAQ-309 became the first Reserve squadron to operate EA-6Bs when it received Prowlers at NAS Whidbey Island, Wash.

Chapter 12

From the Sea

1990–1999

The collapse of the Eastern Bloc and changes in the world order defined the 1990s, a decade also characterized by the containment of localized fighting and a revised naval strategy. As the 15 January 1991 UN deadline for the Iraqis to withdraw their troops from Kuwait approached, U.S. aircraft carriers advanced to their stations near the Persian Gulf.

The following night (17 January in the Middle East), nine ships sailing in the gulf and in the Mediterranean and Red Seas fired BGM-109 Tomahawk cruise missiles at Iraqi military and political targets, and a massive armada of allied aircraft struck a variety of targets. Later that same night, President George H. W. Bush announced to the American people the beginning of the liberation of Kuwait. The attacks devastated the Iraqis so thoroughly that the principal fighting on the ground ended in barely 100 hours, and on 27 February, President Bush declared the liberation of Kuwait.

Following the Persian Gulf War, UN economic sanctions against Iraq remained in effect. During the rest of the decade, naval aviation patrolled Iraqi airspace and supported UN-imposed sanctions as well as limiting the Iraqi threat to minorities within the county and to their neighbors across the Middle East. In October 1994, after the deployment of Iraqi troops to the Kuwaiti border, President William J. Clinton dispatched *George Washington* (CVN 73) to the Red Sea to protect Kuwait. The Iraqis withdrew and announced recognition of Kuwait's sovereignty. The next year, aircraft from *Independence* (CV 62), *Constellation* (CV 64), and *Theodore Roosevelt* (CVN 71) patrolled the Iraqi no-fly zone during Operation Southern Watch.

The Soviets had cooperated with the United States during the Persian Gulf War, but their *glasnost* (openness) and *perestroika* (restructuring) brought about changes and unrest among their diverse peoples that culminated in the collapse of the Eastern Bloc. The fall of the communists left the United States as the world's only superpower, but the new global order presented regional and transnational rather than world threats as challenges shifted from the historical aberration of political conflicts back to wars of tribes and faith. In response, the Navy developed a new strategy promulgated in a white paper entitled " . . . From the Sea," which emphasized littoral warfare (along coastlines) and maneuver from the sea.

The new global situation also called for the largest draw-down for the fleet since World War II, and many naval aviation squadrons were consequently disestablished, reorganized, or consolidated. The Defense Base Closure and Realignment Commission had begun the shutdown of multiple shore facilities, and the Navy ended 42 years of modern support of Antarctic research.

The break up of the composite Yugoslav state into constituent republics presented the first major challenge to the new strategy. Aircraft carriers kept watch over the situation from the Adriatic Sea and supported Operation Provide Promise, the UN relief effort, and Operation Deny Flight, which monitored the air space over Bosnia-Herzegovina to prevent the warring parties from using their air strength. At times, *Saratoga* (CV 60), *America* (CV 66), and *Dwight D. Eisenhower* (CVN 69) supported both operations. On 30 August 1995, aircraft from *Theodore Roosevelt* (CVN 71) carried out early morning strikes that began Operation Deliberate Force—action against Serbian military targets in Bosnia-Herzegovina.

The Dayton Accords, which the Bosnian Federation and the Bosnian Serbs signed in Paris in December 1995, brought a temporary lull to the Balkan fighting. Operation Joint Endeavor enforced the military aspects of these accords by providing a stable environment in which civil action could proceed, which in turn enabled Deny Flight to end. Four years later, Serbian President Slobodan Milosevic's "cleansing" of ethnic Albanians from Kosovo compelled NATO to launch Operation Allied Force to counter his crimes.

Dwight D. Eisenhower (CVN 69) with Carrier Air Wing 7 embarked, the first carrier to conduct sustained operations in the Red Sea in response to Iraq's invasion of Kuwait, passes through the Suez Canal on 8 August 1990.

The changes in the global balance had also enabled Muslim extremists to rise to power. In the early 1980s, Saudi émigré terrorist Osama bin Laden and others had developed al-Qaeda (The Base, or the International Front for Fighting Jews and Crusaders) to support the war in Afghanistan against the Soviets. They subsequently refocused their hatred against the United States and its allies after the expulsion of the Marxist regime from that country. One of their primary goals was to drive U.S. armed forces, which they perceived as representing America's "infidel" policies (and which the terrorists deemed inconsistent with al-Qaeda's Islamic extremism) from Saudi Arabia and its neighboring countries.

The decade also marked a first for women when, in April 1993, Secretary of Defense Leslie Aspin dropped most of the restrictions that prohibited women from engaging in aerial and naval combat. Later in the year, Congress supported the secretary's decision to allow women in combat by repealing the Combat Exclusion Law. In October 1994, *Dwight D. Eisenhower* became the first carrier to deploy with women permanently assigned on board.

The last production F-14D Tomcats and A-6E Intruders entered the fleet, and F/A-18E/F Super Hornets, E-6A Mercurys, SH-60F Seahawks, T-45A/C Goshawks, AGM-65E laser-guided Maverick air-to-surface missiles, AGM-84H SLAM-ER (Standoff Land Attack Missile–Expanded Response), AGM-154A JSOW (Joint Standoff Weapon), and RIM-116A RAM (Rolling Airframe Missile) systems were prepared for their integration into operations. Meanwhile, the Navy and the Marine Corps phased-out McDonnell Douglas F-4 Phantom IIs. During the 1990s, naval aviation continued to adjust to changing world events, the development of new technologies, and of new strategies in order to serve the Republic.

1990

25 JANUARY • A helicopter from amphibious assault ship *Guadalcanal* (LPH 7) rescued three fishermen after their boat sank three miles off Cape Henry, Va.

25 JANUARY • An SH-60B Seahawk of HSL-45 Detachment 10 and SH-2F Seasprites of HSL-33 Detachment 3 and -35 Detachment 1, embarked on board cruiser *Lake Champlain* (CG 57), frigates *Lockwood* (FF 1064) and *Stein* (FF 1065), and tanker *Navasota* (T-AO 106), rescued 19 crewmembers from Chinese merchant vessel *Huazhu* when she sank 40 miles off northern Luzon, Philippines.

21 MARCH • Kaman Aerospace Corporation introduced the SH-2G Seasprite at the company's Bloomfield, Conn., production facility. The upgraded version of the SH-2F had been part of LAMPS Mk I, and their improvements included a sonobuoy data processing system, changes in the tactical navigation system, more powerful engines, composite rotor blades, an infrared target detection system, and several countermeasures systems.

27 MARCH • HS-2 at NAS North Island, Calif., became the first squadron to receive SH-60F Seahawks for operational deployment with the fleet.

17 APRIL • Lockheed Aeronautical Systems Company delivered the last P-3C, BuNo 163295, to the Navy at Palmdale, Calif. The delivery marked the 548th Orion accepted into naval inventory since August 1962.

18 MAY • NAVAIR established the model designation BQM-145A for the medium-range unmanned aerial vehicles—programmable reconnaissance drones that could be launched from the ground and tactical aircraft.

18 MAY • Night attack F/A-18Ds, the first two-seat Hornets designated to fly tactical as opposed to training missions, began service at MCAS El Toro, Calif. They replaced A-6 Intruders as the Marines' day/night bombers.

3 JUNE • Three days after President George H. W. Bush's orders to an amphibious task force, amphibious assault ship *Saipan* (LHA 2), amphibious transport dock *Ponce* (LPD 15), and tank landing ship *Sumter* (LST 1181) began their watch off Liberia. The ships were to assist evacuations of U.S. citizens threatened by an uprising there.

Cmdr. Rosemary B. Mariner becomes the first woman to command an operational naval aviation squadron, 12 July 1990. She led VAQ-34 during Operation Desert Storm and retired as a captain in 1997 after 24 years of service.

24 JUNE • Navy submersible *Sea Cliff* (DSV 4) located the wreckage of rigid airship *Macon* (ZRS 5) and her four F9C-2 Sparrowhawks off the coast of Point Sur, Calif. *Macon* had crashed on 12 February 1935.

26 JUNE • Cruiser *Lake Champlain* (CG 57), operating within the Pacific Missile Test Center's sea test range off California, made the first ship launch of an AGM-84 Standoff Land Attack Missile from a Harpoon canister. A LAMPS Mk III helicopter controlled the launch and down-linked video images to the ship's command information center via the helicopter's Walleye data link pod.

12 JULY • Cmdr. Rosemary B. Mariner relieved Cmdr. Charles H. Smith as commanding officer of VAQ-34, becoming the first woman to command an operational aviation squadron.

16 JULY • An earthquake rocked Manila and devastated much of the northern portion of Luzon, Philippines. Helicopters assigned to Marine Aircraft Group Task Force 4-90 and HMM-164 hauled food, water, and medical supplies to victims. CH-46E Sea Knights, CH-53D Sea Stallions, and CH-53E Super Stallions flew as transports, while UH-1N Iroquois, AH-1W Super Cobras, and OV-10 Broncos searched for survivors. SH-3G Sea Kings and Super Stallions from VC-5 at NAS Cubi Point also flew resupply and medical missions.

20 JULY • Citing default, the Navy terminated a contract with Lockheed Aeronautical Systems for the P-7A, formerly designated Long-Range Air Anti-Submarine Warfare Capable Aircraft.

31 JULY • HC-9 was disestablished, concluding the operations of the Navy's only combat search and rescue helicopter squadron. Its mission then passed to two Reserve special operations squadrons—HCS-5 at Point Mugu, Calif., and HCS-4 at NAS Norfolk, Va.

2 AUGUST • Iraq invaded Kuwait. *Independence* (CV 62) sailed in the Indian Ocean, *Dwight D. Eisenhower* (CVN 69) steamed in the Mediterranean Sea, and eight Middle East Force ships operated in the Persian Gulf. *Independence* was directed to proceed to the northern Arabian Sea to support what subsequently became Operation Desert Shield, a UN sanctioned economic blockade of Iraq by a coalition that eventually comprised 29 nations.

2 AUGUST • A VA-145 A-6E Intruder, embarked on board *Ranger* (CV 61), spotted a barge carrying Vietnamese refugees adrift in heavy seas and torrential rains 60 miles from NAS Cubi Point, Philippines. Over the next two days, an HS-14 SH-3H Sea King and a motor whaleboat from the carrier rescued 39 people.

5 AUGUST • *Independence* (CV 62) arrived on station in the Gulf of Oman.

5 AUGUST • The State Department authorized Operation Sharp Edge—the evacuation of people caught in the Liberian civil war. Amphibious assault ship *Saipan* (LHA 2) and other ships sailed to the area, and helicopters flew Marines from the 22d Marine Expeditionary Unit (MEU) to the U.S. Embassy compound in Monrovia. The MEU's air combat element included HMM-261 CH-46E Sea Knights, HMH-362 CH-53D Sea Stallions, HMLA-167 UH-1N Iroquois and AH-1T Sea Cobras, and VMA-223 AV-8B Harrier IIs. On 28 November, the opposing Liberian factions signed a cease-fire, and two days later the limited evacuation of noncombatants from Monrovia concluded after the American evacuation of 2,609 people including 330 U.S. citizens. Sharp Edge concluded on 9 January 1991.

7 AUGUST • *Saratoga* (CV 60) sailed for a scheduled deployment to the eastern Mediterranean.

7 AUGUST • *Dwight D. Eisenhower* (CVN 69) transited the Suez Canal, and the next day entered the Red Sea. The ship formed the basis of the Red Sea Battle Group to defend Saudi Arabia in the event that Iraqi dictator Saddam Hussein continued his aggression beyond Kuwait. A comprehensive strike plan provided battlefield air interdiction and close air support that was designed to stop Iraqi armored forces. *Dwight D. Eisenhower* and *Independence* (CV 62) carried more than 130 aircraft into potential action against Iraqi forces in Kuwait and southern Iraq, and protected airfields on the Arabian Peninsula that lay close to vital sea routes.

7 AUGUST • An EP-3E Aries II, an electronic warfare version of the P-3C, arrived to begin four months of extensive performance testing at NAS Patuxent River, Md.

15 AUGUST • *John F. Kennedy* (CV 67) deployed from NS Norfolk, Va. The ship sailed as a potential relief for *Dwight D. Eisenhower* (CVN 69) or for additional tasking to be determined by the Middle East situation.

16 AUGUST • Iraqi smuggling compelled the UN to begin multinational maritime interception operations (MIO) to enforce UN Security Council resolutions that had been imposed after the invasion of Kuwait. Resolution 661 prohibited the export of cargo that originated in Iraq, while Resolution 665 called upon the coalition to verify compliance, including the food-for-oil agreement that permitted Iraq to sell limited amounts of oil to pay for food and medicine. The coalition consistently refined MIOs to contain brazen efforts by Iraqi criminals and on occasion, terrorists, who used lucrative drug trafficking that specialized in heroin and methamphetamines to finance terrorism.

Allied ships and aircraft began to track and intercept ships that entered or left Iraqi and Iraq-occupied Kuwaiti ports.

22 AUGUST • *Saratoga* (CV 60) sailed through the Suez Canal to relieve *Dwight D. Eisenhower* (CVN 69) in the Red Sea.

28 AUGUST • Lack of space on board amphibious ships sailing en route to the Persian Gulf forced VMO-2 when deploying for the Persian Gulf War to ferry six of their OV-10 Broncos east across the United State from MCAS Camp Pendleton, Calif.

30 AUGUST • *John F. Kennedy* (CV 67) transited the Strait of Gibraltar into the Mediterranean Sea.

3 SEPTEMBER • *Dwight D. Eisenhower* (CVN 69) transited the Strait of Gibraltar en route to the United States.

6 SEPTEMBER • Amphibious assault ship *Nassau* (LHA 4) passed through the Suez Canal into the Red Sea.

7 SEPTEMBER • Amphibious assault ships *Guam* (LPH 9) and *Iwo Jima* (LPH 2) transited the Suez Canal into the Red Sea.

14 SEPTEMBER • Amphibious assault ship *Nassau* (LHA 4) arrived in the Gulf of Oman, and *John F. Kennedy* (CV 67) transited the Suez Canal into the Red Sea.

16 SEPTEMBER • Amphibious assault ships *Guam* (LPH 9) and *Iwo Jima* (LPH 2) arrived in the Gulf of Oman.

1 OCTOBER • *Independence* (CV 62) transited the Strait of Hormuz en route to the Persian Gulf. The next day, she conducted flight operations there, becoming the first carrier to do so since *Constellation* (CV 64) in 1974. On 4 October, *Independence* (CV 62) sailed from the gulf.

8 OCTOBER • Two Marine UH-1N Iroquois disappeared with eight men during routine night training operations from amphibious assault ship *Okinawa* (LPH 3) in the Gulf of Oman.

28 OCTOBER • Marines from amphibious transport dock *Ogden* (LPD 5) boarded Iraqi vessel *Amuriyah*, which was bound for Iraq through the Persian Gulf. The Iraqis had refused to halt despite a summons from U.S. and Australian ships. The allied vessels fired shots across her bow and aircraft from *Independence* (CV 62) buzzed low in warning passes. The Marine boarding party found no banned cargo, and the craft was allowed to proceed.

1 NOVEMBER • *Midway* (CV 41) relieved *Independence* (CV 62) in the north Arabian Sea.

2 NOVEMBER • Three Iraqi aircraft briefly penetrated Saudi airspace near the northern gulf combat air patrol. The incident tested coalition vigilance just a day before Central Command and the Saudis began a scheduled air defense exercise.

8 NOVEMBER • President George H. W. Bush announced a decision to double the number of carrier battle groups deployed in support of Operation Desert Shield. By 15 January 1991, *Ranger* (CV 61), *America* (CV 66), and *Theodore Roosevelt* (CVN 71) were to join *Midway* (CV 41), *Saratoga* (CV 60), and *John F. Kennedy* (CV 67).

15 NOVEMBER • U.S. and Saudi forces began Operation Imminent Thunder—an eight-day combined amphibious landing exercise in northeastern Saudi Arabia involving about 1,000 U.S. Marines, 16 ships, and more than 1,100 aircraft. Aircraft from *Midway* (CV 41), which had entered the gulf from the north Arabian Sea, and Marine aircraft flew close air support.

16 NOVEMBER • The Navy accepted F-14D Tomcats for fleet service at NAS Miramar, Calif.

29 NOVEMBER • The UN approved Security Council Resolution 678 authorizing the use of military force unless Iraq vacated Kuwait by 15 January 1991.

8 DECEMBER • *Ranger* (CV 61) sailed on an unscheduled deployment for Operation Desert Shield from San Diego, Calif.

20 DECEMBER • *Independence* (CV 62) returned to NAS North Island, Calif., from her deployment to the Persian Gulf.

21 DECEMBER • Israeli ferry *al-Tovia* (70290) capsized 200 yards astern of *Saratoga* (CV 60) while transporting 102 men back to the carrier after liberty at Haifa. Israeli military and police officers in boats and helicopters pulled victims from the water, and helicopters flew injured men to two hospitals in Haifa. Twenty U.S. sailors died, and an additional crew member disappeared and was presumed drowned.

28 DECEMBER • *America* (CV 66) and *Theodore Roosevelt* (CVN 71) deployed in support of Operation Desert Shield from NS Norfolk, Va. Five OV-10A Broncos and one OV-10D from VMO-1 also embarked on board *America*, and six squadron OV-10Ds sailed with *Theodore Roosevelt*. The Marines subsequently joined Marine Aircraft Group 13 (Forward) at King Abdul Aziz Naval Base, Saudi Arabia.

1991

1 JANUARY • HC-4 relocated its detachment from Jeddah, Saudi Arabia, to Hurghada, Egypt. The detachment constructed an airhead operating site within 48 hours, and began to transport passengers, cargo, and mail to carrier battle groups and amphibious forces steaming in the Red Sea during Operation Desert Shield.

2 JANUARY • CH-53E Super Stallions from amphibious assault ship *Guam* (LPH 9) helped insert Marines into the United States Embassy compound in Mogadishu, Somalia, during Operation Eastern Exit. The operation rescued U.S. Ambassador James K. Bishop, the Soviet ambassador, and other foreign nationals caught in the midst of the Somali civil war.

6 JANUARY • *Saratoga* (CV 60) transited the Suez Canal into the Red Sea to participate in Operation Desert Shield.

7 JANUARY • Secretary of Defense Richard B. Cheney canceled the A-12A Avenger carrier-based aircraft program. He cited the inability of the principal contractors, General Dynamics and McDonnell Douglas, to design, develop, fabricate, assemble, and test Avengers within the contract schedule, and to deliver aircraft that met contract requirements. The action marked the largest Pentagon weapons contract cancellation to date.

8 JANUARY • Six VMO-1 OV-10Ds launched to NS Rota, Spain, from *Theodore Roosevelt* (CVN 71) without the aid of the ship's catapults. The carrier then passed through the Strait of Gibraltar into the Mediterranean Sea. Two Marine KC-130s then flew the Broncos (three in each Hercules) through Palma de Mallorca, Spain; NAS Sigonella, Sicily; Souda, Crete; Cairo, Egypt; Jeddah, Saudi Arabia; and, on 17 January, to King Abdul Aziz Naval Base, Saudi Arabia.

9 JANUARY • *America* (CV 66) sailed through the Strait of Gibraltar into the Mediterranean Sea.

12 JANUARY • Congress voted 52 to 47 in the Senate, and 251 to 183 in the House, on a joint resolution that gave President George H. W. Bush the support he sought for military action against Iraq.

12 JANUARY • *Ranger* (CV 61) arrived in the north Arabian Sea to participate in Operation Desert Shield.

12 JANUARY • Amphibious Group Three, with the 5th Marine Expeditionary Brigade embarked, arrived in the Arabian Sea. Eighteen vessels, including amphibious assault ships *New Orleans* (LPH 11), *Okinawa* (LPH 3), *Tarawa* (LHA 1), and *Tripoli* (LPH 10), later joined the 13 ships of Amphibious Group Three to comprise the largest amphibious task force that the United States had committed to battle since the Korean War.

12 JANUARY • *Midway* (CV 41) reentered the Persian Gulf and participated in Operation Desert Shield.

14 JANUARY • *Theodore Roosevelt* (CVN 71) passed through the Suez Canal into the Red Sea.

15 JANUARY • *America* (CV 66) transited the Suez Canal into the Red Sea.

15 JANUARY • *Ranger* (CV 61) transited the Strait of Hormuz into the Persian Gulf.

16 JANUARY • *Theodore Roosevelt* (CVN 71) transited Bab el-Mandeb from the Red Sea to the Gulf of Aden.

16 JANUARY • At 1650 (EST), a squadron of fighter-bombers took off from a field in central Saudi Arabia and

struck targets in Iraq and Kuwait just before 1900 (EST; it was the night of 17 January in the Middle East). Six carrier battle groups, two battleships, and a 31-ship amphibious task force sailed in the Red and Arabian Seas and Persian Gulf. The Navy had more than 100 ships and submarines in the area, and 75,000 sailors afloat and ashore, while more than 67,000 Marines ashore comprised a Marine expeditionary force with another nearly 18,000 Marines embarked on board naval vessels.

16 JANUARY • President George H. W. Bush addressed the nation and announced the commencement of Operation Desert Storm—the liberation of Kuwait.

17 JANUARY • At 0130, nine ships in the Mediterranean, Persian Gulf, and Red Sea fired the first of 122 BGM-109 cruise missiles at Iraqi targets. This marked the first combat launch of the Tomahawk. Meanwhile, *Saratoga* (CV 60), *America* (CV 66), and *John F. Kennedy* (CV 67) sailing in the Red Sea; *Midway* (CV 41) and *Ranger* (CV 61) in the Persian Gulf; and *Theodore Roosevelt* (CVN 71) en route to the gulf; launched 228 combat sorties.

17 JANUARY • At 0130, an (apparent) Iraqi surface-to-air missile shot down Lt. Cmdr. Michael S. Speicher in an F/A-18C Hornet, BuNo 163484, of VFA-81 embarked on board *Saratoga* (CV 60), during a night strike over Iraq. Speicher thus became the first American casualty of the Persian Gulf War. Additional information subsequently suggested his possible survival, and on 11 January 2001, Secretary of the Navy Richard J. Danzig changed the pilot's status from killed in action/body not recovered to missing in action. On 11 October 2002, Secretary of the Navy Gordon R. England issued a memorandum that further changed the pilot's status to missing/captured. In July 2009, Iraqi Bedouins directed a recovery team from Multi-National Force–West to a crash site in the desert 62 miles west of Ramadi in Anbar province. The team recovered remains later confirmed as those of Speicher.

17 JANUARY • At 0215, the Iraqis began to fire an estimated eight Scud-B (R-17E) surface-to-surface missiles at Haifa and Tel Aviv, Israel. Saddam Hussein's ploy threatened to drag the Israelis into the war, which would have enraged Arabs and unraveled the coalition. The Pentagon announced that allied forces had destroyed stationary Scud sites in Iraq, but pilots started to seek out elusive mobile sites in what they termed "The Great Scud Hunt." The United States also prepared to dispatch additional Army PAC-3 Patriot (Phased Array Tracking Intercept of Target) antimissile batteries to help the Israelis defend against the Scuds.

A VF-32 F-14A Tomcat and an A-6E Intruder assigned to CVW-3, deployed with *John F. Kennedy* (CV 67) in support of Operation Desert Shield, cruise at low level over the Saudi desert, 25 October 1990.

17 JANUARY • Lt. Cmdr. Mark I. Fox and Lt. Nicolas Mongillo of VFA-81 flying F/A-18Cs, embarked on board *Saratoga* (CV 60), each shot down an Iraqi MiG-21 Fishbed with AIM-7 Sparrow and AIM-9M Sidewinder air-to-air missiles. After these first Hornet aerial victories, the two completed bombing runs against a hangar, fuel stores, and a control station as they maneuvered to avoid antiaircraft fire and hand-held surface-to-air missiles.

18 JANUARY • The Navy mounted its first carrier-launched aerial minelaying operation since the Vietnam War to isolate Iraqi vessels operating in the Persian Gulf from facilities at Basra, an important southern Iraq port and crossroads, and nearby Umm Qasr and az-Zubayr; and to prevent enemy

A P-3C Orion of VP-4 patrols over the Arabian Desert during Operation Desert Storm.

boats at those ports from entering the gulf. Four A-6Es supported by 14 aircraft from *Ranger* (CV 61) dropped 42 Mk 36 Destructor mines at the mouth of the Az-Zubayr River. As the Intruders made their low-level runs, the Iraqis shot down one flown by Lts. Charles J. Turner and William T. Costen of VA-155. Initial reports indicated that these men were missing, but the Pentagon later announced their status as prisoners of war. Commander Naval Forces Central Command Vice Adm. Stanley R. Arthur cancelled further aerial minelaying because of this loss and the large number of Iraqi mines in the gulf.

18 JANUARY • Naval aircraft bombed Iraqi installations near Umm Qasr, and airfields at al-Jaber and Ash Shuaybah, Kuwait. By the end of the day, they had flown 1,100 combat sorties and ships and submarines launched 216 BGM-109 Tomahawk cruise missiles against 17 Iraqi military leadership, electric, and oil targets.

18 JANUARY • VA-35 A-6E crews, embarked on board *Saratoga* (CV 60), used night vision goggles in battle for the first time in the squadron's history during their initial strikes against the Iraqis. Four Intruders bombed H-3 airfield, but antiaircraft fire shot down Lts. Jeffrey N. Zaun and Robert Wetzel of VA-35 in an A-6E, BuNo 161668, ten nautical miles south-southwest of the field. The Iraqis captured and beat the men, paraded Zaun before TV cameras, and did not repatriate the prisoners until 4 March. An Iraqi Roland surface-to-air missile struck A-6E, BuNo 158539, manned by Lts. Mark F. Eddy and John A. Snevely Jr., during the same strike and forced it to divert to Al Jouf, Saudi Arabia.

18 JANUARY • An Iraqi infrared surface-to-air missile shot down Lt. Col. Clifford M. Acree, USMC, and CWO4 Guy L. Hunter, USMC, of VMO-2 in an OV-10A Bronco, about 14 miles northeast of Mishab, Kuwait. Both Marines were captured.

18 JANUARY • SH-60B Seahawks from HSL-44 Detachment 8, embarked on board frigate *Nicholas* (FFG 47), provided air targeting while *Nicholas*, Kuwaiti patrol boats *al-Sanbouk* (P 4050) and *Istiqlal* (P 5702), two Army Bell OH-58D Kiowas, and a British Lynx HAS.3 from destroyer *Cardiff* (D 108) neutralized Iraqi garrisons on nine oil platforms in the ad-Dorra oil field. AGM-114 Hellfire air-to-surface missiles proved especially effective against the Iraqi sandbag and plywood shelters. The attack killed five Iraqis, and 23 survivors surrendered in this first combined helicopter, missile, and surface-ship gun engagement. It was also the first capture of Iraqi prisoners during the Persian Gulf War.

19 JANUARY • *Theodore Roosevelt* (CVN 71) transited the Strait of Hormuz into the Persian Gulf.

19 JANUARY • A-6E Intruders and A-7E Corsair IIs, flying from *Saratoga* (CV 60) and *John F. Kennedy* (CV 67), made the first combat launches of AGM-84E SLAM (Standoff Land Attack Missile).

20 JANUARY • Iraqi TV broadcast what it claimed as interviews with three downed U.S. and four Allied airmen including Lt. Col. Clifford M. Acree, USMC, and CWO4 Guy L. Hunter, USMC, of VMO-2, and Lt. Jeffrey N. Zaun of VA-35. The State Department called the Iraqi charge d'affaires in Washington to protest that the broadcast ran contrary to the Third Geneva Convention governing the treatment of prisoners of war, and to demand that any prisoners be granted immediate access to representatives of the International Committee of the Red Cross. The footage shocked Americans during a broadcast on U.S. TV the next day. The Iraqis also announced that they had used prisoners as human shields to deter attacks.

20 JANUARY • A Grumman A-6E Intruder and an Air Force Fairchild Republic A-10 Thunderbolt destroyed an Iraqi artillery battery.

20 JANUARY • By this point, allied air and missile attacks had eviscerated the Iraqi command, control, communications, and intelligence network, and had torn apart Saddam Hussein's integrated air defense system.

21 JANUARY • President George H. W. Bush signed an executive order that designated the Arabian Peninsula areas, that airspace, and the adjacent waters as a combat zone.

21 JANUARY • Poor weather hampered coalition air operations throughout late January, which forced the Joint Force Air Component Commander to cancel or divert many aerial sorties.

21 JANUARY • A surface-to-air missile, tentatively identified as a modified SA-2 Guideline, shot down over Iraq an F-14B Tomcat of VF-103, embarked on board *Saratoga* (CV 60). Special operations crew recovered pilot Lt. Devon Jones the next day, but radar intercept officer Lt. Lawrence R. Slade was captured.

21 JANUARY • *Theodore Roosevelt* (CVN 71) arrived on station in the Persian Gulf.

23 JANUARY • A-6Es disabled an *al-Qadisiya*-class Iraqi tanker that had been collecting and reporting intelligence data. The Intruders also attacked and sank a Zhuk-class patrol boat and an SR.N6 Mk 6C Winchester–class hovercraft that the tanker had refueled.

24 JANUARY • A-6Es attacked and destroyed an Iraqi *Spasilac*-class minelayer and a Zhuk-class patrol boat. Another enemy minesweeper hit an Iraqi mine while attempting to evade the aerial attacks. Intruders and F/A-18 Hornets also attacked the Iraqi Umm Qasr naval station.

24 JANUARY • A patrol aircraft spotted an Iraqi minesweeper moored at Qaruh Island between the oilfield at ad-Dorra and the Kuwaiti coast. Two VA-65 A-6E Intruders from *Theodore Roosevelt* (CVN 71) then discovered and disabled the *Yevgenya*-class minesweeper. Destroyer *Leftwich* (DD 984) and frigates *Curts* (FFG 38) and *Nicholas* (FFG 47) patrolling a nearby minefield turned toward the action. An SH-60B LAMPS Mk III, operating from *Curts*, sank a floating mine about 1,000 yards off the ship's starboard bow with machine gun fire. The Seahawk detected Iraqi patrol boat *P4027*, which while attempting to evade the ensuing air attacks, struck a drifting Iraqi mine and sank. Two Army helicopters from the 4th Squadron, 17th Cavalry, embarked on board *Curts*, covered the Seahawk and the frigate during the apprehension of 11 Iraqi prisoners and the recovery of two bodies.

24 JANUARY • Up to five Iraqi aircraft flew from an airfield at al-Kut southeast of Baghdad for the Kuwaiti coast. Two Dassault-Breguet F-1 Mirages continued southeast along the boundary between Air Force and Navy radar coverage and penetrated into the screen surrounding ships in the Persian Gulf. An Air Force Boeing E-3A Sentry AWACS failed to notify cruisers *Bunker Hill* (CG 52), *Mobile Bay* (CG 53), and *Worden* (CG 18) by normal procedures and informed them by voice. F/A-18A Hornets operating from *Midway* (CV 41) and *Theodore Roosevelt* (CVN 71) attempted unsuccessfully to intercept the intruders. The Sentry vectored four Saudi McDonnell Douglas F-15 Eagles, and Capt. Ayedh al-Shamrani shot down both Mirages with AIM-9 Sidewinder air-to-air missiles. The Iraqis had reached a point 60 nautical miles from *Mobile Bay* and within range to launch Aérospatiale AM.39 Exocet air-to-surface missiles at the cruiser. Communications and radar errors and inexperience led to a nearly calamitous encounter.

24 JANUARY • The allies reclaimed the first Kuwaiti territory, the island of Jazirat Qurah.

24 JANUARY • The Iraqis began to set fire to many of the oil refineries and wells in their possession. Flames and smoke plumes posed challenging navigational hazards to low-flying aircraft. In addition, the Iraqis dumped oil into the gulf from their Sea Island crude oil tanker loading terminal off the Kuwaiti coast, from five tankers at Mina' al Ahmadi, Kuwait, and from storage tanks ashore through an underwater pipeline. The ensuing spill grew to be at least 20 miles long, 3 miles wide, and several feet deep in what the Department of Defense branded "an act of environmental terrorism."

28 JANUARY • The Iraqis downed Capt. Michael C. Berryman, USMC, in a VMA-311 AV-8B. His section had been unable to locate their target because of inclement weather and turned to strike an Iraqi Luna FROG (free rocket over ground) tactical surface-to-surface rocket, when an enemy surface-to-air missile hit the Harrier II. The Iraqis captured the Marine but did not acknowledge the fact.

29 JANUARY • A-6Es attacked Iraqi ships in the Bubiyan Channel at Umm Qasr Naval Base and in Kuwait harbor in what aircrew termed the "Bubiyan Turkey Shoot." Cdrs. Richard K. Noble and Richard J. Cassara of VA-145 in an Intruder embarked on board *Ranger* (CV 61), discovered off al-Fāw (al-Fāo) Peninsula four Iraqi missile boats that had been captured from the Kuwaitis, tentatively identified as an FPB 57, two TNC 45s, and an Osa II. An E-2C Hawkeye controlled the Intruder and its wingman from VA-155 as they attacked with 500-pound laser-guided bombs. Canadians Maj. David W. Kendall and Capt. Stephen P. Hill flew two CF-18s that strafed the Osa, which escaped. The next morning, many of the remaining Iraqi vessels attempted to flee, and during 21 engagements over the following 13 hours, allied aircraft sank or damaged 7 enemy missile boats, 3 amphibious ships, a minesweeper, and 9 additional vessels between Bubiyan Island and the marshlands of the Shatt al Arab (the confluence of the Tigris and Euphrates Rivers). American sailors rescued 20 Iraqi survivors. One missile boat and an amphibious ship reached Iran, but were seized by the Iranians.

29 JANUARY • Iraqi tanks and troops thrust across the Kuwait border into Saudi Arabia, but coalition forces stopped these attacks during a series of engagements. Marines at R'as al-Khafji, Saudi Arabia, directed air and artillery strikes and, overnight, allied aircraft also struck enemy concentrations in Kuwait. All 18 F/A-18C Hornets of VFA-81 and -83, embarked on board *Saratoga* (CV 60), dropped 100 Mk 83 1,000-pound bombs. Marine AH-1 Cobras also attacked and by daybreak on 31 January the combined firepower had broken the Iraqis. These battles distracted enemy attention away from their vulnerable desert flanks where the main allied attacks subsequently fell.

1 FEBRUARY • VAW-123 coordinated aircraft on the first of 11 patrols to locate and destroy Scud-B (R-17E) surface-to-surface missiles through 7 February. On 3 February, *America* (CV 66) confirmed the destruction of two Scud-related vehicles.

2 FEBRUARY • Iraqi antiaircraft fire shot down Lt. Cmdr. Barry T. Cooke and Lt. Patrick K. Connor in a VA-36 A-6E Intruder, BuNo 155632, embarked on board *Theodore Roosevelt* (CVN 71), near Jazīrat Faylakā (Island). Both were killed in action; Cooke's body was not recovered.

2 FEBRUARY • An E-2C Hawkeye, BuNo 158638, of VAW-125, damaged a KA-6D of VA-35 and an F-14A+ Tomcat during a taxiing accident on board *Saratoga* (CV 60). Two sailors suffered minor injuries and the ship later disembarked the damaged tanker at Jeddah, Saudi Arabia.

3 FEBRUARY • Battleship *Missouri* (BB 63) supported Marines fighting in Kuwait with her 16-inch guns. Crewmembers launched the battleship's embarked RQ-2A Pioneer remotely piloted vehicle with the assistance of a rocket-powered booster, and recovered the aircraft by using a net strung between two cables on the fantail. The vehicle transmitted images to shipboard TV monitors that enabled gun directors to "walk" rounds onto their targets. At one point, sailors watched images as a truck delivered food to Iraqi soldiers dug into camouflaged positions near R'as al-Khafji, and after its departure, *Missouri* shelled the site.

5 FEBRUARY • Lt. Robert J. Dwyer of VFA-87 was killed when his F/A-18A Hornet, BuNo 163096, operating from *Theodore Roosevelt* (CVN 71), crashed while returning from a combat mission over Iraq.

6 FEBRUARY • Cmdr. Ronald D. McElraft and Lt. Donald S. Broce of VF-1 in an F-14A Tomcat, embarked on board *Ranger* (CV 61), downed an Iraqi Mi-8 Hip with an AIM-9M Sidewinder air-to-air missile.

6 FEBRUARY • Battleship *Wisconsin* (BB 64) temporarily relieved *Missouri* (BB 63) on the gunline near the Kuwaiti border to enable *Missouri* to rearm. *Wisconsin* often used an RQ-2A Pioneer remotely piloted vehicle equipped with infrared and daylight TV cameras that relayed signals to the battleship to help direct gunfire missions. A Marine OV-10 Bronco called in the first mission against an Iraqi artillery battery in southern Kuwait, and *Wisconsin* knocked it out with 11 16-inch rounds.

7 FEBRUARY • A-6E Intruders attacked and heavily damaged two Iraqi patrol boats in the northern Persian Gulf near al-Fāw (al-Fāo) Peninsula.

8 FEBRUARY • A-6E Intruders attacked and neutralized Iraqi training frigate *Ibn Marjid* (507) at Cor al Zubayr, because she was colocated with a TNC 45–class patrol boat capable of firing surface-to-surface variants of Exocet missiles.

S-3B Vikings of VS-29 from *Abraham Lincoln* (CVN 72) fly over burning Kuwaiti oil fields, c. 1991.

9 FEBRUARY • After two attacks against Iraqi troops, an F/A-18D Hornet forward air controller marked enemy soldiers dug into a revetment as new targets. An AV-8B, flown by Capt. Russell A. C. Sanborn, USMC, of VMA-231, made a run on the Iraqi troops, but an enemy surface-to-air missile shot down the Harrier II and Sanborn was captured.

14 FEBRUARY • *America* (CV 66) transited the Strait of Hormuz en route to the Persian Gulf. The next day, after her sail of almost 2,000 miles around the Arabian Peninsula, she became the first carrier during the Persian Gulf War to conduct strikes from both sides of the peninsula.

15 FEBRUARY • Marines from HMLA-369 launched their first AGM-114 Hellfire air-to-surface missile in battle using the Night Eagle laser system.

18 FEBRUARY • An Iraqi mine damaged the forward section of amphibious assault ship *Tripoli* (LPH 10), the flagship of minesweeping clearance operations in the northern gulf. Crewmembers contained the flooding and the ship continued fighting for five days before sailing to a drydock at Bahrain for a month of repairs. Four men sustained injuries. A Manta mine detonated beneath the stern on the port side of cruiser *Princeton* (CG 59), but the crew saved the ship. Battleship *Missouri* (BB 63) turned away from the minefield barely 3,000 yards before she entered the danger zone. MH-53Es swept limited channels through Iraqi minefields, the Sea Dragons moved more rapidly than ships and accordingly covered more water.

20 FEBRUARY • The S-3Bs of VS-32, embarked on board *America* (CV 66), became the first Vikings to bomb and destroy an enemy vessel when they sank an Iraqi gunboat.

20 FEBRUARY • By this point in the fighting, AV-8B Harrier IIs of VMA-331 had flown 243 sorties along the Iraqi borders and throughout Kuwait.

23 FEBRUARY • Six carriers concentrated their power against the Iraqi forces: *Midway* (CV 41), *Ranger* (CV 61), *America* (CV 66), and *Theodore Roosevelt* (CVN 71) sailed in the Persian Gulf; while *Saratoga* (CV 60) and *John F. Kennedy* (CV 67) operated in the Red Sea.

23 FEBRUARY • Aircraft from *America* (CV 66) destroyed an Iraqi Silkworm battery after the unsuccessful launch of a surface-to-surface missile at battleship *Missouri* (BB 63).

23 FEBRUARY • The Iraqis shot down and killed Capt. James N. Wilbourn II, USMC, in a VMA-542 AV-8B, during a night bombing run on Iraqi troops.

23 FEBRUARY • The search-and-rescue team from NAS Lemoore, Calif., saved a 19-year-old man who had been missing for five days when they found him at the 6,000-foot level in rugged terrain at the southern edge of Sequoia National Park. The Tulare County Sheriff's Department had requested the team's assistance.

24 FEBRUARY • Operation Desert Sabre—the ground offensive against Iraq—began.

24 FEBRUARY • While the allies continued to experience difficulties directing fixed-wing aircraft through the smoke from burning oil wells, Capt. Randall W. Hammond, USMC, led a division of four AH-1 Cobras on a long-range raid that penetrated Iraqi defenses north of Objective Ice Tray near Ali Al Salem Airfield, Kuwait. OV-10 Broncos coordinated the Cobras and laser-designated a column of Iraqi T-72 main battle tanks. The Cobras knocked out many vehicles with BGM-71 TOW (tube-launched, optically tracked, wire-command-link) antitank missiles and eight AGM-114 Hellfire air-to-surface missiles. Capt. Steven R. Rudder, USMC, led the second section and raked the surviving Iraqis with 2.75-inch rockets and 20mm rounds.

24 FEBRUARY • Iraqi troops emerged from the smoke and early morning fog to counterattack Marines of Task Force Papa Bear. An OV-10 Bronco directed Capt. Randall W. Hammond, USMC, and a division of four AH-1 Cobras that had refueled at a forward arming and refueling point, onto the advancing Iraqis. The Marines left burning tanks and armored vehicles from 2.75-inch rockets, 16 AGM-114 Hellfire air-to-surface missiles, and 20mm fire. The Cobras rearmed, refueled, and returned, but the enemy capitulated.

24 FEBRUARY • Marine Aircraft Group 16 helicopters lifted Marines of Task Force X-Ray toward positions to protect the flank of the 1st Marine Division as it advanced inland. High winds blew a massive cloud of dust into the path of approaching aircraft as the lead AH-1Ws and Zs escorted four following waves of 10 to 12 CH-46 Sea Knights and CH-53 Super Stallions each. Heavy Iraqi fire over the landing zone forced some Cobras and Vipers into the path of the inbound transports. Despite the confusion and near misses, no aircraft were lost. The mission diverted and some helicopters returned to Saudi fields at Lonesome Dove AB near Al Khanjar and to Kibrit, while others low on fuel landed in the desert.

25 FEBRUARY • An Iraqi hand-held surface-to-air missile shot down Capt. John S. Walsh, USMC, in a VMA-542 AV-8B Harrier II, near Al Jaber Airfield, Kuwait. Walsh ejected between the opposing forces, but advancing Marines rescued and transferred him to an HMLA-369 UH-1N Iroquois, which returned him to Lonesome Dove AB, Saudi Arabia.

25 FEBRUARY • An Iraqi infrared surface-to-air missile shot down Maj. Joseph J. Small III, USMC, and Capt. David M. Spellacy, USMC, of VMO-1 in an OV-10A Bronco during a forward air control mission. Spellacy died and Small was captured.

26 FEBRUARY • Commander Seventh Fleet/Naval Forces Central Command Vice Adm. Stanley R. Arthur ordered amphibious diversions at Būbiyān and Faylakā Islands to delay the retreat of routed Iraqi troops from Kuwait City. Marine helicopters flew from amphibious assault ships *Iwo Jima* (LPH 2), *Guam* (LPH 9), and *Nassau* (LHA 4), rendezvoused with A-6E Intruders and EA-6B Prowlers, and collectively strafed and bombed Iraqi troops dug in on the islands. In the interim, most of the retreating enemy fled toward Basra along a highway in hundreds of military and civilian vehicles. The Iraqis moved through kill boxes assigned to Carrier Air Wing 2, embarked on board *Ranger* (CV 61). Aircraft dropped aerial mines to partially block their escape creating what journalists dubbed the "Highway of Death." Some panicked and drove off the road into the desert only to become mired in the sand, but most

An F-14A Tomcat of VF-114 off Abraham Lincoln (CVN 72) patrols over Kuwait City with Kuwait Towers as a prominent landmark, c. 1991.

dismounted and fled there on foot. Air strikes killed several hundred of them and destroyed an estimated 1,400 tanks, armored vehicles, jeeps, cars, buses, and tractor-trailers.

27 FEBRUARY • F/A-18A/C Hornets and A-6E Intruders operating from *Ranger* (CV 61), *America* (CV 66), and *Theodore Roosevelt* (CVN 71) flew more than 600 combat missions against Iraqi troops, primarily to disrupt an orderly retreat from the advancing coalition forces.

27 FEBRUARY • At 2100 EST, President George H. W. Bush declared that the allies had liberated Kuwait, ending the Persian Gulf War. At midnight EST, all U.S. and coalition forces were to suspend further offensive combat operations.

27 FEBRUARY • The RQ-2A Pioneer remotely piloted vehicle flying from battleship *Wisconsin* (BB 64) detected two boats purportedly filled with Iraqi secret policemen who attempted to flee from Faylakā Island. Controllers directed bombers on a strike that sank the boats.

27 FEBRUARY • Two or more Iraqi surface-to-air missiles shot down and killed Capt. Reginald C. Underwood, USMC, in a VMA-331 AV-8B, while he led a section of four Harrier IIs from amphibious assault ship *Nassau* (LHA 4) against Iraqi troops along the northern highway from Kuwait City.

27 FEBRUARY • The RQ-2A Pioneer remotely piloted vehicle from battleship *Wisconsin* (BB 64) spotted Iraqi

stragglers on Faylakā Island. Battleship *Missouri* (BB 63) had previously bombarded the island, and when the Pioneer flew over at low level with its recognizable noisy engine, the Iraqis anticipated that they were about to receive additional 16-inch gunfire. Forty men then surrendered to the Pioneer as it flew over their position.

3 MARCH • Loudspeaker equipped CH-46 Sea Knights rounded up surrendering Iraqi troops on Faylakā Island. Helicopters ferried the prisoners to amphibious transport dock *Ogden* (LPD 5) for further transport to Saudi prisoner of war camps.

3 MARCH • The Iraqis agreed to a ceasefire during deliberations at Safwan Airfield, Iraq.

4 MARCH • The Iraqis released POWs including eight naval aviators: Lt. Col. Clifford M. Acree, USMC; Capt. Michael C. Berryman, USMC; CWO4 Guy L. Hunter, USMC; Capt. Russell A. C. Sanborn, USMC; Lt. Lawrence R. Slade; Maj. Joseph J. Small III, USMC; Lt. Robert Wetzel; and Lt. Jeffrey N. Zaun. Their captors turned the prisoners over to U.S. officials through the International Committee of the Red Cross near the Jordanian Ruwayshid border station. The men were flown to hospital ship *Mercy* (T-AH 19) moored at Bahrain, and five days later, a Boeing 737, designated Freedom Zero-One, flew them to the United States.

4 MARCH • *America* (CV 66) departed the Persian Gulf and returned to the Red Sea. The ship had launched 3,008 combat sorties during the war.

6 MARCH • Amphibious assault ship *New Orleans* (LPH 11), with HM-14 embarked, led minesweeping activities with four minecountermeasures ships.

6 MARCH • "Aggression is defeated," President George H. W. Bush reported to a joint session of Congress. "The war is over."

8 MARCH • Lt. Kathleen P. Owens of VRC-40 became the last pilot to land on board *Lexington* (AVT 16), following a Navy decision to decommission the ship. Owens thus became the first female pilot to attain that distinction on a carrier. *Lexington* also had become the first carrier with female crewmembers. The C-2A Greyhound flight crew included Lt. Paul Villagomez, AM1 Donnie E. Kicklighter, and AD2 Mark F. Pemrick.

11 MARCH • *Midway* (CV 41) and *Saratoga* (CV 60) departed the Persian Gulf for their homeports—*Midway* to Yokosuka, Japan, and *Saratoga* via the Suez Canal to NS Mayport, Fla.

12 MARCH • *John F. Kennedy* (CV 67) transited the Suez Canal into the Mediterranean.

13 MARCH • By executive order, President George H. W. Bush established the Southwest Asia Service Medal for award to veterans who had served in the Persian Gulf area during the war.

16 MARCH • *America* (CV 66) visited Hurghada, Egypt, for five days. The visit marked her first port call of the deployment after 78 consecutive days at sea.

28 MARCH • *John F. Kennedy* (CV 67) and *Saratoga* (CV 60) arrived at their homeports of NS Norfolk, Va., and NS Mayport, Fla., respectively. They were the first carriers involved in the Persian Gulf War to return to the United States.

29 MARCH • *Kitty Hawk* (CV 63), her flight deck modified to accommodate F/A-18 Hornets, sailed for sea trials from the Philadelphia Naval Shipyard, Pa. This marked the first time that the ship had moved under her own power since commencing a service life extension program overhaul 3 ½ years before.

1 APRIL • *Theodore Roosevelt* (CVN 71) transited Bab-al-Mandeb and began three weeks of operations in the Red Sea.

3 APRIL • *America* (CV 66) transited the Suez Canal into the Mediterranean.

6 APRIL • The Iraqis accepted UN terms for a formal ceasefire.

6 APRIL • HC-4 detachments deployed from NAS Sigonella, Sicily and Hurghada, Egypt for Diyarbakir, Turkey. Two days later, they flew Secretary of State James A. Baker III, and his party of 60 along the Turkish and Iraqi border to a remote Kurdish refugee camp. In March, the Kurds rose

A-7E Corsair IIs of VA-72 return home from *John F. Kennedy* (CV 67) after their service during Operation Desert Storm. The return of VA-46 along with VA-72 marks the final operational deployment of Corsair IIs.

against Saddam Hussein, but the Iraqis recaptured the main towns and cities of Kurdistan. The Turk refusal to allow refugees entry left many Kurds stranded in the mountains during bitterly cold weather. The coalition initiated Operation Provide Comfort to aid the refugees.

8 APRIL • *America* (CV 66) transited the Strait of Gibraltar into the Atlantic.

9 APRIL • HC-4 returned to Incirlik, Turkey, to become the primary and first heavy lift helicopter combat logistics support asset for Operation Provide Comfort to aid Kurdish refugees.

9 APRIL • The UN Security Council approved Resolution 689 establishing a UN-Iraq-Kuwait Observer Mission to monitor Resolution 687 (the cease-fire). The Persian Gulf War ended at 1000 EDT two days later when the council issued Resolution 687.

15 APRIL • NAVAIR established the HH-1N designation for many of the H-1 Iroquois helicopters. The redesignation was to be completed by 30 September.

17 APRIL • *Midway* (CV 41) returned from the Persian Gulf War to Yokosuka, Japan.

17 APRIL • Secretary of Defense Richard B. Cheney signed an order directing military commanders to begin implementing the president's plan, announced the previous day at a press conference, which called for the establishment of several encampments in northern Iraq. United States,

A TA-4J Skyhawk of VC-5 departs NAS Cubi Point, Philippines, during the eruption of Mount Pinatubo, June 1991.

British, French, and Turkish service members had been delivering relief supplies to the refugees. The Sixth Fleet's 24th Marine Expeditionary Unit commenced operations 17 hours after the arrival of the Marines at the Silopi, Iraq, humanitarian service support base. A similar forward base was also established at Diyarbakir, Turkey.

18 APRIL • *America* (CV 66) returned from the Persian Gulf War to NS Norfolk, Va.

19 APRIL • *Theodore Roosevelt* (CVN 71) transited the Suez Canal and joined vessels including amphibious assault ship *Guadalcanal* (LPH 7) operating off the Syrian and Turkish coasts in an area northeast of Cyprus. These vessels supported the 7,000 American troops of Combined Joint Task Force Provide Comfort that helped Kurdish refugees displaced by Iraqi attacks after the Persian Gulf War. During the following days, aircraft flew 820 air cover, tactical photographic reconnaissance, and close air support sorties from *Theodore Roosevelt*. VF-84 F-14A Tomcats provided more than 6,000 aerial photographs to allied troops in northern Iraq, with VS-24 S-3B Vikings delivering them using an innovative system of sonobuoy drops. The images identified Iraqi troop emplacements, armored concentrations, early warning sites, and command posts, in addition to providing valuable assistance in locating widely scattered groups of Kurds fleeing from Iraqi atrocities.

1 MAY • The Navy redesignated F-14A Tomcats that had undergone the A+/A(Plus) conversion as F-14Bs.

12 MAY • Amphibious assault ship *Tarawa* (LHA 1) and seven ships of an amphibious assault group arrived off Bangladesh for Operation Sea Angel—large-scale relief efforts in the wake of a cyclone that devastated the country on 30 April. CH-46 Sea Knights, CH-53 Super Stallions, UH-1N Iroquois, and AH-1T Sea Cobras carried food and medical supplies to victims, and rescued people isolated by flood waters.

15 MAY • An ES-3A made the first flight of a Shadow at Lockheed's Palmdale, Calif., plant.

22 MAY • The House Armed Services Committee voted to allow women to fly combat missions in Air Force, Navy, and Marine Corps aircraft. The measure was included in an amendment to the 1992 defense budget.

23 MAY • Commander Naval Forces Middle East declared the Kuwaiti port of Ash-Shuwaikh free of ordnance and Iraqi mines. The action made the facility the fifth and final operation in a series of port clearing missions by Allied forces.

30 MAY • *Forrestal* (CV 59) deployed from NS Mayport, Fla., to relieve *Theodore Roosevelt* (CVN 71) in the eastern Mediterranean.

3 JUNE • An LC-130 from VXE-6 at NAS Point Mugu, Calif., completed the first mid-winter medical evacuation from Antarctica since 1966, flying a member of New Zealand's Division of Science and Industrial Research from McMurdo Station.

12 JUNE • Mount Pinatubo on Luzon in the Philippines erupted. Typhoon Yunya added to the devastation when it slammed inland with fierce winds and rain. The eruption and typhoon killed more than 300 people and displaced more than 300,000. *Midway* (CV 41), *Abraham Lincoln* (CVN 72), and ships from Amphibious Readiness Group Alpha led by amphibious assault ship *Peleliu* (LHA 5) participated in Operation Fiery Vigil—the evacuation of victims. *Abraham Lincoln* transported 4,323 people including Navy and Air Force dependents from Subic Bay, NAS Cubi Point, and Clark AB to Cebu City, Cebu, for further evacuation to Guam and the continental United States. Additional squadrons that assisted humanitarian efforts through 27 June included VFA-94, VC-5, and HSL-47.

14 JUNE • *Forrestal* (CV 59) relieved *Theodore Roosevelt* (CVN 71) in the eastern Mediterranean, which enabled the latter to pass westward through the Strait of Gibraltar two days later.

18 JUNE • Amphibious assault ship *Tripoli* (LPH 10) turned over her duties as flagship for Commander, Mine Countermeasures Group, to cruiser *Texas* (CGN 39). The group had located and destroyed nearly 1,200 mines in the Persian Gulf.

23 JUNE • Amphibious assault ship *Tripoli* (LPH 10) transited the Strait of Hormuz en route to San Diego, Calif.

28 JUNE • *Theodore Roosevelt* (CVN 71) returned to NS Norfolk, Va., the last carrier involved in the Persian Gulf War to return to her homeport.

10 JULY • The president approved a list of military base closures proposed by the Defense Base Closure and Realignment Commission. This included NAS Moffett Field, Calif.; NAS Chase Field, Texas; and MCAS Tustin, Calif.

13 JULY • *Nimitz* (CVN 68) turned over operations in the Persian Gulf to *Abraham Lincoln* (CVN 72) and then transited the Strait of Hormuz.

29 JULY • Grumman delivered the last scheduled production EA-6B Prowler to the Navy during ceremonies at its Calverton, N.Y. plant.

30 JULY • After 40 months of repairs and new equipment, *Kitty Hawk* (CV 63) left her berth at the Philadelphia Naval Shipyard, Pa., as the fourth carrier overhauled at that yard under the Service Life Extension Program.

31 JULY • The Senate voted overwhelmingly to overturn a 43-year-old law that had barred women from flying warplanes in combat. The new measure, which was an amendment to the military budget bill for the 1992 fiscal year, permitted—but did not require—the armed forces to allow women to fly combat missions.

19 AUGUST • The Naval Air Reserve celebrated its 75th anniversary.

27 AUGUST • A ceremony marked the introduction of SH-60F Seahawks into operational service with the Atlantic Fleet at NAS Jacksonville, Fla. HS-3 became the first East Coast squadron to trade SH-3H Sea Kings for the new helicopters.

27 AUGUST • The last U.S. Navy participants of the Persian Gulf War arrived home including amphibious assault ship *New Orleans* (LPH 11), with HMM-268 embarked.

6 SEPTEMBER • The first naval flight of an X-31A took place at Patuxent River, Md. The Advanced Research Projects Agency had developed the thrust-vectoring technology aircraft.

7 SEPTEMBER • After the banquet of the annual Tailhook Association convention at the Las Vegas Nevada Hilton, groups of naval aviators gathered overnight for private parties across the hotel. Women caught in the bacchanal proceedings accused conventioneers of misconduct ranging from verbal to physical/sexual abuse. The scandal rocked the fleet as widespread media attention generated a panel to investigate the allegations, from which the Navy initiated an "intense campaign" to increase awareness throughout the fleet, including new policies to address sexual misconduct and harassment.

27 SEPTEMBER • The Navy retired A-3s from active duty during ceremonies hosted by VAQ-33 at NAS Key West, Fla. The attendees included Ed Heinemann, who had designed the Skywarrior. The EA-3Bs of VQ-2 became the last operational "Whales."

27 SEPTEMBER • In a televised address, President George H. W. Bush announced that the United States would unilaterally reduce nuclear arms including the withdrawal of all tactical nuclear weapons from Navy ships. The order's provisions identified the withdrawal of Navy air-deliverable nuclear weapons from aircraft carriers and land-based naval aircraft such as patrol planes, and the storage or destruction of the weapons.

1 OCTOBER • NWC China Lake, Calif.; NADC Warminster, Pa.; and Naval Ordnance Missile Test Station, White Sands, N.M.; were transferred into NAVAIR. The action was in preparation for the consolidation of all naval air activities under the Naval Air Warfare Center as an activity of NAVAIR.

18 OCTOBER • An F/A-18 Hornet successfully launched an improved version of an AGM-84 SLAM (Standoff Land Attack Missile) at White Sands Missile Range, N.M.

20 OCTOBER • A fire broke out on a hillside above California State Highway 24 near the entrance to Caldecott Tunnel, and spread from the crest of the Oakland–Berkley Hills. Naval aviation commands at NAS Alameda, NAS Moffett Field, and NS Treasure Island assisted firefighters. HS-85 provided airlift support with SH-3 Sea Kings and reservists were put on alert.

8 NOVEMBER • *Lexington* (AVT 16) was decommissioned at NAS Pensacola, Fla. She had been commissioned on 17 February 1943, and subsequently served as a training carrier assigned to the Naval Air Training Command at Pensacola.

12 NOVEMBER • A ceremony at NAS Corpus Christi, Texas, marked the establishment in September of the Naval Air Training Maintenance Support Activity, Capt. David R. Timmons commanding. The establishment culminated a trend of more than 15 years toward maintaining training aircraft with contract civilians in place of service members.

4 DECEMBER • A T-45A landed on board *John F. Kennedy* (CV 67) in the Atlantic to make the type's first carrier landing.

1992

1 JANUARY • Naval Air Warfare Center (NAWC) was established, Commander NAVAIR Rear Adm. George H. Strohsahl Jr. commanding. The center was to consist of aircraft (AD) and weapons (WD) divisions.

2 JANUARY • The Naval Air Warfare Center Aircraft Division—NAWC (AD)—was established at NAS Patuxent River, Md., Rear Adm. George H. Strohsahl Jr. commanding (acting). Under the realignment, NAS Patuxent River reported to Commander NAWC (AD). The division assumed the responsibility for aircraft, engines, avionics, and aircraft support, and absorbed the activities of Naval Air Development Center, Warminster, Pa.; Naval Air Engineering Center, Lakehurst, N.J.; Naval Air Propulsion Center, Trenton, N.J.; Naval Avionics Center, Indianapolis, Ind.; and Naval Air Test Center, Patuxent River, Md. Planners intended to consolidate Warminster at Patuxent River.

2 JANUARY • The Flight Test and Engineering Group (FTEG) was established within the Naval Air Warfare Center Aircraft Division, Capt. Robert Parkinson, director. The disestablishment of NATC Patuxent River, Md., occurred simultaneously, and the previous NATC directorates became directorates under FTEG.

9 JANUARY • The Department of Defense announced the acceptance of a Saudi offer to award its Kuwait Liberation Medal to members of the U.S. armed forces who had directly participated in Operation Desert Storm. King Fahd bin Abdul Aziz of Saudi Arabia had established the award to honor the coalition troops that liberated Kuwait during the Persian Gulf War.

13 JANUARY • In a memorandum, Secretary of the Navy Henry L. Garrett III directed the integration of VMFAs and VMAQs into Navy carrier air wings, in order to reduce the requirements for F-14 Tomcats, F/A-18 Hornets, and EA-6B Prowlers. Marine tactical squadrons had historically operated from time to time as part of air wings, but the fleet had not institutionalized the concept in any permanent form.

18 JANUARY • VMFA-112, the last operational squadron to fly F-4s, held a retirement ceremony for its final Phantom II at NAS Dallas, Texas. On 10 January, Col. John Brennan,

USMC, made the squadron's last operational flight of the aircraft. The first flight of a Navy F-4B (F4H-1) had occurred on 27 May 1958.

19 JANUARY • The Naval Aviation History Office commemorated its 50th anniversary by preparing to move its archives to the Washington Navy Yard, D.C.

21 JANUARY • The Naval Air Warfare Center Weapons Division—NAWC (WD)—was established at Point Mugu, Calif., Rear Adm. William E. Newman commanding. Headquartered at Point Mugu and China Lake with a facility at White Sands, N.M., it assumed responsibility for aircraft weapons and weapons systems, simulators, and targets. NAWC (WD) absorbed the activities of Pacific Missile Test Center Point Mugu, Calif.; NWC China Lake, Calif.; Naval Weapons Evaluation Facility, Albuquerque, N.M.; and Naval Ordnance Missile Test Station, White Sands, N.M.

21 JANUARY • NAS Point Mugu, Calif., was disestablished, and NAWS Point Mugu took its place.

22 JANUARY • NAWS China Lake, Calif., was established at the site of the former Naval Weapons Center.

23 JANUARY • The first production Navy T-45A Goshawk rolled out at McDonnell Aircraft, St. Louis, Mo.

31 JANUARY • The Navy took delivery of the last production A-6E from Grumman, closing out more than 31 years of Intruder production. The aircraft was scheduled for delivery to VA-145 at NAS Whidbey Island, Wash.

4 FEBRUARY • Assistant Secretary of Defense (Public Affairs) Louis A. Williams announced to the press Navy plans to attain a goal of 12 active aircraft carriers.

5 FEBRUARY • *Forrestal* (CV 59) was redesignated a training carrier at her new homeport of NAS Pensacola, Fla. The action dropped the Navy's total of active carriers to 14 plus *Forrestal*, which was scheduled to relieve *Lexington* (AVT 16).

6 FEBRUARY • HSL-37 held a ceremony at NAS Barbers Point, Hawaii, to mark the beginning of its transition from SH-2F Seasprites to SH-60B Seahawks.

11 FEBRUARY • VA-34 became the first fleet squadron equipped with A-6E Intruders to fire an AGM-65E laser-guided Maverick air-to-surface missile, during an exercise in the Persian Gulf.

14 FEBRUARY • VMFA(AW)-225 accepted its first fleet two-seat F/A-18D Hornet, the first aircraft capable of operating the advanced tactical air reconnaissance pod system, at MCAS El Toro, Calif.

24 FEBRUARY • McDonnell Douglas and British Aerospace reached an exclusive partnership agreement, pending U.S. government approval, to work together to develop and produce advanced short takeoff/vertical landing strike fighter aircraft.

4 MARCH • The Navy stood up Naval Air Warfare Center Aircraft Division Patuxent River, Md., Rear Adm. (sel.) Barton D. Strong commanding.

4 MARCH • VAW-113 at NAS North Island, Calif., became the first fleet squadron to accept delivery of an E-2C Group II Hawkeye equipped with APS-145 radar.

10 MARCH • The Department of Defense announced a plan to withdraw from the Philippine Naval Facility, Subic Bay, Luzon. Major milestones in the plan included the closure of Department of Defense dependents schools in June, transfer of the majority of dependents through the summer, relocation of VRC-50 to Andersen AFB, Guam, in August, disestablishment of the Ship Repair Facility in September, and the formal turnover of the facility in December.

21 MARCH • *Independence* (CV 62) sailed from Subic Bay, Philippines, the last carrier scheduled to call at the base before its closure.

31 MARCH • NASA announced the selection of Lt. Cmdr. Wendy B. Lawrence among the agency's new astronauts. Lawrence became the first female line officer and naval aviator astronaut.

1 APRIL • The Fleet Electronic Warfare Support Group (FEWSG) merged with the Fleet Deception Group Atlantic to form the Fleet Practical Readiness Group. The new command, based at Naval Amphibious Base, Little Creek, Va., assumed operational control of FEWSG's electronic aggressor squadrons VAQ-33, -34, and -35.

This E-6A Mercury, BuNo 163918, is one of 16 of the strategic communications relay aircraft type. The Navy subsequently upgraded all of these jets to E-6B standard.

1 APRIL • The Chief of Naval Operations directed the retirement of the remaining A-7 Corsair IIs in active inventory by 1 April. The service subsequently partially reversed the decision in order to retain 11 TA-7Cs and three EA-7Ls with NAWC as chase aircraft for various activities, including the BGM-109 Tomahawk missile program.

8 APRIL • McDonnell Douglas delivered the 6,000th production AGM-84 Harpoon air-to-surface missile to the Navy during a ceremony at the company's St. Charles, Mo., manufacturing facility.

13 APRIL • Volcanic activity from Mount Etna pushed a lava flow toward the town of Zafferana, Sicily. The Italian authorities requested assistance, and two CH-53Es of HMM-226, embarked on board amphibious assault ship *Inchon* (LPH 12), augmented by another Super Stallion of HC-4 flying from NAS Sigonella, placed 8,000-pound concrete blocks in the path of the lava. The plan, developed by geologists, succeeded and forced open another lava vent further down the mountain and away from the town. Italian troops supplemented these measures with explosives to divert lava streams. The relief operations continued until 25 April.

1 MAY • The first class of flight instructors from VT-21, assigned to train the next generation of naval aviators in T-45As, began their own training in Goshawks.

1 MAY • Strategic Communications Wing 1 was established at Tinker AFB, Okla. The wing reported operationally to the Strategic Command and administratively to CINCPAC via AirPac. The wing's mission was command and control of fleet ballistic missile submarines, and the coordination of all Take Charge and Move Out (TACAMO) operations and liaison with the host, Tinker. Its role later expanded to include the manning, training, and equipping of the Navy squadrons responsible for command and control communications with the nuclear triad. The Navy's two TACAMO squadrons, VQ-3 and -4, later relocated to Tinker.

7 MAY • A Take Charge and Move Out EC-130 began the final deployment of the modified Hercules with VQ-4 from NAS Patuxent River, Md. The squadron had begun to transition from EC-130Qs to E-6A Mercury strategic communications relay aircraft, which used Boeing 707-320 airframes.

This V-22 Osprey test aircraft, BuNo 163914, was the fourth built. It crashed during a demonstration flight near MCAS Quantico, Va., 20 July 1992, killing seven.

22 MAY • VQ-5 took delivery of its first ES-3A at NAS Agana, Guam, marking the operational service entry of the electronic reconnaissance version of the Vikings.

31 MAY • Aircraft of VS-21 attached to *Independence* (CV 62) assisted the rescue of 19 crewmen from sinking Panamanian cargo ship *Great Eagle*, 580 nautical miles off the coast of Diego Garcia, British Indian Ocean Territory.

27 JUNE • VT-21 became operational as the first squadron to instruct trainees on T-45A Goshawks.

1 JULY • Helicopter Sea Control Wing 3 was redesignated Helicopter Anti-Submarine Light Wing 1, at the same time absorbing Helicopter Sea Control Wing 1. The action placed all Atlantic Fleet HSLs under a single wing.

10 JULY • The Navy received the last production F-14D, marking the end of 22 years of Tomcat production.

20 JULY • The fourth prototype V-22A crashed into the Potomac River on approach to MCAF Quantico, Va., killing three Marines and four Boeing employees. The Navy and

With rotated wing, engine pods, and folding rotor blades, the MV-22A Osprey makes a compact package for shipboard storage.

the Marine Corps grounded the remaining three prototype Ospreys pending the results of the mishap investigation. Investigators blamed the accident on mechanical failure caused by a flash fire, engine failure, and a failed drive shaft.

22 JULY • In a Pentagon press conference, Acting Secretary of the Navy Sean O'Keefe and Chief of Naval Operations Adm. Frank B. Kelso II announced a sweeping reorganization of OPNAV staff. The plan, developed by Adm. Kelso, aligned the staff with the Joint Staff, effective 1 January 1993. This included the merger of the assistant chiefs of Naval Operations for Submarine Warfare (OP-02), Surface Warfare (OP-03), Air Warfare (OP-05), and Naval Warfare (OP-07) into one staff under DCNO for Resources, Warfare Requirements and Assessment (code N8). Director, Air Warfare (N88), became the new designation assigned to Air Warfare (OP-05).

24 JULY • *Saratoga* (CV 60) and amphibious assault ship *Iwo Jima* (LPH 2) carried out sustained operations in the Adriatic Sea because of fighting in Bosnia-Herzegovina, Yugoslavia.

5 AUGUST • The Pentagon revealed that it would ask contractors to develop a less expensive version of the V-22 Osprey.

10 AUGUST • The OPNAV staff commenced the administrative conversion to N-codes.

12 AUGUST • CINCPAC Adm. Robert J. Kelly announced the formation of six carrier battle groups for service within the Pacific Fleet.

22 AUGUST • Hurricane Andrew ravaged the Bahamas, Florida, and Louisiana, killing at least 65 people and leveling Homestead AFB, Fla. Naval aviation commands and ships with supplies and repair capabilities responded to the crisis during the succeeding days.

23 AUGUST • Following the Persian Gulf War, the UN had established two no-fly zones over Iraq. In April 1991, it authorized the northern zone to protect the Kurds from the Iraqis. Air Force aircraft predominated during the patrols over the north during these flights, designated Operation Northern Watch, mainly from Incirlik AB near Adana, Turkey. Meanwhile, the Iraqis lashed out at Shi'as and the Madan (Marsh Arabs) in southern Iraq. *Independence* (CV 62) entered the Persian Gulf prepared to enforce the southern no-fly zone established by the UN below the 32nd parallel. The coalition later extended the zone to the 33rd parallel to grant pilots more tactical options and further limit the Iraqis. Carriers usually launched patrols over the south during what became Operation Southern Watch, and in time the two zones covered half of Iraq.

26 AUGUST • President George H. W. Bush announced the commencement within 24 hours of allied aerial surveillance over southern Iraq, which included the provision to shoot down Iraqi aircraft that flew south of the 32nd parallel. The patrols began the next day that included 20 aircraft of Carrier Air Wing 5, embarked on board *Independence* (CV 62), together with AV-8B Harrier IIs of VMA-211 operating from amphibious assault ship *Tarawa* (LHA 1). *Saratoga* (CV 60) and amphibious assault ship *Iwo Jima* (LPH 2) also participated.

28 AUGUST • Typhoon Omar devastated Guam. Elements of Joint Task Force Marianas including HC-5, VQ-1 and -5, VRC-50, VR-59, and NAS Agana, coordinated the relief efforts.

3 SEPTEMBER • An unidentified faction fired a surface-to-air missile that shot down an Italian Air Force Aeritalia G.222 over (former) Yugoslavia. Two CH-53E Super Stallions and two AH-1J Sea Cobras operating from amphibious assault ship *Iwo Jima* (LPH 2), sailing in the Adriatic in support of UN Bosnian relief efforts, aided in the search for survivors and wreckage. The helicopters drew ground fire but escaped undamaged.

4 SEPTEMBER • Cmdr. Linda V. Hutton assumed command of VRC-40, becoming the first woman to command an Atlantic Fleet aviation squadron.

11 SEPTEMBER • Hurricane Iniki devastated more than 75 percent of Kauai, Hawaii. Although the storm slightly damaged the island's Barking Sands Pacific Missile Range Facility, it served as a hub of relief flight operations. Volunteers from NAS Barbers Point and tenant commands assisted victims, and amphibious assault ship *Belleau Wood* (LHA 3) sailed to Kauai with troops and relief supplies. Additional commands that responded included HSL-37 and VP-1.

11 SEPTEMBER • The plight of famine-wracked Somalians was made worse when marauding gangs blocked distribution of humanitarian supplies. The UN consequently began Operation Provide Relief—the air delivery of food from Mombassa, Kenya, to Kenyan and Somali sites. On this date, President George H. W. Bush dispatched amphibious assault ship *Tarawa* (LHA 1) and amphibious transport docks *Fort Fisher* (LPD 40) and *Ogden* (LPD 5) to the area. On 17 September, *Tarawa* arrived off Somalia to provide command and control for Air Force flight operations at Mogadishu and for possible search and rescue missions. The ship's embarked AV-8B Harrier IIs of VMA-221, AH-1W Super Cobras and UH-1N Iroquois of HMLA-367, CH-46E Sea Knights of HMM-161, and CH-53E Super Stallions of HMH-466, protected the insertion of UN relief teams and Pakistani security troops into Mogadishu. *Tarawa* departed on 29 September.

14 SEPTEMBER • *Forrestal* (CV 59) arrived from NAS Pensacola, Fla., at Philadelphia Naval Shipyard, Pa., to begin a 14-month, $157 million conversion to a training carrier. In early 1993, the Navy decided instead to mothball *Forrestal* at Philadelphia, leaving the fleet without a dedicated training carrier.

16 SEPTEMBER • *Ranger* (CV 61) arrived in the Persian Gulf to support Operation Southern Watch patrols over the Iraqi no-fly zone.

28 SEPTEMBER • Secretary of the Navy Sean O'Keefe, Chief of Naval Operations Adm. Frank B. Kelso II, and Commandant of the Marine Corps Gen. Carl E. Mundy Jr. signed ". . . From the Sea," a Navy/Marine Corps strategy

Amphibious assault ship *Tripoli* (LPH 10) provides humanitarian relief to refugees at Mogadishu, Somalia, during her deployment to support Operation Restore Hope, 3 December 1992–2 February 1993.

developed in response to the shift from global to regional threats against U.S. national security. The plan emphasized littoral warfare and maneuver from the sea.

30 SEPTEMBER • AirLant's four functional wings—Helicopter Wings, Atlantic; Patrol Wings, Atlantic; Strike Fighter Wings, Atlantic; and Tactical Wings, Atlantic—were disestablished in a sweeping change that eliminated an entire echelon of command in the administrative structure of East Coast naval aviation.

30 SEPTEMBER • The United States turned the station at Subic Bay over to the Philippines.

7 OCTOBER • *John F. Kennedy* (CV 67) deployed to the Mediterranean to relieve *Saratoga* (CV 60) during ongoing tensions resulting from the civil war in Yugoslavia, and the confrontation with Iraq.

15 OCTOBER • HS-14 became the first U.S. squadron to land aircraft on the deck of a Russian warship, when an SH-3H Sea King set down onto *Udaloy*-class destroyer *Admiral Vinogradov* (DDG 554) during joint exercises in the Persian Gulf.

22 OCTOBER • The Department of Defense announced the award of a contract to the Bell-Boeing Joint Program Office for the modification and test of a V-22 derivative, a scaled-down version of the Osprey tilt-rotor.

24 OCTOBER • The Atlantic Fleet was reorganized into six carrier battle groups. Previous plans had called for forming groups for specific workups and deployments.

30 OCTOBER • NAS Cubi Point, Philippines, was disestablished.

3 NOVEMBER • The Presidential Commission on the Assignment of Women in the Armed Forces recommended against allowing women to fly in combat, but for allowing them to serve in some combat ships.

7 NOVEMBER • In support of Operation Provide Promise—UN efforts to supply Bosnia-Herzegovina with humanitarian supplies—amphibious assault ship *Guam* (LPH 9), with HMM-261 embarked, relieved amphibious assault ship *Iwo Jima* (LPH 2), with HMM-365 on board, in the Adriatic.

14 NOVEMBER • The RIM-116A RAM (Rolling Airframe Missile), a lightweight quick-reaction fire-and-forget system designed to counter antiship missiles attacking in waves or streams, was installed on board amphibious assault ship *Peleliu* (LHA 5).

14 NOVEMBER • The Navy transferred *Lexington* (AVT 16) to the city of Corpus Christi, Texas, for use as a memorial/museum ship.

7 DECEMBER • The Navy and McDonnell Douglas Aerospace finalized the $3.715 billion development contract for F/A-18E/Fs. The cost-plus incentive contract covered 7 ½ years of engineering and support activities, including the manufacturing and testing of seven flight test Super Hornets and three ground test airframes.

7 DECEMBER • After her diversion from the Persian Gulf, *Ranger* (CV 61) reached Somali waters to support Operation Restore Hope—UN directed humanitarian aid for the Somalis.

9 DECEMBER • Operation Restore Hope—UN directed humanitarian aid for the Somalis—began. HMM-164, reinforced from amphibious assault ship *Tripoli* (LPH 10), provided the initial Marine helicopter support to the UN peacekeepers.

16 DECEMBER • *Kitty Hawk* (CV 63) deployed five air traffic controllers to cruiser *Leahy* (CG 53) to establish approach control services in support of Operation Restore Hope at Mogadishu, Somalia. An E-2C Hawkeye of VAW-114 picked up approaching aircraft, tracked their flights, and issued advisories from 200 miles out. When the flights reached to within a range of 50 miles, *Leahy* took over and led them to within visual range of the airport ten miles away.

Marines embark CH-46E Sea Knights of HMM-164 on board amphibious assault ship *Tripoli* (LPH 10) during the early stages of Operation Restore Hope, 3 December 1992–2 February 1993.

An SH-60B Seahawk flies past dock landing ship *Rushmore* (LSD 47) en route to amphibious assault ship *Tripoli* (LPH 10), during operations off Somalia in late 1992 or early 1993.

19 DECEMBER • *Kitty Hawk* (CV 63) relieved *Ranger* (CV 61) off Somalia in support of Operation Restore Hope.

27 DECEMBER • In December, Iraqi dictator Saddam Hussein had surreptitiously deployed antiaircraft missile batteries south of the 32nd parallel in violation of the cease-fire accords, warning the coalition that they would shoot down aircraft. On this date, an Air Force F-16D Fighting Falcon shot down an Iraqi MiG-25 with an AIM-120 AMRAAM (Advanced Medium Range Air-to-Air Missile) when the Foxbat violated the southern no-fly zone. *Kitty Hawk* (CV 63) left Somalia and by the New Year had dispatched 51 F-14A Tomcat and F/A-18A Hornet combat air patrol sorties to enforce the Operation Southern Watch no-fly zone.

1993

1 JANUARY • In a reorganization of the OPNAV staff, the position of ACNO (Air Warfare)/(OP-05), held by Rear Adm. Riley D. Mixon, became Director, Air Warfare (N88) and reported to DCNO (Resources, Warfare Requirements and Assessment)/(N8). The N88 billet dropped from a three-star flag officer to a two-star.

13 JANUARY • On 6 January, President George H. W. Bush issued an ultimatum to Iraqi leader Saddam Hussein to remove missiles from the southern no-fly zone within 48 hours. Iraq responded by looting four Silkworm surface-to-surface missiles from a portion of Umm Qasr that they had ceded to the Kuwaitis. On this date, Cmdr. Kevin J. Thomas of VFA-97 led a coalition night strike of 35 aircraft from *Kitty Hawk* (CV 63) joined by 75 additional Air Force, British, and French aircraft against four Iraqi air defense command and control centers, and two concentrations of SA-3 Goa surface-to-air missiles.

17 JANUARY • Iraqi antiaircraft guns and surface-to-air missiles fired at allied aircraft, and enemy fighters darted back and forth across the 36th parallel in an attempt to draw coalition aircraft toward heavier concentrations of air defenses deployed just below the boundary. Meanwhile, cruiser *Cowpens* (CG 63) and destroyers *Hewitt* (DD 966) and *Stump* (DD 978) steaming in the Persian Gulf, and destroyer *Caron* (DD 970) in the Red Sea, launched 42 BGM-109 Tomahawk cruise missiles at the Zaafaraniyah Fabrication Facility, a plant near Baghdad that intelligence analysts suspected of making nuclear weapons parts. At least 30 missiles struck the target area, and Air Force F-15E Strike Eagles bombed the Tallil Station Air Operations Center.

18 JANUARY • *Kitty Hawk* (CV 63) launched F-14A Tomcats, F/A-18A Hornets, and E-2C Hawkeyes from the Persian Gulf to support an Air Force strike against military targets in northern Iraq, in response to Iraqi violations of the UN-imposed no-fly zone. The ship aborted an additional planned strike of 29 aircraft against mobile surface-to-air missiles in southern Iraq when the Iraqis moved the batteries. Meanwhile, *John F. Kennedy* (CV 67) headed to the eastern Mediterranean.

17 FEBRUARY • The Aircraft Carrier Memorial, a ten-foot black obelisk honoring those who have served on board U.S. carriers, was dedicated at the North Embarcadero, San Diego, Calif.

25 FEBRUARY • *John F. Kennedy* (CV 67) entered the Adriatic in support of Operation Provide Promise—UN efforts to supply those displaced by the fighting in Bosnia-Herzegovina with food and supplies.

4 MARCH • *Constellation* (CV 64) departed Philadelphia Naval Shipyard, Pa., as the fifth and final carrier to complete the Service Life Extension Program.

23 MARCH • Amphibious assault ship *Wasp* (LHD 1) arrived off Somalia to support Operation Restore Hope. Her embarked helicopters and AV-8B Harrier IIs of HMM-263 flew sorties in support of Marines deployed ashore.

31 MARCH • Two EP-3E Aries IIs of VQ-2 supported humanitarian air drops over eastern Bosnia-Herzegovina during Operation Provide Promise—UN efforts to supply those displaced by the fighting in Bosnia-Herzegovina with food and supplies.

1 APRIL • Sea Strike Wing 1 was redesignated Sea Control Wing Atlantic, and Air Anti-Submarine Squadrons were redesignated Sea Control Squadrons—but retained the short "VS" designator. The name change reflected the broader and all-encompassing VS mission of these commands, particularly in light of the increased multi-mission versatility of S-3B Vikings.

12 APRIL • NATO and the UN began Operation Deny Flight—the enforcement of a no-fly zone over Bosnia-Herzegovina. Twelve F/A-18 Hornets temporarily shifted from *Theodore Roosevelt* (CVN 71) to NATO operational control. At one point, 26 Navy EA-6B Prowlers operating from Aviano AB Italy provided the primary allied electronic warfare aircraft to suppress enemy air defenses. Marines and sailors of the Mediterranean Amphibious Ready Group provided search and rescue and tactical recovery of aircraft and personnel duties from amphibious assault ship *Saipan* (LHA 2).

Sailors prepare a shipboard variant of the Army's RQ-5 Hunter for launch during testing on board amphibious assault ship *Essex* (LHD 2) in December 1993. Although the tests were positive and encouraging, the Navy did not purchase the RQ-5.

14 APRIL • Former President George H. W. Bush, his wife Barbara, two of their sons, and former Secretary of State James A. Baker III, arrived in Kuwait to participate in ceremonies commemorating the allied victory in the Persian Gulf War. The Kuwaitis arrested and charged 17 men with an attempt to assassinate the president and Kuwaiti Emir (Sheikh) al-Ahmed al-Jaber al-Sabah with a car bomb. On 29 April, the CIA reported that the bomb bore evidence of Iraqi origins. The plot heightened tensions in the region that resulted in additional coalition operations including patrols by naval aircraft.

22 APRIL • An EA-6B Prowler from VAQ-209 fired the first successful over-the-horizon AGM-88 HARM (High-speed Anti-Radiation Missile) using targeting data from a satellite delivered directly to the cockpit. A P-3B Orion of VP-60 assisted.

26 APRIL • VC-6 Detachment 2 carried out the first launch of an unmanned aerial vehicle from an amphibious vessel by operating an RQ-2A Pioneer on board amphibious transport dock *Denver* (LPD 9).

28 APRIL • Secretary of Defense Leslie Aspin lifted the ban on combat flights for women and opened up additional ships to female sailors. He further stated his intention to forward a draft proposal to Congress to remove the last legislative barrier to the assignment of women to combat vessels. Chief

of Naval Operations Adm. Frank B. Kelso II concurred. On 30 November, President William J. Clinton signed legislation that lifted the ban on women serving on board combat ships.

29 APRIL • After the decision by Secretary of Defense Leslie Aspin to expand combat roles for women, Chief of Naval Operations Adm. Frank B. Kelso II opened six enlisted naval aviation ratings to women: aviation antisubmarine warfare operator (AW), electronic warfare technician (EW), fire controlman (FC), gas turbine technician (GS), gas turbine technician–electrical (GSE), and gas turbine technician–mechanical (GSM).

5 MAY • Commander, Helicopter Anti-Submarine Light Wing, Pacific Fleet, was established at NAS North Island, Calif., Capt. John R. Brown commanding.

6 MAY • Naval Reservist Lt. Cmdr. Kathryn P. Hire was selected for assignment to VP-62, thus becoming the Navy's first woman to be eligible to compete for assignments in aircraft engaged in combat missions.

7 MAY • Chief of Naval Personnel Vice Adm. Ronald J. Zlatoper outlined the Navy's plan to open new opportunities for women during the seventh annual Naval Aviation Symposium at NAS Pensacola, Fla. VAQ-130 became the first squadron expected to receive women. He also revealed the impending assignment of women to Carrier Air Wing (CVW) 3, embarked on board *Dwight D. Eisenhower* (CVN 69), and CVW-11 on board *Abraham Lincoln* (CVN 72).

1 JUNE • Commander, Strike Fighter Wing, Pacific, shifted from a flag-level functional wing to a type wing as part of the ongoing reorganization of wings in the Pacific Fleet.

8 JUNE • Patrol Wing 2 was disestablished after 56 years of service.

11 JUNE • A groundbreaking ceremony took place for the Aircraft Technology Laboratory at NAS Patuxent River, Md.

26 JUNE • Cruiser *Chancellorsville* (CG 62) launched nine BGM-109 Tomahawk cruise missiles from the northern Persian Gulf, and destroyer *Peterson* (DD 969) fired 14 more missiles from the Red Sea, in a coordinated night attack against the Iraqi intelligence service headquarters building in Baghdad. At least 13 missiles struck the compound. During a press conference, Chairman of the Joint Chiefs of Staff Gen. Colin L. Powell, USA, described the attack as a "proportionate" response to the Iraqi assassination plot against former President George H. W. Bush, his wife Barbara, two of their sons, and former Secretary of State James A. Baker III, during their visit to Kuwait on 14 April. The United States subsequently dispatched *Theodore Roosevelt* (CVN 71) and destroyer *Arleigh Burke* (DDG 51) to reinforce allied forces in the Red Sea.

14 JULY • Secretary of Defense Leslie Aspin approved an order directing U.S. aircraft to join NATO's planned air support to UN protection forces in Bosnia-Herzegovina. *Theodore Roosevelt* (CVN 71) thus entered the Mediterranean to participate in Operation Deny Flight—the enforcement of a no-fly zone over Bosnia-Herzegovina.

17 AUGUST • An EA-6B Prowler of VAQ-209 at NAS Point Mugu, Calif., conducted the first successful over-the-horizon AGM-88 HARM (High-speed Anti-Radiation Missile) and AGM-84 Harpoon air-to-surface missile war-at-sea strike using targeting data from space-based sensors delivered directly to the cockpit. A P-3B Orion of VP-60 assisted.

1 SEPTEMBER • President William J. Clinton unveiled a revised plan to cut the armed forces based on a doctrine developed by President George H. W. Bush that prepared the United States to fight two simultaneous major regional wars and one low-intensity war. The plan called for 11 carrier battle groups, with a 12th carrier to serve as a Reserve and training ship. The original plan called for 12 battle groups.

3 SEPTEMBER • AIM-120 AMRAAM (Advanced Medium Range Air-to-Air Missile) achieved initial operating capability for the Navy with Carrier Air Wing 11 on board *Abraham Lincoln* (CVN 72).

9 SEPTEMBER • The creation of the fleet's largest aviation squadron occurred during the merger of VP-30 at NAS Jacksonville, Fla., with VP-31 at NAS Moffett Field, Calif. The consolidation resulted from downsizing, and enabled the Navy to train all P-3 Orion crews at Jacksonville.

11 SEPTEMBER • *Forrestal* (CV 59) was decommissioned at Philadelphia Naval Shipyard, Pa.

1 OCTOBER • The NAVCAD program was disestablished. It had begun during World War II as the V-5 program, and had subsequently been redesignated V-12. It was disestablished in 1966, but later reinstated in 1986 to help train more pilots for the planned 600-ship fleet.

1 OCTOBER • The Atlantic Command became responsible for the joint training and deployment of all continental U.S.-based forces. The action merged the Atlantic Fleet, Marine Forces Atlantic, Army Forces Command, and USAF Air Combat Command into a single combat command. The Atlantic Command was to support all U.S. involvement in UN peacekeeping operations, plan for the land defense of the homeland, and respond to natural disasters within the United States.

1 OCTOBER • The Naval Training Systems Center, Orlando, Fla., was redesignated Naval Air Warfare Center, Training Systems Division, although without a change of mission.

1 OCTOBER • The first phase of a new joint primary training program began when five Air Force aviators reported to NAS Whiting Field, Pensacola, Fla. Meanwhile, Navy, Marine Corps, and Coast Guard flight instructors reported for training to Randolph AFB, Texas.

3 OCTOBER • Overnight, the Army's Task Force Ranger became embroiled in a battle against Somali clansmen in Mogadishu, Somalia. The Somalis killed 18 Americans and wounded 84, and claimed losses of 312 dead and 814 wounded. On 5 October, the Navy ordered *Abraham Lincoln* (CVN 72) to make for Somali waters to aid the allied troops. On 8 October, the carrier passed through the Strait of Hormuz, and on 12 October, arrived off the Horn of Africa to participate in Operation Restore Hope. Three days later, the ship disembarked Marines of her detachment in Somalia to reinforce international peacekeepers. The Marines remained ashore until 22 October while carrying out this unique operation from an aircraft carrier. *Abraham Lincoln* departed on 3 November.

15 OCTOBER • Secretary of the Navy John H. Dalton announced the consolidation at the Naval Aviation Schools Command, NAS Pensacola, Fla., of Aviation Officer Candidate School and Officer Candidate School as a cost-saving initiative.

17 OCTOBER • Amphibious assault ships *Guadalcanal* (LPH 7) and *New Orleans* (LPH 11) arrived off Somalia.

29 OCTOBER • *America* (CV 66) transited the Suez Canal southbound, and subsequently relieved *Abraham Lincoln* (CVN 72) off the coast of Somalia.

16 NOVEMBER • The aviation antisubmarine warfare operator rating changed to aviation warfare systems operator to reflect the broadened scope of responsibilities. The existing rating badge and abbreviation "AW" remained the same.

24 NOVEMBER • The X-31A international test program announced the first supersonic flights of its enhanced fighter maneuverability demonstrator when Aircraft No. 1 flew nine sorties, achieving Mach 1.08 at an altitude of 37,500 feet.

30 NOVEMBER • President William J. Clinton signed legislation that lifted the ban on women serving on board combat ships.

1 DECEMBER • Secretary of the Navy John H. Dalton announced the first assignment of women to combat ships to begin by June 1994, pending notification of Congress as required by the fiscal year 1994 Defense Authorization Bill. *Dwight D. Eisenhower* (CVN 69) and *Abraham Lincoln* (CVN 72) were scheduled to be the first carriers to embark women, followed by *John C. Stennis* (CVN 74) at the end of 1994.

9 DECEMBER • A V-22 Osprey returned to NAWC (AD) Patuxent River, Md., from facilities in Wilmington, Del., to begin full engineering manufacturing development testing. The new program ushered in an integrated team concept of testing and evaluation.

1994

1 JANUARY • The Navy began to train aviators in the T-45 Training System at NAS Kingsville, Texas, which included T-45A Goshawks that replaced aging T-2 Buckeyes and TA-4 Skyhawks.

18 JANUARY • In a press briefing held at the Pentagon, Chief of Naval Operations Adm. Frank B. Kelso II

Army and Navy helicopters pack the flight deck of *Dwight D. Eisenhower* (CVN 69) as she steams to Haitian waters, September 1994. During Operation Uphold Democracy she transported about 1,800 soldiers of the Army's XVIII Airborne Corps.

emphasized that the naval forces of the future would deploy smaller numbers of ships, aircraft, and personnel but operate at enhanced capability because of new technologies and prudent cost-cutting measures.

1 FEBRUARY • *Saratoga* (CV 60) took station in the Adriatic Sea. During this deployment the carrier's joint task group participated in various U.S., NATO, and UN missions throughout the Mediterranean, Black, and Red Seas including combat air patrol, and command, control, and surveillance aircraft for Operations Deny Flight and Provide Promise—to enforce the no-fly zone over Bosnia-Herzegovina and UN efforts to provide humanitarian assistance to the victims of the fighting there, respectively.

18 FEBRUARY • Ens. Alta J. DeRoo became the first female naval aviator to receive her wings in the Grumman E-2 Hawkeye community during a ceremony at Norfolk, Va.

21 FEBRUARY • Lt. Shannon L. Workman of VAQ-130, embarked on board *Dwight D. Eisenhower* (CVN 69), became the first female combat pilot to successfully pass fleet carrier qualifications. She was slated as one of four female aviators to deploy to *Dwight D. Eisenhower* in October.

3 MARCH • Amphibious assault ship *Peleliu* (LHA 5) joined amphibious assault ship *Inchon* (LPH 12) off the coast of Somalia to support the withdrawal of U.S. troops from that country.

3 MARCH • The A-6 Composite Rewing Program at NAD Norfolk, Va., ended when the last A-6E Intruder completed its new wing upgrade. The program, which began in 1990, replaced an aircraft's original metal wing with a composite structure as it reached the end of its fatigue life.

7 MARCH • The Navy ordered the first 63 women of the ship's crew to report to *Dwight D. Eisenhower* (CVN 69).

19 MARCH • An experimental T-45A Goshawk equipped with the digital Cockpit 21 made its inaugural flight at McDonnell Douglas, St. Louis, Mo.

24 MARCH • Troopship *Empire State* (T-AP 1001) sailed from Modgadishu as the last American military transport ship to depart Somalia. Amphibious assault ship *Peleliu* (LHA 5) sailed off the coast to cover the evacuation and support UN operations.

31 MARCH • The Department of Defense assigned the name Peregrine to the BQM-145A medium-range unmanned aerial vehicle.

1 APRIL • The first operational flight of the airborne multisensor pod system took place at NAWCWD Point Mugu, Calif.

29 APRIL • Short-range, inertially guided AGM-119B Penguin Mk 2 Mod 7 air-to-surface missiles reached initial operational capability with the Navy. On 25 June, an SH-60B Seahawk of HSL-51 Detachment 6, embarked on board destroyer *Hewitt* (DD 966), made the first fleet launch of a Penguin at the Pacific Missile Range Facility off Hawaii during exercise RIMPAC '94.

2 MAY • Two F-14B Tomcats of VF-103, embarked on board *Saratoga* (CV 60), dropped three GBU-16 laser-guided bombs that scored direct hits at Capo Frasca Target Complex, Sardinia. The action marked the first time that Tomcats dropped Paveway IIs.

5 MAY • The House Armed Services Committee approved $3.65 billion for CVN-76 and advance procurement for the large-deck amphibious ship LHD-7 as part of the $263.3 billion defense budget for 1995.

Army UH-60 Black Hawks lift off from the flight deck of *Dwight D. Eisenhower* (CVN 69) off the coast of Haiti during Operation Uphold Democracy, September 1994.

16 MAY • Seventeen Russian pilots tested nine two-seat F/A-18s at NAS Patuxent River, Md., accompanied by U.S. Navy pilots in the back seats.

5 JUNE • President William J. and First Lady Hillary R. Clinton led an entourage of the nation's leaders on board *George Washington* (CVN 73) during the commemoration of the 50th anniversary of D-Day. *George Washington* sailed off the coast of Portsmouth, England, and then crossed the English Channel toward the Omaha and Utah invasion beaches of Normandy, France.

28 JUNE • A P-3C, ordered by South Korea, rolled out of the assembly hangar at Lockheed Aeronautical Systems Company, Marietta, Ga. The event marked the return to production of the maritime patrol Orions.

1 JULY • A ceremony marked the closing of NAS Moffett Field, Calif.

1 JULY • The schedule for the Joint Primary Aircraft Training System (JPATS) flight evaluation was established at Wright-Patterson AFB, Ohio. From 24 July through 8 October, inspectors evaluated various aircraft. The JPATS eventually replaced T-34C Turbomentors and Air Force T-37B Tweets with a common training system.

6 JULY • Amphibious assault ship *Inchon* (LPH 12) sailed from Norfolk, Va., in response to a crisis in Haiti. After the Haitian Army's overthrow of President Jean-Bertrand Aristide in September 1991, a succession of governments led to sectarian violence, and in May 1994 the Haitian Army imposed Supreme Court Justice Emile Jonassaint as the

Former *Saratoga* (CV 60) under tow to Philadelphia, Pa., from Naval Station Mayport, Fla., where she was decommissioned on 20 August 1994.

provisional president. The UN authorized force to restore order and the United States initiated Operations Support Democracy and Uphold/Restore Democracy—Uphold Democracy for a peaceful entry into Haiti, and Restore Democracy in the event of resistance.

7 JULY • The name White Hawk was established for the VH-60N, whose primary mission was to provide executive transport in support of the president and his staff.

31 JULY • Lt. Kara S. Hultgreen of VF-213 made her first qualifying landing in an F-14A on board *Constellation* (CV 64) southwest of San Diego, Calif. She thus became the first fully qualified female Tomcat pilot, and Lt. j.g. Carey Dunai became the second woman to reach the milestone with her qualifying trap in another Tomcat moments later.

17 AUGUST • Amphibious assault ship *Inchon* (LPH 12) returned to Norfolk, Va., following her relief by amphibious assault ship *Wasp* (LHD 1) off Haiti.

31 AUGUST • Five Navy MH-53E Sea Dragons arrived at MCAS Tustin, Calif., during the consolidation of helicopter training for sailors and Marines. With the disestablishment of HM-12, the Navy's H-53 fleet readiness squadron, HMT-302, had assumed the training responsibility.

12 SEPTEMBER • The ongoing crisis in Haiti prompted a response by a multinational force that included *America* (CV 66) and *Dwight D. Eisenhower* (CVN 69). About 1,800 soldiers of the Army's XVIII Airborne Corps embarked on board *Dwight D. Eisenhower*. Most of the carrier's fixed-wing aircraft remained ashore to make room for, at times,

HC-2, HCS-4, and HS-7 operated with dozens of Army helicopters—a total of 51 Navy and Army aircraft. In addition, *Dwight D. Eisenhower*'s Marines provided a security force for search and rescue. The Haitians agreed to allow the Americans to land peacefully, and on 31 March 1995, the United States transferred peacekeeping functions to international forces. The crisis marked the first operational deployment of Army helicopters on board a carrier in lieu of most of an air wing.

30 SEPTEMBER • The aircraft model designation TC-18F was established for two Boeing B-707-382Bs, which had been modified to include cockpit avionics and a universal air refueling receptacle for dry contacts only. The naval training support unit at Tinker AFB Okla., used these aircraft to train pilots of VQ-3 and -4 for Take Charge and Move Out missions with E-6A Mercury aircraft.

1 OCTOBER • NAS Fort Worth, Texas, was established as a joint reserve force base. The station was to be home for Navy and Marine squadrons formerly based at two stations after the closure of NAS Dallas, Texas, and the discontinuance of air operations at NAS Memphis, Tenn.

1 OCTOBER • Commander, Patrol Wings, Atlantic Fleet was established at Norfolk, Va., Rear Adm. Michael D. Haskins commanding.

5 OCTOBER • The first aviator class to use the T-45 Training System graduated from VT-21 at NAS Kingsville, Texas.

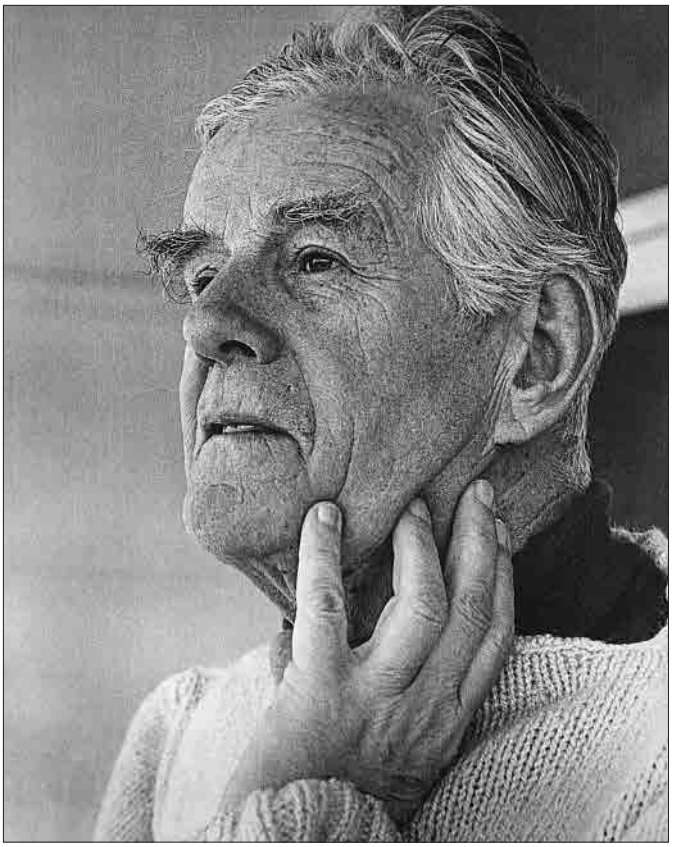
6 OCTOBER • Intelligence analysts identified the apparent preparations of five Iraqi divisions to invade Kuwait, and the United States launched Operation Vigilant Warrior to protect the Kuwaitis. The next day, President William J. Clinton dispatched *George Washington* (CVN 73) from the Adriatic to the Red Sea, which she reached on 10 October. In addition, amphibious assault ship *Tripoli* (LPH 10) and 2,000 Marines of the 15th Marine Expeditionary Unit moved to the northern Persian Gulf. These moves convinced Saddam Hussein to withdraw his mobile troops from the Kuwaiti border.

6 OCTOBER • President William J. Clinton visited *Dwight D. Eisenhower* (CVN 69). The ship provided national-level command and control for the chief executive during his visit.

An F-14 Tomcat of VF-143, deployed on board *Dwight D. Eisenhower* (CVN 69), flies over a destroyed Iraqi radar site, c. 2000.

Cmdr. Donnie Cochran is the first African American commanding officer of the Navy's Flight Demonstration Squadron (Blue Angels). He took command on 15 November 1994.

20 OCTOBER • *Dwight D. Eisenhower* (CVN 69) deployed to the Mediterranean and Persian Gulf as the first carrier with women permanently assigned. More than 400 women served on board at times during the cruise. The ship returned on 13 April 1995.



The creator of Grampaw Pettibone, Dilbert the Pilot, and Spoiler the Mechanic is artist Robert C. Osborn. His drawings of Gramps appeared in *Naval Aviation News* for 51 years.

25 OCTOBER • Pilot Lt. Kara S. Hultgreen and radar intercept officer Lt. Matthew P. Klemish of VF-213 crashed in F-14A Tomcat, BuNo 160390, while attempting to land on board *Abraham Lincoln* (CVN 72) off San Diego. Hultgreen thus became the first naval female combat pilot to die in an aircraft accident. Klemish ejected and survived with minor injuries.

15 NOVEMBER • Cmdr. Donnie Cochran became the first African American commanding officer of the Navy's Flight Demonstration Squadron (Blue Angels). He had previously commanded VF-11 at NAS Miramar, Calif., and flown with the Blue Angels from 1985 to 1988.

6 DECEMBER • The "Spirit of Naval Aviation," a monument dedicated to the Navy, Marine Corps, and Coast Guard aviation personnel who had earned their wings, was unveiled at the National Air and Space Museum, Washington, D.C. The National Museum of Naval Aviation subsequently displayed the monument at NAS Pensacola, Fla.

8 DECEMBER • NASA announced the selection of five naval aviators among 19 new astronaut candidates for the space shuttle pilot instruction program: Cmdr. Jeffery S. Ashby of VFA-94; Cmdr. Dominic L. Gorie of VFA-106; Lt. Cmdr. Scott D. Altman of VF-31; Lt. Cmdr. Joe F. Edwards Jr. of the Joint Staff; and Lt. Susan L. Still of VF-101. Still's appointment marked the first female naval aviator selected for the program. In addition, Naval Reservist Lt. Cmdr. Kathryn P. Hire was chosen for training as a mission specialist.

20 DECEMBER • Robert C. Osborn died at the age of 90 at his home in Salisbury, Conn. For more than 51 years he had drawn the cartoon "Grampaw Pettibone" in *Naval Aviation News*. During World War II, Osborn created the "Dilbert the Pilot" and "Spoiler the Mechanic" posters and the "Sense" pamphlets, which were disseminated throughout the fleet.

1995

17 JANUARY • T-45A Goshawks and their associated training system elements completed a successful Department of Defense Milestone III review. The approval enabled prime contractor McDonnell Douglas to continue to produce 12 Goshawks per year for a total order of 174 aircraft by 2003.

2 FEBRUARY • Secretary of the Navy John H. Dalton announced that President William J. Clinton had approved his recommendation to name the two *Nimitz* (CVN 68)-class carriers under construction as *Harry S. Truman* (CVN 75) and *Ronald Reagan* (CVN 76).

14 FEBRUARY • A groundbreaking ceremony occurred for the Naval Air Technical Training Center at Chevalier Field, NAS Pensacola, Fla.

17 FEBRUARY • A groundbreaking ceremony took place at NAS Patuxent River, Md., for a facility to house NAVAIR headquarters, which was to be relocated from Arlington, Va.

28 FEBRUARY • More than 1,800 sailors and Marines from amphibious assault ship *Belleau Wood* (LHA 3) and amphibious transport dock *Ogden* (LPD 5), supported by 350 Italian Marines, landed and established a rear-guard security perimeter at Mogadishu, Somalia, to support Operation United Shield—the withdrawal of UN forces from Somalia.

Harry S. Truman (CVN 75), laid down on 29 November 1993, is under construction at Newport News, Va. She was commissioned on 25 July 1998.

Marines and SEALs clashed with Somali clansmen during the withdrawal. Amphibious assault ship *Essex* (LHD 2) also took part in the evacuations, which concluded on 2 March.

1 MARCH • Amphibious assault ship *Inchon* (LPH 12) was redesignated a mine countermeasures ship (MCS 12).

2 MARCH • Space shuttle *Endeavour* launched from John F. Kennedy Space Center, Fla., on mission STS-67. Naval aviator Cmdr. Stephen S. Oswald, USNR, commanded the mission, and Lt. Cmdr. Wendy B. Lawrence, the first female Naval Academy graduate astronaut, also became the first female naval aviator in space when she launched as a crewmember. On 18 March, *Endeavour* touched down at Edwards AFB, Calif.

6 MARCH • The first Air Force F-117A Nighthawk stealth fighter engine was delivered for depot-level repair at NAD Jacksonville, Fla.

14 MARCH • Naval aviator and astronaut Capt. Michael A. Baker was assigned as NASA Manager of Operational Activities at the Gagarin Cosmonaut Training Center, Star City, Russia. The assignment coincided with the launching of naval aviator Capt. Norman E. Thagard, USMC, and two cosmonauts on board a Soyuz TM-12 spacecraft for Mir-18, a three-month stay on board Russian orbital research station *Mir*. On 7 July, Thagard returned with space shuttle *Atlantis*, on mission STS-71, to John F. Kennedy Space Center, Fla.

Lt. Cmdr. Wendy B. Lawrence is the first female U.S. Naval Academy graduate astronaut, and on 2 March 1995 became the first female naval aviator in space.

10 APRIL • VA-196 accepted the last rewinged A-6E, BuNo 159579, at NAS Whidbey Island, Wash. From June 1989, NAD Alameda, Calif., had rewinged 23 Intruders.

3 MAY • AW3 Carly R. Harris of VS-22 became the first aircrew-qualified female warfare systems operator in the S-3 Viking community.

20 MAY • *Theodore Roosevelt* (CVN 71) transited the Suez Canal and made for the Adriatic Sea to participate in Operation Deny Flight. The ship reached the Adriatic six days later.

1 JUNE • The Department of Defense unveiled the low-observable Tier III Minus unmanned aerial vehicle, known as DarkStar, designed for the reconnaissance of highly defended areas, in a ceremony at Lockheed's Skunk Works, Palmdale, Calif.

2 JUNE • A Serbian SA-6 surface-to-air missile shot down Capt. Scott F. O'Grady, USAF, of the 555th Fighter Squadron, in an F-16C Fighting Falcon over Banja Luka, Bosnia-Herzegovina. On 8 June, the allies established voice contact with O'Grady and orchestrated a search-and-rescue involving 40 NATO aircraft including VF-41 F-14A Tomcats and F/A-18C Hornets of VFA-15 and -87 and VMFA-312, embarked on board *Theodore Roosevelt* (CVN 71); two EA-6B Prowlers of VAQ-141 and -209 operating from Aviano AB, Italy; and four AV-8 Harrier IIs, two AH-1W Super Cobras, and two CH-53E Super Stallions of a tactical recovery of aircraft and personnel force from amphibious assault ship *Kearsarge* (LHD 3). Despite fire from Serbian antiaircraft guns and several surface-to-air missiles, the Super Stallions rescued O'Grady.

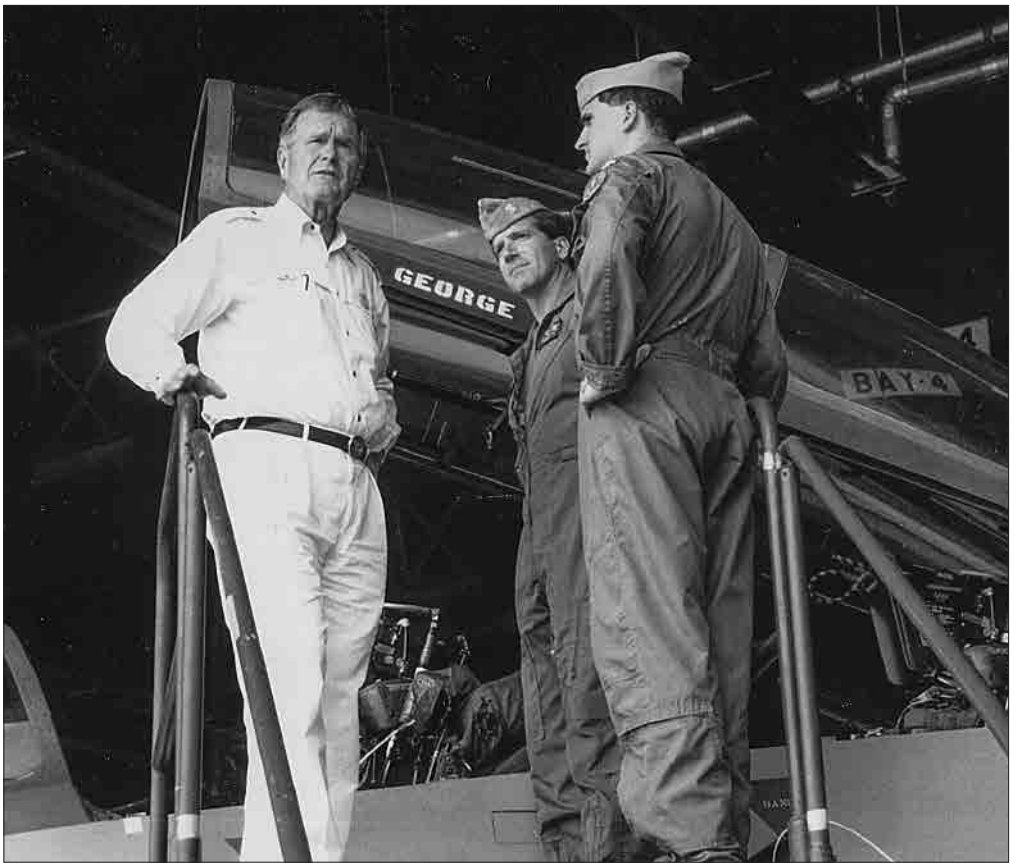
27 JUNE • Space shuttle *Atlantis*, on mission STS-71, launched from John F. Kennedy Space Center, Fla. Naval aviator Capt. Robert L. Gibson commanded *Atlantis* on this first shuttle mission to Russian orbital research station *Mir*, and the first joint docking mission between the Americans and Russians since the Apollo-Soyuz test project flight in 1975. Capt. Norman E. Thagard, USMC, on board *Mir*, returned on the shuttle when it landed at the space center on 7 July.

30 JUNE • Thirty-six-year-old *Independence* (CV 62), Capt. David P. Polatty III commanding, became the oldest ship in the active fleet. On 1 July, Polatty received the "Don't Tread on Me" Navy jack during a ceremony. The flag had been transferred from ammunition ship *Mauna Kea* (AE 22) after her decommissioning.

1 JULY • The Fifth Fleet was established at NSA Bahrain, Vice Adm. John S. Redd commanding.

14 JULY • An F-14D Tomcat of NAWC (AD) Patuxent River, Md., flew for the first time using a new digital flight control system designed to protect aviators against unrecoverable flat spins and carrier landing mishaps.

19 AUGUST • The winter fly-in to McMurdo Station, Antarctica, began when LC-130 Hercules of VXE-6 delivered supplies and support personnel. The teams were to construct an ice runway in preparation for the 1995–1996 season during the 40th year of Operation Deep Freeze.



Former President George H. W. Bush, a naval aviator during World War II, visits *George Washington* (CVN 73) during the 50th anniversary of V-J—Victory in Japan—Day, August 1995.

30 AUGUST • *Theodore Roosevelt* (CVN 71) launched the initial NATO strikes against the Serbs in Bosnia-Herzegovina that began Operation Deliberate Force—aerial attacks to reduce Serbian military capabilities to threaten safe areas, UN peacekeepers, and humanitarian aid workers. Targets included enemy field forces and heavy weapons, command and control facilities, direct and essential military support facilities, supporting infrastructure, and lines of communication in the southeast of the country. The strike consisted of two waves of four F-14A Tomcats of VF-41; 31 F/A-18C Hornets of VFA-15 and -87 and VMFA-312; and two EA-6Bs; supported by other Prowlers from Aviano AB Italy. During the second wave, the ship also launched an S-3B Viking of VS-24 and an ES-3A Shadow. Five echelons of allied strikes followed the naval aircraft with attacks on targets in and around Sarajevo. Through 4 September, aircraft flew 492 sorties from *Theodore Roosevelt*.

9 SEPTEMBER • *America* (CV 66) conducted strike and flight operations in the Adriatic Sea in support of Operation Deliberate Force. The ship continued her strikes through 30 September.

1 OCTOBER • VAW-77 was established at NAS Atlanta, Ga. The squadron worked in tandem with the Coast Guard and federal law enforcement agencies to combine and coordinate counter narcotics operations.

1 OCTOBER • The Naval Aviation Supply Office was disestablished at Philadelphia, Pa., and Naval Inventory Control Point, Philadelphia/Mechanicsburg, Pa., was established in its place. The new command took over both the functions of the supply office and the Ships Parts Control Center at Mechanicsburg, which also was disestablished.

12 NOVEMBER • Space shuttle *Atlantis*, on mission STS-74, launched from John F. Kennedy Space Center, Fla. Naval aviator Col. Kenneth D. Cameron, USMC, commanded this second shuttle flight to dock with Russian orbital research station *Mir*. *Atlantis* returned to the center on 20 November.

29 NOVEMBER • F/A-18E1, the first Super Hornet, made its first flight at Lambert International Airport near St. Louis, Mo.

11 DECEMBER • *America* (CV 66) arrived in the Adriatic Sea to begin Operation Joint Endeavor—a venture under NATO leadership to oversee the military aspects of the implementation of peace in Bosnia-Herzegovina. On 18 December, amphibious assault ship *Wasp* (LHD 1) rendezvoused with *America* and also began Joint Endeavor participation.

The first F/A-18E Super Hornet, designated E1, takes off on its maiden flight at St. Louis, Mo., 29 November 1995.

14 DECEMBER • The Bosnian Federation and the Bosnian Serbs signed the final Dayton Accords concerning Bosnia-Herzegovina, in Paris, France.

21 DECEMBER • NATO commemorated the end of Operation Deny Flight, the enforcement of a no-fly zone over Bosnia-Herzegovina, at Dal Molin Airport, Vincenza, Italy.

1996

4 JANUARY • Lt. Jean L. O'Brien of VP-16 became the first woman to earn the designation of patrol squadron tactical coordinator in a P-3C Orion.

7 JANUARY • An HH-60 Seahawk embarked on board *America* (CV 66), piloted by squadron commanding officer Cmdr. Robert L. Wilde, with copilot Lt. Craig M. Davis, and aircrewmen AW1 Rob Betts and AW3 Brett Shopsin of HS-11, transported Commander Sixth Fleet Vice Adm. Donald L. Pilling to *Admiral Kuznetsov* (Project 1143.5). HS-11 thus became the Navy's first squadron to land on board a Russian aircraft carrier.

10 JANUARY • The roll out of the first production F-14A/B to complete the major upgrade program to provide Tomcats with a multimission capability took place at NAD Norfolk, Va.

11 JANUARY • Space shuttle *Endeavour*, on mission STS-72, launched from John F. Kennedy Space Center, Fla. The crew included naval aviators Cmdr. Winston E. Scott and Lt. Cmdr. Brent W. Jett Jr. *Endeavour* returned to the center on 20 January.

18 JANUARY • Lts. Dane L. Dobbs and James F. Skarbek of VF-101 made the first F-14B Tomcat arrested landing on board *John C. Stennis* (CVN 74).

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Before commissioning, *John C. Stennis* (CVN 74) leaves the James River and heads to sea for builders trials off the Virginia Capes, 23 October 1995.

24 JANUARY • NAWC (WD) Point Mugu, Calif., conducted flight performance testing of the ADM-141C Improved TALD (tactical air launch decoy), which was designed to deceive enemy radar and interception aircraft in hostile environments.

5 FEBRUARY • The Carrier Airborne Early Warning Weapons School completed its move from NAS Miramar, Calif., to NAS Fallon, Nev., and began training a class for the E-2C Hawkeye community.

15 FEBRUARY • McDonnell Douglas delivered the first of seven F/A-18E/F Super Hornets to NAWC (AD) Patuxent River, Md., to begin a three-year flight test program to prepare the type for duty on aircraft carriers.

20 FEBRUARY • HSL-44 became the initial East Coast LAMPS Mk III squadron to fire an AGM-119B Penguin air-to-surface missile. Pilot Lt. Cmdr. John W. Funk, copilot Lt. Richard Davis, and aircrewmen AWC Todd Sitler and AW2 Matthew Polzin of Detachment 5 flew an SH-60B Seahawk, while embarked on board destroyer *Briscoe* (DD 977).

1 MARCH • VPU-1, which had been established on 1 July 1982, became a full command after 13 years as an independent detachment with an officer in charge. Cmdr. Walter Kreitler became the initial commanding officer when he relieved Lt. Cmdr. Jack Scorby.

21 MARCH • Cmdrs. Edward Baden and Edward Arcand, Lt. Cmdrs. Claude Nelson and Mike Lamb, Lt. Garry Vagt, AW1s Jack Peebles and Joe Taylor, AT1 Randy Osborne, AD1 Roger Pullman, AW2 Sam Rabideau, AO2 Ron Clarke, and AE2 Chris George of VP-69 manned a P-3C and assisted in the rescue of 17 people from fishing vessel *Toku*, disabled and adrift 450 nautical miles south of Guam. The Orion dropped supplies and directed merchant vessel *Microtrader* to pick up the victims and take *Toku* under tow.

E-2C Hawkeyes are the eyes of the fleet. The airborne early warning and command and control aircraft were first deployed in 1964.

29 MARCH • The Tier III Minus DarkStar high-altitude long-endurance unmanned aerial vehicle successfully completed its first flight at the USAF Test Flight Center, Edwards AFB, Calif.

29 MARCH • Cmdr. Nora Tyson became the first female naval flight officer to assume duties as executive officer of an operational squadron, VQ-4.

29 MARCH • Lt. Col. Marcelyn A. Adkins, USAF, became the first Air Force officer to serve as executive officer of VT-10, after the squadron's assumption of responsibility for basic navigation training for the Air Force, Navy, and Marine Corps.

4 APRIL • VF-2 began the F-14 homeport shifts resulting from the Defense Base Closure and Realignment Commission when it arrived from NAS Miramar, Calif., at NAS Oceana, Va. The consolidation of Tomcat squadrons was scheduled for completion by January 1997 with the additional transfer of VF-11, -31, -101, -211, and -213.

12 APRIL • McDonnell Douglas project test pilot Fred Madenwald completed the first supersonic F/A-18E Super Hornet flight tests at NAS Patuxent River, Md.

29 APRIL • VAW-123 became the initial East Coast squadron to deploy with E-2C Hawkeye Group 2 aircraft.

1 MAY • The first T-1A Jayhawks arrived at NAS Pensacola, Fla., for use in naval flight officer and Air Force navigator training conducted by VT-4 and -10. This heralded the first step in creating the Joint Navigator/Naval Flight Officer Training Program, which eventually trained all such applicants for the Air Force, Navy, and Marine Corps.

6 MAY • AE3 Michelle Rehak sailed with HSL-42 Detachment 7 on board destroyer *Hayler* (DD 997),

National Museum of Naval Aviation 1996.253.6851

An A-6E Intruder, BuNo 160423, from VA-34 assigned to CVW-7 launches an AGM-65 Maverick air-to-ground missile near Naval Air Station Fallon, Nev., in late 1993.

marking the first deployment of a female LAMPS aircraft maintenance technician on board a surface combatant.

14 MAY • The Navy selected Hughes Technical Services to assume operation of NAWCAD Indianapolis, Ind. Hughes began to control daily operations in 1997 during the first privatization of a naval facility.

20 MAY • Helicopters flew Marines of the 22d Marine Expeditionary Unit from amphibious assault ship *Guam* (LPH 9) to Bangui, Central African Republic, to evacuate Americans and to safeguard the U.S. Embassy during a crisis there.

30 MAY • The Navy approved the Cockpit 21 concept to replace analog displays in T-45A Goshawks with digital displays similar to those in carrier-based jets, in an effort to make training more effective for student aviators.

4 JUNE • Japanese destroyer *Yūgiri* (DD 153) inadvertently shot down Lt. Cmdr. William E. Royster and Lt. Keith A. Douglas in an A-6E, BuNo 155704, with her Phalanx Close-In Weapons System. The Intruder towed a gunnery target while operating from *Independence* (CV 62) during exercise RIMPAC '96. Royster and Douglas ejected and *Yūgiri* recovered both men.

6 JUNE • Helicopter Landing Trainer *IX-514* achieved her 50,000th landing since beginning operation in 1986. An MH-60G Pave Hawk of the Air Force 55th Special Operations Squadron landed on board while the vessel operated near NAS Pensacola, Fla.

7 JUNE • VMU-1, the first Marine unmanned aerial vehicle squadron, deployed to Bosnia-Herzegovina. The Marines provided real-time imagery for reconnaissance, surveillance, and target acquisition in support of Operation Joint Endeavor.

13 JUNE • Vice Adm. Donald D. Engen, a World War II naval aviator who had received the Navy Cross for his service during the Battle of Leyte Gulf, was named as the director of the Smithsonian's National Air and Space Museum in Washington, D.C.

14 JUNE • The F-14B LANTIRN (low altitude navigation/targeting infrared for night) system, which gave Tomcats the ability to drop laser-guided bombs, was introduced to the fleet at NAS Oceana, Va. LANTIRN-equipped F-14Bs first deployed operationally with VF-103 on board *Enterprise* (CVN 65) on 28 June 1996.

15 JUNE • The Navy's Flight Demonstration Squadron (Blue Angels) celebrated its 50th anniversary on the date of the squadron's first organized performance in 1946.

21 JUNE • Cmdr. David J. Cheslak relieved Lt. Col. Carl K. Hergesell, USAF, as commanding officer of the 562nd Flying Training Squadron, and became the first naval flight officer to command an Air Force squadron.

28 JUNE • A-6E Intruders deployed for the last time on a carrier, with VA-75 on board *Enterprise* (CVN 65).

30 JUNE • Capt. David S. McCampbell, the Navy's top-ranking ace in World War II credited with 34 aerial victories and a Medal of Honor recipient, died at the age of 86.

1 JULY • Under a joint program in which EA-6B Prowlers replaced General Dynamics EF-111A Ravens as the Air Force's primary electronic countermeasures aircraft, the initial Air Force Prowler crew, Lt. Col. Ronald Rivard, and Capts. David Shintaku and Richard Armstrong of VAQ-129, carrier qualified in an EA-6B on board *Constellation* (CV 64).

10 JULY • HMLA-167 and -169 at MCAS Cherry Point, N.C., conducted the first fleet firings of two types of weapons: BGM-71E TOW (tube-launched, optically tracked, wire-command-link) antitank and AGM-114K Hellfire II air-to-surface missiles.

11 JULY • NSAWC stood up at NAS Fallon, Nev., Rear Adm. Bernard J. Smith commanding. The center focused on tactics development and assessment, training for fleet-experienced aviators, joint operations, and training and standardization of training within aviation communities.

5 AUGUST • Naval aviator Adm. Jay L. Johnson, who had flown F-8 Crusaders during the Vietnam War, was sworn in by Secretary of the Navy John H. Dalton as the 26th Chief of Naval Operations.

16 AUGUST • NASA selected Cmdr. Wendy B. Lawrence, the first female naval aviator in space, to train for shuttle mission STS-86, which involved extended stays on board Russian orbital research station *Mir*.

16 AUGUST • 1st Lt. Jeanne Buchanan, USMC, became the first female naval flight officer in the Marine Corps.

3 SEPTEMBER • Operation Desert Strike began—retaliation against the 31 August dispatch by Saddam Hussein of 40,000 Iraqi Republican Guardsmen and regulars against Irbil, a Patriotic Union of Kurdistan town 48 miles east of Mosul. Desert Strike attacked Iraqi fixed surface-to-air missile sites and air defense command and control facilities in southern Iraq. Cruiser *Shiloh* (CG 67) and destroyer *Laboon* (DDG 58) fired 14 of 27 BGM-109 Tomahawk TLAMs (Tomahawk–Land Attack Missile) launched in the first wave. Four F-14D Tomcats of VF-11, embarked on board *Carl Vinson* (CVN 70), escorted two Air Force B-52H Stratofortresses that staged through Guam and launched 13 AGM-86C CALCMs (Conventional Air-Launched Cruise Missile). The next day, destroyers *Hewitt* (DD 966), *Laboon*, and *Russell* (DDG 59), and submarine *Jefferson City* (SSN 759) fired 17 more TLAMs. A P-3C Orion of VP-1 operated in the area forward deployed through NAF Diego Garcia, British Indian Ocean Territory. In addition, *Enterprise* (CVN 65) received notification of deployment to the north Arabian Sea a month ahead of schedule.

3 SEPTEMBER • *George Washington* (CVN 73) became the first carrier to undergo more frequent maintenance periods under the Planned Incremental Maintenance Availability program. This aimed to save money by performing maintenance on a regular basis, thus allowing carriers to return to the fleet after shorter but more intensive overhaul periods.

12 SEPTEMBER • *Enterprise* (CVN 65) received orders to support Operation Desert Strike—retributive attacks against

Crewmembers of *Constellation* (CV 64)—Go Navy—and *Kitty Hawk* (CV 63)—Beat Army—spell out their sentiments, 18 October 1995. Unfortunately, Army won 14–13.

Iraq for crimes against the Kurds. *Enterprise* sprinted from the Adriatic Sea and, on 19 September, arrived in the Red Sea.

12 SEPTEMBER • Lt. Todd White of NAWC (AD) Patuxent River, Md., piloted a P-3C at Point Mugu, Calif., during the first guided launch of an AGM-84E SLAM (Standoff Land Attack Missile) from an Orion.

13 SEPTEMBER • Cmdr. Ruth A. Forrest became the Navy's first female Aircraft Intermediate Maintenance Department officer on a carrier when she reported to *John F. Kennedy* (CV 67).

20 SEPTEMBER • The Senate Armed Services Committee modified the Tailhook reporting requirements for officers nominated for promotion. It continued the requirement of Tailhook certification for officers potentially implicated by a post-Tailhook investigation, but it did not require further certification for subsequent nominations. The revision did not address the issue of officers not on active duty as of September 1991, and also allowed the personnel subject to Tailhook certification—but not yet nominated—to review all information held by the Navy relating to their activities at Tailhook, allowing them to submit information on their behalf.

NOVEMBER • The Improved Fresnel Lens Optical Landing System completed shore-based technical evaluation at NAS Patuxent River, Md. The system was consequently installed on board *George Washington* (CVN 73).

9 DECEMBER • AH-1Ws of HMLA-269, deployed with the 26th Marine Expeditionary Unit, became the first Super Cobras to do so with a night targeting system that allowed the helicopters to operate in all battlefield conditions.

1997

During 1997, *Independence* (CV 62) received the first flight simulator installed on board a carrier. The Carrier-Based Weapons Systems Trainer, designed by Boeing, enabled F/A-18 Hornet pilots to perform training and operating procedures standardization checks, review emergency procedures, and simulate various types of flight operations with different weapons.

18 JANUARY • Lt. Francis D. Morley made the first F/A-18F arrested landing, in the first two-seat Super Hornet, designated F1, on board *John C. Stennis* (CVN 74) during the ship's sea trials.

28 FEBRUARY • 1st Lt. Kerri L. Schubert, USMC, completed her naval flight officer (NFO) training and became the first female Marine NFO chosen to fly an F/A-18D Hornet.

1 MARCH • The operational testing and evaluation of the Improved Fresnel Lens Optical Landing System began when an F/A-18 Hornet from NAWC (AD) Patuxent River, Md., trapped on board *George Washington* (CVN 73).

15 MARCH • The first V-22 Osprey built to production standards arrived for testing and evaluation at NAWC (AD) Patuxent River, Md.

18 MARCH • Lt. Carl P. Chebi of Naval Weapons Test Squadron, China Lake, in an F/A-18C Hornet, made the first test firing of an AGM-84H SLAM-ER (Standoff Land Attack Missile–Expanded Response).

10 APRIL • VF-213 arrived at NAS Oceana, Va. The move marked the final F-14 Tomcat squadron transfer from NAS Miramar, Calif., mandated by the Defense Base Closure and Realignment Commission.

11 APRIL • Capt. Jane S. O'Dea retired. O'Dea had been one of an initial group of six women who trained as naval aviators, receiving her wings in April 1974.

21 APRIL • Lts. Michael J. Angelopoulos, Timothy R. Worthy, and Jamie Marek, and AW2 Brent Hudson of VS-22, made the first S-3B Viking launch of an AGM-65F Maverick infrared air-to-surface missile.

29 MAY • During Operation Noble Obelisk, Marine CH-53E Super Stallions flying from amphibious assault ship *Kearsarge* (LHD 3) evacuated people from Sierra Leone, West Africa, because of instability generated by a coup in that country.

2 JUNE • The Navy and Air Force at Randolph AFB, Texas, unveiled the Joint Primary Aircraft Training System aircraft, the T-6A Texan II designed to replace Navy T-34C Turbomentors and Air Force T-37 Tweets.

8 JUNE • A Northrop Grumman crew flew an EA-6B Block 89A upgrade validation aircraft during its first flight. The Navy intended to upgrade all Prowlers to the Improved Capability II Block 89A configurations.

9 JUNE • NADEP Cherry Point, N.C., completed the first conversion of an F-4S Phantom II, BuNo 155524, to a QF-4S drone to provide fighter-sized targets for weapon system testing and evaluation. The depot also delivered to HMM-162 the first CH-46E Sea Knight, BuNo 157697, to undergo a full-scale airframe change.

18 JUNE • The Rotary Wing Aircraft Test Squadron at NAS Patuxent River, Md., assisted a Sea, Air and Land (SEAL) team in testing a cargo hook restraint system, which allowed SEALs to attach their assault raft to the bottom of an HH-60H Seahawk for faster deployment, instead of occupying space in the cabin area.

8 AUGUST • Capt. Rosemary B. Mariner, the last of the original group of female naval aviators, retired after 24

An older EA-6B Expanded Capability Prowler, BuNo 159586, leads a newer Improved Capability II version, BuNo 162934. Both are from VAQ-132, CVW-17, operating from NAS Whidbey Island, Wash., 1993.

years of service. Mariner's accomplishments included the first female naval aviator to fly tactical jet aircraft—A-4E Skyhawks and A-7E Corsair IIs—and to command an operational squadron, VAQ-34.

22 AUGUST • The Navy received the first of 17 T-39N Sabreliners as part of a $42.5 million acquisition for use in undergraduate naval flight officer training. The Navy owned the jets, but Boeing North American provided all the pilot services, maintenance, and ground support.

1 SEPTEMBER • *Nimitz* (CVN 68) completed a global circumnavigation when she shifted her homeport from Puget Sound Naval Shipyard, Bremerton, Wash., to Newport News, Va. The sail marked the first operational deployment of the AGM-154A JSOW (Joint Standoff Weapon).

11 DECEMBER • Researchers from the Science Applications International Corporation flew the manned version of the Vigilante, designed as an optionally piloted or unmanned aerial vehicle, under consideration to perform tactical reconnaissance from destroyers and cruisers.

15 DECEMBER • A T-45C Goshawk modernized with the Cockpit 21 system entered service with TraWing 1 at NAS Meridian, Miss.

The Navy's SH-60B Seahawk is a sea-adapted version of the Army's UH-60 Black Hawk. The first production versions flew in February 1983.

1998

18 JANUARY • Iraq's unwillingness to cooperate with UN weapons inspectors and other issues prompted Central Command to launch Operation Desert Thunder I—a large-scale deployment to the Middle East that included the planned continual availability of two aircraft carriers. On this date, *Nimitz* (CVN 68), *George Washington* (CVN 73), and British carrier *Invincible* (R 05) operated in the region along with a total of more than 50 additional allied ships and submarines, including amphibious assault ship *Guam* (LPH 9). A resurgence of tensions later in the year led to additional deployments as part of Operation Desert Thunder II.

19 JANUARY • Magnum 447, an SH-60B Seahawk manned by Lts. Paul A. Puopolo and Dabney R. Kern, and AW2 Ron Williams of HSL-44 Detachment 4, made the first fleet firing of an AGM-114 Hellfire air-to-surface missile.

3 FEBRUARY • Capts. Richard J. Ashby, USMC; Joseph P. Schweitzer, USMC; William J. Rancy II, USMC; and Chandler P. Seagraves, USMC; of VMAQ-2 from MCAS Cherry Point, N.C., severed the cable of a ski gondola near Cavalese, Italy, while on a low-level training mission in an EA-6B Prowler, BuNo. 163045. The accident killed all 20 people in the gondola. The crew was uninjured and the plane made an emergency landing at Aviano Air Base.

8 FEBRUARY • *Independence* (CV 62) relieved *Nimitz* (CVN 68) in the Persian Gulf during Operation Desert Thunder I—a large-scale deployment to the Middle East to pressure the Iraqis and bolster the UN's negotiating position.

20 FEBRUARY • The Navy ended 42 years of modern support of Antarctic research and Operation Deep Freeze with the disestablishment of Naval Support Unit Antarctica. The service transferred the mission to the 109th Mobility Air Wing, New York Air National Guard, but provided limited flight support to the program throughout the 1998–1999 research season.

20 FEBRUARY • Judge Robert Hodges Jr. of the U.S. Court of Federal Claims ruled concerning the Navy's decision to cancel the A-12A Avenger. Hodges ruled that the Navy was liable for $1.8 billion because the government, not the contractors, had canceled the program. The Navy appealed the decision.

3 MARCH • British carrier *Illustrious* (R 06) replaced *Invincible* (R 05) in the Persian Gulf while operating with *George Washington* (CVN 73) and *Independence* (CV 62) during Operation Desert Thunder I.

3 MARCH • Maj. Bill Wainwright, USMC, and Capt. William Witzig, USMC, made the first night flight of a V-22 while using night vision goggles during Osprey testing and evaluation at NAS Patuxent River, Md.

5 MARCH • NAWC (AD) Patuxent River, Md., coordinated the first test flight of a Teledyne Ryan Aeronautical RQ-4A Global Hawk unmanned aerial vehicle at Edwards AFB, Calif.

5 MARCH • Pilot Lt. Cmdr. Jeffrey M. Bocchicchio, copilot Lt. Jason A. Burns, and AW2 Ferninand Hollis of HSL-44 Detachment 1, in an SH-60B Seahawk operating from destroyer *Scott* (DDG 995) 110 miles east of Honduras, assisted in the capture of a 35-foot boat, four suspected narcotics smugglers, and 57 bales of cocaine weighing more than 3,000 pounds.

12 MARCH • *John C. Stennis* (CVN 74) relieved *George Washington* (CVN 73) in the Persian Gulf during Operation Desert Thunder I.

12 MARCH • The Aircraft Intermediate Maintenance Division rolled out the first of nine OPT II Pioneer Plus unmanned aerial vehicles at NAS Patuxent River, Md.

14 MARCH • Capt. Duncan H. Read (Naval Aviator No. 145), who had served during both world wars and was one of four naval aviator brothers, died at the age of 101.

25 MARCH • Two SH-60Bs of HSL-40 from NS Mayport, Fla., successfully rescued six utility workers stranded on a 670-foot-high burning smoke stack at the Palatka Seminole Electric Plant, Palatka, Fla. Lts. Andrew I. Krasny and Mark T. Murray, AW1 Andy Zawolik, and AW2 Heath Rominger in Airwolf 407, and Lts. Billy Carter and Dana R. Gordon, and AW2s Eric Kazmerchak and Scott West in Airwolf 403 made the rescue.

30 MARCH • The Chief of Naval Operations approved the redesignation of all VAQs from tactical electronic warfare squadrons to electronic attack squadrons. The action reflected a shift toward joint doctrine in the suppression of enemy air defenses, and in joint Navy/Air Force expeditionary squadrons.

3 APRIL • *George Washington* (CVN 73) returned from a six-month deployment to the Mediterranean and Persian Gulf and disembarked the 26 Marines of her security detachment, ending an era of a Marine Corps security presence on board carriers.

8 APRIL • Boeing delivered the first production AGM-84H SLAM-ER (Standoff Land Attack Missile–Expanded Response) to the Navy.

11 APRIL • The first flight of a Hawkeye 2000 occurred at Northrop Grumman, St. Augustine, Fla. The fifth generation of the E-2C airborne early warning command and control aircraft integrated improvements to the mission computer, advanced control indicator set workstations, satellite communications, and an advanced equipment cooling system.

18 MAY • The Navy announced the relocation of all East Coast F/A-18 Hornet squadrons from NAS Cecil Field, Fla. Nine fleet squadrons and the fleet readiness squadron subsequently shifted to NAS Oceana, Va., and two fleet

squadrons relocated to MCAS Beaufort, S.C. The plans called for the squadrons to have completed their moves by October 1999.

19 MAY • A search team headed by Dr. Robert D. Ballard operating from deep submergence support ship *Laney Chouest* located *Yorktown* (CV 5), which had been sunk by the Japanese during the Battle of Midway on 7 June 1942, on the bottom of the Pacific Ocean at 16,650 feet.

26 MAY • Secretary of the Navy John H. Dalton approved the transfer of *Hornet* (CV 12) to the Aircraft Carrier *Hornet* Foundation. The organization restored the ship, and on 17 October 1998 opened the *Hornet* Memorial Museum to the public at former NAS Alameda, Calif.

2 JUNE • Deputy Assistant Secretary of the Navy (Installation and Facilities) Duncan Holaday signed a record of decision to move VAW-112, -113, -116, and -117 from MCAS Miramar to NAWS Point Mugu, Calif.

6 JUNE • Two C-130 Hercules from the 11th Marine Expeditionary Unit evacuated 172 Americans and third-country nationals from Asmara, Eritrea, to Amman, Jordan, because of a border dispute that led to fighting between the Eritreans and Ethiopians.

15 JUNE • The first production T-6A Texan II made its maiden flight at Raytheon, Wichita, Kans.

17 JUNE • An SH-60F Seahawk of HS-3 conducted air searches and provided aerial reconnaissance to assist firefighters battling fires near Jacksonville, Fla.

26 JUNE • World War II ace Maj. Gen. Marion E. Carl Jr., USMC, was shot and killed during a burglary at his home in Roseburg, Oreg.

29 JUNE • A Tier III Minus DarkStar high-altitude long-endurance unmanned aerial vehicle flew for the first time since the initial vehicle crashed on 22 April 1996. The mishap prompted the redesign of the landing gear and flight control software.

3 JULY • An MH-53E Sea Dragon of HC-4 from NAS Sigonella, Sicily, helped combat a series of wildfires by providing water to firefighters battling the blazes.

8 JULY • The Navy and Air Force accepted the AGM-154A JSOW (Joint Standoff Weapon) as ready for operational service at NAS JRB Fort Worth, Texas.

8 JULY • Lt. Cmdr. Thomas A. Kennedy, Lts. James B. Smelley and Mike Zaner, Lt. j.g. Thomas F. Foster Jr., AW1 Bill Trippett, and AW2 Brian Mowry of HSL-44 Detachment 5, in an SH-60B Seahawk embarked on board frigate *John L. Hall* (FFG 32), assisted in the recovery of more than 2,000 pounds of cocaine from two boats near Panama.

8 JULY • The Naval Air Warfare Center Training Systems Division accepted the UH-1N Iroquois weapon system trainer for training Marine pilots, at Orlando, Fla.

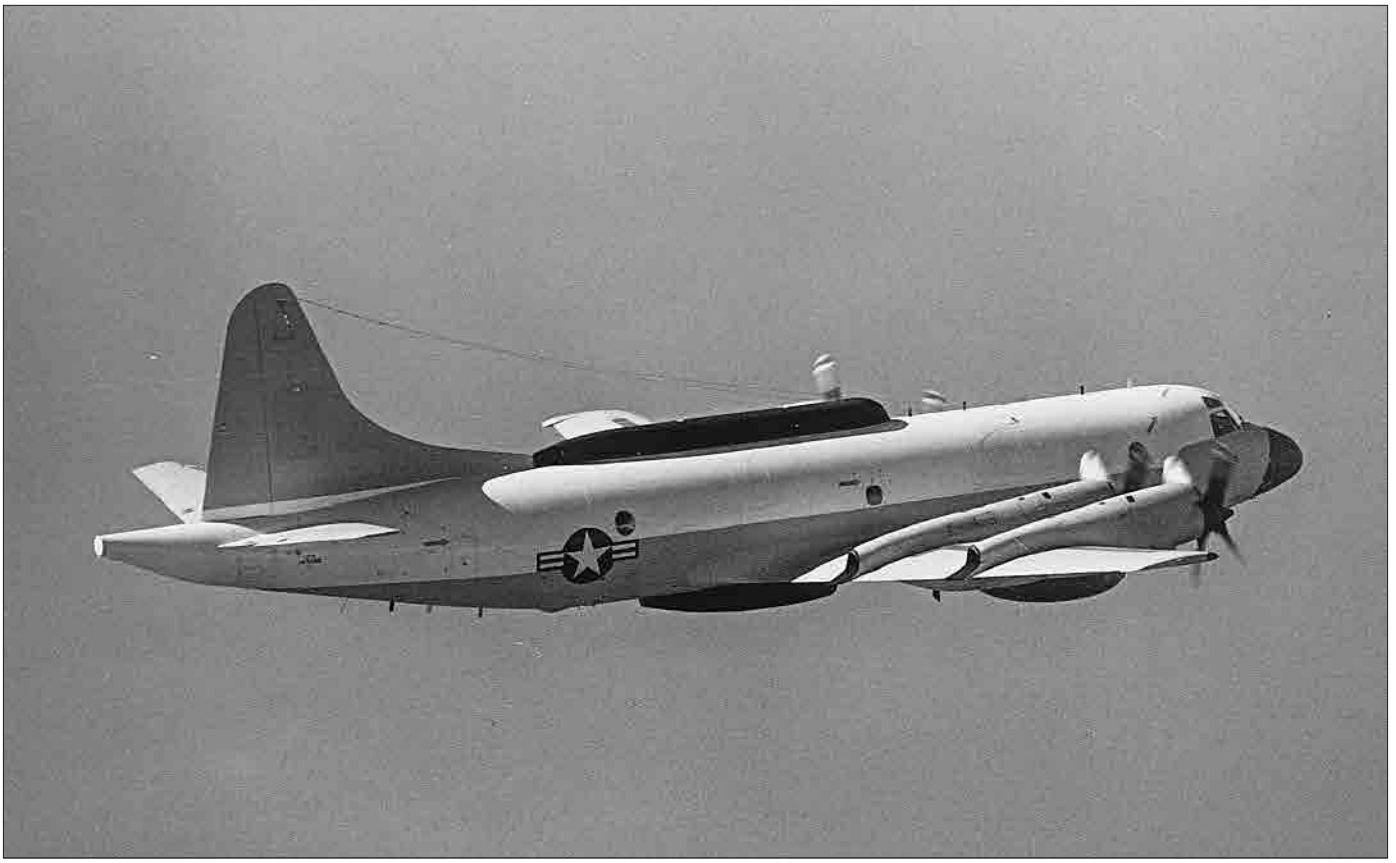
18 JULY • *Independence* (CV 62) turned over duties as the permanently forward-deployed aircraft carrier to *Kitty Hawk* (CV 63) while at NS Pearl Harbor, Hawaii.

20 JULY • The Navy inaugurated FlashJet, a less expensive and more environmentally friendly method to remove paint from T-45 Goshawks via pulsed light energy and dry ice pellets, at NAS Kingsville, Texas.

22 JULY • Rear Adm. Alan B. Shepard Jr. died at the age of 74 after a lengthy battle with leukemia. Shepard had been one of the original seven Mercury astronauts and, on 5 May 1961, became the first American in space during his flight on board *Freedom 7*. On 31 January 1971, Shepard returned to space on board *Apollo 14*, becoming the fifth man to walk on the moon.

7 AUGUST • Al-Qaeda terrorists detonated truck bombs at the U.S. Embassies at Nairobi, Kenya, and Dar es Salaam, Tanzania, killing at least 301 people including 12 Americans, and injuring an estimated 5,000 victims.

13 AUGUST • General Electric delivered the first two F414 production engines for the F/A-18E/F Super Hornet program.



This EP-3E Aries II, BuNo 149668, is a modified P-3A Orion, which was delivered on 31 July 1962. It was converted in 1970 and transferred to VQ-2 on 30 July 1971 and provided intelligence, surveillance, and reconnaissance until retired in 1995.

20 AUGUST • Operation Infinite Reach (Resolute Response) began—two simultaneous retaliatory raids in response to the twin al-Qaeda attacks on the embassies in East Africa on 7 August. Cruisers *Cowpens* (CG 63) and *Shiloh* (CG 67), destroyers *Elliot* (DD 967) and *Milius* (DDG 69), and submarine *Columbia* (SSN 771) of the *Abraham Lincoln* (CVN 72) Carrier Battle Group sailing in the north Arabian Sea fired 73 BGM-109 TLAMs (Tomahawk Land Attack Missiles) at the Zhawar Kili al-Badr terrorist training and support complex, 30 miles southwest of Khowst, Afghanistan. Destroyers *Briscoe* (DD 977) and *Hayler* (DD 997) steaming in the Red Sea launched six TLAMs against the al-Shifa pharmaceutical plant near Khartoum, Sudan. Intelligence analysts suspected the plant of having ties to terrorist leader Osama bin Laden and of manufacturing precursor chemicals for the deadly VX series of nerve gas. The Sudanese and critics claimed that the plant did not produce VX. Vessels involved in these battles included amphibious assault ship *Essex* (LHD 2), dock landing ship *Anchorage* (LSD 36), and amphibious transport dock *Duluth* (LPD 6), with the 15th Marine Expeditionary Unit embarked. Forward-deployed VQ-1 EP-3E Aries IIs and VP-9 P-3C Orions operated as part of Task Force 57. The attacks killed at least 11 terrorists. *Abraham Lincoln* evaluated the "pivotal" role of her command, control, communications, computers, and information suite in the two simultaneous operations on two separate continents, and in the dissemination of the initial battle damage assessment.

20 AUGUST • The reconfigurable flight controls of an F/A-18E/F Super Hornet were demonstrated at NAS Patuxent River, Md. The control system replaced the mechanical backup of earlier Hornets, greatly enhancing aircraft safety and the pilot's ability to recover control of the aircraft.

25 SEPTEMBER • E-6B Mercury Take Charge and Move Out aircraft operating from Tinker AFB, Okla., took over the flying command post mission from the Air Force following the retirement of the last EC-135 Looking Glass aircraft.

1 OCTOBER • VFA-122 at NAS Lemoore, Calif., was established as the first F/A-18E/F Super Hornet fleet readiness squadron.

19 OCTOBER • HSL-46 Detachment 9 participated in its first successful drug interdiction mission during a deployment on board cruiser *Ticonderoga* (CG 47). The detachment recovered about four metric tons of cocaine with a street value of $50 million.

20 OCTOBER • VXE-6 departed for its final tour of duty in Antarctica to provide aerial and logistical support for the Antarctic program.

1 NOVEMBER • P-3Cs began flying daily surveillance missions over Kosovo in support of NATO enforcement operations. The Orions' onboard surveillance equipment provided allied commanders with real-time video and radar images of the fighting on the ground.

2 DECEMBER • NAWS Point Mugu, Calif., was redesignated NAS Point Mugu.

3 DECEMBER • Lt. Cmdr. William C. Hamilton fired two AGM-88 HARMs (High-speed Anti-Radiation Missile) from F/A-18F, BuNo 165170, in the first full-system live-fire test of the Super Hornet program with forward-firing ordnance.

16 DECEMBER • The coalition launched Operation Desert Fox against the Iraqis.

1999

5 JANUARY • In a dogfight over Iraq, Navy and Air Force aircraft unsuccessfully fired six air-to-air missiles against Iraqi MiG-25 Foxbats that violated the no-fly zone.

14 JANUARY • An engineering and manufacturing development MV-22, designated Osprey No. 10, began initial sea trials on board amphibious assault ship *Saipan* (LHA 2) and dock landing ship *Tortuga* (LSD 46). The trials extended through 8 February.

25 JANUARY • F/A-18C Hornets of VFA-22 and -94, embarked on board *Carl Vinson* (CVN 70), made the first operational launch of the AGM-154A JSOW (Joint Standoff Weapon) in action against Iraqi military targets during Operation Southern Watch.

27 JANUARY • The United States promulgated new rules of engagement that allowed allied aircraft patrolling the no-fly zones to target a wider range of Iraqi air defense systems and supporting installations, in order to reduce their overall capabilities against the aerial patrols.

24 FEBRUARY • Three LC-130R Hercules of VXE-6 returned to NAS Point Mugu, Calif., after a four-month deployment to Antarctica during Operation Deep Freeze 1998 to 1999. This marked the end of VXE-6's support of the Antarctic program.

3 MARCH • The F/A-18F completed its second round of sea trials on board *Harry S. Truman* (CVN 75) during the ship's sea trials off the Virginia Capes through 14 March. Capt. Robert O. Wirt Jr.; Lt. Cmdrs. Timothy H. Baker, Robert L. Floyd, and Michael M. Wallace; Maj. Matt Shihadeh, USMC; and Lts. Alan D. Armstrong, Erik O. Etz, and Klas W. Ohman flew the first two dual-seat Super Hornets.

10 MARCH • VC-6 Detachment A completed a four-week RQ-2A Pioneer unmanned aerial vehicle deployment in support of the counternarcotics Operation Alliance to NAF El Centro, Calif. Over 32 sorties, the detachment used a forward-looking infrared-sensor equipped Pioneer to apprehend 438 suspected drug traffickers/illegal aliens, together with narcotics valued at $8.9 million.

18 MARCH • NADEP Jacksonville, Fla., completed the modification of 32 P-3C Orions designed to enhance the fleet's ability to seek out drug runners from standoff ranges. The Counter Drug Upgrade modifications included the replacement of the air search radar by the same APG-66 multimode radar used in many General Dynamics F-16 Fighting Falcons. The modification of the first Orion, BuNo 157311, had begun on 15 September 1995, and the final plane, BuNo 161014, completed the upgrade on this date.

An F-14D Tomcat launches from the port catapult of *Theodore Roosevelt* (CVN 71) during Operation Allied Force, 12 April 1999.

24 MARCH • After diplomatic efforts to counter what Serbian President Slobodan Milosevic termed "cleansing" of ethnic Albanians from Kosovo collapsed, on this date, NATO began Operation Allied Force—an air campaign to reduce the ability of the Serbs to sustain their operations. Naval aviation contributed land-based EA-6B Prowlers and EP-3E Aries IIs and F/A-18D Hornets. Allied aircraft dropped Joint Direct Attack Munitions (JDAMs) operationally for the first time. Additional aircraft involved included five Antisurface Warfare Improvement Program–modified P-3C Orions of VP-5 equipped with synthetic aperture radar and AGM-84E SLAM (Standoff Land Attack Missiles), and RQ-1A Predator camera-carrying unmanned aerial vehicles.

24 MARCH • VS-31 bid farewell to the last aviation warfare systems operator–rated crewmen during their removal from S-3 Viking mission requirements and transfer to other aircraft.

26 MARCH • The Navy released plans to select 12 limited duty officers and chief warrant officers as naval flight officers (NFO). One new NFO was scheduled to be assigned to each patrol squadron, with periodic selection boards held to determine replacements as needed.

27 MARCH • A surface-to-air missile shot down an Air Force Lockheed F-117A Nighthawk on a night mission over Kosovo. VAQ-134 assisted with the rescue of the pilot, neutralizing Yugoslav air defenses by jamming and firing AGM-88 HARMs (High-speed Anti-Radiation Missile).

3 APRIL • *Theodore Roosevelt* (CVN 71) arrived in the Mediterranean to support Operation Allied Force. Aircraft flew a total of 4,270 sorties of all types from the carrier during the operation, and destroyed or damaged 447 tactical and 88 fixed military targets.

USN 990414-N-6240R-513

After a strike into Kosovo, an AV-8B Harrier II of HMM-266 returns to amphibious assault ship *Nassau* (LHA 4), 14 April 1999.

11 APRIL • MH-53E Sea Dragons and H-46 Sea Knights of HM-14 and -15, embarked on board mine countermeasures ship *Inchon* (MCS 12), delivered 6,000-pounds of relief supplies to refugees in Kukes, Albania. These flights began the Navy's contribution to NATO Operation Shining Hope—humanitarian assistance to people displaced by the fighting in Kosovo.

13 APRIL • Lts. Christopher D. Marrs, Michael W. Reinmuth, and Douglas W. Carpenter, and Lt. j.g. Dirk J. Hart of VS-31, successfully guided an AGM-84 SLAM (Standoff Land Attack Missile) from an S-3B Viking for the first time. Lt. Kevin Healey of VFA-131 piloted the F/A-18 Hornet that launched the missile at San Nicolas Island, Calif.

1 MAY • Five P-3C Orions of VP-40 operating out of Kadena, Okinawa, rescued 18 survivors from a Filipino ship that broke apart during Tropical Storm Leo in the South China Sea.

12 MAY • "The Today Show" made the first live television broadcast from an aircraft carrier underway on board *Theodore Roosevelt* (CVN 71) in the Mediterranean.

27 MAY • F/A-18E/F Super Hornets entered their six-month operational evaluation with VX-9 at NAWS China Lake, Calif.

27 MAY • Aircraft No. 11, the first of 360 low-rate initial production MV-22 Ospreys planned for the Marine Corps, arrived at the MV-22 Multi-Service Operational Test Team, MCAF Quantico, Va.

1 JUNE • A ceremony celebrated the ground breaking for a $2.1 million hangar to house VC-6 Detachment A at Webster Field Annex, NAS Patuxent River, Md. This was the Navy's first RQ-2A Pioneer unmanned aerial vehicle hangar.

USMC 990608-N-9593R-003

Marine Sgts. Todd Abbott and Andrew McInally man their .50-caliber machine guns on board a CH-53D Sea Stallion while transporting Marines of the 26th Marine Expeditionary Unit to Skopje, Macedonia, 8 June 1999.

30 JUNE • An F/A-18D made the first guided launch of an AIM-9X air-to-air missile from a Hornet at NAWS China Lake, Calif. The Sidewinder successfully intercepted a QF-4 drone.

5 AUGUST • The first fully upgraded SH-60R Seahawk rolled out at Lockheed Martin, Owego, N.Y. The Navy planned a total of 250 SH-60Rs for upgrades through 2012.

10 AUGUST • The Navy retired the last two ES-3A Shadows during the deactivation of VQ-6 at NAS Jacksonville, Fla. The retrofitting of 16 Shadows from S-3B Vikings had provided battle group commanders with state-of-the-art organic reconnaissance, but the upgrade cost proved prohibitive. Shore-based EA-6B Prowlers and EP-3E Aries IIs subsequently performed the specialized tasking.

11 AUGUST • Secretary of the Navy Richard J. Danzig announced the assignment of a team to observe the 1999 Tailhook convention to evaluate the possibility of reestablishing the Navy's connection with the organization.

19 AUGUST • Amphibious assault ship *Kearsarge* (LHD 3) crossed the Mediterranean to Turkey in response to a 17 August 7.4-magnitude earthquake that devastated the region, killing more than 24,000 people. On 23 August, helicopters from *Kearsarge* began to ferry aid to the victims, and on 12 September the ship left the area.

2 SEPTEMBER • In the Caribbean, a P-3C Orion of VP-26 assisted Coast Guardsmen with the seizure of a vessel smuggling 2,000-pounds of cocaine.

15 SEPTEMBER • Hurricane Floyd forced the evacuation of 80 Navy ships and dozens of aircraft from between Mayport, Fla., and Norfolk, Va. Two HH-60H Seahawks of HS-11 rescued eight crewmembers when heavy seas swamped tugboat *Gulf Majesty* and her tow, a container barge, 300 miles off Florida. In another incident, HS-11 rescued another mariner.

1 OCTOBER • NavAdmin 271/99 established career enlisted flyer incentive pay, and also increased the selective reenlistment bonus. Simultaneously, the service offered aviation continuation pay program for Fiscal Year 1999 to pilots who had reached or surpassed their minimum service requirement.

7 OCTOBER • As tensions caused by rival independence movements in East Timor erupted into warfare, the UN launched Operation Stabilise—a multinational peacekeeping effort. On this date, amphibious assault ship *Belleau Wood* (LHA 3) arrived in the area to participate. On 26 October, amphibious assault ship *Peleliu* (LHA 5) relieved *Belleau Wood*, and on 26 November *Peleliu* left the region.

31 OCTOBER • Egypt Air Flight 900, a Boeing 767-300ER, crashed 60 miles east of Nantucket Island, Mass., killing all 217 on board. Navy commands that assisted in the search for victims and wreckage included three MH-53E Sea Dragons operating from amphibious transport dock *Austin* (LPD 4).

17 NOVEMBER • The first seven training and evaluation F/A-18E/Fs arrived at Super Hornet fleet readiness squadron VFA-122, NAS Lemoore, Calif. A total of 92 aircraft were scheduled for delivery to the squadron's parent strike fighter wing by 2004.

22 NOVEMBER • The Navy and Coast Guard participated in the first successful shipboard landing of a CL-327 Guardian vertical takeoff and landing unmanned aerial vehicle (UAV) on board Coast Guard Cutter *Thetis* (WMEC 910) off Key West, Fla. Sailors simultaneously tested the UAV common automatic recovery system for fleet compatibility.

24 NOVEMBER • Lt. Cmdr. Gregory C. Huffman piloted the first ATFLIR (advanced targeting forward looking infrared)-equipped F/A-18D Hornet at NAWS China Lake, Calif. The system featured improved target acquisition at greater standoff ranges.

3 DECEMBER • Local opposition drove the Puerto Rican government to ask the Navy to abandon its live-fire exercises on Vieques Island. The government rejected the Navy's proposal to end the exercises in five years, which undermined fleet readiness and compelled *Dwight D. Eisenhower* (CVN 69) and amphibious assault ship *Wasp* (LHD 1) to disrupt their training schedules.

17 DECEMBER • Civilians from Seaward Services, Inc., replaced the Navy crew of helicopter landing trainer *IX-514* at NAS Pensacola, Fla.

Chapter 13

Dawn of the Twenty-first Century

2000–2010

Naval aviation entered the third millennium responding to crises around the world while developing the weapons to project American power. Sailors and Marines deployed to challenge dictators who sought weapons of mass destruction, rescued victims of natural disasters, and turned up the heat in the war on drugs. On 11 September 2001, terrorists owing allegiance to al-Qaeda attacked the United States aided and abetted by the Islamic fundamentalist Taliban who ruled most of Afghanistan. The refusal of the Taliban to extradite them left the United States no alternative but to demonstrate globally that harboring terrorists carried a steep price. During the months after the attacks on 9/11, the Americans and their allies overcame fierce opposition and appalling weather and terrain and liberated the country, and then protected the Afghan people during the reconstruction after decades of war.

The coalition also met repeated Iraqi violations of cease-fire accords and presumed attempts to develop weapons of mass destruction with continued vigilance. Years of embargoes and bombardment to deprive Hussein of weapons of mass destruction had disrupted the illicit program, and the transition to a stable government collapsed from an insurgency fueled by internecine religious and tribal strife. Al-Qaeda terrorists and Muslim militants infiltrated the void produced by the ensuing chaos. In 2003, these clashes culminated in the liberation of Iraq from the tyranny of Saddam Hussein and his Ba'ath supporters. Sailors and Marines provided air support and spearheaded ground assaults. Naval aviation carried out missions over dynamic and fluid battlefields in Afghanistan and Iraq. Aircrew supported rapidly developing operations when the need for time-sensitive strikes led to the reception of target assignments while already airborne.

The fleet tackled global security missions with aerial surveillance and sea control sorties to ensure the uninterrupted flow of oil, provided intelligence and situational awareness to theater commanders, participated in maritime interceptions, evacuated casualties from battlefields and the high seas, and hunted for drug smugglers to reduce the flow of contraband onto America's streets. Space shuttle missions launched with predominately Navy crews, and the Coast Guard celebrated its 217th birthday by announcing its rescue of more than a million lives since its inception.

Naval aviation organizational and operational methods evolved to reflect changing missions. The redesignation and restructuring of carrier battle groups as carrier strike groups occurred, and the groups fell under numbered fleet commanders for operational and administrative control. Under the "six-plus-two" concept of the Fleet Response Plan of the Sea Power 21 strategy, the Navy projected power by deploying six such groups in less than 30 days for contingency operations, with two more groups to follow within three months for rotation or reinforcement. New ships wore the names of pioneers of naval aviation and U.S. history including carriers *Ronald Reagan* (CVN 76), *George H. W. Bush* (CVN 77), and *Gerald R. Ford* (CVN 78), destroyer *Stockdale* (DDG 106), and auxiliary dry cargo ships *Wally Schirra* (T-AKE 8) and *Washington Chambers* (T-AKE 11).

Additional fighter squadrons became strike-fighter squadrons during the transition from F-14 Tomcats to F/A-18 Hornets and Super Hornets. Sea control squadrons

dropped from the roster as submarine hunting missions shifted to helicopters, and wings and squadrons underwent reorganization to reflect the transition from five helicopter models to two. Aircraft that took flight or hurtled through testing toward introduction included the F/A-18E/F Super Hornet, F-35A/B/C Lightning II, EA-18G Growler, E-2D Advanced Hawkeye, P-8A Poseidon, C-40A Clipper, KC-130J Super Hercules, MV-22 Osprey, MH-60R/S Seahawk, AH-1Z Viper, UH-1Y Venom, and VH-71A presidential helicopter.

Naval aviation also integrated unmanned aerial systems such as RQ-4A/B Global Hawks, RQ-8A Fire Scouts, and ScanEagles into operations and added deadly weapons including the AIM-9X Sidewinder short-range air-to-air missile, AGM-84K SLAM-ER (Standoff Land Attack Missile–Expanded Response), JASSM (Joint Air-to-Surface Standoff Missile), JDAM (Joint Direct Attack Munition), and Laser-JDAM. The speed and lethality of naval aviation proved crucial to the defense of the free world.

2000

10 JANUARY • Marines from the 2d Reconnaissance Battalion of the II Marine Expeditionary Force became the first to deploy from an MV-22B Osprey in a parachute free fall from 10,000 feet at Fort A. P. Hill, Va.

19 JANUARY • The Navy announced the restoration of ties to the Tailhook Association after a lengthy review that included a visit by a team led by Secretary of the Navy Richard J. Danzig to the organization's August 1999 convention in Reno, Nev. The Navy had suspended the relationship on 29 October 1991.

26 JANUARY • Cruiser *Lake Erie* (CG 70) fired a Standard SM-3 surface-to-air missile that completed an Aegis Light Exo-Atmospheric Projectile intercept at the Pacific Missile Range Facility at Kauai, Hawaii.

27 JANUARY • The first production CH-60S Seahawk made its initial flight at Sikorsky Aircraft Corp. Stratford, Conn. Sikorsky and Lockheed Martin of Owego, N.Y., had signed a $3 billion contract to provide 237 CH-60Ss through 2007, with ten of the aircraft listed for delivery in 2000. The helicopters were an amalgam of Army Black Hawks and Navy Seahawks to replace CH-46 Sea Knights in the cargo utility role, MH-53 Sea Dragons in antimine warfare, and HH-60s in combat search and rescue. Navy scheduling directed fleet helicopter readiness squadron HC-3 to introduce the aircraft to the fleet at NAS North Island, Calif.

28 JANUARY • HSL-46 Detachment 10 completed a counternarcotics deployment on board frigate *Robert G. Bradley* (FFG 49) in the Caribbean and eastern Pacific with their return to NS Mayport, Fla. From the beginning of its cruise on 24 August 1999, the detachment proved instrumental in the interdiction and seizure of 204 kilos of cocaine and more than a ton of marijuana, as well as search and rescue and medical evacuation missions.

31 JANUARY • A McDonnell Douglas MD-83 airliner, Alaska Airlines Flight 261, crashed into the Pacific north of Anacapa Island, Calif., killing all 88 people on board. An NP-3D Orion from NAWC Point Mugu, Calif., two HH-60H Seahawks from HCS-5 from NAWS Point Mugu, and Coast Guard helicopters and an HC-130H Hercules responded. *Abraham Lincoln* (CVN 72) supported rescue crews, and Navy mapping with underwater side scanning sonar and video enabled the searchers to recover pieces of wreckage. Reinforcements included amphibious transport dock *Cleveland* (LPD 7), destroyer *Fife* (DD 991), and frigate *Jarrett* (FFG 33), with HH-60 and SH-60 Seahawks embarked, and an S-3B Viking from NAS North Island, Calif.

31 JANUARY • After three years of studies, the Navy announced the revision of carrier homeports on the West Coast. In early 2002, *Nimitz* (CVN 68) was to join *John C. Stennis* (CVN 74)—already stationed there—followed in 2005 by *Ronald Reagan* (CVN 76) at NAS North Island, Calif. The announcement stipulated that *Abraham Lincoln* (CVN 72) remain at Bremerton, Wash. The need to replace *Constellation* (CV 64) after her retirement in 2003, and forward-deployed *Kitty Hawk* (CV 63) in Japanese waters in 2008, prompted the moves.

7 FEBRUARY • The Pentagon released a report that characterized the 78 days of bombing of Operation Allied Force as an effective air campaign that helped end Serbian atrocities in Kosovo.

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Smoke rises from the stricken remains of the World Trade Center as *George Washington* (CVN 73) arrives to defend New York the day following the terrorist attacks of 11 September 2001.

8 FEBRUARY • The Military Sealift Command (MSC) announced a $31.2 million contract with Geo-Seis Helicopters, Inc. of Fort Collins, Colo., for two SA-330J Pumas to replace Navy helicopters normally assigned to MSC combat store ships for vertical replenishment and ship-to-shore services. Plans called for the rotation of the Pumas among three such ships during deployments to the Mediterranean. On this date, a Puma performed its first replenishment with combat store ship *Sirius* (T-AFS 8) off the Italian coast.

10 FEBRUARY • The Secretary of the Navy approved the merger of the AK (aviation storekeeper) and SK (storekeeper) ratings during ongoing efforts to balance sea-shore rotation, with a completion date of 1 January 2003.

15 FEBRUARY • The operational evaluation of F/A-18E/Fs concluded and the Super Hornet was recommended for introduction into the fleet. During six months of tests, VX-9 completed 1,233 flight hours in more than 850 sorties, and dropped more than 400,000-pounds of ordnance at NAWC China Lake, Calif.

1 MARCH • Secretary of Defense William S. Cohen approved the merger of the AMS (aviation structural mechanic structures) and AMH (aviation structural mechanic hydraulic mechanic) ratings. Conversion to the AM (aviation structural mechanic) rating became automatic and sailors retained the insignia.

13 MARCH • The Navy celebrated the opening of the first permanent hangar designed and built specifically for unmanned aerial vehicles at the Webster Field annex, NAS Patuxent River, Md. The $2.4 million project proved crucial to VC-6 Detachment A because the sailors had hitherto operated and maintained RQ-2A Pioneers at the mercy of the elements.

16 MARCH • Commander Operational Test and Evaluation Force issued a final report that declared the operational suitability and effectiveness of the AGM-84K SLAM-ER (Standoff Land Attack Missile–Expanded Response).

18 MARCH • Twenty-two F/A-18C Hornets of VFA-82 and -86 were reassigned to MCAS Beaufort, S.C., in preparation for the disestablishment of NAS Cecil Field, Fla.

20 MARCH • "The Spirit of Space" exhibit dedicated to Rear Adm. Alan B. Shepard Jr. was unveiled at the National Museum of Naval Aviation, NAS Pensacola, Fla. The centerpiece of the exhibit is a bronze statue of the astronaut sculpted by Capt. Robert Rasmussen.

24 MARCH • The Department of Defense issued the Laser Master Plan, which included a statement concerning the potential of laser technology to undermine U.S. air power by targeting aircrew vision with ground-based lasers.

27 MARCH • Cmdr. Ronald E. Weisbrook and Lt. Cmdr. Daryl J. Martis of the Naval Strike Aircraft Test Squadron made the first release of a GBU-31 (v) 2/B JDAM (Joint Direct Attack Munition) from an F-14D Tomcat during testing at NAS Patuxent River, Md.

28 MARCH • An Omega Air Boeing 707-321B arrived to begin conversion into the first modern commercial aerial refueling tanker for the fleet at NAS Patuxent River, Md.

31 MARCH • Lt. Cmdr. Terry S. Barrett of the Naval Weapons Test Squadron completed the fourth guided launch of an AIM-9X short-range air-to-air missile from an F/A-18C Hornet at NAWC China Lake, Calif. The Sidewinder intercepted a QF-4 Phantom II target during the first evaluation in a dogfight scenario involving defensive infrared countermeasure flares, and the first using the joint helmet-mounted cueing system.

4 APRIL • The Navy approved the name Clipper for C-40A transports converted from Boeing 737-700Cs. The Clipper was intended to replace the C-9 Skytrain, with six of the aircraft earmarked for reservists by 2001—four at Fort Worth, Texas, and two at NAS Jacksonville, Fla. The aircraft carried up to 121 passengers, eight pallets, or a combination thereof. The Navy later added a seventh Clipper.

6 APRIL • F/A-18C Hornets flying from *John C. Stennis* (CVN 74) struck Iraqi air defense targets in the southern no-fly zone in response to antiaircraft fire.

14 APRIL • A C-40A Clipper made its initial flight at Renton Municipal Airport, Wash.

26 APRIL • The Navy announced the development of an advanced neural network technique to increase the detail in satellite images. The technique used the human eye as a model to reveal the composition of information contained in a pixel, and was under consideration for F/A-18 Hornets to assist pilots in passive surveillance.

28 APRIL • The program to upgrade F/A-18A Hornets to F/A-18C capabilities began with the arrival of the first F/A-18A from VFA-203 at Atlanta, Ga., to Naval Weapons Test Squadron, NAWC China Lake, Calif.

11 MAY • The first of two proof-of-concept SH-60Rs—a remanufacture of SH-60B/Fs and HH-60Hs with modified airframes and avionics—arrived for developmental and contractor testing at NAS Patuxent River, Md. Plans called for 243 Seahawk antisubmarine warfare and ship surveillance and targeting conversions from 2000 to 2010.

12 MAY • The Naval Museum of Armament and Technology was established at NAWC China Lake, Calif.

15 MAY • The first production CH-60S arrived to begin developmental testing at NAS Patuxent River, Md.

17 MAY • Lt. Cmdr. Kevin Mannix of VFA-25 became the first pilot to fly and perform carrier qualifications following corrective laser eye surgery, when he landed an F/A-18C Hornet on board *Abraham Lincoln* (CVN 72).

25 MAY • Pilot Lt. Cmdr. John M. Hunt, copilot Lt. j.g. Jeremy P. Niles, and aircrewman AW3 Paul Amado of HSL-49 Detachment 2, manned an SH-60 Seahawk embarked on board cruiser *Valley Forge* (CG 50) during a counternarcotics operation in the eastern Pacific and helped to rescue 12 castaways adrift in their vessel.

1 JUNE • The Navy announced the introduction of a six-ounce passive and continuous emergency distress signaling

pocket rescue unit designated SEE/RESCUE that did not require batteries, chemicals, or electronics. During testing, search and rescue teams visually identified the device from an altitude of up to 3,000 feet and more than a mile away.

16 JUNE • Images from an Advanced Tactical Airborne Reconnaissance System (ATARS)–equipped F/A-18D Hornet were data-linked to the Marine Corps Tactical Exploitation Group during evaluations at NAWC China Lake, Calif.

29 JUNE • Naval Force Aircraft Test Squadron began testing an eight-bladed propeller for E-2C Hawkeyes and C-2A Greyhounds at NAS Patuxent River, Md.

29 JUNE • The Navy announced that the AGM-84K SLAM-ER (Standoff Land Attack Missile–Expanded Response) was available for duty with the fleet.

5 JULY • The Chief of Naval Operations (CNO) established the office of Assistant CNO for Missile Defense on his immediate staff with the responsibility for theater ballistic and cruise missile defense.

12 JULY • The Navy announced the increase of the 2000 Aviation Career Continuation Pay program to improve retention. This gave naval aviators potential earnings of up to $245,000 in bonuses through 25 years of aviation service.

16 JULY • F/A-18Fs made their worldwide debut when two of the Super Hornets from VFA-122 flew nonstop from NAS Patuxent River, Md., to the international air show at Farnborough, England.

24 JULY • The P-3C Block Modernization Upgrade Program Development Test Integration Facility opened at NAS Patuxent River, Md.

26 JULY • Amphibious assault ships *Belleau Wood* (LHA 3) and *Essex* (LHD 2) swapped commands in Sasebo, Japan. This enabled crewmembers of forward-deployed ships to switch ships rather than impacting families by moving them to new homeports. The move marked the largest swap to date and required six weeks to complete.

21 AUGUST • NAS Fallon, Nev., commanding officer Capt. David A. Rogers replaced (retired) Capt. Lonny McClung as president of the Tailhook Association. Rogers was the first active duty president of the association since 1991 and initiated the restoration of the association's ties with active duty naval aviators.

23 AUGUST • Two SH-60F Seahawks from HS-15, embarked on board *George Washington* (CVN 73), directed rescuers to the scene of the crash of Gulf Air Flight 072, an Airbus A320, in the Persian Gulf. All 143 passengers and crew died in the crash.

24 AUGUST • The initial test flight of an Improved Tactical Air Launched Decoy took place at NAWC China Lake, Calif. Israeli Military Industries developed the decoy designed to more accurately imitate manned aircraft.

25 AUGUST • The final F/A-18D Hornet rolled off the production line. It was delivered to VMFA(AW)-121 at MCAS Miramar, Calif.

9 SEPTEMBER • The introduction of the C-40A Clipper to Naval Reservists occurred at Boeing Field, Seattle, Wash.

14 SEPTEMBER • Lt. Robert L. Dinunzio of VP-45 piloted a P-3C Orion that directed destroyer *Briscoe* (DD 977) to the rescue of 12 Moroccan castaways adrift in the Mediterranean Sea.

27 SEPTEMBER • The testing of the cooperative engagement capability (CEC) system against drone-simulated threats concluded off Wallops Island, Va. Commands that participated included *Dwight D. Eisenhower* (CVN 69) and amphibious assault ship *Wasp* (LHD 1). The Navy intended the system, designed to defend the fleet at greater ranges against advanced threats such as cruise missiles, to enable the development of a single integrated air picture. Plans included an initial operational capability for 2004 and the eventual allocation of about 160 systems.

1 OCTOBER • Under a realignment in the office of the Chief of Naval Operations, the Director, Air Warfare Division (N88) was redesignated N78.

12 OCTOBER • Two al-Qaeda terrorists in an inflatable Zodiac-type speedboat detonated a bomb alongside destroyer *Cole* (DDG 67) while the ship refueled in Aden, Yemen, killing 17 sailors and wounding 42 others. Damage control efforts saved *Cole*. Vessels that responded included amphibious assault ship *Tarawa* (LHA 1), dock landing ship *Anchorage* (LSD 36), amphibious transport dock *Duluth* (LPD 6), destroyer *Donald Cook* (DDG 75), frigate *Hawes* (FFG 53), and tug *Catawba* (T-ATF 168), along with British frigates *Cumberland* (F 85) and *Marlborough* (F 233).

13 OCTOBER • The Navy declared the MV-22B operationally effective and fit for land-based operations. Plans included additional testing of the Osprey's blade-fold wing stow system to measure its shipboard suitability.

30 OCTOBER • Harry S. Gann died at the age of 75. Gann joined Douglas Aircraft in 1954 and helped design aircraft control systems for the A-3 Skywarrior, A-4 Skyhawk, and F4D-1 Skyray. A founder of the American Aviation Historical Society, he retired in 1992. His awards include the designation of Honorary Marine Aviator in 1975, Honorary Blue Angel in 1979, and Honorary Naval Aviator No. 24 in 1997.

8 NOVEMBER • Capt. John B. Hollyer and Lt. Kevin M. Quarderer completed the first flight of a T-34C Turbomentor with the addition of wing pylons for external stores at NAS Patuxent River, Md.

8 NOVEMBER • The MV-22B was declared suitable for shipboard operations. The announcement followed a successful demonstration on 31 October of the aircraft's blade-fold wing stow system during sea trials on board amphibious assault ship *Bataan* (LHD 5).

17 NOVEMBER • A CH-60S Seahawk at Sikorsky Aircraft Corp. Stratford, Conn., received an experimental coat of three-shade matt Haze Gray paint specifically designed to reduce air pollution through the elimination of volatile organic compounds. The project was considered for possible Navy-wide adoption.

7 DECEMBER • An AH-1Z Viper flew for the first time at Bell Helicopter Textron, Arlington, Texas.

7 DECEMBER • Cmdr. Jeffrey R. Penfield piloted the first fleet F/A-18E Super Hornet, BuNo 165781, to VFA-115 at NAS Lemoore, Calif.

20 DECEMBER • Amphibious assault ship *Nassau* (LHA 4) rescued 29 people adrift in a boat in the Mediterranean Sea.

29 DECEMBER • *Abraham Lincoln* (CVN 72) launched the final flights of her deployment supporting Operation Southern Watch over Iraq, and then turned for Australian waters.

30 DECEMBER • An SH-60B Seahawk from HSL-42 Detachment 8, embarked on board cruiser *San Jacinto* (CG 56), participated in the rescue of 11 Yemenis adrift in a boat 60 miles off the coast of Yemen.

2001

1 JANUARY • Aircraft operating from *Harry S. Truman* (CVN 75) during her maiden deployment struck an Iraqi radar system with precision-guided munitions during Operation Southern Watch.

11 JANUARY • The Navy changed the status of Lt. Cmdr. Michael S. Speicher of VFA-81 from killed in action/body not recovered to missing in action. Speicher had been shot down over Iraq on 17 January 1991.

20 JANUARY • Naval aviator Donald H. Rumsfeld was sworn in as the 21st Secretary of Defense.

25 JANUARY • Flight tests concluded on the AQS-22 dipping sonar for the SH-60R Seahawk.

5 FEBRUARY • During a maritime interception operation surge in the Persian Gulf to enforce Iraqi compliance with UN sanctions, an HS-7 Seahawk operating from *Harry S. Truman* (CVN 75) proved instrumental in halting the smuggling of 2,300 metric tons of Iraqi oil worth $460,000 by vessels *Al Salam* and *Mustafa*. The surge concluded on 11 February.

6 FEBRUARY • NAVAIR redesignated the CH-60S Seahawk as MH-60S to reflect the diverse primary missions

of armed helicopter, organic airborne mine countermeasures, and vertical replenishment.

15 FEBRUARY • After an earthquake that devastated Mumbai, India, cruiser *Cowpens* (CG 63), with HSL-51 Detachment 2 embarked, delivered more than $80,000 worth of disaster relief supplies to victims in the area.

16 FEBRUARY • Since Operation Desert Fox in 1998, the Iraqis had launched more than 60 surface-to-air missiles and fired antiaircraft guns more than 1,000 times at coalition aircraft. Initially, Iraqi gunners learned to briefly radiate their radars, then shut down and run to escape allied AGM-88 HARMs (High-speed Anti-Radiation Missiles). Iraqi dictator Saddam Hussein later linked the air defense network with fiber optic cabling so that radars from around Baghdad—outside the no-fly zones—could radiate and send targeting data to remote antiaircraft sites.

The Americans and British, therefore, attacked military targets with the largest strikes since Desert Fox. F/A-18Cs from VFA-37 and -105 and VMFA-312, and EA-6B Prowlers from VAQ-130, embarked on board *Harry S. Truman* (CVN 75), and Air Force F-15E Strike Eagles and British GR.1 Tornados, struck five Iraqi radar, and command, control, and communication nodes outside Baghdad with a variety of ordnance including Hornet-launched AGM-154A JSOW (Joint Standoff Weapons).

7 MARCH • The Navy announced the adaptation of blendable borescope technology—developed by Pratt & Whitney for repairing commercial jet engines—to service AV-8B engines without removing them from the aircraft.

24 MARCH • The Shared Reconnaissance Pod Program began testing on board F/A-18E E2 at NAWC China Lake, Calif. The pod, carried on the jet's centerline, was intended to provide high- and medium-altitude tactical reconnaissance capabilities.

28 MARCH • The Navy agreed to allow sailors in the AD (aviation machinist's mate) and AM (aviation structural mechanic) ratings to apply skills learned in "A" School toward an associate's degree in aviation maintenance technology.

1 APRIL • A Chinese Jianjiji J-8 collided with EP-3E, BuNo 156511, piloted by Lt. Shane J. Osborn of VQ-1, while the Aries II flew a routine surveillance mission in international airspace over the South China Sea. The impact disabled the plane, but Osborn recovered and executed an emergency landing at a Chinese station at Lingshui, Hainan Island. For 15 days the Chinese disregarded U.S. protests and detained the 24 crewmembers before allowing their return to NAS Whidbey Island, Wash. On 5 July, the disassembled pieces of the Aries II arrived on board a Russian Antonov An-124 transport at Dobbins ARB, Marietta, Ga.

1 APRIL • HSL-60 at NS Mayport, Fla., was established as the first Naval Reserve LAMPS Mk III squadron. Its six SH-60B Seahawks were to support Reserve frigates by eliminating the gap between the total of 82 active duty LAMPS detachments and the 88 required. On this date, the deactivation of HSL-94 also occurred.

3 APRIL • The Navy ordered 24 T-6A Texan IIs and technical support from Raytheon Company, Wichita, Kans. The $148 million order comprised part of the Joint Primary Aircraft Training System with the Air Force.

19 APRIL • An NP2000 E-2C, equipped with digitally controlled all-composite eight-bladed propeller systems, completed its first flight at NAS Patuxent River, Md.

21 APRIL • The initial Naval Reserve C-40A Clipper arrived at NAS JRB Fort Worth, Texas.

23 APRIL • A Naval Strike Aircraft Test Squadron F/A-18A Hornet made the first fully automated landing at sea using the global positioning system on board *Theodore Roosevelt* (CVN 71) off Norfolk, Va.

25 MAY • SH-60R Seahawks were redesignated MH-60Rs to reflect their diverse primary missions of undersea warfare, antisurface warfare, and naval surface fire support.

29 MAY • Naval aviation artist Robert G. Smith died at his home in California. In 1936, Smith began his career as an engineer with Northrop Aircraft. In 1994, the Naval Aviation Museum Foundation acknowledged his excellence in naval aviation art by naming him the first recipient of the R. G. Smith Award, which it had named in his honor.

25 JUNE • VFA-115 became the first operational squadron to complete the transition to F/A-18E/F Super Hornets when it received a safe-for-flight certification at NAS Lemoore, Calif.

30 JUNE • The deactivation of HSL-84 at NAS North Island, Calif., marked the passing of the Navy's LAMPS Mk I program.

30 JUNE • Amphibious assault ship *Iwo Jima* (LHD 7) was commissioned.

9 JULY • An E-2C Hawkeye equipped with a Surveillance Infrared Search and Track sensor detected and tracked a theater ballistic missile launched from White Sands Missile Range, N.M.

31 JULY • The Pentagon announced an increase in Iraqi violations after a 19 July surface-to-air missile (SAM) launch against an E-2C Hawkeye flying inside Kuwaiti airspace. During the preceding year, there had been 221 provocations against coalition aircraft in Operation Southern Watch, but in 2001 there were 370 to date. During 2000, some 145 violations occurred in Operation Northern Watch and since January 2001 another 62. To date in 2001, the coalition had struck Iraqi antiaircraft and SAM batteries 19 times in the south and 7 in the north.

1 AUGUST • VS-24 S-3Bs from *Enterprise* (CVN 65) began to fly missions over Iraq in support of Operation Southern Watch. Equipped with the surveillance system upgrade synthetic aperture radar, Viking crewmembers coupled the system with a tactical common data link that facilitated the tracking and identification of multiple targets, and provided coordinates for RQ-1A Predators from ranges of more than 50 miles.

3 AUGUST • Coast Guard HH-60J Jayhawks and HH-65A Dolphins supported three cutters in the rescue of 22 survivors from a Cuban migrant vessel that on 2 August capsized southeast of NAS Key West, Fla. During the two-day search and rescue mission, the helicopters flew 26 sorties covering more than 1,000 square miles.

5 AUGUST • A team of ten specialists began a 30-day excavation on the slope of Mutnovsky volcano in Kamchatka, Russia. On 11 August 2000, investigators tentatively identified the area as the crash site of a PV-1 and its crew of seven men. On 25 March 1944, the Ventura had failed to return to Attu in the Aleutians from a five-plane reconnaissance and bombing mission against a Japanese garrison in the Kuriles.

10 AUGUST • About 20 coalition strike aircraft comprising F/A-18C Hornets from VFA-15 and -87 and F-14B Tomcats from VF-14 and -41, embarked on board *Enterprise* (CVN 65), Air Force F-16 Fighting Falcons, and British GR.1 Tornados, attacked communication, radar, and missile sites near Baghdad, Iraq.

21 AUGUST • The Pentagon authorized aviation career continuation pay, a sea- and performance-based incentive designed to enhance the retention of experienced naval aviation officers. Eligibility requirements included officers designated as naval aviators or active duty naval flight officers at or below O-6 pay grade, qualified to perform operational flying duty, and having less than 24 years aviation service.

29 AUGUST • The first guided BLU-109 2,000-pound JDAM (Joint Direct Attack Munition) launch from an F/A-18E Super Hornet occurred at NAWC China Lake, Calif.

29 AUGUST • The Joint Unmanned Aerial Vehicle (UAV) in Time Sensitive Operations project of the Joint Test and Evaluation Program Office was established at NAS Fallon, Nev. A Navy director led the temporary joint Department of Defense organization to address commonality in UAV operations and training.

31 AUGUST • The Marines accepted the delivery of the first three production KC-130Js and a Cessna UC-35D Encore. On 7 September, the first of the Super Hercules arrived at VMGRT-253, MCAS Cherry Point, N.C. The Super Hercules, scheduled to replace all 79 Marine KC-130F/R/Ts, had digitally controlled cockpits and six propellers per engine rather than four. The Marines had requested seven aircraft during 2001 for VMGRT-253 after testing at NAS Patuxent River, Md. The Encore marked the third of seven jets planned to replace CT-39 Sabreliners and was assigned to MCAS Miramar, Calif. Over the next six months, two more followed, one to MCAS Futenma, Okinawa, and one to Marine Reserve NAF Washington, D.C. Two of the initial UC-35C Ultras had been assigned to Marine Reserve NAS New Orleans, La.

10 SEPTEMBER • On the eve of the 9/11 terrorist attacks, the Navy comprised 375,618 active and 170,168 Reserve sailors, and 4,108 operational aircraft and 317 ships and submarines—44,638 sailors and 91 vessels were deployed. Carriers deployed or underway (all separately) consisted of *Enterprise* (CVN 65) and *Carl Vinson* (CVN 70) in the Indian Ocean, *Constellation* (CV 64) and *John C. Stennis* (CVN 74) in the Pacific, and *Kitty Hawk* (CV 63) forward deployed to Japan. Amphibious ready groups deployed included *Boxer* (LHD 4), with the 11th Marine Expeditionary Unit (MEU) embarked, in the Pacific; *Essex* (LHD 2) forward deployed to Japan; *Kearsarge* (LHD 3), 24th MEU, Marmaris, Turkey; and *Peleliu* (LHA 5), 15th MEU, Darwin, Australia.

11 SEPTEMBER • Al-Qaeda terrorists hijacked four airliners, crashing two into the twin World Trade Center towers in New York City, one about 80 miles southeast of Pittsburgh, Pa., and a Boeing 757, American Airlines Flight 77, into the Pentagon. There, the impact thrust the aircraft into the reinforced building and severely damaged the newly opened Navy Command Center. The Pentagon attack killed 189 people, all 64 on board the flight including Naval Reservist and pilot Capt. Charles F. Burlingame III, and injured 125 in the building including 33 sailors and nine Navy civilians. The terrorists killed an estimated 2,977 people in all four 9/11 attacks.

The Department of Defense declared Force Protection Condition Delta—the highest alert. *George Washington* (CVN 73) sailed from Norfolk, Va., to protect New York City. The carrier responded to tasking from NORAD, and supported hospital ship *Comfort* (AH 20) during relief efforts. *John F. Kennedy* (CV 67) and *John C. Stennis* (CVN 74) positioned themselves to defend the East and West Coasts, respectively, while across the globe many aircraft ashore sortied. Coast Guardsmen began to escort Navy ships during their departures or arrivals at ports. Commander Fifth Fleet Vice Adm. Charles W. Moore Jr. oversaw an emergency meeting at NSA Bahrain, and directed some of the nearby aircraft and vessels toward the north Arabian Sea. *Enterprise* (CVN 65) sailing en route to South African waters turned around and raced northward. *Carl Vinson* (CVN 70) rounded India to relieve *Enterprise* but made speed to rendezvous with her and became the first carrier on station in international waters off Pakistan.

14 SEPTEMBER • President George W. Bush declared a national emergency because of the 9/11 terrorist attacks, authorizing the mobilization of up to 50,000 Reservists and National Guardsmen. The initial participation included 13,000 Air Force, 10,000 Army, 7,500 Marine, 3,000 Navy, and 2,000 Coast Guard servicemembers.

19 SEPTEMBER • The induction of the first AH-1W Super Cobra occurred at NADEP Cherry Point, N.C. The move formed a part of the integrated maintenance concept to produce a shorter maintenance turnaround time.

19 SEPTEMBER • *Theodore Roosevelt* (CVN 71) deployed from NS Norfolk, Va. HS-11 HH-60H Seahawks escorted the ship to sea.

24 SEPTEMBER • The Navy accepted delivery to VFA-115 of the first full-rate production F/A-18F Super Hornet, BuNo 165875. To date, the delivery of 67 Super Hornets had occurred including 12 to VFA-115 and 34 to VFA-122.

24 SEPTEMBER • Secretary of Defense Donald H. Rumsfeld delegated his stop-loss authority to the heads of military departments, which allowed the services to retain individuals on active duty beyond their date of separation. In 1990, President George H. W. Bush had originally delegated stop-loss authority to Secretary of Defense Richard B. Cheney during Operation Desert Shield, although leaders had not implemented it since Operation Allied Force in 1999. The decision affected approximately 10,500 sailors in 11 critical specialties.

25 SEPTEMBER • Secretary of Defense Donald H. Rumsfeld announced the designation of America's war on terrorism outside the United States as Operation Enduring Freedom. Activities to sustain homeland defense and civil support received the designation Operation Noble Eagle.

30 SEPTEMBER • While *Theodore Roosevelt* (CVN 71) sailed en route to the Arabian Sea she hoisted aloft a national flag that New York City firefighters George Johnson and Dan McWilliams of Ladder 157 and Billy Eisengrein of Rescue 2 had raised over Ground Zero. On 23 September, New York Governor George E. Pataki and the city's Mayor Rudolph W. Guiliani had signed the flag. The flag was flown to *Theodore Roosevelt*, where sailors then transferred the colors to other vessels. On 26 March 2002, the carrier returned the flag to the firefighters.

USN 011005-N-2669G-005

An F-14A Tomcat of VF-41 and two F/A-18C Hornets cruise in formation as another Hornet refuels from an Air Force KC-10A Extender of the 763d Expeditionary Air Refueling Squadron, 5 October 2001. The Navy aircraft were operating from *Enterprise* (CVN 65).

1 OCTOBER • *Kitty Hawk* (CV 63) sailed from Yokosuka, Japan, for the Indian Ocean. "I needed a steel lily pad—a Forward Operating Base—just off the coast of Pakistan, and I needed it soon," CentCom commander Gen. Tommy R. Franks, USA, afterward explained. On 27 September, *Kitty Hawk* had received notification of deployment to serve uniquely as an afloat forward staging base for special operators, and in ten days she completed carrier qualifications and sea trials that normally take 2½ weeks. To accommodate and support the special operators, the *Kitty Hawk* Carrier Battle Group reconfigured from an average of 8,000 sailors, ten ships, and 72 aircraft to deploy with 4,000 sailors, three ships, and 15 aircraft—eight F/A-18C Hornets, three S-3B Vikings, two C-2A Greyhounds, and two SH-60B Seahawks.

2 OCTOBER • Commandant of the Coast Guard Adm. James M. Loy, USCG, announced that during 2001 maritime interdictions seized an all-time record amount of cocaine.

2 OCTOBER • NATO Secretary-General Lord George Robertson announced that investigators had provided "clear and compelling" evidence of the guilt of Osama bin Laden behind the terrorist attacks on 9/11. The next day, NATO implemented Article 5 of the charter, under which an attack on a signatory was "an attack on all."

4 OCTOBER • In preparation for the air campaign against Afghanistan, HS-3 and -6 were designated the Navy's combat search and rescue alert package for the northern Arabian Sea. The Navy received the initial responsibility for all combat search and rescues in Pakistan south of latitude 28° north, and all overwater search and rescues.

4 OCTOBER • P-3C Orions executed intelligence, surveillance, and reconnaissance flights over Afghanistan, and F/A-18C Hornets from VFA-15 flew combat air patrols over Pakistan. The enormous distances necessitated the eventual establishment of forward operating bases and forward arming and refueling points ashore in Pakistan including Pasni on the coast, Shamsi about 90 miles inland from Pasni, and Jacobabad and Dalbandin in the interior.

6 OCTOBER • Aircraft and ships of NATO Standing Naval Force, Mediterranean, began patrols in the eastern Mediterranean in support of the war on terrorism.

7 OCTOBER • *Enterprise* (CVN 65) and *Carl Vinson* (CVN 70) spearheaded the first coalition strikes against al-Qaeda terrorists and the Taliban in Afghanistan.

7 OCTOBER • While *Kitty Hawk* (CV 63), destroyer *Curtis Wilbur* (DDG 54), and frigate *Gary* (FFG 51) passed through the Strait of Malacca en route to the Indian Ocean, they rescued five Indonesian fishermen from their sinking 40-foot fishing vessel.

8 OCTOBER • The Office of Homeland Security was established to develop and coordinate a national strategy to protect the United States from terrorists. Naval aviation early warning and intelligence aircraft subsequently received tasking for integration into the plan.

USN 011007-N-1523C-001

Cruiser *Philippine Sea* (CG 58) launches a BGM-109 Tomahawk Land Attack Missile against al-Qaeda and Taliban extremists in Afghanistan during the opening strikes of Operation Enduring Freedom, 7 October 2001.

12 OCTOBER • *Kitty Hawk* (CV 63), after a ten-day voyage of almost 6,000 miles to the Arabian Sea, embarked Task Force Sword at al Masirah Island off Oman. Sword was a composite Army command of more than 600 soldiers including men of Special Forces Operational Detachment Delta, and the 2nd Battalion, 160th Special Operations Aviation Regiment. It initially comprised about 20 helicopters including Boeing MH-47D and E Chinooks, Sikorsky MH-60K and L Black Hawks, and Hughes Little Birds—either AH-6Js, MH-6Js, or M500s or a combination thereof. Four days later, *Kitty Hawk* commenced operations in her unique configuration. During the cruise, aircraft from Carrier Air Wing 5 flew more than 600 missions including 100 combat sorties.

14 OCTOBER • As the war in Afghanistan entered its second week, Air Force AC-130U Spooky gunships worked with naval aircraft for the first time in the fighting during

011017-N-6187M-006

A pilot and radar intercept officer brief a plane captain on the performance of their F-14A Tomcat after a mission from *Enterprise* (CVN 65) over Afghanistan, 17 October 2001.

attacks against a Taliban stronghold near Kandahar. About 15 naval strike aircraft, eight to ten Air Force bombers, and British and U.S. naval-launched BGM-109 T-LAM (Tomahawk Land Attack Missiles) attacked seven target areas—two near Kandahar, one near the crucial crossroads of Mazār-e-Sharīf, and two around the capital of Kabul that collectively consisted of training facilities, surface-to-air missile storage sites, garrisons, and troop staging areas. The Taliban acknowledged damage at Kabul to the military academy and an artillery garrison. The allies also hit a terrorist training camp near Jalālābād. VF-14 maximized forward air control flexibility by configuring five F-14B Tomcats to carry four GBU-12 laser-guided bombs each, and configured the remainder for two GBU-16s.

16 OCTOBER • Joint Staff Deputy Director of Operations for Current Readiness and Capabilities Adm. John D. Stufflebeem announced the use of engagement zone doctrine in Afghanistan because of the reduction of enemy air defenses. This concept allowed the adoption of "flex targeting" as aircraft bombed a target, refueled in the air, and then hit another target.

17 OCTOBER • Shortly after midnight, *Theodore Roosevelt* (CVN 71) launched her first strikes into Afghanistan in Operation Enduring Freedom. Almost 40,000 allied servicemembers and nearly 50 ships and submarines operated in the northern Arabian Sea. *Theodore Roosevelt* made a concession to *Carl Vinson* (CVN 70) and shifted her schedule 12 hours to accommodate night operations, which allowed the carriers to maintain pressure on the enemy around the clock. Reveille changed to 1800 and taps to 1000.

USN 011031-N-3405L-007

Two 500-pound GBU-12 laser-guided bombs (left) and an AIM-9 Sidewinder air-to-air missile are visible on the wing of a VFA-94 F/A-18C Hornet flying from *Carl Vinson* (CVN 70) over Afghanistan, 31 October 2001.

18 OCTOBER • F/A-18C Hornets from VMFA-251, embarked on board *Theodore Roosevelt* (CVN 71), made the first Marine air strikes in Operation Enduring Freedom against Taliban infrastructure in Afghanistan.

19 OCTOBER • The first American ground offensive of the war on terrorism began near Kandahar, Afghanistan, when helicopters lifted solders of the Army's Task Force Sword from *Kitty Hawk* (CV 63). Many of the troops then switched to four Lockheed Martin MC-130E/H Combat Talons and raided the compound of Taliban leader Mullah Muhammad A. Umar. The soldiers also struck an unpaved desert airstrip used by terrorist Osama bin Laden at Dolangi near Bibi Tera, 80 miles southwest of the city. Task Force 57 aircraft that supported the raid included aircraft improvement program–equipped P-3C Orions.

An Army Sikorsky MH-60K crashed during a night approach to an airfield in Pakistan, killing two soldiers and injuring five. Marines from the 15th Marine Expeditionary Unit launched four CH-53E Super Stallions from amphibious assault ship *Peleliu* (LHA 5) to retrieve the Black Hawk. Supporting aircraft included one P-3C Orion, four VMA-331 AV-8B Harrier IIs, and a KC-130 Hercules. Super Stallion pilot Capt. Jay M. Holtermann, USMC, of HMM-163 led the mission. The force landed at the scene and rigged slings to enable a Super Stallion to retrieve the helicopter, but the weight of the Black Hawk compelled the Super Stallion to jettison fuel and stop at a forward arming and refueling point (FARP). Militants shot at the Marines who returned fire and Holtermann ordered an abort. On 24 October, four AH-1W Super Cobras circled overhead when the Marines returned to the FARP and recovered the Black Hawk.

19 OCTOBER • Developmental testing of Block II AGM-84 Harpoon air-to-ground missiles concluded at NAWC Point Mugu, Calif.

21 OCTOBER • As the war in Afghanistan entered its third week, approximately 80 strike aircraft, including about 60 carrier-based, struck 11 target areas including airfields, radar, tanks, vehicles, and military training facilities.

22 OCTOBER • The Navy, at Northrop Grumman, St. Augustine, Fla., received the first of 21 new production E-2C Hawkeyes featuring the cooperative engagement capability system, advanced control workstations, and an integrated satellite communications system.

25 OCTOBER • The Taliban and al-Qaeda defiantly clung to their positions around the besieged city of Mazār-e-Sharīf. A forward air controller passed control of an air strike to Maj. Brantley Bond, USMC, of VMFA-251, who flew an F/A-18C Hornet from *Theodore Roosevelt* (CVN 71). Bond knocked out at least four antiaircraft guns and dropped a 500-pound bomb in front of a Taliban tank. The attack flushed additional enemy troops, tanks, and armored personnel carriers from cover, and Bond repeatedly attacked them. He guided other aircraft using his forward-looking infrared system to target enemy vehicles with laser illumination. The survivors attempted to flee in their vehicles and on foot, but the jets accounted for the destruction of 15 armored vehicles. Bond subsequently received the Distinguished Flying Cross.

1 NOVEMBER • Secretary of Defense Donald H. Rumsfeld announced that as of the 25th day of combat operations of Operation Enduring Freedom, coalition aircraft had flown more than 2,000 sorties and delivered more than one million humanitarian rations to Afghan refugees.

1 NOVEMBER • Task Force 58 activated by combining the 15th and 26th Marine Expeditionary Units (MEU). Each MEU included a detachment of six AV-8B Harrier IIs from VMA-331 and -223, respectively. The two KC-130 Hercules normally allotted to each unit proved insufficient and the task force received six of the planes—two from VMGR-252 and four from VMGR-352.

2 NOVEMBER • Two Air Force Sikorsky MH-53J Pave Low IIIs of the 20th Special Operations Squadron attempted a night medical evacuation of a soldier in northern Afghanistan. One crashed during a whiteout at an altitude of about 10,000 feet in Pakistan, and the other recovered the crew, four of whom had been injured. Amphibious assault ship *Peleliu* (LHA 5) prepared to launch an HMM-163 CH-53E Super Stallion and two AH-1W Super Cobra escorts to retrieve the downed helicopter. Instead of risking the recovery forces, however, two VF-102 F-14B Tomcats, embarked on board *Theodore Roosevelt* (CVN 71), destroyed it with two GBU-16 bombs.

2 NOVEMBER • OpNavNote 3111 formally completed the disestablishment of the Navy's last active duty adversary squadron, VFA-127, which had occurred on 31 March 1996 at NAS Fallon, Nev.

3 NOVEMBER • Three AV-8Bs from the 15th Marine Expeditionary Unit, embarked on board amphibious assault ship *Peleliu* (LHA 5), flew the first Harrier II strikes in the war on terrorism against targets in southern Afghanistan with Mk 82 500-pound bombs.

8 NOVEMBER • Almost all of the 78 coalition strike sorties flown into Afghanistan—about 60 naval aircraft, seven to ten bombers, and the remainder land-based tactical jets—attacked targets near Mazār-e-Sharīf and north of Kabul. F-14 Tomcats and F/A-18C Hornets dropped precision-guided munitions on enemy positions, which aided Islamic State of Afghanistan (Northern Alliance) troops opposed to the Taliban in their siege of the city. One raid killed a Taliban leader and an estimated 85 Islamic militants.

9 NOVEMBER • Air strikes forced terrorists and the Taliban from their positions around Mazār-e-Sharīf and Kabul, Afghanistan, to flee or melt into the civilian population. Some 400 to 500 holdouts barricaded themselves in the three-story Sultan Razia Girls School, Mazār-e-Sharīf. They confidently prepared for a siege because of their proximity to the Blue Mosque, a sacred shrine that houses the remains of Ali, the fourth Caliph of Islam and a cousin and son-in-law to the prophet Muhammad. Afghan warlord Abdul R. Dostum led the Islamic State of Afghanistan (Northern Alliance) forces opposed to the Taliban and requested a raid. Aircraft dropped four bombs directly into the building that enabled allied warriors to capture the school, and with it, the city.

USAF 011107-F-5795G-014

An F/A-18C Hornet prepares to refuel from an Air Force KC-10A Extender during an Operation Enduring Freedom mission, 7 November 2001.

This unhinged the Taliban front in the north, gave the coalition its first large airfield in the country, and opened an overland supply route through Uzbekistan.

10 NOVEMBER • Aircraft bombed al-Qaeda terrorists and the Taliban as they retreated from the northern battlefields of Afghanistan. An E-2C Hawkeye directed a VF-102 F-14B Tomcat to attack a column moving eastward from the city. The Tomcat blasted the lead truck that blocked the remaining vehicles into a narrow mountain defile. Cmdr. Roy J. Kelley, VF-102 commanding officer, flew another Tomcat and led the destruction of vehicles packed with enemy troops in the ensuing traffic jam that stretched for almost ten miles.

14 NOVEMBER • At 0640 near Ghazni, about 50 miles southwest of Kabul, Afghanistan, naval aircraft helped cover three U.S. special operations helicopters during the rescue of eight Christian relief workers including Americans Dayna Curry and Heather Mercer of Shelter Now held hostage by the Taliban.

15 NOVEMBER • Lt. Andrew P. Hayes, piloting a VF-102 F-14B Tomcat, with his radar intercept officer spotted several bivouacs of Taliban armored vehicles in Afghanistan two miles from Army Special Forces. Despite antiaircraft and small arms fire, the fliers dropped three laser-guided bombs that hit two moving tanks and a revetted armored vehicle, and guided three GBU-12 bombs released by their wingman that destroyed two revetted tanks and a fuel truck. Secondary explosions forced more than 50 Taliban troops to flee their positions. Over the next six hours, Hayes guided 12 coalition aircraft until low fuel forced his disengagement. Aircraft dropped 20 laser-guided and 16 general-purpose bombs that resulted in the destruction of 33 vehicles including 27 armored. Hayes received the Distinguished Flying Cross.

15 NOVEMBER • An EA-18 airborne electronic attack concept aircraft—an F/A-18F Super Hornet carrying three ALQ-99 jamming pods—completed initial demonstration flights at Boeing Company, St. Louis, Mo.

16 NOVEMBER • The first of two prototype Improved Capability (ICAP) III EA-6B Prowlers logged its first flight at Northrop Grumman, St. Augustine, Fla.

18 NOVEMBER • Destroyer *Peterson* (DD 969) intercepted and diverted suspected smuggler *Samra* to a holding anchorage during maritime interception operations in the northern Persian Gulf. A boarding party discovered 1,700 metric tons of Iraqi oil, but the weather deteriorated with heavy winds and seas. *Samra* sank and EN1 Vincent Parker, ET3 Benjamin Johnson, and four smugglers died. A LAMPS Mk III helicopter from HSL-44 Detachment 4 embarked on board *Peterson*, an SH-60B Seahawk of HSL-42 Detachment 2 from cruiser *Leyte Gulf* (CG 55), two rigid hull inflatable boats from the cruiser, and frigates *Ingraham* (FFG 61) and Australian *Sydney* (FFG 03) rescued six Americans and ten smugglers.

19 NOVEMBER • An Air Force RQ-4A Global Hawk made the first wartime flight of one of the unmanned aerial vehicles over Afghanistan. The Navy subsequently adopted Global Hawks as part of the Broad Area Maritime Surveillance program.

22 NOVEMBER • Overnight, four VMA-223 AV-8Bs, embarked on board amphibious assault ship *Bataan* (LHD 5), flew the first sorties of the 26th Marine Expeditionary Unit into Afghanistan. Just before dawn, the Harrier IIs destroyed an al-Qaeda convoy with laser-guided bombs.

25 NOVEMBER • Operation Swift Freedom began—the liberation of southern Afghanistan in the area of Kandahar. Six HMM-163 CH-53E Super Stallions launched from amphibious assault ship *Peleliu* (LHA 5) carrying Marines of the 15th Marine Expeditionary Unit. AH-1W Super Cobras covered the insertion at lower altitudes, and F-14B Tomcats of VF-102 and F/A-18C Hornets flew top cover from *Theodore Roosevelt* (CVN 71). The Marines rendezvoused with KC-130 Hercules tankers to refuel en route. Four hours later they reached a desert airstrip, secured by SEALs, at Dolangi southwest of Kandahar and more than 300 miles from their ships. Within an hour, a Hercules landed with additional equipment and supplies. The Marines designated their position Forward Operating Base (FOB) Rhino, which journalists called Camp Rhino. By the next morning, 519 Marines and sailors had landed and developed a perimeter. They later established an additional forward arming and refueling point and an unmanned aerial vehicle base nearby.

25 NOVEMBER • More than 300 coalition prisoners rebelled at the fortress of Qala-e-Jhangi, six miles west of Mazār-e-Sharīf, Afghanistan. They killed CIA agent and former Marine Johnny M. Spann, stormed the armory, and seized most of the citadel. F/A-18C Hornets dropped seven Joint Direct Attack Munitions on the fortress and two Air Force AC-130H Spectres raked the compound with 40mm and 105mm rounds that touched off a hidden munitions dump. Three days later the holdouts surrendered.

26 NOVEMBER • A Joint Surveillance Target Attack Radar System–equipped E-8 detected a column of about 15 Taliban vehicles including several armored personnel carriers probing the northwest perimeter of Forward Operating Base Rhino at Dolangi southwest of Kandahar, Afghanistan. F-14B Tomcats of VF-102 from *Theodore Roosevelt* (CVN 71) broke up the attack and two Marine AH-1W Super Cobras routed the survivors.

28 NOVEMBER • Concerned about the escape of terrorists from Afghanistan via ships, the coalition developed leadership interception operations to catch suspicious vessels sailing off the Iranian and Pakistani coasts. Beginning on this date through 8 December, cruiser *Princeton* (CG 59) conducted some of the first of these operations near Gwadar off southwestern Pakistan. Aircraft from *Theodore Roosevelt* (CVN 71) searched for smugglers, and ships from her group participated in patrols and interceptions.

30 NOVEMBER • The Battle of Tora Bora began when naval reconnaissance aircraft spotted Taliban troops fleeing toward Tora Bora, a summit that rises from the Spin Ghar Mountains about 35 miles southwest of Jalālābād, Afghanistan. Al-Qaeda terrorist Osama bin Laden had lavished gifts among the local Suleiman Khel tribesmen who thus sheltered the fugitive and his followers.

1 DECEMBER • Amphibious assault ship *Bonhomme Richard* (LHD 6), with the 13th Marine Expeditionary Unit embarked, deployed six weeks ahead of schedule for Operation Enduring Freedom.

USN 011206-N-6550T-006

An SH-60F Seahawk leaves the deck of motor vessel *Kota Sejarah* after dropping off SEALs and Marines during a search for al-Qaeda terrorists in the Arabian Sea, 6 December 2001.

1 DECEMBER • VF-14 and -41 were redesignated VFA-14 and -41, respectively. Both squadrons began to transition from F-14B Tomcats to F/A-18E/F Super Hornets and to relocate from NAS Oceana, Va., to NAS Lemoore, Calif.

4 DECEMBER • An F/A-18C/D Hornet launched a unitary warhead variant of an AGM-154C during the first free-flight tests of a joint standoff weapon at NAWC China Lake, Calif.

5 DECEMBER • Marine and Navy aircraft flew close cover for lines-of-communication interdiction missions along Route 1 between Lashkar Gah and Kandahar, Afghanistan, to cut off the escape of the Taliban and al-Qaeda terrorists fleeing from the battles in the north of the country.

5 DECEMBER • An SH-60F and two HH-60H Seahawks from HS-11, two of the helicopters detached from *Theodore Roosevelt* (CVN 71) and one from ashore, and additional sailors from HS-6, carried out a visit, board, search, and seizure of container ship *Kota Sejarah*, suspected of smuggling contraband and terrorists, in the Arabian Sea. The Seahawks intercepted the ship and flew armed cover as they guided SEALs in two boats who boarded and stopped the ship and mustered her 22 crewmembers. HS-11 deployed 71 additional Marines, explosive ordnance disposal sailors, and SEALs via fastrope for security and search, supported by a leadership interception operation detachment from amphibious transport dock *Shreveport* (LPD 12). Through 7 December, inspectors detained *Kota Sejarah*, but later released the ship. This marked the first noncompliant boarding in leadership interception operations. Into the New Year, HS-11 joined Task Force Cutlass for additional similar and maritime interception operations.

USN 011225-N-6119T-001

An S-3B Viking of VS-32 returns to *Theodore Roosevelt* (CVN 71) after a mission over Afghanistan, 25 December 2001.

6 DECEMBER • A P-3C Orion orbiting overhead confirmed a Taliban and al-Qaeda probe against Forward Operating Base Rhino at Dolangi southwest of Kandahar, Afghanistan. The Marines fired 81mm mortars and the Taliban disengaged. Later that evening, a convoy of seven vehicles attempted to slip past the Marines but an Orion spotted the infiltrators as they dismounted to advance. F/A-18C Hornets and F-14 Tomcats disrupted the attack by dropping six 500-pound and two 1,000-pound laser-guided bombs. A UH-1N Iroquois, BuNo 160440, crashed while taking off and all on board escaped, but a fire destroyed the helicopter.

7 DECEMBER • The Marine Corps accepted the first AN/AAQ-28 Litening II targeting pod, which was designed to enable AV-8B Harrier IIs to autonomously deliver precision-guided munitions.

7 DECEMBER • Aircraft and ships of NATO's Task Force Endeavour began their first deployment in the eastern Mediterranean to track shipping capable of smuggling to terrorists.

11 DECEMBER • The induction of the last of 74 Marine day-attack AV-8Bs for modification into night-attack Harrier II Plus configurations occurred at NADEP Cherry Point, N.C. The aircraft were expected to return to fleet service in September 2003.

12 DECEMBER • An Air Force B-1B Lancer of the 20th Bomb Wing lost power to an engine while outbound from a night strike over Afghanistan, crashing about 30 miles north of Diego Garcia, British Indian Ocean Territory. Lt. William Pennington of VP-4 piloted a P-3C Orion that supported SAR mission commander Maj. Brandon Nugent, USAF, in an Air Force KC-10A Extender. The aircraft located the Lancer and alerted destroyer *Russell* (DDG 59). Despite shallow shoal

water that prevented the vessel from closing the wreck, she lowered two rigid hull inflatable boats that recovered all four survivors. Ships subsequently retrieved the bomber.

13 DECEMBER • A combined antiarmor team from the 26th Marine Expeditionary Unit, designated Task Force Sledgehammer, advanced to the Kandahar airport in Afghanistan, linking up en route with Army special operators. AV-8B Harrier IIs and AH-1W Cobras supported by additional coalition aircraft provided close air support. CH-53E Super Stallions flew in reinforcements that enabled the Marines to establish a forward operating base.

16 DECEMBER • *John C. Stennis* (CVN 74) relieved *Carl Vinson* (CVN 70) in the Arabian Sea and launched her first strikes in Operation Enduring Freedom.

17 DECEMBER • The coalition claimed victory at Tora Bora, Afghanistan. F/A-18C Hornets bombarded escape routes as Taliban and their al-Qaeda allies straggled across the Pakistani border. From 25 November, allied aircraft had dropped more than 1,600 bombs including precision Joint Direct Attack Munitions on the enemy around the cave complex. Terrorist leader Osama bin Laden was not found.

18 DECEMBER • French Task Force 473 rendezvoused with U.S. Task Force 50 about 50 miles off the Pakistani coast. The combined group comprised four carriers—*Theodore Roosevelt* (CVN 71), *John C. Stennis* (CVN 74), French *Charles de Gaulle* (R 91), and Italian *Guiseppe Garibaldi* (C 551). On this date, almost 100 coalition vessels operated across the Indian Ocean.

24 DECEMBER • The 15th Marine Expeditionary Unit began to withdraw from Forward Operating Base Rhino, Afghanistan.

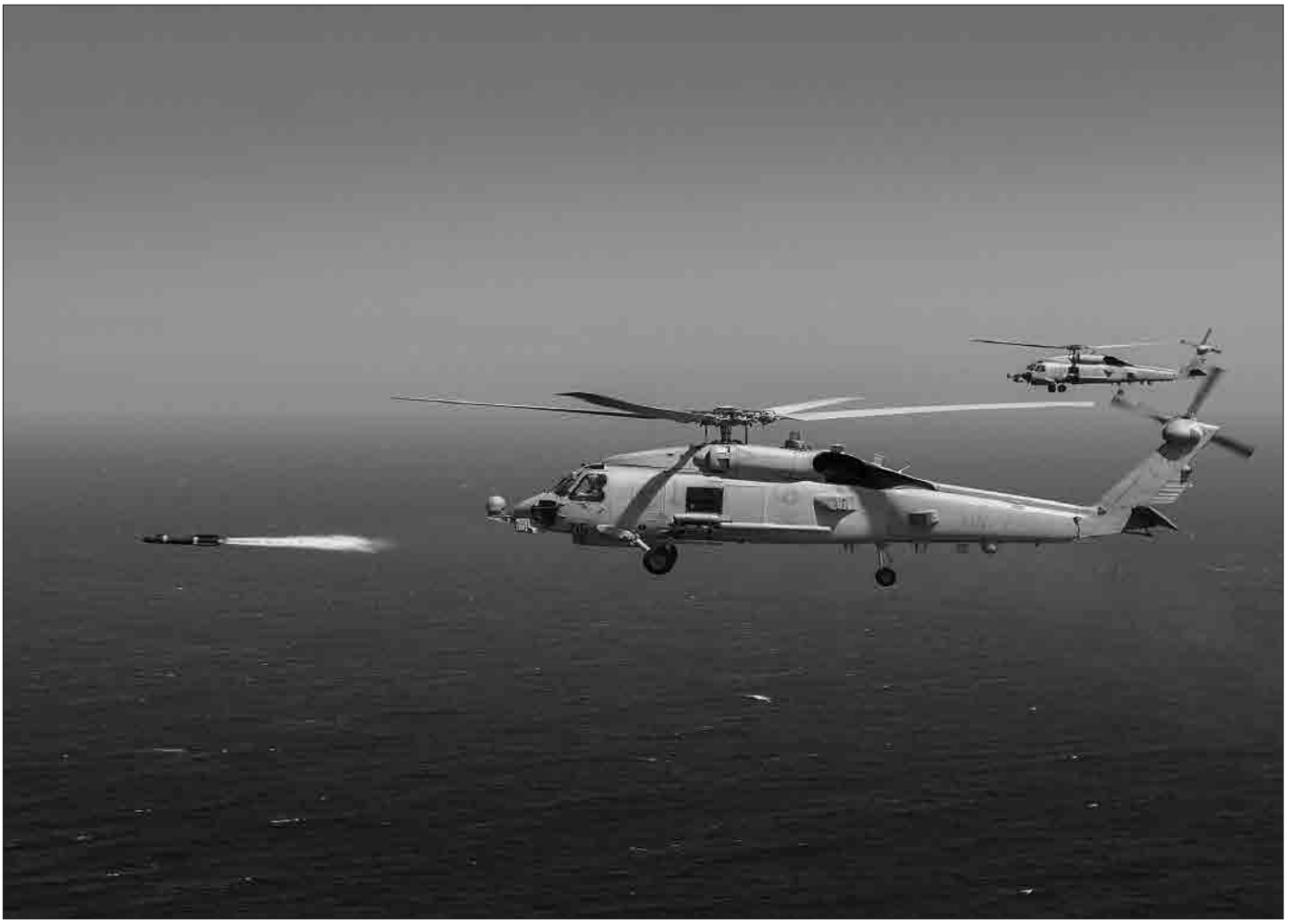
2002

3 JANUARY • Coalition aircraft including four F/A-18C Hornets, four Air Force B-1B Lancers, and an AC-130 Spectre gunship struck the terrorist training and support complex at Zhawar Kili al-Badr, 30 miles southwest of Khowst, Afghanistan. The United States had attacked the facility on 20 August 1998 in retaliation for the terrorist attacks against U.S. Embassies in East Africa. During this battle, coalition aircraft leveled the facility's buildings, sealed all known caves, and knocked out antiaircraft artillery and tracked military vehicles. The battle concluded on 14 January.

USN 011228-N-2383B-509

An AH-1W Super Cobra covers Marines on a LAV-25 light armored vehicle as they begin a patrol at Kandahar, Afghanistan, 28 December 2001.

8 JANUARY • HSL-46 Detachment 3, embarked on board destroyer *Hayler* (DD 997), conducted the year's first maritime interception operation in the Mediterranean Sea when an SH-60B Seahawk intercepted merchant vessel *Rasha J*. During 2002, five detachments from HSL-46 deployed to the Fifth and Sixth Fleets collectively conducted more than 500 interceptions and queried over 700 merchant vessels.



USN 080424-N-4658L-139

An MH-60R Seahawk of HSM-71 fires an AGM-114 Hellfire air-to-ground missile during testing off San Diego, 24 April 2008.

13 JANUARY • Two HH-60H Seahawks of HS-11 and one from HS-8, operating from amphibious transport dock *Shreveport* (LPD 12), and reinforced by additional sailors from destroyer *Elliot* (DD 967), provided sniper and AGM-114B Hellfire air-to-ground missile coverage for SEALs during a night boarding of suspected smuggling vessel *al Obeid* in the north Arabian Sea.

28 JANUARY • Soldiers of the Army's 101st Air Assault Division began to relieve the 26th Marine Expeditionary Unit in Afghanistan.

3 FEBRUARY • Naval Forces Central Command established Combined Task Force 150 to deny terrorists unimpeded use of the seas by countering illicit movements of them, weapons, and drugs. The multinational command's theater of operations included an area that stretched from the Red Sea across the Gulf of Aden, Horn of Africa, Somalia Basin, Arabian Sea, Gulf of Oman, and Strait of Hormuz.

5 FEBRUARY • Task Force 58 redeployed to Bahrain followed three weeks later by its disestablishment, as the amphibious command structure in Southwest Asia began to return to the pre-9/11 organization.

8 FEBRUARY • The Navy unveiled an MH-60S Seahawk during a ceremony with fleet readiness squadron HC-3 at NAS North Island, Calif.

10 FEBRUARY • Naval aircraft supported a Coast Guard law enforcement detachment in the seizure of 12.65 tons of cocaine from smugglers on board Colombian-flagged fishing vessel *Paulo*, 300 miles south of the Galapagos Islands.

14 FEBRUARY • Reserve CH-53E Super Stallion squadron HMH-772 was activated for one year at NAS JRB Willow Grove, Pa. The squadron provided heavy lift capability for the 24th Marine Expeditionary Unit via HMM-263 at MCAS New River, N.C.

4 MARCH • Pilot Cmdr. Don Burns, copilot Lt. Cmdr. Eric Humphreys, and aircrewmen AW1 Jim Peters and AD1 Shawn Robertson flew the maiden flight of HSL-60 at NS Mayport, Fla.

4 MARCH • Operation Anaconda began—a coalition thrust to trap al-Qaeda terrorists and Taliban in the Shah-e-Kot valley of southeastern Afghanistan. At times during the first several days, *Theodore Roosevelt* (CVN 71) and *John C. Stennis* (CVN 74) supported allied troops with Joint Direct Attack Munitions and BLU-118 thermobaric bombs. This was the first combat deployment of the class of fuel-rich compositions that generated high sustained blast pressures for use against tunnels and underground facilities. Within the first 24 hours, Navy, Marine Corps, and Air Force aircraft dropped 177 GBU-31 JDAMs and GBU-12 laser-guided 500-pound bombs. P-3C Orions flew intelligence, surveillance, and reconnaissance missions. Five AH-1Ws and three CH-53E Super Stallions of HMM-165 from the 13th Marine Expeditionary Unit flew from amphibious assault ship *Bonhomme Richard* (LHD 6) to operate out of Bagram Air Base. The Marines later established a forward arming and refueling point that enabled the Super Cobras to fight at extended ranges. The fighting raged through 18 March.

6 MARCH • *John F. Kennedy* (CV 67) relieved *Theodore Roosevelt* (CVN 71) in the northern Arabian Sea.

11 MARCH • From 9/11 to this date, the Navy deployed six carrier battle groups, four amphibious ready groups, and about 60,000 active and 13,000 Reserve sailors and Marines to the Indian Ocean area.

12 MARCH • Commanding officer Cmdr. John C. Aquilino and Lt. Cmdr. Kevin J. Protzman of VF-11 made the first combat strike with a Mk 84 2,000-pound JDAM (GBU-31) from an F-14B Tomcat during Operation Anaconda in Afghanistan.

27 MARCH • *Theodore Roosevelt* (CVN 71) returned from deployment. Aircraft embarked from Carrier Air Wing 1 had flown more than 10,000 sorties and dropped over 1.7 million pounds of ordnance.

31 MARCH • In Guam, HC-5 received the first three MH-60S Seahawks to be delivered to an operational squadron.

4 APRIL • The first fully remanufactured SH-60B to MH-60R standards completed its first flight at Owego, N.Y. During 2001, the Navy had decided to shift the program from remanufacturing existing H-60 airframes to producing new aircraft and planned a total of 243 MH-60Rs.

15 APRIL • Six F/A-18D Hornets from VMFA(AW)-121 arrived in Kyrgyzstan to initiate the first naval aviation fighter operations from that country. The Marines integrated into the Air Force's 376th Air Expeditionary Wing during strikes over Afghanistan.

15 APRIL • NATO's Standing Naval Forces Atlantic returned to the eastern Mediterranean Sea for a second deployment as Task Force Endeavour to support Operation Enduring Freedom.

1 MAY • Test squadrons without alphanumeric designations were redesignated air test and evaluation squadrons in keeping with fleet standards—HX-21, and VX-20, -23, -30, and -31.

3 MAY • The Department of Defense announced the certification of six acquisition projects including a program to remanufacture 280 H-1 replacements for AH-1 Cobras and UH-1 Hueys.

3 MAY • HX-21 received the second test AH-1Z Viper to arrive at NAS Patuxent River, Md.

10 MAY • Two Coast Guard HH-60J Jayhawks and an HU-25 Guardian supported cutter *Harriet Lane* (WMEC 903) in the rescue of 71 Haitian migrants from an overloaded 35-foot vessel that capsized six miles west of Great Inagua, Bahamas. The Coast Guard also recovered the bodies of 14 migrants who perished. An HC-130H Hercules and patrol boat *Nantucket* (WPB 1316) carried additional medical personnel and supplies to the area.

13 MAY • Through 16 May, testing of the integration of the Cooperative Engagement Capability (CEC) system with E-2C Hawkeye 2000 weapon systems occurred at NAS Patuxent River, Md.

19 MAY • An RQ-8A Fire Scout Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV) began its flight test program at NAWS China Lake, Calif. The Navy intended Fire Scouts to provide situational awareness and precision targeting, and to be fully autonomous with little required operator intervention. The design of littoral combat ships included the provision to operate Fire Scouts.

31 MAY • Bell Helicopter Textron, Inc. selected the Thales TopOwl Avionics helmet-mounted display for Marine H-1s, with 180 AH-1Z Vipers and 100 UH-1Y Venoms receiving the system.

31 MAY • Central Command activated Combined Joint Task Force 180 to assume control of allied operations in Afghanistan.

17 JUNE • An S-3B Viking from VS-31, embarked on board *John F. Kennedy* (CV 67), and an SH-60B from HSL-42 Detachment 7, embarked on board cruiser *Vicksburg* (CG 69), encountered 20-foot seas during the rescue of all 16 crewmembers from merchant vessel *al Murtada*, adrift off Oman.

18 JUNE • The Americans and British exchanged diplomatic notes terminating their World War II agreement on leased bases in Bermuda. The United States had sought additional Atlantic bases to protect shipping from German submarines and famously traded 50 obsolete destroyers for the rights. After the war, NAF Bermuda continued to support naval aviation operations against Soviet submarines until its disestablishment on 1 September 1995.

24 JUNE • The Navy accepted the first engineering and development version of the Shared Reconnaissance Pod.

23 JULY • Two SH-60B Seahawks of HSL-48 Detachment 7 began a six-month deployment to the Mediterranean Sea and the Persian Gulf on board frigate *Kauffman* (FFG 59), which sailed with *George Washington* (CVN 73). The detachment conducted multiple maritime interception operations during the cruise including one that involved 60 flight hours tracking a merchant vessel, leading to the capture of 15 suspected al-Qaeda terrorists by Italian authorities.

24 JULY • *Abraham Lincoln* (CVN 72) deployed to the western Pacific, Indian Ocean, and Persian Gulf. Twelve F/A-18E Super Hornets of VFA-115 and two MH-60S Seahawks of HC-5 embarked during the first operational deployment of these two aircraft types. The ship also put to sea with 1,000-pound Joint Direct Attack Munitions for use with F/A-18Es. During the first few days of the cruise, pilot Lt. Corey L. Pritchard of VFA-115 accomplished the initial deployed Super Hornet landing on board the carrier.

30 JULY • The Navy released a draft environmental impact statement for public comment on the introduction of F/A-18E/Fs to the East Coast. The statement affected ten fleet squadrons (130 Super Hornets) and one fleet readiness squadron (32 aircraft). The preferred alternatives comprised either the fleet readiness and six fleet squadrons at NAS Oceana, Va., and four squadrons at MCAS Cherry Point, N.C.; or the fleet readiness and eight squadrons at Oceana, and two squadrons at Cherry Point. In addition, planners proposed an outlying landing field in either Craven or Washington counties, N.C.

6 AUGUST • The first rescue using a TRI-SAR harness occurred when a UH-3H Sea King from NAS Patuxent River, Md., rescued a man stranded on a mud flat.

16 AUGUST • An RQ-8A Fire Scout Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle completed its first in-flight sensor payload demonstration at NAWS China Lake, Calif.

26 AUGUST • Maj. Pat Mohr, USMC, of HX-21, and Bell Helicopter test pilot Herb Moran, flew the first AH-1Z Viper with an integrated all-digital cockpit on its maiden flight at NAS Patuxent River, Md.

6 SEPTEMBER • The Center for Aviation Technical Training was activated at NATTC Pensacola, Fla. The center defined all curriculum and educational tools, and developed technical training solutions and professional development programs for all aviation sailors and Marines and for nondesignated airmen.

11 OCTOBER • Secretary of the Navy Gordon R. England issued a memorandum concerning the first American casualty of the Persian Gulf War, Capt. Michael S. Speicher, that changed his status to missing/captured. Under international law, the action entitled Speicher to treatment as a prisoner of war.

29 OCTOBER • Commander Central Command Gen. Tommy R. Franks, USA, announced the impending deployment of 700 to 800 Marines to Djibouti as part of Combined Joint Task Force–Horn of Africa.

5 NOVEMBER • The Navy announced the relocation of the Aviation Maintenance Officer School the next month from NAS Pensacola, Fla., to operate as part of Naval Air Maintenance Training Group Detachment Milton at NAS Whiting Field, Fla.

6 NOVEMBER • Lts. John E. Turner and Eric C. Doyle of VFA-115 flew the first F/A-18E Super Hornet combat live-fire action. During a mission from *Abraham Lincoln* (CVN 72), they dropped four GBU-31 Mk 84 2,000-pound Joint Direct Attack Munitions against an Iraqi command and control facility near Tallil and against two surface-to-air missile systems near Al-Kut, both sites located southeast of Baghdad.

13 NOVEMBER • Two CH-46D Sea Knights from HC-6 Detachment 6 augmented about 400 Marines of Headquarters Combined Joint Task Force–Horn of Africa during a deployment on board command ship *Mount Whitney* (LCC 20) from Morehead City, N.C., to a former French Foreign Legion base at Camp Lemonier, Djibouti. On 10 December, *Mount Whitney* arrived off the Horn of Africa, and two days later Central Command transferred authority for that region to the task force. On 27 December, an Air Force Sikorsky MH-53 Pave Low performed landing qualification trials on board the command ship, which on 13 June 2003, returned to Norfolk, Va.

23 NOVEMBER • Space shuttle *Endeavour*, on mission STS-113, launched from John F. Kennedy Space Center, Fla. During this mission to the International Space Station, naval aviator crewmembers included Capts. James D. Wetherbee and Michael E. Lopez-Alegria, and Cmdr. John B. Herrington—the first Native American in space. *Endeavour* returned to the center on 7 December.

4 DECEMBER • *Abraham Lincoln* (CVN 72) launched her last Operation Southern Watch mission of the deployment. VFA-115 had flown a total of 214 F/A-18E Super Hornet combat sorties.

8 DECEMBER • Super Typhoon Pongsana devastated Guam. Naval aircraft spearheaded relief efforts that included the airlift of more than $4 million worth of supplies.

31 DECEMBER • During 2002, the Iraqis fired at coalition aircraft about 500 times.

2003

1 JANUARY • The merger of the AK (aviation storekeeper) and SK (storekeeper) ratings into SK became effective for enlisted pay grades E1 to E6, with E7 and above eligible for the exams over succeeding months.

16 JANUARY • HC-5 Detachment 6, forward deployed to Japan on board *Essex* (LHD 2), made the first deployment of MH-60S Seahawks with an amphibious assault ship. The detachment returned to the United States on 30 January.

16 JANUARY • Space shuttle *Columbia*, on mission STS-107, launched from John F. Kennedy Space Center, Fla. At about 0900 on 1 February, the shuttle broke apart during reentry over Texas killing all seven crewmembers including naval aviation veterans Capts. David M. Brown and Laurel B. S. Clark and Cmdr. William C. McCool. Investigators concluded that a thermal protection system breach on the left wing leading edge allowed superheated air to penetrate during reentry and progressively melt the wing's aluminum structure, which weakened it until aerodynamic forces caused its failure and loss of control.

26 JANUARY • HSL-45 Detachment 6 relieved HSL-37 Detachment 2 on board destroyer *Fletcher* (DD 992) during the first Sea Swap experiment at Perth, Australia. An Air Force Lockheed C-5 Galaxy returned part of the original detachment and its helicopters to Hawaii. The Navy intended the program to maintain the deployment of ships in forward areas by swapping crews and air detachments.

USN 030320-N-9593M-039

An F/A-18C Hornet of VFA-113 launches from *Abraham Lincoln* (CVN 72) in the Arabian Gulf during Operation Iraqi Freedom, 20 March 2003.

28 JANUARY • An SH-60 Seahawk from HSL-48 Detachment 2, embarked on board frigate *John L. Hall* (FFG 32), coordinated with maritime patrol aircraft and Coast Guard cutter *Diligence* (WMEC 616) to intercept a 40-foot go-fast vessel in the Caribbean Sea. The four smugglers scuttled their boat when captured, but the combined Navy–Coast Guard team recovered 4,265 pounds of cocaine with an estimated street value of $130 million.

4 FEBRUARY • The last E-6A Mercury, BuNo 164409, departed Tinker AFB, Okla., to undergo E-6B modifications to enable it to communicate with strategic defense forces.

12 FEBRUARY • The Marines began their first operational assessment through 27 March of AH-1Z Viper and UH-1Y Venom upgrades.

1 MARCH • The first F-14D equipped with a Joint Direct Attack Munition deployed. In February, a NAVAIR team had modified all forward-deployed Tomcats.

13 MARCH • The crew of an SH-60B Seahawk of HSL-51, deployed with frigate *Gary* (FFG 51), assisted in the rescue of all eight Iraqi fishermen from dhow *Kaptain Muhamadat* when she lost steerage and propulsion in heavy seas and capsized 20 miles south of the Iranian coast.

19 MARCH • The coalition launched Operation Iraqi Freedom. From June 2002 to this date, allied aircraft had struck nearly 400 Iraqi military targets. During the first 19 days of March, the pace of operations increased and aircraft flew 4,000 strike and support sorties against Iraqi radar, antiaircraft guns, and fiber-optic links to suppress enemy air defenses in preparation for the invasion of Iraq.

USN 030320-N-3235P-510

An F/A-18C Hornet of VFA-105 launches from *Harry S. Truman* (CVN 75) in the Mediterranean, 20 March 2003.

22 MARCH • Despite intense fire from numerous Iraqi guns and surface-to-air missiles, VFA-113 led a strike that used Joint Direct Attack Munitions to destroy the Iraqi Ba'ath Party headquarters comprising 12 targets in four cities.

22 MARCH • *Theodore Roosevelt* (CVN 71) launched her first strikes of Operation Iraqi Freedom. The raid struck Iraqi command and control and infrastructure targets including a palace complex used by Saddam Hussein as military facilities, and one of the primary Iraqi AM broadcasting stations used to direct troops. During the first several days of the fighting, aircraft suppressed Iraqi air defenses and destroyed an *Ansar al-Islam*—Supporters of Islam, a radical Kurdish Islamic group—terrorist camp near the Iranian border. E-2C Hawkeyes proved especially useful in enabling pilots to link-up with special operators on the ground despite harsh weather that interfered with radio and satellite communications.

23 MARCH • A *turab*—dust storm—blew fine ochre dust and sand that coated exposed skin and gear across the southern half of Iraq and most of Kuwait. Four VMFA-323 F/A-18C Hornets launched a strike from *Constellation* (CV 64) against Special Republican Guard barracks and presidential security buildings near Saddam International Airport and each hit their targets with three 2,000-pound Joint Direct Attack Munitions. The raid directly contributed to the subsequent capture of the airport and the advance on Baghdad.

23 MARCH • The Iraqis ambushed 33 soldiers of the Army's 507th Maintenance Company in An Nasiriyah, killing 11 Americans and capturing seven more including

USN 030323-N-5319A-005

A British Royal Navy Westland Lynx HMA.8 flies plane guard for an MH-53E of HM-14, embarked on board amphibious transport dock *Ponce* (LPD 15), while the Sea Dragon pulls a Mk 105 mine countermeasures magnetic sled near the mouth of the Khawar Abd Allah (river) in Iraq, 23 March 2003.

Pfc. Jessica D. Lynch, USA. On 1 April, Marines from Task Force Charlie staged a diversionary attack while CH-46E Sea Knights from HMM-165, embarked on board amphibious assault ship *Boxer* (LHD 4), CH-53E Super Stallions, SEALs, and soldiers of Task Force 20 rescued Lynch from Saddam Hospital in the town.

24 MARCH • Commander Task Force 50 Rear Adm. John M. Kelly announced that aircraft had flown about 550 sorties against the Iraqis from *Kitty Hawk* (CV 63), *Constellation* (CV 64), and *Abraham Lincoln* (CVN 72). The long ranges required the configuration of four VFA-115 F/A-18E Super Hornets as tankers.

24 MARCH • Aircraft of Carrier Air Wing 3 struck Iraqi SA-2 and Roland surface-to-air missile sites in the Kirkuk area with AGM-88 High speed Anti-Radiation Missiles.

25 MARCH • Two VFA-151 F/A-18C Hornets and a VS-38 S-3B Viking destroyed Saddam Hussein's presidential yacht *Al Mansur*, Osa I–class missile boat *P-205*, and training ship *Ibn Khaldoum* (A 507) on the Tigris River near Basra. This was done after receiving a short order tasking for the time-sensitive strike. A Hornet laser-designated one of the targets, while the Viking struck it with an AGM-65E Maverick air-to-ground missile during the first instance of a Viking combat overland strike.

26 MARCH • A *turab*—dust storm—blanketed *Abraham Lincoln* (CVN 72) during flight operations. The carrier shifted almost 30 miles in a vain attempt to outrun the storm but the tempest wreaked havoc with operations. Commander Central Command Gen. Tommy R. Franks, USA, learned that the storm had immobilized Iraqi troops preparing to counterattack U.S. forces, and thus directed repeated strikes into 27 March by naval aircraft and Air Force bombers that

USN 030324-N-1512S-024

CH-53E Super Stallion pilot Maj. Richard Focht, USMC, prepares his flight gear on board amphibious assault ship *Kearsarge* (LHD 3) before flying a combat resupply mission into Iraq, 24 March 2003.

decisively broke up enemy troop concentrations. During one battle, the Iraqi *Medina* Republican Guard Tank Division took advantage of inclement weather to attack the Army's V Corps. F/A-18C Hornets of VFA-113 persevered through heavy overcast and, at one point with no visibility, bombed the Iraqis to a standstill.

26 MARCH • Coalition aircraft struck nine Iraqi surface-to-surface missiles and their launchers in Baghdad with precision guided munitions. The Iraqis had hidden the weapons within a residential area barely 300 feet from civilian homes.

26 MARCH • Some 954 paratroopers of the Army's 173rd Airborne Brigade seized an airfield near Bashur in northern Iraq. During the following days, aircraft from *Theodore Roosevelt* (CVN 71) supported the soldiers against Iraqi counterattacks.

27 MARCH • While flying a jamming mission, a VAQ-131 EA-6B Prowler received a request to assist three aircraft strikes against Iraqi surface-to-air missile (SAM) sites. Despite antiaircraft fire, the Prowler coordinated with the strike aircraft and knocked out the SAMs with AGM-88 High-speed Anti-Radiation Missiles.

27 MARCH • The Navy ordered a seventh C-40A Clipper to improve transportation capabilities.

28 MARCH • Naval and other coalition aircraft attacked nine enemy meeting places northeast of Basra, Iraq, killing an estimated 200 Ba'ath party officials and paramilitary chiefs.

28 MARCH • Naval aircraft helped Marines defeat a ferocious attack by Iraqi irregulars supported by armored personnel carriers, rockets, and antiaircraft artillery at An

USN 030415-N-4142G-106

An F-14D Tomcat of VF-2 makes a hard landing while returning to *Constellation* (CV 64) from a mission into Iraq, 15 April 2003.

Nasiriyah. Additional strikes supported allied troops locked in firefights with Iraqi troops and *Fedayeen Saddam* (Saddam's Martyrs) in the Rutbah and Samawah areas. Other air assaults used 1,000-pound bombs to destroy Republican Guard missile sites and fuel depots around Baghdad.

28 MARCH • Two F/A-18 Hornets knocked out three Iraqi Al Samoud surface-to-surface missile launchers approximately 25 miles northwest of Basra.

30 MARCH • Lt. Cmdrs. Hal Schmitt and Jason H. Norris of VFA-14 piloted two F/A-18Es, and Lt. Cmdrs. Brian M. Garrison and Mark W. Weisgerber and Lts. Thomas R. Poulter and Tom Brodine of VFA-41 manned two F/A-18Fs during a temporary 1,700 mile shift from *Nimitz* (CVN 68) to *Abraham Lincoln* (CVN 72). The transfer was to provide *Abraham Lincoln* with an improved mix of fighter-tanker capabilities, and raised the number of Super Hornets embarked on board that ship to 16. On 6 April, the four Super Hornets returned to *Nimitz* after her arrival in the Persian Gulf.

31 MARCH • Iraqi troops advanced upon paratroopers of the Army's 173rd Airborne Brigade in northern Iraq. Aircraft from *Theodore Roosevelt* (CVN 71) flew nearly 50 sorties that stopped the attack by bombing artillery installations, a barracks, and a surface-to-air missile site.

2 APRIL • Allied aircraft used 40 Joint Direct Attack Munitions to destroy a heavily secured Iraqi storage facility used by the regime's Special Security Organization in Baghdad's Al Karkh district.

2 APRIL • The Navy took delivery of the first low-rate initial production Shared Reconnaissance Pod system at Raytheon Technical Services Co., Indianapolis, Ind.

3 APRIL • F/A-18Fs embarked on board *Abraham Lincoln* (CVN 72) made the first operational flight of the Super Hornet Fast Tactical Imagery photoreconnaissance module during a strike over Iraq.

USN 030420-N-2515C-091

Amphibious assault ship *Tarawa* (LHA 1) leads an impressive display of naval power in the northern Persian Gulf—(from left) *Bonhomme Richard* (LHD 6), *Kearsarge* (LHD 3), *Bataan* (LHD 5), *Saipan* (LHA 2), and *Boxer* (LHD 4)—on 20 April 2003.

5 APRIL • The allies won the Battle of Debecka Pass, Iraq. Army Special Forces and Kurdish *Peshmerga* militiamen aided by Navy bombing guided by Air Force combat controllers captured and held the gap, but Iraqi troops and armored vehicles contained their advance. An F/A-18 Hornet from *Theodore Roosevelt* (CVN 71) knocked out a Ba'ath command group with a 750-pound bomb and the Iraqis subsequently fled, leaving eight tanks and 16 armored personnel carriers burning. Two VF-213 F-14Ds flying from *Theodore Roosevelt* attacked a group of Iraqi tanks firing from the south. One of the Tomcats accidentally bombed a group of *Peshmerga* gathered around a disabled T-55 Iraqi main battle tank, killing 17 Kurds and injuring another 45 including its commander, Wajih Barzani.

11 APRIL • The Navy designated the Mediterranean east of 30°E longitude as a zone for eligibility for Imminent Danger Pay or Combat Zone Tax Relief benefits. This move fell short of reaching all veterans who had served in the conflict because it failed to identify those who had participated from 19 March. On 18 February 2004, Navy officials thus announced the retroactive eligibility of veterans of Operation Iraqi Freedom for the benefits during that initial 24-day period. The decision principally impacted Task Force 61, Carrier Air Wings 3 and 8, *Harry S. Truman* (CVN 75), and *Theodore Roosevelt* (CVN 71).

20 APRIL • Twenty-six ships of Task Force 51, including amphibious assault ships *Tarawa* (LHA 1), *Saipan* (LHA 2), *Kearsarge* (LHD 3), *Boxer* (LHD 4), *Bataan* (LHD 5), and *Bonhomme Richard* (LHD 6), sailed in the northern Persian Gulf.

30 APRIL • VC-8's last TA-4J Skyhawk departed NS Roosevelt Roads, P.R., for display at the Glenn Martin Museum, Baltimore, Md.

1 MAY • President George W. Bush arrived on board *Abraham Lincoln* (CVN 72) in a VS-35 S-3B Viking, BuNo 159387, crewed by squadron executive officer Cmdr. John

USN 030529-N-0295M-006

This F-14D Tomcat of VF-2 on board *Constellation* (CV 64) displays its record of 60 bomb drops during Operation Iraqi Freedom, 29 May 2003.

P. Lussier and Lt. Ryan M. Phillips, and accompanied by a Secret Service agent. At one point during the 30-mile flight from NAS North Island, Calif., Lussier turned control of the aircraft, called Navy 1, over to the president. The Viking later was sent for display at the National Museum of Naval Aviation, NAS Pensacola, Fla.

12 JUNE • Amphibious assault ship *Kearsarge* (LHD 3) diverted to Liberian waters for Operation Shining Express—the potential evacuation of Americans stranded by fighting in that country. On 19 June, the ship left the region.

22 JUNE • During a training exercise at Godoria Range near Djibouti, one of two Boeing B-52H Stratofortresses accidentally dropped nine M-117 bombs on Combined Joint Task Force–Horn of Africa troops, killing Capt. Seth R. Michaud, USMC, of HMH-461, wounding nine other Americans, and destroying two squadron CH-53E Super Stallions.

24 JUNE • A P-3C Orion, an MH-60 from *Concord* (T-AFS 5), and British landing ship *Sir Tristram* (L 3505) rescued all 27 crew members of Egyptian-flagged cargo vessel *Green Glory* in the Arabian Sea, about 350 miles off the coast of Oman. Sailors hoisted the last survivor aloft just as the ship sank amid heavy seas after it caught fire the previous evening.

30 JUNE • The initial naval flight officer class of four Navy, one Marine, and one Air Force students to train in T-6A Texan IIs commenced with VT-10 at NAS Pensacola, Fla.

1 JULY • VF-2 was redesignated VFA-2 as the first squadron to transition from F-14D Tomcats to F/A-18F Super Hornets and relocated from NAS Oceana, Va., to NAS Lemoore, Calif.

10 JULY • A site survey team consisting of F/A-18 Hornet and Air Force F-15E Strike Eagle and F-16 Fighting Falcon pilots and technicians evaluated the feasibility of deploying their aircraft at Djibouti.

17 JULY • VT-9's E-2/C-2 standardization officer, Lt. Charles B. Bassel, performed the last arrested landing of a T-2C Buckeye during carrier qualifications on board *Harry S. Truman* (CVN 75).

30 JULY • An F/A-18 Hornet carried out the first flight of an integrated APG-79 Active Electronically Scanned Radar at China Lake, Calif.

5 AUGUST • The first student naval flight officer training flight in a T-6A Texan II occurred with VT-10 at NAS Pensacola, Fla.

14 AUGUST • United Nations humanitarian relief workers required protection during their distribution of aid to victims of the fighting in Liberia, and on this date, nine helicopters of the 26th Marine Expeditionary Unit flew from amphibious assault ship *Iwo Jima* (LHD 7) and transported 200 Marines, together with SEALs and explosive ordnance disposal specialists, to Roberts International Airport, Monrovia.

25 AUGUST • The Marines announced their deployment of the Ramp Mounted Weapon System on board CH-53Es of HMH-461 at Djibouti. The system includes a Fabrique Nationale M3M .50-caliber machine gun.

28 AUGUST • VMX-22 was activated as an MV-22 Osprey operational test and evaluation squadron at MCAS New River, N.C.

3 SEPTEMBER • Expeditionary Strike Group (ESG) 1 deployed from NS Pearl Harbor, Hawaii, to the Indian Ocean, Persian Gulf, and the Horn of Africa, as the first fully formed such group, with amphibious assault ship *Peleliu* (LHA 5) as its principle ship. ESG development provided flexible responses for global power projection. It returned on 9 March 2004.

10 SEPTEMBER • The Navy announced the record of decision concerning the basing of F/A-18E/F Super Hornets. Eight squadrons comprising 96 aircraft and one fleet readiness squadron of 24 jets were to be stationed at NAS Oceana, Va., two squadrons of 24 Super Hornets at MCAS Cherry Point, N.C., and construction of an outlying landing field in Washington County, N.C.

18 SEPTEMBER • Hurricane Isabel had already devastated much of the Gulf and East Coasts of the United States, and on this date threatened Hampton Roads, Va. *Theodore Roosevelt* (CVN 71) turned from an emergency sortie into the wake of the hurricane to make for NS Norfolk, Va. Upon arrival, crewmembers assisted storm victims along the Virginia and North Carolina coasts. Isabel also damaged historic naval aircraft preserved at the National Museum of Naval Aviation, NAS Pensacola, Fla., and at the Battleship *Alabama* (BB 60) Memorial, Mobile, Ala.

24 SEPTEMBER • Forward-deployed VF-154 relocated from NAF Atsugi, Japan, to NAS Lemoore, Calif., in preparation for its redesignation on 1 October to VFA-154 and transition from F-14A Tomcats to F/A-18F Super Hornets.

30 SEPTEMBER • VMA-231 at MCAS Cherry Point, N.C., received the Marine Corps' last remanufactured AV-8B Harrier II, BuNo 166288.

9 OCTOBER • A UH-1Y Venom made its first flight as a fully configured and functional H-1 upgrade at NAS Patuxent River, Md.

31 OCTOBER • The Naval Service Training Command was established at NS Great Lakes, Ill. The move aligned all enlisted and officer training accessions programs, which averaged more than 50,000 trainees annually. The naval aviation commands impacted included Officer Candidate School, Limited Duty Officer and Warrant Officer School, Direct Commissioned Officer School, and Officer Training Command.

13 NOVEMBER • The first four F/A-18F Super Hornets permanently forward deployed arrived at VFA-102, NAF Atsugi, Japan.

21 NOVEMBER • A UH-1Y Venom completed testing at MCB Quantico, Va., of the Special Warfare Kit.

22 NOVEMBER • On board *John F. Kennedy* (CV 67), pilot Lt. Cmdr. Thomas M. Santomauro completed the first carrier landing of an upgraded eight-bladed propeller equipped E-2C Hawkeye.

24 NOVEMBER • The Marines received their final CH-53E Super Stallion, BuNo 165243, at HMH-461, MCAS New River, N.C.

NAVAIR

Developed by the Navy and Marines to replace the EA-6B Prowler, a Marine EA-18G Growler of VX-23 cruises near Patuxent River, Md., during testing in August 2006.

5 DECEMBER • HSL-49 Detachment 4 departed to participate in the second sea swap during the relief of HSL-45 Detachment 6 on board destroyer *Fletcher* (DD 992).

15 DECEMBER • Through 20 December, allied forces seized three dhows and 33 drug smugglers who supported al-Qaeda terrorists. On 15 December, destroyer *Decatur* (DDG 73) intercepted a dhow and detained her 12 crewmen after the discovery of 54 bags of hashish valued at almost $10 million. Three days later, a New Zealand P-3K Orion located two suspicious dhows and worked with Australian, British, and U.S. aircraft to track the boats across the north Arabian Sea. On 20 December, cruiser *Philippine Sea* (CG 58) backed by a British Royal Air Force Aerospace MR.2 Nimrod intercepted the dhows and seized 21 smugglers, 150-pounds of methamphetamines, and 35- and 50-pound bags of heroin. Analysts used video footage taken by a VP-47 P-3C to verify the smugglers' activities.

17 DECEMBER • An RQ-8A completed the 100th Fire Scout flight at Webster Field, NAS Patuxent River, Md.

18 DECEMBER • The EA-18G received Milestone B approval to proceed into system design and development. The contract covering 2005 to 2009 included a total of 56 aircraft.

2004

6 JANUARY • The E-2 Integrated Test Team announced the completion of flight testing of an eight-bladed NP2000 propeller at NAS Patuxent River, Md.

9 JANUARY • Frigate *McClusky* (FFG 41) and her embarked helicopter from HSL-43 Detachment 6 rescued 169 migrants on board Ecuadorian vessels *The Andrea* and *San Luis* when the ships foundered in the eastern Pacific.

10 JANUARY • Ex-*Midway* (CV 41) arrived to serve as a naval museum and event facility at Broadway Pier, San Diego, Calif.

12 JANUARY • Frigate *Samuel B. Roberts* (FFG 58) and Coast Guard Law Enforcement Detachment 403 intercepted a suspicious vessel tracked by the frigate's embarked helicopter from HSL-44 Detachment 7 and seized eight drug traffickers and more than 7,000 pounds of cocaine.

14 JANUARY • Amphibious assault ship *Boxer* (LHD 4), with aircraft and Marines from I Marine Expeditionary Force embarked, deployed in support of Operation Iraqi Freedom. *Boxer* arrived in the Persian Gulf on 20 February and returned on 29 April.

19 JANUARY • Amphibious assault ship *Bataan* (LHD 5), with Marines of II Marine Expeditionary Force embarked, deployed in support of Operation Iraqi Freedom. *Bataan* returned on 31 March.

23 JANUARY • The Navy announced the signing of an almost $570 million, second multi-year procurement contract with Northrop Grumman Corp. for E-2C Hawkeye 2000s.

5 FEBRUARY • Boeing Integrated Defense Systems announced the completion of the integration of AGM-84K SLAM-ER (Standoff Land Attack Missile–Expanded Response) into P-3C Orions.

10 FEBRUARY • The Officer Training Command consisting of Officer Candidate School, Limited Duty Officer/Warrant Officer School, and the Direct Commissioned Officer School celebrated its establishment at NAS Pensacola, Fla.

17 FEBRUARY • Expeditionary Strike Group (ESG) 2 including amphibious assault ship *Wasp* (LHD 1), with the 22d Marine Expeditionary Unit embarked, began the first deployment of an East Coast–based ESG. Some of the Marines, including elements of the 2d Marine Aircraft

Wing, later deployed near Kandahar, Afghanistan and fought in Operation Mountain Storm—a preemptive campaign against an anticipated spring offensive by the Taliban. ESG-2 returned on 18 September.

19 FEBRUARY • The Airframe and Powerplant Program was established at CNATT Pensacola, Fla. The program gave Navy aviation technicians the opportunity to earn the Federal Aviation Administration's airframe and powerplant license.

MARCH • During the month, Muslim militants increased their infiltration into Iraq along a route that ran principally across the Syrian mountains and down the Tigris and Euphrates Rivers into Fallujah and Ramadi, west of Baghdad. Navy and Marine aircraft struck these insurgents during Operation Vigilant Resolve. On 9 April, the coalition suspended the operation to allow negotiations, but Fallujah remained an extremist stronghold.

11 MARCH • VX-20 accepted its first T-6A Texan II for testing at NAS Patuxent River, Md.

21 MARCH • Frigate *Stephen W. Groves* (FFG 29) and her embarked SH-60B Seahawk from HSL-42 Detachment 10 rescued 103 Ecuadorian migrants from their unseaworthy 40-foot fishing boat in the eastern Pacific.

22 MARCH • Greek-flagged tanker *Everton* and Korean-flagged fishing vessel *Chun Ying* collided off the Omani coast, igniting a fire on board the tanker. Cruiser *Yorktown* (CG 48) and her embarked SH-60B Seahawk from HSL-42 Detachment 2 assisted in the multinational search and rescue of 24 of the 25 crewmembers on board *Everton*.

2 APRIL • An Improved Capability (ICAP) III EA-6B Prowler began operational evaluation with VX-9 at NAWS China Lake, Calif.

5 APRIL • The Navy announced the transfer scheduled for June 2005 of *Oriskany* (CV 34) to the state of Florida for use as an artificial reef. The decision marked the first disposal of a carrier in this manner.

7 APRIL • The V-22 Osprey program manager announced the decision to use the MV-22 designation instead of HV-22.

8 APRIL • The Fleet Anti-Submarine Warfare Command was established to integrate advanced submarine hunting networks at San Diego, Calif.

29 APRIL • Commander Operational Testing and Evaluation Marine Corps recommended the full fleet introduction of the KC-130J Super Hercules for operational use.

6 MAY • Cmdr. Stewart R. Graham, USCG, (Coast Guard Aviator No. 114 and Helicopter Pilot No. 2) was inducted into the Hall of Honor at the National Museum of Naval Aviation, NAS Pensacola, Fla. Graham pioneered helicopter development during World War II.

15 MAY • The Department of Defense authorized AIM-9X Sidewinder air-to-air missiles for full-rate production.

17 MAY • A UH-1Y Venom fired weapons for the first time during a test flight at Fort A.P. Hill, Va.

27 MAY • *Ronald Reagan* (CVN 76), with elements of six squadrons from Carrier Air Wing 11 embarked, sailed from NS Norfolk, Va., rounded Cape Horn, and on 23 July reached her new homeport of NAS North Island, Calif. The guests who greeted the arrival of the ship included former First Lady Nancy D. Reagan.

JUNE • During Summer Pulse 04, the Navy tested changes to operational methods that resulted from the Fleet Response Plan. At times, *Kitty Hawk* (CV 63), *Enterprise* (CVN 65), *John F. Kennedy* (CV 67), *George Washington* (CVN 73), *John C. Stennis* (CVN 74), *Harry S. Truman* (CVN 75), and *Ronald Reagan* (CVN 76) deployed in five theaters. The operations of these ships extended into September during scheduled deployments, surge operations, and joint and international exercises.

21 JUNE • The V-22 Osprey Integrated Test Team successfully completed the fifth at-sea tests of the aircraft's shipboard suitability on board amphibious assault ship *Iwo Jima* (LHD 7) off the coast of Maryland. The tests resulted in expanded operational wind envelopes and cleared the use of more shipboard spots than previous tests. The evaluations concluded on 29 June.

24 JUNE • A ceremony commemorated the last overhaul of an F-14 at NADEP Jacksonville, Fla. The depot had received the responsibility to rework and repair Tomcats in 1994.

5 JULY • *George Washington* (CVN 73) returned from the Persian Gulf after more than four months of supporting Operation Iraqi Freedom. Her aircraft had flown strikes into Iraq and participated in maritime interception operations that led to the boarding of more than 200 vessels.

15 JULY • Pilot Lt. j.g. Scott Timmester and radar intercept officer Lt. Cmdr. Mark W. Tankersley of VF-213 made the last firing of an AIM-54C Phoenix long-range air-to-air missile. The Navy continued to phase the weapons from inventory by 30 September. On 17 September 1974, VF-1 and -2 had first deployed with Phoenixes on board *Enterprise* (CVN 65). More than 4,566 had been built.

20 JULY • Aircraft embarked on board *John F. Kennedy* (CV 67) in the Persian Gulf struck insurgents threatening Multi-National Corps–Iraq. A VF-103 F-14B Tomcat dropped GBU-12 guided bombs and an F/A-18C Hornet dropped GBU-32s on enemy positions.

23 JULY • The last NF-14D, BuNo 163416, made its final flight with VX-30 at Naval Base Ventura County, Calif. The event marked the conclusion of research, development, test, and evaluation flight operations with Tomcats.

13 AUGUST • The Naval Aerospace Medicine Institute named its Aerospace Medicine Academic Center in honor of naval aviation members Capts. David M. Brown and Laurel B. S. Clark, who died on 1 February 2003 when space shuttle *Columbia* broke apart during reentry.

28 AUGUST • Frigate *Curts* (FFG 38) and her embarked SH-60B Seahawk from HSL-45 Detachment 6 rescued 106 Ecuadorian migrants from foundering smuggling vessel *El Poder de Dios*, 300 miles east of Ecuador.

30 AUGUST • The 200th F/A-18 Super Hornet, a two-seat F model, arrived at VX-9, NAWS China Lake, Calif.

SEPTEMBER • During the middle of the month, Hurricane Ivan devastated the area from Louisiana to Florida, and caused more than $100 million in damage at NAS Pensacola, Fla., including 34 display aircraft on the flight line of the National Museum of Naval Aviation. It also forced 3,300 students at NATTC to resume classes in temporary classrooms on 27 September. The Navy issued a stop movement order to all people with orders to stations in the region that remained in effect until early December.

7 SEPTEMBER • Commander Operational Test and Evaluation Force issued the final report on the assessment of EP-3E Aries II Sensor System Improvement Program upgrades, which found them operationally effective and suitable for introduction to VQ-1 and -2.

9 SEPTEMBER • A P-3C from VP-16 spotted a suspected go-fast vessel in the Pacific Ocean and alerted Coast Guard cutter *Jarvis* (WHEC 725). The cutter's HH-65A Dolphin and the Orion observed the smugglers throw contraband overboard, and despite the escape of the boat, *Jarvis* recovered bales of cocaine valued at more than $40 million.

9 SEPTEMBER • Expeditionary Strike Group (ESG) 3 conducted a flag-staff crossdeck in the Persian Gulf from amphibious assault ship *Belleau Wood* (LHA 3) to *Essex* (LHD 2). The *Essex* ESG was activated the following day.

17 SEPTEMBER • After surveillance by P-3C Orions from VP-16 and -65, frigate *Curts* (FFG 38), with an embarked SH-60B Seahawk from HSL-45 Detachment 6 and a Coast Guard law enforcement detachment intercepted fishing vessel *Lina Maria* and seized 14 tons of cocaine southwest of the Galapagos Islands.

23 SEPTEMBER • A P-3C Orion from VP-16 vectored frigate *Crommelin* (FFG 37), with an embarked SH-60 Seahawk from HSL-37 Detachment 3 and a Coast Guard law enforcement detachment, to the seizure of smuggling vessel *San Jose* and 13 tons of cocaine west of the Galapagos Islands.

1 OCTOBER • The Navy transferred operation of the Naval Space Surveillance System—used to track satellites and debris orbiting the earth—to the Air Force at Naval Network and Space Operations Command, Dahlgren, Va.

2 OCTOBER • Two joint interceptions involving a Navy P-3C Orion and Coast Guard cutter *Gallatin* (WHEC 721) seized nearly 8,000 pounds of cocaine and eight smugglers

from two go-fast vessels in Columbian waters; the second interception occurred on 8 October. In both instances, *Gallatin*'s embarked MH-68A Mako of Helicopter Interdiction Tactical Squadron 10 disabled the boats with gunfire when the smugglers attempted to escape and jettison their contraband.

6 OCTOBER • The first of two RQ-4A Global Hawks allocated for the Navy's Global Hawk Maritime Demonstration Program made its initial flight from Northrop Grumman Corp., Palmdale, Calif., to Edwards AFB, Calif.

22 OCTOBER • The production line for EA-18Gs was activated at Boeing Company, St. Louis, Mo.

28 OCTOBER • A prototype Multi-Mission Maritime Aircraft, subsequently named Poseidon, began low-speed wind tunnel testing, which concluded on 5 November at Boeing Company, St. Louis, Mo. The aircraft, based on Boeing's commercial 737, was designed to operate at up to 41,000 feet with a storage capacity of 120 sonobuoys, 50 percent greater than that of the P-3C. Initial operating capability was scheduled for 2013, and it was to be fully operational by 2019. The Navy intended to purchase up to 108 aircraft to replace Orions.

USN 050125-N-9079D-056

An SH-60B Seahawk of HSL-47 lands on board *Abraham Lincoln* (CVN 72) in the Indian Ocean in January 2005 during Operation Unified Assistance, a humanitarian relief effort in the wake of a tsunami that devastated South East Asia, 26 December 2004.

6 NOVEMBER • The coalition launched Operation Phantom Fury (later renamed Al Fajr, Dawn) to drive insurgents from Fallujah, Iraq. In late October and early November, allied aircraft attacked positions in the city, and on this date, the 3d Marine Aircraft Wing bombed seven separate Iraqi weapons caches in eight hours. On 8 November, soldiers and Marines entered ferocious house-to-house fighting in northern Fallujah. The low cloud ceiling compelled fixed-wing aircraft to fly at lower altitudes and required greater involvement by helicopters. Because insurgents fought from mosques and hospitals, precision-guided munitions proved vital to their defeat while sparing civilians. Al Fajr marked the combat debut of GBU-38 500-pound Joint Direct Attack Munitions when F/A-18C Hornets of VFA-34, embarked on board *John F. Kennedy* (CV 67), dropped two of the weapons. The battle continued into December.

12 NOVEMBER • The V-22 Integrated Test Team conducted shipboard suitability testing on board amphibious assault ship *Wasp* (LHD 1) off the mid-Atlantic coast. The testing, which concluded on 23 November, primarily consisted of interaction between two Ospreys during flight operations.

USN 050124-N-0168J-001

Marine Cpl. Tyler Samms and FC3 Bethany A. Deadman (foreground) deployed with amphibious assault ship *Essex* (LHD 2), pass bags of rice for victims of a tsunami at an airfield at Sabang, Indonesia, 24 January 2005.

16 NOVEMBER • Raytheon Missile Systems unveiled the AGM-154C Joint Standoff Weapon to the Navy at Tucson, Ariz.

27 NOVEMBER • A VP-9 P-3C Orion proved instrumental in a multinational search and rescue of eight United Arab Emirates fishermen when their dhow sank off the Bahrain coast.

1 DECEMBER • Lockheed Martin announced receipt of a $15.6 million contract to integrate Armed Helicopter Mission Kits for MH-60S Seahawks as part of the Navy's armed helicopter program.

2 DECEMBER • A yola carrying 94 Dominican migrants capsized off the northern coast of Puerto Rico. A Coast Guard HU-25 Guardian spotted the distressed vessel and alerted search and rescue forces including three HH-65A Dolphins from CGAS Borinquen, P.R., cutters *Chincoteague* (WPB 1320) and *Key Largo* (WPB 1324), the Border Patrol, and Immigration and Customs Enforcement. Into the next day, these teams rescued 85 survivors and recovered the bodies of nine migrants.

4 DECEMBER • Two E-2Cs of VAW-126 deployed from *Harry S. Truman* (CVN 75) in the Persian Gulf to Kandahar AB, Afghanistan, to provide airborne command and control for the inauguration of President Hamid Karzai. The Hawkeyes returned to the ship on 13 December.

14 DECEMBER • Commander Operational Test and Evaluation Force announced the completion of the operational testing of AGM-154C Joint Standoff Weapons, and their operational effectiveness and suitability for fleet deployment.

26 DECEMBER • A magnitude 9.0 earthquake struck off the west coast of Sumatra, Indonesia, triggering a tsunami across the Indian Ocean littoral that killed more than 230,000 people. Combined Support Force 536 coordinated Operation Unified Assistance—multinational relief efforts. United States naval forces often reached disaster zones before aid agencies, and aircraft delivered supplies and emergency responders to otherwise inaccessible inland areas. On 1 January 2005, four SH-60B Seahawks from HSL-47 and some SH-60Fs and HH-60Hs of HS-2, embarked on board *Abraham Lincoln* (CVN 72), began to ferry supplies from collection points in Sumatra. Reinforcements at times included amphibious assault ships *Essex* (LHD 2) and *Bonhomme Richard* (LHD 6); P-3C Orions of VP-4 and -8; VRC-30; HC-11; four MH-53E Sea Dragons from HM-15 Detachment 2; six CH-46E Sea Knights from Okinawa; two MH-60Ss from HC-5, embarked on board combat store ship *Niagara Falls* (T-AFS 3); VMGR-352; and a USCG HC-130H Hercules. Despite earthquake aftershocks, these aircraft flew 1,747 missions, transported 3,043 passengers, and delivered 5.92 million pounds of supplies to people in Indonesia, Sri Lanka, and Thailand. On 3 February, *Abraham Lincoln* departed Indonesian waters, and 11 days later the force ceased relief operations.

2005

27 JANUARY • The EA-18G completed wind tunnel testing. Engineers had validated the F/A-18F Super Hornet airframe for the electronic attack mission during 1,412 hours of testing at Boeing Company and NASA facilities.

30 JANUARY • Aircraft from *Harry S. Truman* (CVN 75) provided on-call close air support in 32 sorties during the Iraqi national elections.

FEBRUARY • In September 2004, Hurricane Jeanne had devastated Haiti, killing more than 2,000 people and leaving 300,000 homeless. The annual Southern Command exercise Operation New Horizons focused on relief efforts there, and at times through June, amphibious assault ships *Saipan* (LHA 2) and *Nassau* (LHA 4), HC-6, HSC-28, HM-14, and VR-55 took part.

10 FEBRUARY • The Marine Corps announced the passage of the second operational evaluation of the KC-130J at NAWC China Lake, Calif., and MCASs Cherry Point, N.C., and Yuma, Ariz. On 13 February, VMGR-252 began the first Super Hercules deployment during the relief of VMGR-452 in Iraq.

14 MARCH • The Navy announced the designation of the Advanced Hawkeye as E-2D. Designers intended the plane's more powerful radar to elevate it from an airborne early warning platform to a battle management command and control system. Construction began in early April, with plans to procure 75 aircraft and initial operational capability in 2011.

15 MARCH • The first Improved Capability (ICAP) III EA-6B Prowler arrived at VAQ-139 at Northrop Grumman facilities, St. Augustine, Fla.

20 MARCH • *Carl Vinson* (CVN 70) relieved *Harry S. Truman* (CVN 75) in the Persian Gulf. A detachment comprising half the SH-60F and HH-60Hs of HS-8 deployed from *Carl Vinson* to Camp Arifjan, Kuwait. The Seahawks patrolled southeastern Iraq and flew maritime security operations over the northern Persian Gulf, and returned to the carrier on 29 June.

28 MARCH • VMX-22 began the operational evaluation of the MV-22 Osprey.

30 MARCH • The Multi-Mission Maritime Aircraft received the designation P-8A.

18 APRIL • A Joint Common Missile (JCM) completed initial F/A-18E/F Super Hornet integration wind tunnel testing at NASA Ames Research Center, San Jose, Calif., and Boeing Company, Philadelphia, Pa. Super Hornets were intended to carry up to 12 JCMs.

29 APRIL • A multinational force including cruiser *Normandy* (CG 60) and her embarked SH-60 Seahawk of HSL-42 Detachment 1, coastal patrol ships *Firebolt* (PC 10) and *Typhoon* (PC 5), and German frigate *Karlsruhe* (F 212), rescued 89 people from a dhow that capsized in the Gulf of Aden off the Somali coast.

29 APRIL • President George W. Bush signed a memorandum for the Secretary of Defense approving the redesignation of the Naval Reserve to the Navy Reserve.

7 MAY • UH-1Y Venoms and AH-1Z Vipers made their first shipboard landings during testing on board amphibious assault ship *Bataan* (LHD 5) off the Virginia Capes. Over six days, the two H-1 upgrade aircraft, Y-2 and Z-3, completed 127 and 140 landings and 13.4 and 14.5 flight hours, respectively.

9 MAY • The MH-60R Seahawk entered operational evaluation.

11 MAY • *Carl Vinson* (CVN 70) coordinated the rescue of all 27 sailors from Panamanian-flagged merchantman *Olympias* off Iran in the Persian Gulf. An engine room fire had engulfed the ship, and the carrier directed destroyer *Mustin* (DDG 89) and her embarked SH-60B Seahawk of HSL-45 Detachment 5 to the vessel's aid.

12 MAY • Capt. Eugene A. Cernan received NASA's first Ambassador of Exploration Award, which recognizes the sacrifices and dedication of the Mercury, Gemini, and Apollo astronauts. Naval aviator Cernan flew three times in space and twice to the moon, and was the second American to walk in space.

14 MAY • *America* (CV 66) was sunk off the East Coast as a live-fire test and evaluation and weapons effects platform for the CVN-21 program.

25 MAY • Ships that surged under the Fleet Response Plan for three months to the European and Central Command areas of responsibility included amphibious assault ship *Saipan* (LHA 2) from NS Norfolk, Va.

1 JUNE • The Naval Test Parachute Team was disestablished at NAWC China Lake, Calif.

18 JUNE • VMX-22 completed the operational evaluation of the MV-22 Osprey.

21 JUNE • An MH-60S Seahawk of HSC-28 Detachment 2, embarked on board amphibious assault ship *Kearsarge* (LHD 3), provided food and fuel to the nine people on board an Iranian fishing dhow adrift and taking on water in the Persian Gulf. The Iranians refused further assistance.

22 JUNE • Australian S70A-9 Black Hawks of the 5th Aviation Regiment completed more than 1,200 takeoffs and landings in ten days of operations on board amphibious assault ship *Boxer* (LHD 4) during Exercise Talisman Sabre.

22 JUNE • Instructor Lt. Carl J. Wells of VT-4 and student Ens. Luis Diez flew the last T-34C Turbomentor training flight of Training Wing 6 at NAS Pensacola, Fla.

24 JUNE • Lt. j.g. Jeanine MacIntosh, USCG, became the first African American female aviator in the Coast Guard at NAS Corpus Christi, Texas. MacIntosh subsequently flew an HC-130H Hercules from CGAS Barbers Point, Hawaii.

30 JUNE • *Carl Vinson* (CVN 70) turned for home from supporting Operation Iraqi Freedom and maritime surveillance operations in the Persian Gulf. Aircraft from Carrier Air Wing 9 had logged more than 6,500 sorties during these battles.

7 JULY • The next-generation presidential helicopter received the mission design series designator VH-71A.

22 JULY • An RQ-8B Fire Scout unmanned aerial vehicle test fired two Hydra 2.75-inch unguided rockets at Yuma Proving Grounds, Ariz.

28 JULY • The first production MH-60R Seahawk made its initial flight at Sikorsky Aircraft Corporation, Stratford, Conn.

4 AUGUST • Two F/A-18F Super Hornets under construction were moved from Boeing's St. Louis, Mo., assembly line to a separate hangar for conversion to EA-18Gs.

19 AUGUST • Terrorists of the al-Qaeda–linked Abdullah Azzam Brigades fired three Katyusha-type rockets at amphibious assault ship *Kearsarge* (LHD 3) and dock landing ship *Ashland* (LSD 48) in Al Aqabah, Jordan. The rockets missed the ships moored for the two-week Infinite Moonlight exercise with the Jordanians, but killed one Jordanian sentry and wounded another. The ships left the port but operated in the area until 25 August.

USN 050907-N-5345W-024

Search and rescue swimmer AWC Scott Pierce of HS-75 looks out from an SH-60 Seahawk at New Orleans streets flooded by Hurricane Katrina, 7 September 2005.

29 AUGUST • Hurricane Katrina made landfall along the coast of the Gulf of Mexico. A catastrophic storm surge inundated the levees along the Mississippi River and the rising waters flooded 80 percent of New Orleans, La. Six E-2C Hawkeyes from VAW-77, -121, and -126 monitored airspace and directed rescue aircraft. On 30 August, amphibious assault ship *Bataan* (LHD 5) arrived and augmented two embarked MH-60S Seahawks of HSC-28 with four MH-53E Sea Stallions from HM-15. Meanwhile, amphibious assault ship *Iwo Jima* (LHD 7) moored at New Orleans and became a hub for helicopters as Headquarters, Joint Task Force Katrina. On 1 September, *Harry S. Truman* (CVN 75) arrived with elements of 13 helicopter squadrons embarked. Additional naval aviation reinforcements included MH-60s of HSL-43, -47, and -49, and HC-11, two CH-46E Sea Knights and six CH-53E Super Stallions from six Marine squadrons at MCAS New River, N.C., four Super Stallions from HMH-772, and VR-57 and -58. Seventy-six Coast Guard and Coast Guard Auxiliary aircraft rescued 12,535 people during 1,817 sorties. Altogether, more than 5,000 Coast Guardsmen saved 33,545 lives. More than 70 fixed wing aircraft and 350 helicopters from all the services responded.

SEPTEMBER • Hurricane Rita struck the Texas coast, and the Navy evacuated all naval installations in that state including NASs Corpus Christi and Kingsville.

1 SEPTEMBER • During the Navy's transformation of forces in Europe, VQ-2 changed homeports from NS Rota, Spain, to NAS Whidbey Island, Wash. Five days later, HC-4 shifted from NAS Sigonella, Sicily, to NS Norfolk, Va.

USN 050910-N-2383B-537

Amphibious assault ship *Iwo Jima* (LHD 7) is moored at New Orleans and serves as a hub for helicopters flying relief missions in the aftermath of Hurricane Katrina, 10 September 2005.

14 SEPTEMBER • HC-2 Detachment 2 passed the mission of combat logistics in the Naval Forces Central Command area of responsibility to HSC-26 Detachment 1. The change concluded 27 years of an HC-2 detachment at Bahrain.

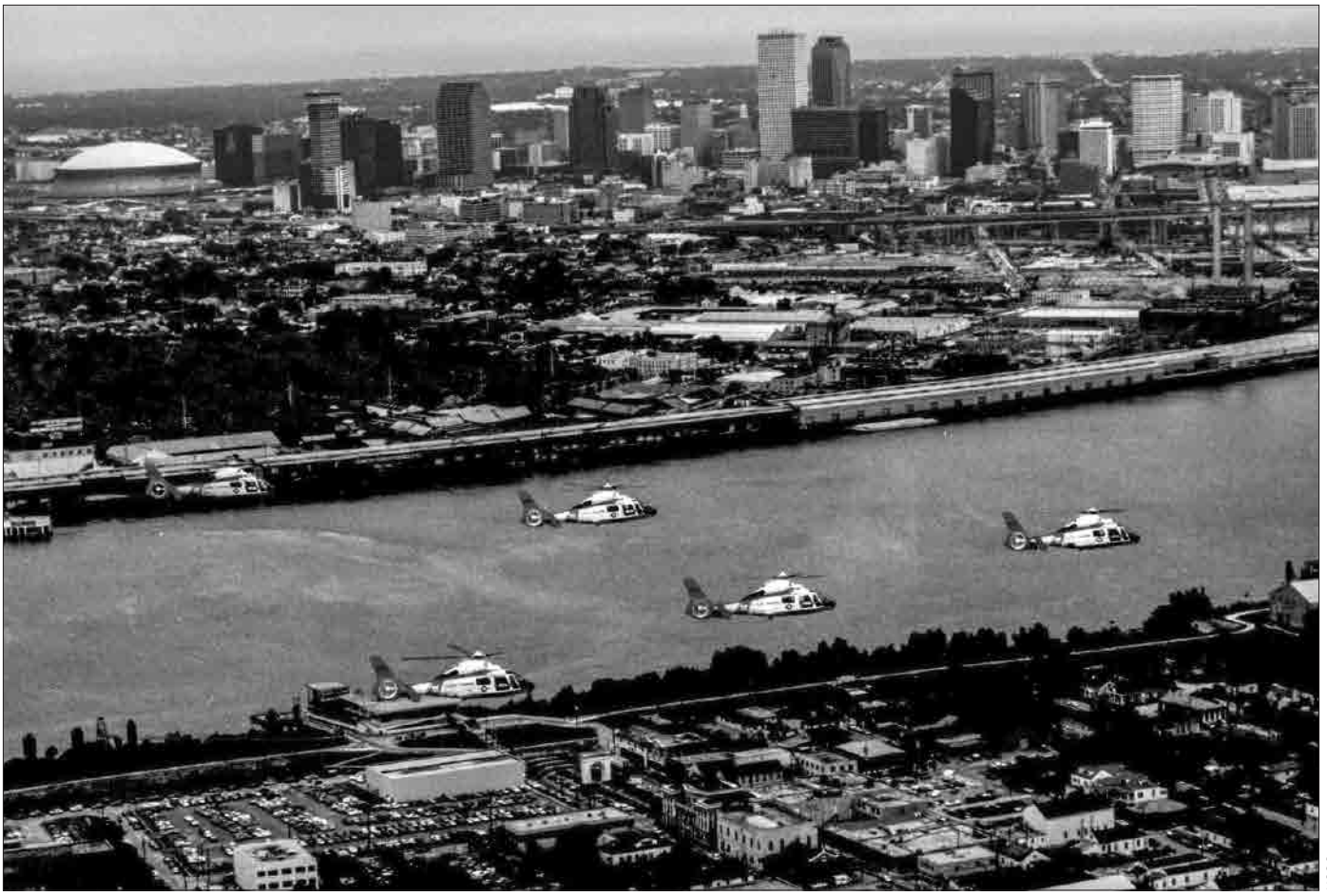
17 SEPTEMBER • While *Theodore Roosevelt* (CVN 71) visited Palma de Mallorca, Spain, two VAQ-141 EA-6B Prowlers detached for three weeks to Al Asad, west of Baghdad, Iraq. On 24 September, the Prowlers flew the first of 37 combat sorties in support of VMAQ-1.

28 SEPTEMBER • The Defense Acquisition Board cleared the MV-22 Osprey for full-rate production.

30 SEPTEMBER • Sea Control Wing, Pacific Fleet, was deactivated at NAS North Island, Calif. Sea Control Wing, Atlantic Fleet, assumed the administrative duties for the remaining Pacific VS squadrons.

OCTOBER • Hurricane Wilma ravaged southern Florida and forced the evacuation of NAS Key West. Amphibious assault ship *Wasp* (LHD 1) supported relief efforts in the area.

8 OCTOBER • A 7.6 magnitude earthquake near the Indo-Pakistani border killed more than 73,000 people and rendered nearly three million homeless. Commander *Tarawa* (LHA 1) Expeditionary Strike Group Rear Adm. Michael A. LeFever coordinated the operations of the Disaster Assistance Center at Islamabad, Pakistan. Through 13 February, two HM-15 MH-53E Sea Dragons, two HSC-26 MH-60S Seahawks, a VQ-2 EP-3E Aries II detachment, a VR-56 C-9B Skytrain, a VR-64 C-130T Hercules, and Army, Air Force, and allied aircraft flew more than 4,000 missions, delivered over 11,000 tons of supplies, and transported more than 18,000 people.



USCG

HH-65As from Coast Guard Air Station New Orleans fly over that city in the early 1990s. A decade later, three Coast Guard Dolphins rescued more than 300 residents in 85 sorties in the wake of Hurricane Katrina.

12 OCTOBER • The Air Force Headquarters Materiel Command at Wright-Patterson AFB, Ohio, confirmed the name Growler for the EA-18G.

31 OCTOBER • A Navy and Boeing Company team began a five-day preliminary design review of the P-8A in Seattle, Wash.

4 NOVEMBER • The coalition began Operation al Hajip Elfulathi (Steel Curtain)—an offensive to prevent cells of al-Qaeda terrorists from crossing the Syrian border into Iraq. Aircraft from *Theodore Roosevelt* (CVN 71) flew reconnaissance and close air support missions with VF-31 and -213 F-14D Tomcats and VFA-15 and -87 F/A-18C Hornets bombing the enemy at Husaybah, Karabilah, and Ubaydi. Her aircraft flew more than 400 sorties through 17 November.

11 NOVEMBER • AV-8Bs of VMA-214 carried out the first Harrier II launches from a ship at sea while carrying Joint Direct Attack Munitions during operations on board amphibious assault ship *Peleliu* (LHA 5) off Camp Pendleton, Calif.

28 NOVEMBER • A Global Hawk Maritime Demonstrator participated in the first exercise of the system in Trident Warrior '05 off southern California. During the 12-day exercise, the RQ-4A transmitted data to participants on the East Coast including Commander Second Fleet, amphibious assault ship *Iwo Jima* (LHD 7), and command ship *Mount Whitney* (LCC 20).

LATE NOVEMBER • *Theodore Roosevelt* (CVN 71) visited Jebel Ali, and five F/A-18C Hornets of VFA-15 and -87 flew ashore to Al Asad, Iraq. The detachment combined with Marine and Air Force elements, flying an average of eight sorties a day.

USAF 050607-F-WZ253-002

The maiden flight of the second of two Navy RQ-4A Global Hawks was made 7 June 2005. The pair are used in the Broad Area Maritime Surveillance–Demonstrator program to refine tactics, techniques, and procedures for large persistent unmanned aerial vehicles in the maritime environment.

2 DECEMBER • The Navy announced the selection of *George Washington* (CVN 73) to relieve *Kitty Hawk* (CV 63) in 2008 as the forward-deployed carrier at FSA Yokosuka, Japan.

5 DECEMBER • HSL-41 at NAS North Island, Calif., became the first fleet squadron to receive the MH-60R Seahawk.

8 DECEMBER • The Marine Corps accepted the first production Block B MV-22 Osprey at Amarillo, Texas.

11 DECEMBER • An F-14D of VF-213, embarked on board *Theodore Roosevelt* (CVN 71), conducted the first mission of a Tomcat equipped with the Remotely Operated Video Enhanced Receiver system, which allowed a forward ground controller near Baghdad, Iraq, to see real-time images acquired by the Tomcat's sensors.

19 DECEMBER • During flight tests at NAS Patuxent River, Md., an E-2C fitted with a refueling probe connected to a KC-130 tanker to test the Hawkeye's inflight refueling capabilities.

22 DECEMBER • Cruiser *Gettysburg* (CG 64), with her embarked SH-60B Seahawk of HSL-46 Detachment 5 and a Coast Guard law enforcement detachment, intercepted a vessel carrying more than 11 tons of cocaine in the eastern Pacific.

2006

4 JANUARY • *Ronald Reagan* (CVN 76) made her maiden deployment to the western Pacific, Indian Ocean, and Persian Gulf. The cruise also marked the first deployment of Improved Capability (ICAP) III EA-6B Prowlers of VAQ-139, and F/A-18C Hornets and F/A-18E Super Hornets of VFA-22, -25, -113, and -115 equipped with the Remotely Operated Video Enhanced Receiver system.

16 JANUARY • Into the next day, two RQ-8A Fire Scout Vertical Takeoff and Landing Tactical Unmanned Air Vehicles (VTUAV) made nine autonomous landings on board amphibious transport dock *Nashville* (LPD 13) in the sea range off NAS Patuxent River, Md. These operations marked the first time that a major defense autonomous VTUAV had landed on board a fleet ship.

25 JANUARY • The Navy announced the opening for applications from 30 sailors in pay grades E-5 to E-7 for a trial Flying Chief Warrant Officer Program for possible fleet-wide introduction. The program allowed enlisted sailors the opportunity to become aviators in patrol squadrons, helicopter sea combat squadrons, and light helicopter antisubmarine squadrons.

1 FEBRUARY • The P-8A entered the critical design phase.

3 FEBRUARY • A fire erupted on board Egyptian ferry *al Salam Boccaccio 98* and she sank in the Red Sea, 50 miles off the coast of Egypt. High winds and a sandstorm impeded rescue efforts, but the infrared capabilities of a VP-47 P-3C Orion proved instrumental in the rescue of the 380 survivors of the estimated 96 crewmembers and 1,193 passengers.

8 FEBRUARY • Pilots Capt. William G. Sizemore II, of VF-213 and Lt. Bill Frank of VF-31 flew the last two F-14D Tomcat combat missions from *Theodore Roosevelt* (CVN 71). On 13 April, Sizemore's jet, BuNo 161159, arrived for historic preservation at the National Museum of Naval Aviation, NAS Pensacola, Fla.

15 FEBRUARY • Expeditionary Strike Group 3 including amphibious assault ship *Peleliu* (LHA 5) deployed from NS San Diego, Calif., to the western Pacific, Indian Ocean, and Persian Gulf. On 9 July the group returned from operations with the Fifth Fleet.

17 FEBRUARY • Joint Task Force Balikatan 2006, including Expeditionary Strike Group 7 and amphibious assault ship *Essex* (LHD 2), operated with U.S. and Filipino authorities to assist victims of a mudslide on southern Leyte, Philippines. Marine KC-130 Hercules, CH-46E Sea Knights, CH-53E Super Stallions, and UH-1N Iroquois, Army UH-60 Black Hawks, and Air Force C-130 Hercules and C-17A Globemaster IIIs searched for survivors, delivered relief supplies to victims, and provided immediate, life-sustaining support. On 14 March, *Essex* returned to Sasebo, Japan.

3 MARCH • VMM-263 at MCAS New River, N.C., was activated as the first operational MV-22B Osprey squadron.

21 MARCH • The Marine Corps accepted delivery of the final UC-35D Citation Encore, BuNo 166767, at Cessna Aircraft Company, Wichita, Kans.

22 MARCH • The Navy announced the redesignation of Navy Reserve Centers as Navy Operational Support Centers to more accurately describe the integrated role these held in operations.

23 MARCH • The Chief of Naval Air Training began to realign under NAVAIR as part of an effort to create greater efficiency and synchronization while increasing aviation warfighting readiness.

30 MARCH • Lt. Cmdr. William R. McCombs and Lt. Matthew E. Doyle of VX-23 flew an F/A-18F configured as an EA-18G at NAS Patuxent River, Md. The unique Super Hornet included ALQ-218(V)2 electronic warfare tactical receiver pods from an Improved Capability (ICAP) III EA-6B Prowler suite fitted onto the wingtips to contribute to the evaluation of flying qualities, loads, and flutter testing before accepting the initial two preproduction Growlers.

31 MARCH • The Navy approved the MH-60R Seahawk for full-rate production. In December 2005, West Coast Seahawk fleet readiness squadron HSM-41 had received the first four MH-60Rs.

U.S. Navy via Boeing

The first P-8A Poseidon test aircraft, BuNo 167951, (left) is escorted by NP-3C Orion, BuNo 158204, of VX-20 to its landing at Naval Air Station Patuxent River, Md., on 10 April 2010.

4 APRIL • Cruiser *Gettysburg* (CG 64), with an SH-60B Seahawk of HSL-46 Detachment 5 and a Coast Guard law enforcement detachment embarked, returned from a six-month counter-narcotics deployment to the western Caribbean and eastern Pacific. Working with other agencies and P-3C Orions, these teams had seized seven vessels, 40 smugglers, and 750 bales totaling more than 28 metric tons of cocaine and heroin valued at $1.95 billion.

12 APRIL • A 5.3-pound, 25-inch long Spike tactical precision-guided missile impacted a target during testing at NAWC China Lake, Calif. Spike was designed to arm unmanned aerial vehicles to attack bunkers, small boats, and armored vehicles without inflicting collateral damage on civilians.

27 APRIL • The Navy disestablished the F-14 Tomcat program during a ceremony at NAS Patuxent River, Md. Grumman had received its initial contract for the aircraft on 3 February 1969, the plane made its first flight on 21 December 1970, and on 14 January 1973, the first squadron F-14As arrived at VF-1. From 17 September 1974 to 20 May 1975, VF-1 and -2 completed the first Tomcat deployment with Carrier Air Wing 14 on board *Enterprise* (CVN 65) to the western Pacific and Indian Oceans. Through 10 July 1992, the Navy accepted 679 Tomcats.

2 MAY • An AH-1W Super Cobra fired two AGM-114N thermobaric Hellfire air-to-ground missiles 30 minutes apart at land test ranges in southern California. The tests evaluated modified flight control software that allowed the Hellfires to fly flatter trajectories and hit targets at a near zero angle for better penetration of buildings and caves, and thus minimize casualties.

2 MAY • *Enterprise* (CVN 65) deployed to the Mediterranean, Indian Ocean, Persian Gulf, and western Pacific through 18 November 2006. She operated with four fleets—the Second, Fifth, Sixth, and Seventh—and in two linked but distinct wars in Afghanistan and Iraq.

17 MAY • The Navy sank *Oriskany* (CV 34) as an artificial reef approximately 24 miles off the coast of NAS Pensacola, Fla.

24 MAY • The Department of Defense Office of Inspector General issued a Defense Base Closure and Realignment Commission (BRAC) notification of the failure of the Commonwealth of Virginia and municipal governments of Virginia Beach and Chesapeake, Va., to meet all requirements of the 2005 BRAC law regarding NAS Oceana, Va. The decision enabled the state of Florida to attempt to meet these requirements and allow the potential realignment of the F/A-18 strike fighter wing, aviation operations, and support schools from Oceana to NAS Cecil Field. The notice granted Florida through the end of the year to meet the requirements.

6 JUNE • Amphibious assault ship *Iwo Jima* (LHD 7) deployed from NS Norfolk, Va., for the Mediterranean Sea, Indian Ocean, and Persian Gulf.

26 JUNE • Lockheed EP-3Es upgraded to Spiral 1 of the Joint Airborne Signals Intelligence Architecture Modernization Configuration completed operational evaluation. Three days later the Navy approved an $18 million full-rate production contract for six of the improved Aries IIs.

29 JUNE • HMM-464 accepted the first restored war reserve CH-53E, BuNo 161542, at MCAS New River, N.C. This was one of three Super Stallions retrieved in August 2005 from the Aerospace Maintenance and Regeneration Center at Davis-Monthan AFB, Ariz., and delivered for refurbishment to NADEP Cherry Point, N.C.

3 JULY • During a week-long Rim of the Pacific multinational exercise, VX-20 sailors augmented by the Air Force 452nd Flight Test Squadron flew an RQ-4 Global Hawk Maritime Demonstrator. During four maritime surveillance missions from Edwards AFB, Calif., to Hawaii, the Global Hawks demonstrated their ability to identify targets in coastal or littoral environments as well as in wide-area maritime search and tracking.

7 JULY • Air Force Chief of Staff Gen. T. Michael Moseley, USAF, announced the name of the F-35 Joint Strike Fighter as Lightning II at Lockheed Martin, Fort Worth, Texas. The Department of Defense intended Lightning IIs to replace AV-8B Harrier IIs, Fairchild Republic A-10A Thunderbolt IIs, General Dynamics F-16 Fighting Falcons, and F/A-18 Hornets.

16 JULY • After Hezbollah terrorists attacked Israeli settlements with rockets, the Israelis began Operation Change of Direction to drive the terrorists from Israel's northern border. On this date, amphibious assault ship *Iwo Jima* (LHD 7), amphibious transport dock *Nashville* (LPD 13), and dock landing ship *Whidbey Island* (LSD 41), with the 24th Marine Expeditionary Unit embarked, received orders to transit from the Red Sea and operate as part of Task Force 59 for what became Operation Strengthen Hope—the evacuation of Americans from Lebanon. On 23 August, European Command directed Joint Task Force Lebanon to assume the mission performed by Task Force 59, Air Force MC-130P Combat Shadows and MH-53M Pave Lows, and Army CH-47 Chinooks. Naval aviator Vice Adm. John D. Stufflebeem took command of the force from command ship *Mount Whitney* (LCC 20). On 25 August, amphibious assault ship *Wasp* (LHD 1), with HM-14 Detachment 1 embarked, deployed to the area from NS Norfolk, Va. Amphibious transport dock *Trenton* (LPD 14) also participated in the force that evacuated nearly 15,000 Americans and provided humanitarian assistance to victims of the fighting.

28 JULY • Pilot Lt. Blake C. Coleman and radar intercept officer Lt. Cmdr. David P. Lauderbaugh of VF-31 made the final operational carrier launch of an F-14 Tomcat, in BuNo 163147, from *Theodore Roosevelt* (CVN 71).

29 JULY • Two MV-22B Ospreys of VMX-22 completed the tiltrotor's first transatlantic flights by flying from North Carolina to England and back.

3 AUGUST • Chief of Naval Operations Adm. Michael G. Mullen accepted EA-18G Growlers into naval service at the Boeing Company, St. Louis, Mo.

USN 061215-N-8053S-228

The first F-35A Lightning II takes off for its maiden flight at Joint Reserve Base Fort Worth, Texas, 15 December 2006.

5 AUGUST • Frigate *Stephen W. Groves* (FFG 29), with HSL-46 Detachment 8 and Coast Guard Law Enforcement Detachment 105 embarked, intercepted a small boat and recovered a metric ton of cocaine in the eastern Pacific. About two tons of cocaine sank with the boat after the drug traffickers set it afire.

15 AUGUST • The EA-18G Growler made its first flight at Lambert International Airport, St. Louis, Mo.

25 AUGUST • Helicopter Landing Trainer *IX-514* logged her 100,000th accident-free landing when a TH-57 Ranger of HT-8 touched down on board in Pensacola Bay, Fla.

18 SEPTEMBER • The Marine Corps accepted the first KC-130T aerial refueler. After several months of flight testing, the Hercules returned to VMGR-234 at NAS JRB Fort Worth, Texas.

19 SEPTEMBER • Amphibious assault ship *Saipan* (LHA 2), with elements of HM-15 on board, successfully completed the first integration of an LHA-class ship in minesweeping operations with an MH-53E Sea Dragon and the Mk 105 magnetic minesweeping system during an exercise in the Persian Gulf.

22 SEPTEMBER • VX-23 received its first EA-18G Growler developmental test aircraft for flight testing at NAS Patuxent River, Md.

22 SEPTEMBER • After 36 years of service, the Navy retired the F-14 Tomcat in a final flight ceremony at NAS Oceana, Va. On 4 October, an F-14D of VF-31, BuNo 164603, completed the last Tomcat flight from Oceana to Republic Airport, Farmingdale, N.Y. The jet spent just over a year on display at the American Airpower Museum at the airport, and was then assigned for display at Northrop Grumman, Bethpage, N.Y.

2 OCTOBER • VR-54 relieved VR-55 as the Navy's C-130 detachment operating from NSA Bahrain. The detachment continued to operate a single Hercules with two rotational crews.

31 OCTOBER • The Atlantic Fleet and Fleet Forces Command transitioned into Fleet Forces Command, naval aviator Adm. John B. Nathman commanding, during a ceremony on board *Theodore Roosevelt* (CVN 71) at NS Norfolk, Va. In May, Chief of Naval Operations Adm. Michael G. Mullen had disestablished Commander, Fleet Forces Command, and Commander, Atlantic Fleet, and redesignated them as Commander, Fleet Forces Command.

3 NOVEMBER • NAS Keflavik, Iceland, was disestablished, marking the conclusion of 45 years of Navy control. In 1941, Marines and sailors had deployed to Iceland to replace British troops and to stave off possible German landings. After World War II, patrol squadrons flew intelligence and surveillance missions on a rotational basis from Keflavik over the North Atlantic. On 1 July 1961, the Navy assumed command of the station from the Air Force. Keflavik held its disestablishment ceremony on 8 September 2006.

3 NOVEMBER • NAVAIR announced the planned installation in 2007 of the Advanced Recovery Control system on board *Ronald Reagan* (CVN 76). This replaced mechanical arresting systems and controls with state-of-the-art digital control technology.

30 NOVEMBER • A ceremony marked the delivery of the final upgraded E-6B Mercury at NAS Cecil Field, Fla.

1 DECEMBER • The first group of Aviator Chief Warrant Officers, consisting of ten pilots and four naval flight officers, received their bars as part of the Flying Chief Warrant Officer Program.

15 DECEMBER • The first flight of an F-35A Lightning II took place at Lockheed Martin, Fort Worth, Texas.

20 DECEMBER • An MQ-8B Fire Scout completed its first series of flights at Webster Field Annex, NAS Patuxent River, Md.

2007

7 JANUARY • During fighting between Ethiopians and Muslim extremists in Somalia, an Air Force AC-130 gunship attacked al-Qaeda terrorists at a Somali fishing village near Ras Kamboni on the Kenyan border. The next day, the Fifth Fleet moved *Dwight D. Eisenhower* (CVN 69) to join dock landing ship *Ashland* (LSD 48) and other ships as they searched vessels for terrorists who attempted to escape from Somalia.

16 JANUARY • The Navy named the first of the CVN-21–class aircraft carriers *Gerald R. Ford* (CVN 78). Designers intended the new ships to replace the *Enterprise* (CVN 65) and *Nimitz* (CVN 68)-classes. *Gerald R. Ford* would raise aircraft sortie capacity by 25 percent, generate three times more electricity than the older ships, and included an improved fully integrated warfare system.

26 JANUARY • The Department of Defense acting inspector general notified the president and Congress that the state of Florida had not met the Defense Base Closure and Realignment Commission criteria for the move of the Navy's East Coast master jet base from NAS Oceana, Va., to NAS Cecil Field, Fla.

29 JANUARY • The Department of Defense announced the identification of the remains of a Navy pilot lost during the Vietnam War. On 25 June 1965, Cmdr. Peter Mongilardi Jr. launched in an A-4C, BuNo 149574, from *Coral Sea* (CVA 43) on an armed reconnaissance mission over North Vietnam's Thanh Hoa province. Mongilardi's wingman lost visual and radio contact with the Skyhawk amid enemy ground fire and a rainstorm.

30 JANUARY • VX-21 at NAS Patuxent River, Md., announced that MH-60Ss had fired AGM-114 Hellfire air-to-ground missiles for the first-time. The squadron also completed developmental testing of armed helicopter mission kits that doubled the Seahawks' weapons capability from four to eight missiles.

31 JANUARY • NAVAIR awarded Raytheon Company, Tucson, Ariz., a firm fixed-price contract worth more than $100 million for the third full-rate production of 376 AGM-154C Joint Standoff Weapons and associated equipment.

5 FEBRUARY • President George W. Bush delivered his fiscal 2008 defense budget request and 2007 emergency supplemental request of $484 billion to Congress. Procurement requests for the Navy totaled $39 billion with $14 billion for shipbuilding including *Gerald R. Ford* (CVN 78), and $13 billion for aircraft procurement including 24 F/A-18E/F Super Hornets, 18 EA-18G Growlers, and six F-35 Lightning IIs.

6 FEBRUARY • NAVAIR awarded a $16 million contract to Northrop Grumman Corporation, San Diego, Calif., for two additional MQ-8B Fire Scouts.

6 FEBRUARY • President George W. Bush announced the creation of Africa Command. The unified command highlighted the region's growing strategic importance and held responsibility for the entire continent with the exception of Egypt and its adjacent islands, which fell under the cognizance of Central Command. Africa Command was activated on 1 October 2008.

8 FEBRUARY • The 54-aircraft fleet of MV-22 Ospreys was grounded through 27 February for evaluation after a computer chip malfunction in subzero temperatures.

1 MARCH • The first Block 20 RQ-4A and the 17th Global Hawk built, designated AF-8, completed its maiden flight from Northrop Grumman Corp. Palmdale, Calif.

6 MARCH • HSC-85 held a retirement ceremony for the Navy's last H-3 at Coronado, Calif. The squadron had flown Sea Kings for 37 years for search and rescue missions, as well as to launch and recover mobile antisubmarine warfare targets and torpedoes.

9 MARCH • Sikorsky Aircraft Corporation of Stratford, Conn., announced the delivery of the 100th MH-60S Seahawk to the Navy.

16 MARCH • The Boeing Company, St. Louis, Mo., delivered the 200th T-45C to the Navy. More than 3,000 Navy and Marine pilots had undergone training on Goshawks at NAS Meridian, Miss., and NAS Kingsville, Texas. Navy procurement plans called for at least 23 additional aircraft.

21 MARCH • AH-1W Super Cobra pilot Maj. William D. Chesarek Jr., USMC, received the British Distinguished Flying Cross from Queen Elizabeth II at Buckingham Palace, England. In 2006, Chesarek was an exchange pilot with the Royal Navy's 847 Naval Air Squadron in Iraq. During a battle near Al Amarah on 10 and 11 June 2006, he flew a Lynx AH.7, providing communications relay support to British troops, and airlifted a wounded soldier to safety.

30 MARCH • The Navy announced the change of homeports for *Carl Vinson* (CVN 70) in early 2010 from Norfolk, Va., to San Diego, Calif. The 2006 Quadrennial Defense Review prompted the move because of the strategic reassessment for the presence of six of the 11 carrier strike groups in the Pacific. *Carl Vinson* joined *Nimitz* (CVN 68) and *Ronald Reagan* (CVN 76) already berthed at NAS North Island.

31 MARCH • The first KC-130J Super Hercules in the Pacific arrived to serve as a maintenance trainer with VMGRT-152 at MCAS Futenma, Okinawa.

9 APRIL • The initial EA-18G Growler arrived for testing at NAS Whidbey Island, Wash.

19 APRIL • Frigate *Rodney M. Davis* (FFG 60) and her embarked Coast Guard law enforcement detachment intercepted fishing vessel *Mariana de Jesus* in the eastern Pacific. The arrival of a maritime patrol aircraft overhead had panicked the ship's master and crew and they had abandoned the vessel and the 31 migrants on board. *Rodney M. Davis* assisted and transferred the migrants to the El Salvadoran Navy. Four days later, the frigate and Costa Rican Coast Guard vessel *Juan Rafael Mora* intercepted fishing vessel *Kuerubin* and 61 Chinese migrants en route from Ecuador to Guatemala. The smugglers also abandoned the migrants after a maritime patrol aircraft flew over, and the frigate transferred the people to *Juan Rafael Mora*.

20 APRIL • EA-18G Growlers completed the first phase of test and evaluation.

26 APRIL • HSL-45 Detachment 4 deployed to the eastern Pacific with frigate *McClusky* (FFG 41) during the first Navy deployment of the Airborne Use of Force doctrine against drug traffickers. Coast Guard helicopters had hitherto employed the doctrine, which involved using snipers equipped

with .50-caliber rifles capable of disabling fire. At one point, *McClusky* and embarked Coast Guard Law Enforcement Detachments 101 and 103 confiscated 12 tons of cocaine with an estimated value of $306 million. HSL-45 Detachment 4 returned to NAS North Island, Calif., on 22 October 2007.

30 APRIL • Northrop Grumman unveiled its first System Design and Development E-2D Advanced Hawkeye.

3 MAY • Retired Capt. Walter M. Schirra Jr., one of the original seven Mercury astronauts, died at the age of 84.

3 MAY • The Broad Area Maritime Surveillance Unmanned Aircraft System source selection process formally began. Based on the RQ-4B Global Hawk, the system was designed to conduct maritime surveillance, collect enemy order-of-battle information, provide battle damage assessment, port surveillance, and communications relay.

5 MAY • The U. S. Court of Federal Claims upheld the Secretary of Defense's 1991 termination of the A-12A Avenger contract for default by McDonnell Douglas and General Dynamics. Unless the ruling was overruled on appeal, the action required the companies to repay the government $2.6 billion.

11 MAY • The BLU-126/B Low Collateral Damage Bomb was cleared for deployment by NAVAIR. The precision strike weapon is externally identical to the 500-pound BLU-111, but contains less explosives to reduce fragmentation patterns and blast radii.

15 MAY • The Navy christened auxiliary dry cargo ship *Richard E. Byrd* (T-AKE 4) at General Dynamics National Steel and Shipbuilding Company, San Diego, Calif. The ship honored early aviation pioneer Rear Adm. Richard E. Byrd Jr.

18 MAY • VFA-213 became the first Navy fleet squadron to fly an F/A-18F Super Hornet retrofitted with an aft cockpit Joint Helmet-Mounted Cueing System.

23 MAY • *Nimitz* (CVN 68), *John C. Stennis* (CVN 74), and amphibious assault ship *Bonhomme Richard* (LHD 6) led seven other ships through the Strait of Hormuz into the Persian Gulf for an exercise to demonstrate U.S. resolve. The exercise concluded on 6 June.

25 MAY • HT-28 was activated as a third advanced helicopter training command at NAS Whiting Field, Fla.

29 MAY • Boeing Integrated Defense Systems, St. Louis, Mo., completed developmental flight testing of its Integrated GPS Anti-Jam System for Joint Direct Attack Munitions (JDAMs), at NAWC China Lake, Calif. The system maintained JDAM precision under different mission and GPS jamming situations.

30 MAY • The Department of Defense announced the identification of the remains of a serviceman missing in action from the Vietnam War. On 14 December 1966, Lt. Michael T. Newell of VF-194 launched in an F-8E Crusader, BuNo 149148, from *Ticonderoga* (CVA 14) during a raid on a vehicle depot at Van Dien, North Vietnam. A surface-to-air missile burst near Newell, and his wingman did not see a parachute or hear an emergency beacon signal.

31 MAY • The Department of Defense announced that MQ-8B Fire Scouts had reached Milestone C, signifying the start of the low-rate initial production phase.

4 JUNE • VMGR-152 received its first KC-130J Super Hercules at MCAS Futenma, Okinawa.

8 JUNE • Space shuttle *Atlantis* launched from John F. Kennedy Space Center, Fla., on mission STS-117. Naval aviator Col. Frederick W. Sturckow, USMC, commanded the mission to the International Space Station. On 22 June, *Atlantis* returned to Edwards AFB Calif.

10 JUNE • Training Wing 2 celebrated the 500,000th training hour in T-45 Goshawks at NAS Kingsville, Texas.

13 JUNE • The MV-22 achieved initial operational capability and became ready for expeditionary operations with the Osprey's first combat squadron, VMM-263.

14 JUNE • An RQ-4A completed the 1,000th Global Hawk flight.

15 JUNE • NAVAIR announced the completion of the critical design review of the P-8A, a necessary step before production of the first test Poseidons.

NAVAIR

A Marine Corps MV-22B Osprey demonstrates its capabilities in extreme brownout conditions during testing in 2007 at the Army Yuma Proving Ground, Ariz.

25 JUNE • The Assistant Secretary of the Navy for Research, Development, and Acquisition authorized full-rate production of Block II F/A-18E/F Super Hornets and EA-18G Growlers equipped with the AESA aircraft radar system.

1 JULY • About 55 candidates of Officer Candidate School class 20-07 began to check in as the final class of candidates to train at NAS Pensacola, Fla. As part of the Defense Base Closure and Realignment Commission process, Officer Training Command Pensacola started to transition to Newport, R.I.

3 JULY • Maj. Rich Marigliano, USMC, AgustaWestland test pilot Dick Trueman, and flight engineers Clive Bowditch and Richard Parkes completed the maiden flight of VH-71A test aircraft TV-2, for the presidential helicopter at AgustaWestland's test facility, Yeovil, England.

10 JULY • A Marine MV-22B landed on a foreign ship for the first time when an Osprey embarked on board British carrier *Illustrious* (R 06), in preparation for exercise Bold Step off the East Coast. Two days later, detachments from VMA-223, -513, and -542 embarked the British ship, and at times, 14 AV-8B Harrier IIs operated from her. Thirty ships and submarines from five countries—including *Dwight D. Eisenhower* (CVN 69), *Theodore Roosevelt* (CVN 71), *Illustrious*, amphibious assault ships *Wasp* (LHD 1) and *Bataan* (LHD 5), dock landing ship *Oak Hill* (LSD 51), and amphibious transport dock *Shreveport* (LPD 12)—participated in the exercise, which concluded on 28 July.

23 JULY • Naval aircraft and ships including Coast Guard cutters *Diligence* (WMEC 616), *Dolphin* (WPB 87354), and *Knight Island* (WPB 1348), buoy tender *Elm* (WLB 204), and an HH-65A Dolphin from CGAS Miami, Fla., assisted in the interception of 94 Cuban migrants between the Bahamas and Florida in six events. Officials detained some, but repatriated most of the migrants to Cuba.

27 JULY • Two F/A-18D Hornets from VMFA(AW)-121 destroyed an Iraqi insurgent van and a sedan with an AGM-65E Maverick air-to-ground missile and a GBU-51/B laser-guided bomb with the BLU-126/B low-collateral damage explosive, respectively. The action marked the first time that naval aircraft had dropped the BLU-126/B in battle. On 12 August, naval aircraft made a second similar attack against Iraqi insurgents.

3 AUGUST • Lt. Drew Ballinger, Northrop Grumman test pilot Tom Boutin, and flight test weapon system operator Zyad Hajo completed the first flight of an E-2D Advanced Hawkeye test aircraft at St. Augustine, Fla.

3 AUGUST • The Navy awarded Northrop Grumman Corporation a six-year, $635.8 million contract to conduct the first at-sea launches and recoveries of X-47B Unmanned Combat Air System aircraft. The program was intended to validate the capabilities of autonomous, low-observable aerial vehicles, and planned two initial vehicles, with the first to fly in late 2009 and in 2013 to undertake carrier flight operations.

4 AUGUST • During a ceremony in Grand Haven, Mich., to commemorate the Coast Guard's 217th birthday, the service announced that it had saved an estimated 1,109,310 lives since 7 August 1789 when the first Congress federalized existing lighthouses built by the colonies.

8 AUGUST • Space shuttle *Endeavour* launched from John F. Kennedy Space Center, Fla., on mission STS-118. During this 22nd shuttle flight to the International Space Station, crewmembers Cmdr. Scott J. Kelly, Col. Charles O. Hobaugh, USMC, and Col. Benjamin A. Drew Jr., USAF—who had completed naval test pilot school—had naval aviation experience. *Endeavour* returned to earth on 21 August.

14 AUGUST • Amphibious assault ship *Wasp* (LHD 1) deployed to the Indian Ocean and Persian Gulf with ten MV-22Bs from VMM-263 embarked during the first combat deployment of Ospreys. The Ospreys flew to Al Aqabah, Jordan, and then to Al Asad Air Base, Iraq. The MV-22Bs hauled troops and equipment between forward operating bases, and on 6 December landed Marines and Iraqi troops on a raid near Lake Tharthar, about 150 miles north of Baghdad. *Wasp* returned to Norfolk, Va., on 20 December.

SEPTEMBER • The Navy accepted its 3,000th AGM-154 Joint Standoff Weapon (JSOW) from Raytheon Co., Tucson, Ariz. Naval and Air Force aircraft had dropped more than 400 JSOWs in battle.

SEPTEMBER • A KC-130T from VMGR-234 flew a Navy RQ-8B Fire Scout from Northrop Grumman's Unmanned Systems Center, Moss Point, Miss., for flight testing at NAS Patuxent River, Md. This was the first such flight in a Marine Hercules.

4 SEPTEMBER • Hurricane Felix devastated northeastern Nicaragua. U.S.-led international relief forces, including amphibious assault ship *Wasp* (LHD 1) and frigate *Samuel B. Roberts* (FFG 58), played a major role. Prior to continuing eastward to the Indian Ocean and Persian Gulf, *Wasp* airlifted more than 125,000-pounds of relief supplies and evacuated 34 people. Joint Task Force Bravo coordinated efforts by the two SH-60B Seahawks from HSL-48 Detachment 7 embarked on board *Samuel B. Roberts*, and Army, Navy, and Marine helicopters including MH-53E Sea Dragons, MH-47 Chinooks, and UH-60 Black Hawks that flew dozens of missions into an airfield at Puerto Cabezas. An Air Force C-130 from Homestead Air Reserve Base, Fla., and a Marine Hercules arrived later with additional supplies. Relief efforts continued to 18 September.

24 SEPTEMBER • The Boeing Company delivered the first production EA-18G, constructor number G-1, to the Navy at St. Louis, Mo. The Growler consequently joined the flight test program at NAS Patuxent River, Md.

26 SEPTEMBER • Destroyer *James E. Williams* (DDG 95), with an SH-60B from HSL-44 Detachment 9 embarked, assisted Tanzanian-flagged passenger ferry *Spice Islander I* off the Somali coast. With no fuel on board and little food and water while en route without passengers from Oman to Tanzania, the ferry was adrift in pirate-infested waters. The Seahawk directed destroyer *Stout* (DDG 55) to the scene, which took the ferry in tow and provided the mariners with food, water, and fuel to continue their voyage.

30 SEPTEMBER • Jazirat at Ta'ir (Bird Mountain), a volcano about 70 miles off the Yemen coast, erupted and collapsed part of the island, destroying a Yemeni coast guard station. A NATO convoy of six ships sailing toward the Suez Canal—including destroyer *Bainbridge* (DDG 96) and allied frigates Canadian *Toronto* (FFH 333), Danish *Olfert Fischer* (F 355), Dutch *Evertsen* (F 805), and Portuguese *Álvares Cabral* (F 331)—diverted and rescued two survivors and recovered four bodies through 1 October.

5 OCTOBER • The Departments of Defense and Veterans Affairs named the Federal Health Care Facility at NS Great Lakes, Ill., in honor of astronaut and naval aviator James A. Lovell Jr.

9 OCTOBER • The Boeing Co. delivered the first factory-installed, dual-cockpit F/A-18F Super Hornet Joint Helmet-Mounted Cueing System to VX-9 at NAWC China Lake, Calif.

22 OCTOBER • Santa Ana winds drove 23 wild fires across 12 southern Californian counties. Marines evacuated more than 40 aircraft from MCAS Miramar, and all the armed forces aided civilian firefighters. Commander Maritime Strike Wing Pacific established the Helicopter Coordination Center at NAS North Island. The center coordinated aircraft including a VP-46 P-3C Orion, MH-60S Seahawks from HSC-3 and -85, SH-60Fs from HS-4 and -6, HSL-45 SH-60Bs, Marine CH-46E Sea Knights and CH-53E Super Stallions from Camp Pendleton and Miramar, and a UH-1N Iroquois from NAS Fallon, Nev. Other facilities including NAS North Island accommodated evacuees. Ships involved in firefighting included *Ronald Reagan* (CVN 76), amphibious assault ships *Boxer* (LHD 4), *Peleliu* (LHA 5), and Pre-Commissioning Unit *Makin Island* (LHD 8), and amphibious transport dock *Cleveland* (LPD 7). Firefighters contained the blazes by 3 November.

23 OCTOBER • Space shuttle *Discovery* launched from John F. Kennedy Space Center, Fla., on mission STS-120.

The pilot of this 120th shuttle flight and the 23rd to the International Space Station was U.S. Naval Academy graduate and former F/A-18 Hornet pilot Col. George D. Zamka, USMC. *Discovery* returned to earth on 7 November.

25 OCTOBER • An RQ-2 flew the final Pioneer unmanned aerial vehicle (UAV) operational training flight at NAS Whiting Field's outlying Choctaw Field, Navarre, Fla. Planners intended Shadow 200 unmanned aerial systems to replace Pioneers, and on 7 August 2008, Training Wing 6 UAV Detachment deactivated to allow the Army to oversee Shadow training at Fort Huachuca, Ariz. Beginning with VC-6 Detachment 1's deployment on board battleship *Iowa* (BB 61) on 10 September 1987, Pioneers had flown more than 50,000 flight hours of which nearly half—23,000—were during Operation Iraqi Freedom.

31 OCTOBER • A groundbreaking ceremony heralded the opening of the Growler Support Center at NAS Whidbey Island, Wash. The facility accommodated 24 consultants to aid the transition from EA-6B Prowlers to EA-18G Growlers.

NOVEMBER • An Air Force C-17A Globemaster III delivered VH-71A test aircraft TV-2 from AgustaWestland in the United Kingdom for testing at NAS Patuxent River, Md. TV-5 followed in December.

NOVEMBER • The Navy announced the completion at General Atomics, Rancho Bernardo, Calif., of the final critical design review of the Electromagnetic Aircraft Launch System intended to equip *Gerald R. Ford* (CVN 78)–class carriers.

5 NOVEMBER • Amphibious assault ship *Tarawa* (LHA 1), with Marines of the 11th Marine Expeditionary Unit embarked, sailed on her 14th and final deployment from San Diego, Calif. The ship supported Operations Enduring and Iraqi Freedom, visited four continents, and provided humanitarian relief to people in Bangladesh and Djibouti. *Tarawa* returned on 3 June 2008, and was decommissioned after 32 years of service on 31 March 2009.

17 NOVEMBER • Destroyer *Oscar Austin* (DDG 79) of the *Harry S. Truman* (CVN 75) Carrier Strike Group completed intelligence, surveillance, and reconnaissance testing of a ScanEagle long-endurance fully autonomous unmanned aerial vehicle while en route to the Middle East. ScanEagles had previously completed at-sea testing principally on board amphibious and high-speed ships.

22 NOVEMBER • Medal of Honor recipient Col. Jefferson J. DeBlanc, USMC (Ret.), died in Lafayette, La. The fighter pilot and ace received the award for his actions against the Japanese off Kolombangara Island in the Solomons Group during World War II.

27 NOVEMBER • Lt. Gen. Thomas H. Miller Jr., USMC (Ret.), died in Arlington, Va. Miller served in World War II, impacted naval aviation's early transition into the jet age, and in 1968 flew an AV-8A Harrier with Lt. Col. Clarence M. Baker, USMC, in the United Kingdom.

2 DECEMBER • AW1 Robert Antonucci and AD1 John Fuller of HSL-43, and AW2 John Barile of HSL-45, were commissioned through the Flying Chief Warrant Officer Program at NAS North Island, Calif.

11 DECEMBER • The Navy marked the production of the first P-8A Poseidon at Spirit AeroSystems, Wichita, Kan.

12 DECEMBER • The Army and Navy signed a five-year, multi-service $11.6 billion contract for the delivery of 537 UH-60M Black Hawk, HH-60M, and MH-60R/S Seahawk helicopters, with options for an additional 263 aircraft, spares, and kits from Sikorsky Aircraft Corporation, Stratford, Conn.

13 DECEMBER • The Navy inaugurated an unmanned aerial systems (UAS) airstrip at Armitage Field, NAWC China Lake, Calif. Two Cobra unmanned systems used to test future UAS capabilities flew missions from the 2,200-by-50-foot asphalt strip.

15 DECEMBER • Amphibious transport dock *Mesa Verde* (LPD 19) was commissioned at Panama City, Fla. She was the first man-of-war so named and honored Mesa Verde National Park, Colo.

20 DECEMBER • CWO2s Dale Courtney and Adam Rittierodt of VP-30, who received their wings as naval flight officers (NFO), were two of the initial applicants of the Flying Chief Warrant Officer Program at NAS Jacksonville,

Fla. German Lts. 2d Grade Christian Hegemann and Patrick Leisner also received NFO wings.

2008

3 JANUARY • While *Abraham Lincoln* (CVN 72) conducted JTFEX 03-08 off southern California, the U.S. District Court for the Central District of California ordered further limitations on mid-frequency sonar use because of its potential effect upon sea creatures. The Navy announced that the restrictions "created a significant and unreasonable risk" that impacted sonar training. President George W. Bush noted that, with the provisions of the Coastal Zone Management Act of 27 October 1972, continuing the exercise concerned "the paramount interests of the United States." On 16 January, Secretary of the Navy Donald C. Winter signed a decision of memorandum agreeing to alternative arrangements that included 29 voluntary adaptive management measures.

5 JANUARY • An irrigation canal ruptured and water inundated several hundred houses in Fernley, Nev. Lt. Brent Hardgrave led two HH-1N Iroquois from NAS Fallon, about 30 miles away, that rescued 18 people, and Coast Guard HC-130Hs delivered food and water to victims.

22 JANUARY • An HSM-71 MH-60R completed the Seahawk variant's first at-sea operations through 25 January while embarked on board destroyer *Preble* (DDG 88) off California.

25 JANUARY • The Navy announced requirements for the Active Duty Flying Chief Warrant Officer Pilot Program in NavAdmin 020/08. Among them, sailors were required to receive commissions by their 27th birthdays, possess associate or higher degrees, and maintain physical fitness for aviation duties.

11 FEBRUARY • Sailors consigned the ashes of nine Navy veterans including astronaut Capt. Walter M. Schirra Jr. to the Pacific during a ceremony on board *Ronald Reagan* (CVN 76).

22 FEBRUARY • HS-7, embarked on board *Harry S. Truman* (CVN 75), and auxiliary dry cargo ship *Sacagawea* (T-AKE 2) rescued ten Iraqis from sinking Korean-flagged tanker *Nadi* in the Persian Gulf. The next day, HS-7 transferred the rescued mariners to British dock landing ship *Cardigan Bay* (L 3009) for their return to the Iraqi Navy.

27 FEBRUARY • The third helicopter built for the VH-71A Presidential Helicopter Replacement Program, TV-3, made its initial flight at Yeovil, England.

1 MARCH • Amphibious transport dock *New York* (LPD 21) was christened at Northrop Grumman Shipbuilding, New Orleans, La. The ship's name honored the state, city, and victims of 9/11. Her hull contained 7½ tons of steel salvaged from the wreckage of the World Trade Center.

3 MARCH • Secretary of the Navy Donald C. Winter announced the name of the eighth *Lewis and Clark*–class auxiliary dry cargo ship as *Wally Schirra* (T-AKE 8) in honor of astronaut and naval aviator Capt. Walter M. Schirra Jr.

13 MARCH • Director Navy Staff Vice Adm. John D. Stufflebeem announced the change of homeports for *Kitty Hawk* (CV 63) from Yokosuka, Japan, to Bremerton, Wash., effective 31 January 2009 in preparation for her decommissioning.

23 MARCH • Fishing vessel *Alaska Ranger* sank during a storm in the Bering Sea, about 125 miles west of Dutch Harbor, Alaska. Aircraft and ships that responded included a Coast Guard HH-60J Jayhawk, cutter *Munro* (WHEC 724) and her embarked HH-65A Dolphin, two HH-130H Hercules from Elmendorf AFB, and fishing vessel *Alaska Warrior*, which collectively rescued 42 of the 47 crewmembers.

7 APRIL • *George Washington* (CVN 73), with Carrier Air Wing 17 embarked, sailed from NS Norfolk, Va., to relieve *Kitty Hawk* (CV 63) at Yokosuka, Japan.

22 APRIL • The Navy awarded Northrop Grumman Corp. a system development and demonstration contract for Broad Area Maritime Surveillance unmanned aerial systems. The $1.16 billion cost-plus-award-fee contract was to develop a persistent maritime intelligence, surveillance, and reconnaissance data collection and dissemination capability using RQ-4B Global Hawks.

24 APRIL • Chief of Naval Operations Adm. Gary Roughead announced the reestablishment of the Fourth Fleet, Rear Adm. Joseph D. Kernan commanding, at NS Mayport, Fla. This was to address the increasing role of maritime forces in the Naval Forces Southern Command area of operations, the Caribbean, and Central and South America.

28 APRIL • The Navy announced the deletion of AGM-119B Penguin air-to-ground missiles from inventory.

2 MAY • Cyclone Nargis caused widespread flooding along the Irrawaddy Delta and coast of Myanmar (Burma). International ships that rushed to the area as part of Joint Task Force Caring Response included amphibious assault ship *Essex* (LHD 2), amphibious transport dock *Juneau* (LPD 10), and dock landing ship *Harpers Ferry* (LSD 49), with the 31st Marine Expeditionary Unit embarked. The U.S. ships left some of their aircraft behind in Thailand and on 13 May arrived off Myanmar. The country's ruling junta rejected aid offers and, on 5 June, Commander Pacific Command Adm. Timothy J. Keating directed the ships to leave. The next day, two Marine C-130 Hercules flew 70 UN relief tents from Medan, Indonesia, to Thailand, from where aid workers shipped the tents and other vital supplies to the cyclone victims.

10 MAY • The Navy christened destroyer *Stockdale* (DDG 106) at Bath Iron Works, Maine. The ship honored Vice Adm. James B. Stockdale (Ret.), the highest ranking naval prisoner held by the North Vietnamese and a recipient of the Medal of Honor.

13 MAY • The EA-18G Growler Support Center opened at NAS Whidbey Island, Wash.

22 MAY • A fire erupted on board *George Washington* (CVN 73) while conducting an underway replenishment with frigate *Crommelin* (FFG 37) in the Pacific. The ships performed an emergency breakaway and sailors fought the blaze for 12 hours during which 38 *George Washington* crewmembers received treatment for injuries. The fire apparently resulted from the ignition of improperly stowed refrigerant compressor oil and delayed *George Washington* en route to relieve *Kitty Hawk* (CV 63) in Japan. In August, *George Washington* relieved *Kitty Hawk* at NAS North Island, Calif.

11 JUNE • BAE Systems, Inc. test pilot Graham Tomlinson flew an F-35B for the first flight of the short takeoff/vertical landing Lightning II at Lockheed Martin, Fort Worth, Texas.

20 JUNE • The Department of Defense announced the identification of the remains of a pilot missing in action from the Vietnam War and his return for interment. On 4 August 1967, Lt. j.g. Ralph C. Bisz of VA-163 launched in an A-4E, BuNo 150052, from *Oriskany* (CVA 34) to bomb a North Vietnamese petroleum depot near Haiphong. An enemy surface-to-air missile shot down the Skyhawk near Hai Duong in Hai Hung province.

23 JUNE • The U.S. Supreme Court agreed to review a preliminary injunction that restricted the Navy's ability to train realistically with sonar in Californian waters.

25 JUNE • *Ronald Reagan* (CVN 76) supported relief efforts to victims of Typhoon Fengshen on Panay, Philippines. HS-4 HH-60H and SH-60F Seahawks flying from the carrier; and SH-60Bs from HSL-43 embarked on board destroyer *Howard* (DDG 83), HSL-37 deployed with frigate *Thach* (FFG 43), and HSL-49 embarked on board cruiser *Chancellorsville* (CG 62); delivered food and water to people in the area. Two VRC-30 C-2A Greyhounds flew rice and water from the carrier to Santa Barbara Airport, Iloilo. *Ronald Reagan* departed from the Sulu Sea on 3 July.

27 JUNE • Secretary of the Navy Donald C. Winter announced the name *America* for the lead ship (LHA 6) and class of amphibious assault ships, the fourth vessel in the fleet to honor the name.

12 JULY • VMU-3, Lt. Col. James W. Frey, USMC, commanding, was activated at Lance Cpl. Torrey L. Gray Field, Marine Corps Air Ground Combat Center, Twentynine Palms, Calif. The squadron flew reconnaissance missions, assisted in deployments and training, and rotated with VMU-1 and -2 at MCAS Cherry Point, N.C. The Marines also announced their receipt of RQ-7B unmanned aerial vehicles that used the Shadow 200 system.

14 JULY • The Navy announced the award of a $48 million contract for six aircraft from Hawker Beechcraft Corporation, Wichita, Kan., to replace Marine UC-12 Huron twin-engine utility aircraft.

17 JULY • The Navy acknowledged the award of a $232 million system development and demonstration contract for the Joint Precision Approach and Landing System (JPALS) from Raytheon Company, Fullerton, Calif. Plans called for JPALS to integrate into naval landing systems, and for F/A-18E/F Super Hornets, EA-18G Growlers, and MH-60R/S Seahawks to be the lead aircraft during evaluations.

23 JULY • Lt. Jeff Millar of VX-9 and Lt. Elizabeth Somerville of VX-31 completed the first EA-18G Growler live fire of an AIM-120 Advanced Medium Range Air-To-Air Missile against a BQM-74E target drone at NAWCWD China Lake, Calif.

31 JULY • EA-18G Growlers completed sea trials through 5 August on board *Dwight D. Eisenhower* (CVN 69) in the Atlantic.

4 AUGUST • The Department of Defense announced the identification of the remains of a sailor missing in action from the Vietnam War and his return for interment. On 8 October 1963, HM3 Manuel R. Denton was one of six men killed on board a UH-34D Seahorse shot down by ground fire during a search and rescue mission over Quang Nam province, South Vietnam. Searchers recovered four men, but failed to locate Denton and LCpl. Luther E. Ritchey Jr., USMC.

7 AUGUST • VC-6, which had operated BQM-74E aerial target drones and RQ-2A Pioneer unmanned aerial vehicles, was deactivated at NS Norfolk, Va. This enabled the Army to oversee Shadow 200 UAS training to replace Pioneers at Fort Huachuca, Ariz.

7 AUGUST • Operation Assured Delivery began—humanitarian assistance to victims of the fighting between the Russians, Georgians, and South Ossetians in the Caucasus. From 13 August to 10 September, Navy C-9B Skytrain, C-40A Clipper, and C-130 Hercules, and Air Force C-17A Globemaster IIIs flew 1,145 short tons of supplies from Ramstein AFB, Germany to Tbilisi, Georgia. Command ship *Mount Whitney* (LCC 20), destroyer *McFaul* (DDG 74), and Coast Guard cutter *Dallas* (WHEC 716) also provided aid via Bat'umi and Poti.

8 AUGUST • Deputy Commandant for Marine Aviation Lt. Gen. George J. Trautman III, USMC, announced that UH-1Y Venoms had achieved their initial operating capability.

11 AUGUST • The crew of Pre-Commissioning Unit *George H. W. Bush* (CVN 77) began to move on board the ship at Northrop Grumman shipyard, Newport News, Va.

15 AUGUST • The High Speed Anti-Radiation Demonstration project displayed the maturity of an integral rocket-ramjet propulsion system at White Sands Missile Range, N.M. The objectives included a flight test of a near tactically configured vehicle.

16 AUGUST • A fire broke out in a cargo hangar at Tocumen International Airport in Panama during Southern Command exercise Fuerzas Aliadas Panamax 2008. Deputy maritime patrol aircraft commander Cmdr. Sam Sorgen for Commander Task Force 805, and his operations officer, Cmdr. Douglas Rosado, discovered the blaze and together with Air Force, Columbian, and Panamanian servicemembers saved up to eight aircraft from destruction.

22 AUGUST • The Navy celebrated the end of the North American T-2 program and its 3.4 million hours flight time with a sundown ceremony and fly-by at the Mustin Beach Officer's Club, NAS Pensacola, Fla. VT-86 made the final Buckeye training flights.

26 AUGUST • Hurricane Gustav made landfall on the southwestern peninsula of Haiti. The tempest swept across the Caribbean and on 1 September struck Cocodrie, La. VR-53 flew rescue workers and equipment to the Gulf Coast.

28 AUGUST • The Navy and Air Force signed a memorandum of agreement to streamline their joint acquisition processes regarding RQ-4 Global Hawks, and to pursue common objectives concerning the development and introduction of the unmanned aerial vehicles.

SEPTEMBER • VAQ-133 deployed to Bagram AB, Afghanistan. The squadron returned on 21 March 2009.

3 SEPTEMBER • The Electromagnetic Aircraft Launch System reached the 10,000 High Cycle Testing, Phase 1 milestone, at General Atomics, Tupelo, Miss.

8 SEPTEMBER • Naval aviator Nathan G. Gordon, 92, died at University of Arkansas for Medical Sciences, Little Rock, Ark. Gordon had received the Medal of Honor for his actions at Kavieng Harbor in the Bismarck Sea during World War II.

10 SEPTEMBER • The Navy awarded a $5.1 billion contract for the detail design and construction of *Gerald R. Ford* (CVN 78) to Northrop Grumman Shipbuilding, Newport News, Va.

13 SEPTEMBER • Frigate *McInerney* (FFG 8), with Coast Guard Law Enforcement Detachment 404 embarked, and a VP-26 P-3C Orion collaborated in the seizure of a 59-foot semi-submersible vessel smuggling an estimated $107 million worth of cocaine, about 350 miles east of Guatemala. The smugglers attempted to escape and jettison the drugs, but boarders captured the vessel before the submersible was scuttled.

25 SEPTEMBER • *George Washington* (CVN 73), which had been delayed by her 22 May fire, arrived as the forward-deployed carrier at Yokosuka, Japan.

29 SEPTEMBER • The Navy announced the impending completion of a six-year program to purchase and refurbish 44 retired Swiss Air Force F-5E Freedom Fighters to replace F-5E Tiger IIs in the dedicated adversary role as F-5Ns. The process averaged five months per jet, and on 29 April 2009, the Navy accepted the final refurbished aircraft at St. Augustine, Fla.

30 SEPTEMBER • The Navy accepted destroyer *Stockdale* (DDG 106), named in honor of Medal of Honor recipient Vice Adm. James B. Stockdale, at Bath Iron Works, Maine.

30 SEPTEMBER • The Navy approved the AGM-88E Advanced Anti-Radiation Guided Missile for service.

1 OCTOBER • Africa Command was activated.

1 OCTOBER • The Naval Air Pacific Repair Activity was redesignated Fleet Readiness Center Western Pacific at NAF Atsugi, Japan. It provided ready-for-tasking aircraft and aviation support equipment to naval forces permanently sited in or deployed to Pacific and Central Commands.

1 OCTOBER • Fleet Aviation Specialized Operational Training Group, Atlantic Fleet, Detachment Jacksonville (Fla.) was disestablished, and merged with the Center for Naval Aviation Technical Training Unit, also at Jacksonville.

6 OCTOBER • The Navy announced a contract for EADS North America to provide five UH-72A Lakotas for use in helicopter pilot training at the Naval Test Pilot School, NAS Patuxent River, Md.

6 OCTOBER • United States Forces–Afghanistan was activated, Gen. David D. McKiernan, USA, commanding, with responsibility for all commands deployed to Afghanistan.

7 OCTOBER • HMM-163 of the 13th Marine Expeditionary Unit engaged in sea testing through 16 October of a UH-1Y Venom during an integration exercise on board amphibious assault ship *Boxer* (LHD 4).

28 OCTOBER • E-2D Advanced Hawkeyes completed their initial operational assessment at Northrop Grumman, St. Augustine, Fla. Over a period of four weeks, a team from VX-1 at NAS Patuxent River, Md., and the Carrier Airborne Early Warning Weapons School at NAS Fallon, Nev., made ten test flights.

4 NOVEMBER • The Navy certified F/A-18E/Fs to fly at altitudes between 29,000 and 41,000 feet. This affected all Super Hornets produced from Lot 22 and beyond, approximately 340 aircraft.

7 NOVEMBER • NAVAIR announced the delivery of Laser Joint Direct Attack Munition (LJDAM) kits to the fleet. These consisted of laser sensors installed onto 500-pound bomb bodies with JDAM guidance kits, and provided a laser guidance mode to F/A-18A–D Hornets, F/A-18E/F Super Hornets, AV-8B Harrier IIs, and certain USAF aircraft.

7 NOVEMBER • Fleet Readiness Center Southeast announced the completion of repairs on the first of 39 P-3C

Orions grounded in December 2007 for structural fatigue concerns on a portion of their lower outer wings.

12 NOVEMBER • The United States Supreme Court ruled for the Navy on the challenge to the service's use of sonar for 14 antisubmarine warfare combat certification training exercises off southern California. The Navy agreed to train while applying mitigating measures set forth by a National Defense Exception and imposed by the President's Council on Environmental Quality. In December, the Navy entered into an agreement to resolve the lawsuit with several plaintiffs, which included directing $14.75 million in research funds during the following three years to marine mammal topics of "mutual interest" to the parties concerned.

14 NOVEMBER • Space shuttle *Endeavour* launched from John F. Kennedy Space Center, Fla., on mission STS-126. During this 27th mission to the International Space Station, naval aviator Capt. Christopher J. Ferguson commanded the shuttle, which landed at Edwards AFB, Calif., on 30 November.

17 NOVEMBER • The Navy announced its "preferred alternative" to homeport a nuclear-powered carrier at NS Mayport, Fla. The service had assessed 13 options because of the decommissioning of *John F. Kennedy* (CV 67) on 23 March 2007.

21 NOVEMBER • The Navy held a dedication ceremony at NAS Whidbey Island, Wash., to welcome the first EA-18G Growler, BuNo 166858—the fourth production aircraft—accepted for the fleet. The Navy had received six Growlers: EA-1 and -2 as engineering and development models used to support developmental testing; and production aircraft G-1, -2, and -3 used for developmental and operational testing.

2 DECEMBER • Secretary of the Navy Donald C. Winter announced the names of four *Lewis and Clark*–class auxiliary dry cargo ships, two of which honored pioneers in naval aviation. *Washington Chambers* (T-AKE 11) was named for Capt. Washington I. Chambers, who had arranged for aviator Eugene B. Ely to fly a plane from *Birmingham* (Cruiser No. 2) on 14 November 1911. *William McLean* (T-AKE 12) honored William B. McLean, who had helped conceive and develop the AIM-9 Sidewinder air-to-air missile while serving as a physicist for the Navy. These were the first ships named for the men.

NAWCWD

A Laser Joint Direct Attack Munition destroys a target during testing at the China Lake Naval Weapons Station, Calif. in August 2008.

2 DECEMBER • Frigate *Samuel B. Roberts* (FFG 58), with HSL-60 Detachment 2 and Coast Guard Law Enforcement Detachment 402 embarked, recovered 41 bales of cocaine that smugglers on board a go-fast vessel jettisoned during an interception in the eastern Pacific.

5 DECEMBER • Frigate *Rodney M. Davis* (FFG 60), with HSL-43 Detachment 2 and Coast Guard Law Enforcement Detachment 106 embarked, intercepted a fishing vessel and her crew of nine smugglers in the eastern Pacific carrying over four metric tons of cocaine valued at more than $90 million.

2009

2 JANUARY • The Navy announced the decision to base P-8A Poseidons. One fleet replacement squadron would be located at NAS Jacksonville, Fla.; four squadrons at NAS Whidbey Island, Wash.; and three squadrons at MCB Hawaii, Kaneohe Bay. Periodic detachments were also to operate from NAS North Island, Calif.

5 JANUARY • The Coast Guard and Lockheed Martin exercised contract options valued at $13.25 million to install mission systems including belly-mounted surface search radar on board two long-range surveillance HC-130J Hercules.

8 JANUARY • Combined Task Force (CTF) 151 was established to conduct counterpiracy operations at Al Manama, Bahrain. In August 2008, the Maritime Security Patrol Area had been created in the Gulf of Aden to support international efforts to fight piracy, but the task force's charter focused the command's objectives on maritime security operations (MSO) in the Gulf of Aden, Gulf of Oman, Arabian Sea, Red Sea, and Indian Ocean. Some CTF-150 members operated within legal restrictions, and the establishment of CTF-151 enabled those nations to pursue MSO while other members transported pirates to justice.

9 JANUARY • Three UH-1Ys of the 13th Marine Expeditionary Unit made the initial deployment of Venoms on board amphibious assault ship *Boxer* (LHD 4) from NS San Diego, Calif., to the western Pacific, Indian Ocean, and Arabian Sea. The ship returned on 1 August.

9 JANUARY • The first pilot production VH-71A Presidential Helicopter, PP-3, arrived to begin the integration and final processing at Lockheed Martin, Owego, N.Y. The aircraft made its maiden flight on 13 January.

10 JANUARY • *George H. W. Bush* (CVN 77) was commissioned at NS Norfolk, Va. From 13 to 16 February, the ship conducted and completed builder's sea trials and, from 7 to 10 April, her acceptance sea trials off the Virginia Capes.

13 JANUARY • HSM-71 began the deployment of the first operational squadron equipped with MH-60R Seahawks when *John C. Stennis* (CVN 74) sailed from NB Kitsap, Bremerton, Wash., to the western Pacific, Indian Ocean, and Arabian Sea. The ship returned on 10 July.

14 JANUARY • The Navy signed the formal record of decision to homeport a single nuclear-powered aircraft carrier at NS Mayport, Fla. The Navy had assessed 13 alternatives including a "no action" option.

21 JANUARY • The Navy signed the formal record of decision to continue the current level of training on the Southern California Range Complex. This included an evaluation of the effects of sonar upon marine life. Two days later, the service announced its signature of a record of decision concerning the Atlantic Fleet Active Sonar Training Environmental Impact Statement/Overseas Environmental Impact Statement. Based on the study and the effectiveness of the measures in place, the Navy selected the "no action" alternative to continue the protections in place.

24 JANUARY • Amphibious transport dock *Green Bay* (LPD 20) was commissioned at Long Beach, Calif.

31 JANUARY • During the deactivation of Sea Control Wing Atlantic and VS-22, the Navy also retired the last ten active S-3B Vikings from fleet service at NAS Jacksonville, Fla.

23 FEBRUARY • The Airborne Strategic Command, Control, and Communications program office accepted the first modified E-6B Mercury Block 1 at L-3 Integrated Systems Group, Waco, Texas.

25 FEBRUARY • The second F-35B Lightning II, BF-2, made its first flight at Fort Worth, Texas. Together with a conventional takeoff and landing F-35A and the first F-35B, BF-1, Lightning IIs had logged a total of 84 flights.

8 MARCH • The Navy launched and christened auxiliary dry cargo ship *Wally Schirra* (T-AKE 8) at General Dynamics–National Steel and Shipbuilding Co., San Diego, Calif.

10 MARCH • The Navy changed the status of Capt. Michael S. Speicher in the Persian Gulf War from "missing/captured" to "missing in action."

15 MARCH • Space shuttle *Discovery* launched from John F. Kennedy Space Center, Fla., on mission STS-119. During the flight to the International Space Station, the crewmembers included naval aviators Capt. John L. Phillips, USNR (Ret.), and Cmdr. Dominic A. Antonelli. The shuttle returned to the center on 28 March.

18 MARCH • Lockheed Martin announced the Navy's certification of the terminal phase capability of the Aegis Ballistic Missile Defense System. The system has the capability to defeat short-range ballistic missiles during the terminal stage of flight and, by 2010, had been installed in 18 ships.

19 MARCH • Maj. Joseph T. Bachmann, USMC, at Lockheed Martin, Fort Worth, Texas, made the first flight by a Marine in an F-35A Lightning II—AA-1.

20 MARCH • Amphibious transport dock *New Orleans* (LPD 18) and submarine *Hartford* (SSN 768) collided in the Strait of Hormuz. *New Orleans* did not report casualties but 15 sailors on board the submarine received minor injuries. The LPD underwent repairs in a Bahrain drydock and returned to sea on 12 May. *Hartford* returned to the United States for repair.

20 MARCH • Amphibious assault ship *Boxer* (LHD 4) coordinated the capture of six pirates in the Gulf of Aden. Philippine-flagged motor vessel *Bison Express* sent a distress call as she was being pursued by the suspects in a skiff. An SH-60B from HSL-46, embarked on board cruiser *Gettysburg* (CG 64), spotted the pirates throwing objects overboard, and a visit, board, search, and seizure team from the cruiser seized the suspects, who were taken for questioning to *Boxer* as the afloat staging base for Combined Task Force 151.

29 MARCH • Seven pirates in a skiff attacked German oiler *Spessart* (A 1442) in the Gulf of Aden. Three task forces representing seven nations including amphibious assault ship *Boxer* (LHD 4), an SH-60B from Spanish frigate *Victoria* (F 82), and a Spanish P-3M pursued the suspects. An AH-1W Super Cobra and a UH-1Y Venom operating from *Boxer* delayed the escape of the pirates until a German boarding team from Greek frigate *Psara* (F 454) took them into custody for transfer to German frigate *Rheinland-Pfalz* (F 209).

USN 090409-N-0000X-032

A still frame from a video taken by a P-3C Orion shows the pirate-held U.S.-flagged container ship *Maersk Alabama* in the Indian Ocean, 9 April 2009.

31 MARCH • Amphibious assault ship *Tarawa* (LHA 1) was decommissioned at San Diego, Calif.

8 APRIL • Pirates captured U.S.-flagged motor vessel *Maersk Alabama* and her 22 crewmembers, 300 miles from the Somali coast. The crew recaptured their ship along with one of the pirates, but the three surviving pirates held the vessel's skipper, Capt. Richard Phillips, hostage on a lifeboat. On 12 April, SEAL snipers on board destroyer *Bainbridge* (DDG 96) killed the pirates and rescued Phillips. Amphibious assault ship *Boxer* (LHD 4) participated in the rescue, and a ScanEagle unmanned aircraft system provided timely intelligence. In early November 2009, four pirates in a skiff attempted to board *Maersk Alabama* again, but the crew fought off the attackers.

16 APRIL • The Navy accepted the delivery of amphibious assault ship *Makin Island* (LHD 8) at Northrop Grumman Shipbuilding, Gulf Coast, Pascagoula, Miss.

18 APRIL • Destroyer *Stockdale* (DDG 106) was commissioned at Port Hueneme, Calif.

21 APRIL • Frigate *Rodney M. Davis* (FFG 60) returned to NS Everett, Wash. from a counternarcotics deployment in the eastern Pacific. During her sail, the ship and her embarked SH-60B of HSL-43 Detachment 2 intercepted and seized six tons of cocaine and 160 pounds of marijuana, and disrupted shipments of 18 tons of cocaine and three tons of marijuana.

USN 090412-N-XXXXN-001

Capt. Richard Phillips (right) of U.S.-flagged container ship *Maersk Alabama* poses with Cmdr. Frank Castellano, commanding officer of destroyer *Bainbridge* (DDG 96), after his rescue from pirates, 12 April 2009.

25 APRIL • The initial P-8A Poseidon flight test aircraft, T1, completed its first flight near Seattle, Wash.

11 MAY • Space shuttle *Atlantis* launched from John F. Kennedy Space Center, Fla., on mission STS-125. During this final flight to the Hubble Space Telescope, the crewmembers included naval aviators retired Capts. Scott D. Altman and Gregory C. Johnson. On 24 May, *Atlantis* touched down at Edwards AFB, Calif.

13 MAY • Combined Task Force 151 defeated a pirate attack in the Gulf of Aden. Cruiser *Gettysburg* (CG 64) and South Korean destroyer *Munmu the Great* (DDH 976) responded to a distress call from Egyptian-flagged motor vessel *Amira* when pirates attacked her, 75 nautical miles south of Al Mukalla, Yemen. An SH-60B from HSL-46 Detachment 9, embarked on board *Gettysburg*, located a dhow suspected of serving as a mother ship for pirates. A visit, board, search, and seizure team and Coast Guard Law Enforcement Detachment 409 from the cruiser discovered a variety of weapons on board and detained her 17 crewmembers.

15 MAY • The under secretary of defense for acquisition, technology and logistics issued a stop work order for Increments I and IV of the VH-71A Presidential Helicopter contract to Lockheed Martin Systems Integration, Owego,

N.Y. On 1 June, the Navy issued a letter of termination to the company for Increments I and II, affecting all activities associated with the helicopter's systems design and demonstration requirements, excepting those technologies undergoing development and evaluation that presented potential benefit to other programs.

23 MAY • An SH-60B of HSL-45 Detachment 4, embarked on board cruiser *Lake Champlain* (CG 57), spotted a skiff in distress in the Gulf of Aden. The Seahawk directed the ship to the area, which rescued 52 people who had been adrift in the vessel for nearly a week.

26 MAY • An SH-60B of HSL-46 Detachment 9, embarked on board cruiser *Gettysburg* (CG 64), responded to Yemeni motor vessel *Alaseb* adrift in the Gulf of Aden. The Seahawk guided the cruiser to the area, which towed the boat and her 11 passengers to a rendezvous with the Yemeni Coast Guard for repairs.

JUNE • CWO2 Michael S. Adams Jr. reported to HSC-22 on board amphibious assault ship *Bataan* (LHD 5) as the first helicopter pilot to complete his training in the Flying Chief Warrant Officer program and the first to deploy.

1 JUNE • Air France Flight 447 crashed into the Atlantic Ocean during a flight from Rio de Janeiro, Brazil, to Paris, France, killing all 228 people on board—12 crewmembers and 216 passengers. A P-3C Orion of VP-5 subsequently assisted in the search for survivors from Augusto Severo Airfield at Natal, Brazil. The Navy concluded its support of rescue operations on 13 July.

2 JUNE • The U.S. Circuit Court of Appeals for the Federal Circuit affirmed the 5 May 2007 decision by U.S. Court of Federal Claims Judge Robert B. Hodges Jr. sustaining the government's default termination of the A-12A Avenger contract.

11 JUNE • The E-2D Advanced Hawkeye program reached Milestone C and received approval to begin low-rate initial production.

19 JUNE • 1st Lt. Michael Brown, USMC, at NAS Whiting Field, Fla., became the 30,000th naval helicopter pilot.

25 JUNE • An MV-22B from VMM-263 of the 22d Marine Expeditionary Unit, embarked on board amphibious assault ship *Bataan* (LHD 5) in the Red Sea, conducted the first ship-to-shore emergency medical evacuation by an Osprey.

2 JULY • The Navy declared the AGM-84K Standoff Land Attack Missile–Expanded Response operationally effective against land-based moving targets after an operational evaluation.

7 JULY • A P-3C Orion and a British warship from Combined Task Force 150 coordinated the seizure of 10 tons of narcotics with an estimated value of $70 million from a dhow in the Gulf of Aden, about 150 miles southeast of Salalah, Oman.

10 JULY • Amphibious assault ship *Makin Island* (LHD 8) sailed from Pascagoula, Miss., around South America to her commissioning. During the voyage, she inaugurated flight operations with Army CH-47 Chinooks attached to Joint Task Force Bravo, CH-46E Sea Knights, and CH-53E Super Stallions, and Coast Guard HH-60J Jayhawks and HH-65A Dolphins. She arrived at NS San Diego, Calif., on 14 September.

15 JULY • Space shuttle *Endeavour* launched from John F. Kennedy Space Center, Fla., on mission STS-127. During this 29th mission to the International Space Station, the crewmembers included naval aviator Col. Douglas G. Hurley, USMC. The shuttle returned to the center on 31 July.

28 JULY • Chief of Naval Operations Adm. Gary Roughead participated in the introduction of the F-35C Lightning II at Lockheed Martin, Fort Worth, Texas.

29 JULY • The Department of Defense announced that the initial operational test and evaluation of EA-18Gs found them operationally effective, operationally suitable, and recommended them for introduction to the fleet.

30 JULY • Chief of Naval Operations Adm. Gary Roughead delivered remarks during the roll-out of the P-8A Poseidon at Boeing Co., Renton, Wash.

AUGUST • The AGM-84K Standoff Land Attack Missile–Expanded Response achieved two milestones: its 100th

launch (from an F/A-18C Hornet) and the first launch from an F-16 Fighting Falcon. Both events occurred at NAWS China Lake, Calif.

1 AUGUST • Consolidated Maintenance Organization 10 was disestablished at NAS Whidbey Island, Wash. This final such command in service had maintained P-3C Orions for four patrol squadrons and EP-3E Aries IIs for two fleet air reconnaissance squadrons, but the projection of a virtually all-sailor maintenance force for P-8A Poseidons drove the decision to revert to organic patrol community maintainers.

2 AUGUST • The Armed Forces Institute of Pathology positively identified the remains of Capt. Michael S. Speicher. Bedouins had directed a recovery team from Multi-National Force–West to two sites in the Iraqi desert about 62 miles west of Ramadi. On 17 January 1991, an (apparent) Iraqi surface-to-air missile shot down Speicher's Hornet and he became the first American casualty of the Persian Gulf War.

5 AUGUST • EA-18Gs from VAQ-129 and -132 completed the first Growler at-sea landings on board *Harry S. Truman* (CVN 75).

7 AUGUST • Typhoon Morakot struck central and southern Taiwan, triggering severe flooding and mudslides that claimed hundreds of lives. HSC-25 Detachment 6 helped move food, water, and medical supplies from sea to shore to assist Taiwanese relief efforts.

18 AUGUST • Frigate *Carr* (FFG 52), with an SH-60B Seahawk from HSL-42 Detachment 8 and Coast Guard Law Enforcement Detachment 409 embarked, intercepted a go-fast vessel and her three smugglers in the Caribbean, seizing 46 bales—more than one ton—of cocaine with an estimated value of $22 million.

21 AUGUST • The Navy accepted the delivery of amphibious transport dock *New York* (LPD 21) at Northrop Grumman Shipbuilding, Avondale, La.

27 AUGUST • The arrival of the first two T-6B Texan IIs began the turnover from T-34C Turbomentors for primary flight training at NAS Whiting Field, Fla.

28 AUGUST • Space shuttle *Discovery* launched from John F. Kennedy Space Center, Fla., on mission STS-128. During this 30th mission to the International Space Station, the crew included Col. Patrick G. Forrester, USA (Ret.), who had graduated from the Naval Test Pilot School, and naval aviator Col. Frederick W. Sturckow, USMC. On 11 September, *Discovery* landed at Edwards AFB, Calif.

1 SEPTEMBER • The Navy accepted the delivery of auxiliary dry cargo ship *Wally Schirra* (T-AKE 8) at General Dynamics–National Steel and Shipbuilding Company, San Diego, Calif.

17 SEPTEMBER • Super Typhoon Choi-Wan struck Alamagan and Agrihan, about 146 nautical miles north of Saipan, Marianas Islands. Two MH-60S Seahawks from HSC-25 Detachment 1, embarked on board auxiliary dry cargo ship *Alan B. Shepard* (T-AKE 3), delivered relief supplies.

21 SEPTEMBER • The Navy accepted the final production E-2C Hawkeye 2000—A-205—at Northrop Grumman, St. Augustine, Fla.

22 SEPTEMBER • EA-18G Growlers attained their initial operational capability.

25 SEPTEMBER • Tropical Storm Ketsana (known as Ondoy in the Philippines) struck central Luzon, Philippines, killing more than 250 people and rendering tens of thousands homeless. On 27 and 28 September, U.S. and Filipino servicemembers rescued 52 people from rising floodwaters in the capital. On 4 October, dock landing ships *Tortuga* (LSD 46) and *Harpers Ferry* (LSD 49), with elements of the 31st Marine Expeditionary Unit embarked, arrived to assist Joint Special Operations Task Force–Philippines in providing humanitarian relief.

28 SEPTEMBER • The Navy announced the completion of two steps in the introduction of the Electromagnetic Aircraft Launch System. The first phase of Highly Accelerated Life Testing gauged the launch motor's ability to operate in simulated at-sea conditions. The second phase System Functional Demonstration replicated full-scale launching capabilities.

29 SEPTEMBER • The Boeing Company concluded a 42-month risk reduction program for GBU-40 Small Diameter Bombs when an F-15E Strike Eagle dropped one of the weapons at Eglin AFB, Fla. Previous test flights had occurred in May and August 2007.

29 SEPTEMBER • An 8.3 magnitude earthquake struck 125 miles south of Apia on American Samoa, generating a tsunami that inundated the eastern coast of Samoa and parts of Tonga killing more than 160 people. The next day, frigate *Ingraham* (FFG 61), with an embarked SH-60B Seahawk, arrived and helped members of the Federal Emergency Management Agency and Army National Guardsmen, who had been flown to the area by Air Force C-17A Globemaster IIIs. A Coast Guard HC-130H flew aerial surveillance missions.

30 SEPTEMBER • An earthquake measuring 7.6 on the Richter scale rocked western Sumatra, Indonesia, killing more than 750 people and triggering landslides that wiped-out villages and blocked roads. On 9 October, amphibious transport dock *Denver* (LPD 9), with Marines of the 31st Marine Expeditionary Unit embarked, and destroyer *McCampbell* (DDG 85), arrived to support international relief efforts. Three HMM-265 CH-53E Super Stallions from *Denver*, and two HSL-51 Detachment 5 SH-60B Seahawks from *McCampbell*, delivered essential relief supplies and teams to people in remote areas isolated by the landslides. Additional aircraft, including two SA-330J Pumas from auxiliary dry cargo ship *Richard E. Byrd* (T-AKE 4), reinforced these operations. The Navy concluded its humanitarian assistance on 16 October.

1 OCTOBER • A Broad Area Maritime Surveillance Demonstrator (BAMS-D) returned from the first eight-month deployment to Central Command of the RQ-4B–based system. The Global Hawk flew more than 60 sorties that supplied Commander Task Force 57 with maritime intelligence and surveillance. A second BAMS-D deployed prior to the return of the first.

1 OCTOBER • Carrier Strike Group 1 was established at San Diego, Calif.

2 OCTOBER • Electronic Attack Wing Pacific Fleet declared the first operational EA-18G Growler-equipped squadron, VAQ-132 at NAS Whidbey Island, Wash., "safe for flight operations."

2 OCTOBER • Typhoon Parma (known as Pepeng in the Philippines) struck Luzon. Dock landing ships *Tortuga* (LSD 46) and *Harpers Ferry* (LSD 49), with elements of the 31st Marine Expeditionary Unit embarked, responded. Aircraft that provided airlift support to more than 1,400 people included ten CH-46E Sea Knights operating from the two ships with U.S. and Filipino servicemembers.

4 OCTOBER • Amphibious assault ship *Wasp* (LHD 1) deployed to the Fourth Fleet from NS Norfolk, Va. The ship served as a forward operating base with the Security Cooperation Marine Air-Ground Task Force, Joint Interagency Task Force–South, Drug Enforcement Administration, and Coast Guard Law Enforcement Detachment 405 during counternarcotics operations. *Wasp* returned from this first deployment of its kind to that fleet on 22 December.

5 OCTOBER • Two MQ-8B Fire Scouts, BuNos 167791 and 167792, made the first deployment of the unmanned aerial vehicles (UAV) during a counternarcotics cruise to the Caribbean with HSL-42 Detachment 7 on board frigate *McInerney* (FFG 8) from NS Mayport, Fla. *McInerney* made the first interception of drug smugglers using Fire Scouts on 3 April 2010. The UAVs flew 24 counternarcotics and systems evaluation flights. The ship returned on 15 April.

7 OCTOBER • Frigate *Hawes* (FFG 53), with HSL-48 Detachment 10 embarked, returned to NS Norfolk, Va., from a counternarcotics deployment to the Caribbean and western Atlantic. The ship's operations resulted in the seizure of 200 barrels of cocaine.

15 OCTOBER • Lt. Roger Stanton, accompanied by Boeing pilot Doug Benjamin, completed the first flight by a Navy pilot of a P-8A Poseidon in test aircraft T1 over Puget Sound, Wash. The mission initiated a 36-month formal naval flight test program by VX-1 and -20 and the Boeing Company to evaluate Poseidons T1, T2, and T3.

15 OCTOBER • Cruiser *Anzio* (CG 68), with an SH-60B from HSL-48 Detachment 7 embarked, seized approximately four tons of hashish with an estimated street

USN 090508-N-2821G-146

An MQ-8B Fire Scout hovers over the flight deck of frigate *McInerney* (FFG 8) while the ship sails in the Atlantic, 8 May 2009.

value of $28 million from a skiff in the Gulf of Aden, about 170 miles southwest of Salalah, Oman.

19 OCTOBER • Frigate *Jarrett* (FFG 33) returned to NS San Diego, Calif., from a counternarcotics deployment to the eastern Pacific. The ship's operations resulted in the seizure or disruption of the smuggling of more than nine tons of narcotics with an estimated value of $266 million.

20 OCTOBER • The Navy accepted the delivery of its final T-45C, the 221st Goshawk delivered, at Boeing Company, St. Louis, Mo.

NOVEMBER • The first of five UH-72A Lakotas, BuNo 168245, arrived for use in helicopter pilot training at the Naval Test Pilot School, NAS Patuxent River, Md. The fifth Lakota arrived in January 2010.

6 NOVEMBER • Ten MV-22Bs from VMM-263 of the 22d Marine Expeditionary Unit launched from amphibious assault ship *Bataan* (LHD 5) to Camp Bastion, Afghanistan. The aircraft made the first deployment of Ospreys into that country in three waves, making the 510 nautical-mile flight in just over two hours to VMM-261 of the 2d Marine Expeditionary Brigade.

7 NOVEMBER • Amphibious transport dock *New York* (LPD 21) was commissioned at New York City, N.Y.

12 NOVEMBER • The Navy opened the Electromagnetic Aircraft Launch System armature at the system functional demonstration site, Joint Base McGuire–Fort Dix–Lakehurst, N.J.

14 NOVEMBER • Lockheed Martin test pilot David Nelson made the inaugural flight of the first optimized F-35A Lightning II, aircraft AF-1, at Fort Worth, Texas.

15 NOVEMBER • Lockheed Martin test pilot Jon Beesley flew the first F-35B, BF-1, from Fort Worth, Texas, via Dobbins AFB, Ga., to NAS Patuxent River, Md. The ferry flight initiated a series of Lightning II arrivals for testing at Patuxent River.

16 NOVEMBER • Space shuttle *Atlantis* launched from John F. Kennedy Space Center, Fla., on mission STS-129. This 31st flight to the International Space Station marked the final crew rotation mission to the facility, and the crew included naval aviators Col. Charles O. Hobaugh, USMC; Lt. Col. Randolph J. Bresnik, USMC; and Navy Capts. Michael J. Foreman (Ret.) and Barry E. Wilmore. *Atlantis* returned to the center on 27 November.

20 NOVEMBER • The Navy released a draft environmental impact statement concerning the military build-up on Guam and the Northern Marianas Islands. The proposed actions included the construction of a deep-draft wharf and shoreside infrastructure improvements to support a transient nuclear-powered carrier at Apra, Guam, and the expansion of aviation facilities ashore for Marines transferred from Okinawa. The service released the final statement on 29 July 2010.

23 NOVEMBER • The Department of Defense approved EA-18Gs for full-rate production, and authorized the procurement and construction of 54 Growlers remaining in the program of record.

24 NOVEMBER • Amphibious assault ship *Makin Island* (LHD 8) was commissioned as the eighth and final vessel of the *Wasp* (LHD 1) class at NAS North Island, Calif.

11 DECEMBER • The retirement of the last operational Navy UH-3H, BuNo 154121, took place at NAS Patuxent River, Md. HMX-1 then used the Sea King as a trainer.

2010

7 JANUARY • BAE Systems, Inc. test pilot Graham Tomlinson engaged the short takeoff/vertical landing propulsion system of an F-35B Lightning II for the first time during a flight at NAS Patuxent River, Md.

12 JANUARY • A magnitude 7.3 earthquake devastated Port-au-Prince, Haiti, killing an estimated 230,000 people. The United States initiated Operation Unified Response—humanitarian aid to victims. At the operation's peak, 23 Navy ships participated including *Carl Vinson* (CVN 70) with Carrier Air Wing 17 embarked; amphibious assault ships *Bataan* (LHD 5) and *Nassau* (LHA 4); dock landing ships *Ashland* (LSD 48), *Carter Hall* (LSD 50), *Fort McHenry* (LSD 43), and *Gunston Hall* (LSD 44); amphibious transport dock *Mesa Verde* (LPD 19), with the 22d and 24th Marine Expeditionary Units embarked; and 10 Coast Guard ships.

A total of 264 U.S. fixed-wing aircraft took part including C-2A Greyhounds of VRC-40; C-40A Clippers; C-130 Hercules; E-2C Hawkeyes of VAW-125; and P-3C Orions of VP-26 and -62; along with 57 helicopters and tiltrotor aircraft including USCG HH-60J Jayhawks; MH-53E Sea Dragons of HM-14 and -15; SH-60B Seahawks of HSL-46 and -60; MH-60Ss of HSC-9, -22, -26, and -28; MV-22B Ospreys of VMM-162; and Marine CH-46E Sea Knights and UH-1N Iroquois. The Air Force diverted an RQ-4A en route to Afghanistan and operated the Global Hawk on several reconnaissance missions over Haiti from NAS Patuxent River, Md. Airlifters of all the services and international aid agencies staged through NAS Jacksonville, Fla. *Carl Vinson* departed on 1 February, and by 24 March these vessels largely sailed from Haitian waters, although relief efforts continued into the summer.

18 JANUARY • Amphibious transport dock *Mesa Verde* (LPD 19) sailed on her maiden deployment to the Caribbean, Mediterranean, Indian Ocean, and Persian Gulf from NS Norfolk, Va.

20 JANUARY • A P-3C Orion and a Coast Guard HC-130H Hercules located a Chinese fishing vessel in distress about 575 miles from Guam, and directed a merchantman to aid the mariners.

USN 130514-N-UZ648-298

Assigned to VX-23, the second of two X-47B Unmanned Combat Air System demonstrators, BuNo 168064, flies by *George H. W. Bush* (CVN 77), 14 May 2013. Two months later, this test vehicle made the first arrested carrier landing at sea by an unmanned aircraft.

25 JANUARY • Ethiopian Airlines Flight 409 crashed in the Mediterranean Sea while en route from Beirut, Lebanon, to Addis Ababa, Ethiopia, killing all 90 people on board. Aircraft and vessels of the Sixth Fleet that assisted in the search and rescue included a P-3C Orion, destroyer *Ramage* (DDG 61), and salvage ship *Grapple* (T-ARS 53).

26 JANUARY • The Navy announced adjustments to the Aviation Career Continuation Pay program to provide selected bonuses as an incentive to eligible pilots and naval flight officers through department head, sea duty, and command billets. The changes contained within NAVADMINs 031/10 and 032/10 included the reduction of long-term annual, at-sea, and command bonuses.

27 JANUARY • *George H. W. Bush* (CVN 77), through 29 January, completed sea trials off the Virginia Capes.

29 JANUARY • The Tenth Fleet, Vice Adm. Bernard J. McCullough III commanding, and the Fleet Cyber Command were reestablished and established, respectively, at Ft. George G. Meade, Md.

1 FEBRUARY • Secretary of Defense Robert M. Gates delivered the 2010 Ballistic Missile Defense Review to Congress. From March 2009 through January 2010, the department conducted this first such review, and its recommendations included the further development of ship-based RIM-161B Standard SM-3 Block 1A Interceptor Missiles.

1 FEBRUARY • The Direct Attack Moving Target Capability program achieved Milestone C. The system facilitated strikes by F/A-18 Hornets, F/A-18E/F Super Hornets, and AV-8B Harrier IIs with Joint Direct Attack Munitions against maneuvering targets.

7 FEBRUARY • The Navy, through 10 February, evaluated the integration of shipboard systems with X-47B Unmanned Combat Air Systems during flight deck certifications with *Abraham Lincoln* (CVN 72) and Carrier Air Wing 2 off southern California.

8 FEBRUARY • Space shuttle *Endeavour* launched from John F. Kennedy Space Center, Fla., on mission STS-130. During this 32d mission to the International Space Station, naval aviation crewmembers comprised Col. George D. Zamka, USMC, and Capt. Kathryn P. Hire. *Endeavour* returned to the center on 21 February.

16 FEBRUARY • Littoral combat ship *Freedom* (LCS 1) began the vessel's maiden deployment to the Caribbean and eastern Pacific via the Panama Canal from NS Mayport, Fla. An MH-60S Seahawk of HSC-22 Detachment 2 and a Coast Guard Law Enforcement detachment embarked. On 22 February, *Freedom* made the ship's first drug seizure when she disrupted a go-fast vessel and recovered more than a quarter ton of cocaine. During the voyage, the ship made four drug interceptions seizing more than 5¼ tons of cocaine and 13 smugglers. On 23 April, she reached her new homeport of NS San Diego, Calif.

24 FEBRUARY • Chief of Naval Operations Adm. Gary Roughead presented his Fiscal Year 2011 Posture Statement to Congress, which included the intention to reduce Navy unit deployed squadrons from 12 to 10 aircraft each to match a corresponding decrease in Marine expeditionary squadrons.

25 FEBRUARY • NAVAIR celebrated the completion of one million operational flight hours by Block I AIM-9X Sidewinder air-to-air missiles at Raytheon Missile Systems, Tucson, Ariz.

2 MARCH • Boeing Company, St. Louis, Mo., was awarded an $11.4 million Navy contract to supply Laser Joint Direct Attack Munitions for the fleet's Direct Attack Moving Target Capability program. The initial contract called for the delivery of 23 munition kits for testing and evaluation, and expected follow-on options totaling 11,000 more.

4 MARCH • An F/A-18F Super Hornet performed the first captive carriage test of an AGM-154C-1 Joint Standoff Weapon at NAWCWD China Lake, Calif.

10 MARCH • Neil A. Armstrong received honorary naval astronaut wings during a ceremony on board *Dwight D. Eisenhower* (CVN 69).

18 MARCH • BAE Systems, Inc. test pilot Graham Tomlinson completed the first vertical landing of an F-35B Lightning II at NAS Patuxent River, Md.

18 MARCH • NAVAIR's Common Aviation Support Equipment program office awarded Lockheed Martin, Orlando, Fla., an $83.3 million five-year development contract to design, fabricate, and test the Electronic Consolidated Automated Support System.

26 MARCH • The North Koreans torpedoed and sank South Korean corvette *Cheonan* (PCC 772) in the Yellow Sea. Allied ships that responded to the crisis included dock landing ship *Harpers Ferry* (LSD 49), and MH-60S Seahawks of HSC-25 Detachment 6 operating from the LSD assisted South Korean salvage efforts. The detachment returned to Guam on 3 June.

31 MARCH • Lockheed Martin, Orlando, Fla., announced the successful completion of a wide range of tests on the multi-mode seeker for Joint Air-to-Ground Missiles.

31 MARCH • President Barack Obama, at Joint Base Andrews, Md., announced his administration's plans on energy security including the Navy's biofuel program. The service's critical protocols to certify alternative fuels included an experimental 50/50 biofuel blend for F/A-18E/F Super Hornets, the intended use of biofuels in all aircraft by 2016, and alternative energy sources to power half of all shore aviation establishments by 2020.

1 APRIL • Eleven pirates in three skiffs attacked Sierra Leone–flagged tanker *Evita*, 310 miles northwest of the Seychelles. A Swedish maritime patrol aircraft responded to

the tanker's distress call and located the boats, after which an SH-60B Seahawk from *Farragut* (DDG 99) directed the destroyer to intercept the pirates.

1 APRIL • Pirates fired on *Nicholas* (FFG 47) west of the Seychelles. The frigate and her embarked SH-60B Seahawk sank their skiff, captured the mother ship, and five pirates from the two vessels.

3 APRIL • An MQ-8B of HSL-42 Detachment 7, embarked on board frigate *McInerney* (FFG 8), proved crucial in the interception of a go-fast vessel smuggling drugs in the eastern Pacific. The Fire Scout filmed the smugglers' activities after which the frigate seized the boat and 132 pounds of cocaine, and compelled the traffickers to jettison an estimated 440 pounds of the illicit cargo. This was the first Fire Scout operation to combat drug smugglers.

5 APRIL • Space shuttle *Discovery* launched from John F. Kennedy Space Center, Fla., on mission STS-131. During this 33rd mission to the International Space Station, naval aviator Capt. Alan G. Poindexter was the spacecraft's commander. It returned to the center on 20 April.

7 APRIL • Test pilot David Nelson flew F-35B BF-4 at Fort Worth, Texas, during the first flight of a mission systems–equipped Lightning II.

7 APRIL • Littoral combat ship *Freedom* (LCS 1) completed her first integrated at-sea operations with *Carl Vinson* (CVN 70) off southern California.

8 APRIL • The initial proof-of-principle flight test of an AGM-114R Hellfire II air-to-ground missile with a live warhead occurred at Eglin AFB, Fla.

9 APRIL • A groundbreaking ceremony heralded the opening of the P-8A Poseidon Multi-Mission Maritime Aircraft Integrated Training Center at NAS Jacksonville, Fla.

10 APRIL • T1, the first P-8A Poseidon test aircraft, BuNo 167951, arrived for evaluations at NAS Patuxent River, Md.

10 APRIL • Six pirates on board a skiff attacked dock landing ship *Ashland* (LSD 48) in the Gulf of Aden. *Ashland* sank the boat and captured the pirates.

12 APRIL • Lockheed Martin delivered the 1,000th production AGM-158 Joint Air-to-Surface Standoff Missile (JASSM) to the USAF. The Navy intended JASSMs to be compatible with F/A-18E/F Super Hornets, F-35B/C Lightning IIs, and P-3C Orions.

17 APRIL • Destroyer *William P. Lawrence* (DDG 110) was commissioned in honor of Vice Adm. William P. Lawrence at Northrop Grumman Shipbuilding, Pascagoula, Miss. On 28 June 1967, pilot and squadron commanding officer Cmdr. Lawrence and radar intercept officer Lt. j.g. James W. Bailey of VF-143 launched in an F-4B, BuNo 152242, from *Constellation* (CVA 64) to bomb North Vietnamese petroleum and transshipment facilities at Nam Dinh. Antiaircraft fire shot down the Phantom II and both men endured captivity until 1973. Lawrence's decorations include the Silver Star, Distinguished Flying Cross, and Purple Heart.

19 APRIL • Fleet Readiness Center East at MCAS Cherry Point, N.C., accepted the first two MQ-8B Fire Scouts to perform maintenance on them in conjunction with a corrosion assessment.

19 APRIL • Training Wing 5 initiated ground school training for the T-6B Texan II flight training syllabus at NAS Whiting Field, Fla., with 14 students.

20 APRIL • An accident on board British Petroleum/Transocean drilling rig *Deepwater Horizon* led to a catastrophic oil spill in the Gulf of Mexico. Emergency responders subsequently established five staging areas along the Gulf coast including NAS Pensacola, Fla. Sailors, Marines, Coast Guardsmen, and civilian aid workers set out oil containment booms at the naval air station and along areas of the Alabama and Florida coastlines, and NAS Pensacola trained two-week classes of 50 students each to clean beaches.

23 APRIL • Ground was broken for the construction of the Weapons Dynamic Research, Development, Test, and Evaluation Center at NAWCWD China Lake, Calif., to test weapon systems. This marked the center's tenth and final Defense Base Closure and Realignment Commission 2005 construction project.

5 MAY • Joint Air-to-Ground Missiles successfully completed 200 hours of F/A-18E/F Super Hornet wind tunnel testing at NASA's Ames Research Center, Moffett Field, Calif.

5 MAY • Submarine *Cheyenne* (SSN 773) successfully fired a BGM-109 Block IV-E Tomahawk Land Attack Missile from off the southern California coast into China Lake Test Range, Calif.

7 MAY • Fleet Readiness Center East at MCAS Cherry Point, N.C., completed rework on the last retired CH-53E, BuNo 161181, and delivered the Super Stallion to HMT-302. From August 2005, the center reworked two CH-53Ds and eight CH-53Es from the Aerospace Maintenance and Regeneration Group at Davis-Monthan AFB, Ariz.

7 MAY • Amphibious transport dock *San Diego* (LPD 22) was launched at Northrop Grumman Shipbuilding, Pascagoula, Miss.

14 MAY • Space shuttle *Atlantis* launched from John F. Kennedy Space Center, Fla., on mission STS-132. During this 34th mission to the International Space Station, naval aviators Capt. Kenneth Ham and Cmdr. Dominic A. Antonelli served respectively as spacecraft commander and pilot. *Atlantis* returned to the space center on 26 May.

14 MAY • The Undersecretary of Defense for Acquisition, Technology, and Logistics certified to Congress that the proposed F/A-18 multi-year procurement met statutory requirements for 124 F/A-18E/F Super Hornets and EA-18G Growlers into Fiscal Year 2013. The action supported the Navy's intention to acquire the remaining program of record of 515 Super Hornets and 114 Growlers.

18 MAY • Instructor Capt. Michael Perkins, USMC, and student Ens. Christopher D. Farkas of VT-3 at NAS Whiting Field, Fla., completed the first naval student flight in a T-6B Texan II.

26 MAY • Cruiser *San Jacinto* (CG 56), with her embarked SH-60B Seahawk of HSL-42, designated Proud Warrior 433, and a Coast Guard law enforcement detachment, rescued five Yemeni mariners and their dhow *Al Jawat* from 13 pirates, 68 miles southeast of Ras Fartak, Yemen. *San Jacinto* apprehended the suspects and transferred them to the Yemeni Navy. On 31 May and 1 June, the cruiser disrupted nine more pirates in a skiff from attacking merchant vessel *Avenue Beauty*, about 90 miles north of Somalia. Proud Warrior 433 aircrewmen AW2 Casey Halliwell tracked the pirates with radar, and AW2 Corey Whittle fired warning shots across the skiff's bow and compelled the pirates to surrender.

27 MAY • Two eruptions of Pacaya volcano followed by the impact of Tropical Storm Agatha caused widespread devastation in Guatemala. On 31 May, frigate *Underwood* (FFG 36) and her embarked SH-60B of HSL-60 arrived off the coast and began humanitarian assistance flights. Into early June, the Seahawk and four other U.S. helicopters flew more than 40 sorties to deliver supplies to victims. On 5 October, *Underwood* completed her counternarcotics deployment after four interceptions that resulted in the seizure of 4.3 metric tons of cocaine valued at $301.7 million.

28 MAY • NAVAIR announced the readiness of the first AH-1Z Viper full-motion cockpit simulator to train pilots at Camp Pendleton, Calif.

5 JUNE • Destroyer *Spruance* (DDG 111) was christened in honor of Adm. Raymond A. Spruance at Bath Iron Works, Bath, Maine.

6 JUNE • Test pilot Jeff Knowles completed the first flight of an F-35C Lightning II, CF-1, at NAS JRB Fort Worth, Texas.

8 JUNE • The transfer of the last P-3C Orion of VP-26 completed the transition of patrol squadrons from NAS Brunswick, Maine, to NAS Jacksonville, Fla.

8 JUNE • The E-6B Airborne Strategic Command, Control, and Communications program completed a Milestone C review that enabled Mercury Block I aircraft to enter the production and deployment phase.

12 JUNE • Amphibious transport dock *San Diego* (LPD 22) was christened at Northrop Grumman Shipbuilding, Pascagoula, Miss.

USMC 100821-M-3497D-378

An MH-53E Sea Dragon of HM-15 Detachment 2 evacuates flood victims from Khyber-Pakhtunkhwa Province, Pakistan, 21 August 2010.

18 JUNE • Commercial vessel *Sea Adventure II* ran aground near South Coronado Island, Mexico. A Coast Guard MH-60T Jayhawk and cutter *Edisto* (WPB 1313), harbor police, and civilian mariners rescued all 26 people on board. After temporary repairs, *Sea Adventure II* reached San Diego, Calif.

2 JULY • Pakistani fishing vessel *Al An Wari* sank in the Gulf of Aden. On 5 July, a P-3C Orion of VP-16 forward deployed to Djibouti spotted 16 survivors in a life raft about 144 miles west of Socotra Island, and directed an SH-60B from frigate *Elrod* (FFG 55) to the area. The Seahawk rescued 12 of the mariners and the frigate saved the remaining four men.

8 JULY • Navy-manned MZ-3A Advanced Airship Flying Laboratory arrived at Lake Front Airport, New Orleans, La. The Coast Guard requested the assistance of the airship, which was a modified American Blimp Corporation A-170 blimp, to detect spreading oil and wildlife threatened by the accident on board the British Petroleum/Transocean drilling rig *Deepwater Horizon* in the Gulf of Mexico on 20 April.

22 JULY • The Army and Navy authenticated the keel of joint high-speed vessel *Spearhead* (JHSV 1) at Austal USA Shipyard, Mobile, Ala. The vessel was intended for fast intra-theater transportation of troops and equipment, and was equipped with a small flight deck to support air vehicle launches and recoveries.

28 JULY • Heavy rains into the first week of August caused flooding in Pakistan that killed an estimated 1,600 people and rendered hundreds of thousands homeless. On 9 August, amphibious assault ship *Peleliu* (LHA 5), dock landing ship *Pearl Harbor* (LSD 52), and amphibious transport dock *Dubuque* (LPD 8) arrived off Karachi, Pakistan. At times, 15 CH-46E Sea Knights of HMM-165 and CH-53E Super Stallions of HMH-465 from the 15th Marine Expeditionary Unit (MEU), augmented by HSC-23

MH-60S Seahawks and three HM-15 Detachment 2 MH-53E Sea Dragons, contributed to the evacuation of more than 10,000 people and delivery of 1.9 million pounds of relief supplies. Some of these helicopters operated from Pakistani airfields at Chaklala, Ghazi, and Pano Aqil, and two SA-330J Pumas flew from auxiliary dry cargo ship *Lewis and Clark* (T-AKE 1). Meanwhile, VMA-311 AV-8B Harrier IIs carried out close air support missions from *Peleliu* for coalition troops fighting Islamic extremists in Afghanistan. On 16 September, amphibious assault ship *Kearsarge* (LHD 3), dock landing ship *Carter Hall* (LSD 50), and amphibious transport dock *Ponce* (LPD 15), with MV-22B Ospreys of VMM-266 and helicopters from the 26th MEU embarked, arrived to participate. Air Force cargo aircraft and ten Army CH-47 Chinooks and eight UH-60 Black Hawks also provided humanitarian assistance. *Peleliu* departed on 31 October. *Harry S. Truman* (CVN 75) subsequently arrived, and on 15 November, four Super Stallions of the 26th MEU refueled on board.

USMC 100904-M-3497D-266

The devastation of heavy flooding in Pano Aquil, Pakistan, is apparent to crewmembers of an HMM-165 CH-46E Sea Knight.

29 JULY • Chief of Naval Operations Adm. Gary Roughead accepted the E-2D to the fleet with the delivery of the first Advanced Hawkeye to VAW-120 at Norfolk, Va.

11 AUGUST • P-8A reached Milestone C and the Defense Acquisition Board approved the commencement of low-rate Poseidon production.

18 AUGUST • An F/A-18C Hornet of VFA-37, embarked on board *Harry S. Truman* (CVN 75) in the north Arabian Sea, spotted a vessel on fire about 50 miles from the carrier. Two SH-60F Seahawks of HS-7 rescued eight Iranian mariners from the boat.

26 AUGUST • The Naval Air Training Command celebrated one million T-45 Goshawk flight hours at NAS Cecil Field, Fla.

SEPTEMBER • GAU-21 .50-caliber weapon systems deployed for the first time with the UH-1Y Venoms of HMLA-169 from Camp Pendleton, Calif.

7 SEPTEMBER • NAVAIR redesignated the Broad Area Maritime Surveillance unmanned aircraft system, based on the RQ-4B Global Hawk, as MQ-4C.

8 SEPTEMBER • Pirates seized Antigua-Barbuda–flagged merchant vessel *Magellan Star* in the Gulf of Aden. The next day, Marines from the 15th Marine Expeditionary Unit, embarked on board amphibious transport dock *Dubuque* (LPD 8) and covered by helicopters and assisted by cruiser *Princeton* (CG 59) and Turkish frigate *Gökçeada* (F 494), boarded *Magellan Star*, rescuing all 11 crewmembers and capturing nine pirates.

11 SEPTEMBER • Auxiliary dry cargo ship *Washington Chambers* (T-AKE 11) was christened and launched at General Dynamics National Steel and Shipbuilding Company, San Diego, Calif. The ship was delivered to the fleet on 23 February 2011.

20 SEPTEMBER • The Department of Defense released the Record of Decision concerning the Guam and Commonwealth of Northern Mariana Islands Military Relocation Final Environmental Impact Statement. The

USN 100909-N-5133N-135

A UH-1N Iroquois covers Marines during the boarding and seizure of motor vessel *Magellan Star* in the Gulf of Aden, 9 September 2010.

Navy deferred for the near term the selection of a location for the construction of a transient carrier berth at Apra. The Marines determined the only reasonable site for their air operations was Andersen AFB, North Ramp.

24 SEPTEMBER • The In-Service Engineering Facility, designed for the inspection, maintenance, and packaging of bombs and missiles, opened at NAWCWD China Lake, Calif.

27 SEPTEMBER • The Defense POW/Missing Personnel Office announced the identification and return of the remains of Lt. Francis B. McIntyre and ARM2 William L. Russell of VC-24. On 10 November 1943, they launched in an SBD-5, BuNo 35931, on a bombing and strafing raid from Munda Airfield, New Georgia. Witnesses last saw the Dauntless flying through an explosion on Buka Island, Papua New Guinea.

28 SEPTEMBER • NAVAIR announced the purchase of 124 F/A-18E/F Super Hornets and EA-18G Growlers based on a multi-year procurement contract through 2014.

6 OCTOBER • The Naval Medical Research Unit Dayton was activated at Wright Patterson AFB, Ohio. The action completed the merger of the Naval Aerospace Medical Research and the Naval Medicine Environmental Health Effects Laboratories.

8 OCTOBER • The Dr. William B. McLean Laboratory, designed for engineering, logistics, modeling, and simulation, opened at NAWCWD China Lake, Calif. This

USN 101106-N-0000X-098 (courtesy of Lockheed Martin)

The first F-35C Lightning II carrier variant arrives at NAS Patuxent River, Md., 6 November 2010.

laboratory was the largest planned Defense Base Closure and Realignment Commission 2005 construction project at the center.

13 OCTOBER • NAVAIR announced the completion of the Barking Sands Underwater Range Expansion refurbishment off Kauai, Hawaii. The program enhanced antisubmarine warfare training through increased acoustics and frequency bandwidth.

13 OCTOBER • The Navy successfully tested the AN/DVS-1 Coastal Battlefield Reconnaissance Analysis Block I system with an MQ-8B Fire Scout at Yuma Proving Ground, Ariz. The system was designed to detect minefields and obstacles prior to amphibious assaults.

15 OCTOBER • The Navy accepted the first 11 production AGM-154C-1 Joint Standoff Weapons at McAlester Army Ammunition Plant, McAlester, Okla.

15 OCTOBER • One of three test P-8As completed several sonobuoy launches in the Atlantic Test Range. These were the first sonobuoy drops by Poseidons since they began testing at NAS Patuxent River, Md.

5 NOVEMBER • Hurricane Tomas struck western Haiti. On 6 November, helicopters operating from amphibious assault ship *Iwo Jima* (LHD 7) began damage assessment flights in support of international relief teams. *Iwo Jima* departed on 9 November.

5 NOVEMBER • Fleet Weather Center San Diego was established at NAS North Island, Calif. This completed the relocation of Naval Aviation Forecasting Detachment San Diego, Strike Group Oceanography Team San Diego, and Naval Maritime Forecast Center to the command.

6 NOVEMBER • Test pilot David Nelson flew CF-1, the first F-35C Lightning II, for testing to NAS Patuxent River, Md.

8 NOVEMBER • A fire erupted in the aft engine room of Carnival cruise ship *Carnival Splendor* and she lost power 150 nautical miles southwest of San Diego, Calif. The next day, C-2A Greyhounds of VRC-30 transported supplies from NAS North Island, Calif., to *Ronald Reagan* (CVN 76), and HH-60H and SH-60F Seahawks of HS-4 then delivered the provisions to the stricken ship. A Coast Guard HC-130H Hercules, an HH-65C Dolphin, MH-60T Jayhawks, and cutters *Aspen* (WLB 208), *Edisto* (WPB 1313), *Morgenthau* (WHEC 722), and *Petrel* (WPB 87350) also participated. Tugs towed the cruise ship to San Diego.

10 NOVEMBER • Two F-35Bs completed the first formation flight of Lightning IIs at NAS Patuxent River, Md.

12 NOVEMBER • Two EA-18G Growlers began validation training at NSAWC Fallon, Nev.

18 NOVEMBER • An F-35 completed the 500th test flight of a Lightning II.

18 NOVEMBER • An MH-60S Seahawk of HX-21 flew powered by an experimental 50/50 biofuel blend at NAS Patuxent River, Md.

28 NOVEMBER • NAVAIR approved AH-1Z Vipers for full-rate production.

2 DECEMBER • NAVAIR announced the award of two fixed-price contracts valued at $29.9 million and $45.8 million, respectively, for the Cargo Resupply Unmanned Aerial System to Boeing/Frontier Systems and Lockheed Martin. These originated from an urgent need to reduce the exposure of Marines to enemy improvised explosive devices in Afghanistan and Iraq.

6 DECEMBER • Frigate *Doyle* (FFG 39) and her embarked Coast Guard Law Enforcement detachment intercepted smuggling vessel *Rio Tuira* in the eastern Pacific about 180 miles from Panama and seized 22 bales of cocaine with an estimated street value of $15.4 million.

9 DECEMBER • The F-35 Lightning II program achieved its 2010 goal of 394 test flights.

10 DECEMBER • NAVSEA announced the successful completion of the first phase of shipboard mine countermeasure mission package testing for littoral combat ship *Independence* (LCS 2) with a reconfigured MH-60S Seahawk.

18 DECEMBER • Lt. Daniel Radocaj of VX-23 made the first launch of the Electromagnetic Aircraft Launch System in an F/A-18E Super Hornet at Joint Base McGuire–Fort Dix–Lakehurst, N.J.

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To further aid the researcher the index has been broken into six major subject groups: Aircraft by Designation, Aircraft by Name, Missiles and Rockets, Ships, U.S. Military Units, and Individuals. Topics that do not naturally fall under those headings are listed in the General index.

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R6D-1 (Douglas), 1955Mar22; 1956Oct11; 1960Feb25
R7O (Lockheed), 1982Jun25
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RA-5C (North American), 1964Mar13; 1967Jun05, Jul29; 1969Jan14; 1972May31; 1979Sep28, Nov20
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RF-8A (Vought), 1962Oct17, Oct23, Nov05; 1964Jun06
RF-8G, 1972Dec13; 1987Mar29
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RH-3A (Sikorsky), 1962Oct16; 1966Sep03
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RON-1 (Gyrodyne), 1958Apr02
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RQ-2A, 1987Sep10, Oct18; 1991Feb03, Feb06, Feb27; 1993Apr26; 1999Jun01, Mar10; 2000Mar13; 2008Aug07
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S70A-9 (Sikorsky), 2005Jun22
SA-16 (Grumman), 1954Sep04
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SB2A-4, 1942Nov16; 1943Mar29
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SC-1 (Curtiss), 1979Feb09
SC-2, 1925Oct27
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SH-3D, 1969Jul16, Nov14; 1970Apr11; 1971Feb05; 1973Mar29; 1974Sep08; 1975Nov22
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SH-60B/F, 2000May11
SH-60F, 1985Mar06; 1987Mar19, Jun30; 1988Aug17; 1989Jun22; 1990Mar27; 1991Aug27; 1998Jun17;

2000Aug23; 2001Dec05; 2004Dec26; 2005Mar20; 2007Oct22; 2008Jun25; 2010Aug18, Nov08
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SON-1 (Naval Aircraft Factory), 1939Oct23; 1941Aug05; 1943Feb11, Jul10, Sep09; 1944Jan22
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T-34B, 1976Jun24
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T-45A, 1985Jun19; 1988Apr16; 1991Dec04; 1992Jan23, Jun27, May01; 1994Jan01, Mar19; 1995Jan17; 1996May30
T-45C, 1997Dec15; 2007Mar16; 2009Oct20
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TA-4 (Douglas), 1994Jan01
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TA-7C (LTV), 1977Jan31; 1978Apr10; 1980Jan04; 1992Apr01
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TC-14 (airship), 1937Jul02
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UH-34D (Sikorsky), 1962Apr15, Oct27; 1964Nov04; 1965Apr24, May12, Oct28; 2008Aug04
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XC-142 (LTV), 1961Aug03; 1962Nov30
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XF2A-1 (Brewster), 1935Nov15; 1936Jul10; 1938Apr21
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XF4H-1 (McDonnell), 1958May27
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  ZP2K-1, 1950Aug07
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  ZPG-2W, 1953Mar20; 1954Apr19; 1956Jan03; 1957May06, Jul01; 1960Mar01
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ZSG-2 (Goodyear), 1950Aug07; 1954Apr19
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  F8F-1, 1981Jun15
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WV, 1982Jun25
Constitution (Lockheed XR6O-1), 1949Feb03
Coot (Ilyushin Il-18), 1971Jan22
Coronado (Consolidated)
PB2Y, 1941Oct01
PB2Y-2, 1943Feb12

PB2Y-3, 1944Jan30
XPB2Y-1, 1936Jul23
Corsair (Vought)
F4U, 1941Aug07, Sep09, Oct01; 1950Nov09
F4U-1, 1943Jan17, Feb12, Jul17, Aug15, Nov01; 1944Mar26, Oct15
F4U-1D, 1945Feb16
F4U-2, 1943Oct31; 1944Feb17, Jun15
F4U-4, 1950Dec04, Dec07, Dec17; 1951May01
F4U-4B, 1950Nov18, Dec06; 1951Jul03
F4U-5N, 1953Jun25, Jul16; 1954Jul26
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Corsair (Vought)
O2U, 1927Apr14, Apr23, Apr30, May21; 1930Jul21; 1933Apr18
O2U-1, 1928Jan06
O2U-3, 1930Feb07; 1931Sep30; 1934Jun21; 1936Jan22; 1937Jul03; 1939Aug04
O3U-6, 1941Apr26
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A-7, 1962Jun01; 1971Jan31, Feb28; 1972May10, May31, Jul31; 1983Jan07; 1992Apr01
A-7A, 1967May19; 1968Nov01; 1971Apr05; 1972Aug06
A-7B, 1969Jan14; 1972Dec23
A-7E, 1969Jul14; 1971Dec31; 1972Apr25, May04, May09, Aug29; 1981Oct05; 1983Sep20, Dec03; 1984Jul02; 1985Jan24, Feb21; 1986Mar24, Apr14; 1988Apr14; 1991Jan19; 1997Aug08
EA-7L, 1992Apr01
TA-7C, 1977Jan31; 1978Apr10; 1980Jan04; 1992Apr01
Cougar (Grumman)
F9F-6, 1953Jun23; 1981Jun15
F9F-8, 1955Aug22; 1956Jul14, Oct05; 1981Jun15
F9F-8T, 1957Aug28; 1961Jul10
TF-9J, 1974Jan04
Cox-Klemin, 1926Jul28
XS-2, 1926Jul28
Crate (Ilyushin Il-14FKM), 1979Jan02
Crusader (Vought)
F-8, 1966Jun16; 1972May31; 1982Jun30; 1986Oct17; 1987Mar29; 1996Aug05
F-8D, 1962Sep19, Oct08; 1963Jun13
F-8E, 1964Aug02; 1967May01; 2007May30
F8U, 1958May17; 1960Mar26
F8U-1, 1957Mar25, Jun06
F8U-1E, 1962Jan17
F8U-1P, 1957Jul16
F8U-2N, 1962Jan23
RF-8A, 1962Oct17, Oct23, Nov05; 1964Jun06
RF-8G, 1972Dec13; 1987Mar29
XF8U-1, 1955Mar25
Crusader III (Vought XF8U-3), 1958Sep15
Cub (Antonov An-12), 1979Nov21
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A-1 (later AH-1), 1911May08, Jul01, Jul03, Oct25, Dec20; 1912Jun21, Jul31
A-2 (later AH-2), 1911Jul13; 1912Oct06; 1913Oct05
A-3 (later AH-3), 1912Nov12; 1913Jun13; 1914Mar27
AB-1, 1914Mar27
AB-2, 1915Apr16, Nov05
AB-3, 1914Apr21, Apr25, Apr28; 1916Jul12
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C-2 (later AB-2), 1913Aug30
CR-1, 1921Jun16, Nov03; 1922Oct14
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CS, 1924Feb26
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F-5L, 1917Aug14; 1918Oct15, Nov22; 1919Apr26; 1920Mar27, Jun28, Jul06, Oct13; 1921Jun21; 1923Apr15, Jun06, Jun07
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H-16, 1917Sep18; 1918Mar27, May15, Jul07, Nov17, Dec08, Dec30; 1919Feb03; 1920Oct13
HA, 1917Dec07; 1918Mar21
HS-1, 1917Sep18, Oct21; 1918May24, Jun13, Oct22, Dec08
HS-2L, 1918Jan22, Jul19, Dec08; 1920Mar24
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NC-1, 1918Oct04, Nov27; 1919May08, May16, May17; 1989Jul22
NC-3, 1919May08, May16, May17; 1960Sep02
NC-4, 1919May08, May16, May17, May27, Jul02; 1967Oct10; 1975Apr13; 1981Oct28; 1986May05
Pusher, 1910Nov14; 1911Jan18
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TR-1, 1922Oct08
Curtiss-Wright X-19A, 1962Nov30
Cutlass (Vought)
F7U-3, 1954Jun01
F7U-3M, 1956Mar12
XF7U-1, 1946Jun25
Dark Star RQ-3 (Lockheed Martin), 1995Jun01; 1996Mar29; 1998Jun29
Darling Dottie, 1953Jul11
DASH (Gyrodyne Drone Anti-Submarine Helicopter), 1957May23
DSN-1, 1960Jul01
QH-50C, 1957May23
Dauntless (Douglas)
SBD, 1941Aug07, Oct01; 1943Jan31, Jul17, Nov01; 1944Feb17
SBD-1, 1942Aug20
SBD-2, 1941Dec07; 1942Feb24, Mar04, Mar10, Apr18, May04, May26, Jun03
SBD-3, 1941Dec07, Dec10; 1942Feb20, Feb24, Mar04, Mar10, Apr18, May02, May04, Aug20, Aug24, Oct11, Oct14, Oct19, Oct25, Oct26, Nov08, Nov12
SBD-5, 1943Oct04; 1944Apr19, May17, Oct15; 2010Sep27
Dave (Nakajima E8N2), 1942Jun03, Nov01
De Havilland
DH-4, 1918Sep07, Oct08, Oct14, Oct25
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Demon (McDonnell)
F-3B, 1963Aug02
F3H, 1957Sep03; 1958May17, Dec08; 1959Dec04
F3H-1N, 1955Feb13
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XF3H-1, 1951Aug07
Destroyer (Douglas RB-66), 1962Oct23
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TBD-1, 1941Dec07; 1942Jan16, Feb01, Feb24, Mar10, May02, May04, Jun03
XTBD-1, 1934Jun30
Dewoitine D.520, 1942Nov08
Dolphin (Aerospatiale)
HH65A, 1987Dec07; 2001Aug03; 2004Sep09, Dec02; 2007Jul23; 2008Mar23; 2009Jul10
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Donnet-Denhaut flying boat, 1918Aug03, Oct01
Dornier Do 217E-5, 1943Sep09
Douglas
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DC-9, 1970May02; 1973May08
DT, 1923Apr17; 1924May02
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XFD-1, 1943Jan07; 1946Jul21
XHJD-1, 1946Mar25
Dragonfly (Cessna A-37B), 1975May02
Dragonfly (Sikorsky HO2S-1), 1946May22
Duck (Grumman)
J2F 1941Oct01
J2F-5, 1943Jan31
JF-1, 1936Jan22
Eagle (McDonnell Douglas F-15), 1972Aug17; 1991Jan24
Electra (Lockheed 10-E), 1937Jul03
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Emily (Kawanishi H8K2), 1942Nov01; 1979Apr23
Encore (Cessna)
UC-35C, 2001Aug31
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Extender (McDonnell Douglas KC-10A), 1989Nov06; 2001Dec12
F.B.A., 1917Aug16, Sep27
Fagot (Mikoyan and Gurevich MiG-15), 1950Nov09, Nov18; 1952Nov18; 1954Sep04; 1955Jun22
Farmer (Mikoyan and Gurevich MiG-19), 1972May31
Feather (Yakovlev Yak-15), 1952Nov03
Felixstowe F.2A, 1918Apr25
Fiat CR.32, 1942Nov13
Fighting Falcon (General Dynamics)
F-16, 1999Mar18; 2001Aug10; 2003Jul10; 2006Jul07; 2009Aug

F-16C, 1995Jun02
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Fire Scout (Northrop Grumman)
MQ-8B, 2006Dec20; 2007Feb06, May31; 2009Oct05; 2010Apr03, Apr19, Oct13
RQ-8A, 2002May19, Aug16; 2003Dec17; 2006Jan16
RQ-8B, 2005Jul22; 2007Sep
Fireball (Ryan)
FR-1, 1945Nov05; 1946Mar01
XFR-1, 1943Feb11
Firefly FR.1, 1950Jul03
Fishbed (Mikoyan and Gurevich MiG-21), 1970Mar28; 1972Jan19, May06, May10, May31, Jun21, Jul31, Sep11, Dec28; 1988Nov29; 1991Jan17
MiG-21F, 1962Oct24, Nov05
Fitter (Sukhoi Su-22), 1981Aug19
Flagon (Sukhoi Su-15), 1983Aug31
FLB (Flying Life Boat) [General Aviation PJ-1], 1935Sep02
Fledgling (Curtiss N2C-2), 1938Sep14
Flogger (Mikoyan and Gurevich MiG-23), 1986Apr14; 1989Jan04
Flutterbuggy, 1947Jan15
Flying Fortress (Boeing)
B-17, 1942Mar10, Jun03, Jun06, Oct14
B-17D, 1942Oct21
PB-1G, 1946Sep18
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Focke-Wulf Fw 200C, 1942Nov13; 1943Dec27
Fokker D.VII, 1920May01
Ford JR-1, 1927Mar09
Foxbat (Mikoyan and Gurevich MiG-25), 1992Dec27; 1999Jan05
Frank (Yakovlev Yak-9P), 1950Jul03
Freedom Fighter (Northrop F-5A), 1975May02, Nov25
Fresco (Mikoyan and Gurevich MiG-17), 1962Sep08; 1965Jun17, Jun20; 1967Apr24; 1972Jan19, May06, May10, May31, Jun21, Jul31; 1973Jan12
MiG-17F, 1967May01
Friendship (Fokker F-27), 1986Apr14
Fury (North American)
FJ-1, 1948Mar10
FJ-2, 1954Jun01
FJ-3, 1955Jan27, Aug22; 1956Jul14, Sep01
FJ-4, 1958Aug24
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Galaxy (Lockheed)
C-5, 2003Jan26
C-5A, 1971Oct08; 1973Oct06; 1987Jul27
Galaxy (Yokosuka P1Y), 1945Mar11
Gallaudet 59-A, 1916Jul17
Gargoyle (McDonnell LBD-1), 1944Sep06; 1945Jul13
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General Dynamics F-111B, 1968Jul18
Glen (Yokosuka E14Y1), 1942Nov01
Global Hawk (Northrop Grumman)
MQ-4C, 2010Sep07
RQ-4, 2006Jul03; 2008Aug28
RQ-4A, 1998Mar05; 2001Nov19; 2004Oct06; 2005Nov28; 2007Mar01, Jun14; 2010Jan12
RQ-4B, 2007May03; 2008Apr22; 2009Oct01; 2010Sep07
Globemaster II (Douglas C-124), 1956Oct31
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XZP5K-1, 1954Jul22
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ZPG-2W, 1953Mar20; 1954Apr19; 1956Jan03; 1957May06, Jul01; 1960Mar01
ZPG-3W, 1959Jun19; 1960Mar01
ZPN-1, 1948May18; 1951Jun18; 1954Apr19
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T-45 1998Jul20; 2007Jun10; 2010Aug26

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T-45C, 1997Dec15; 2007Mar16; 2009Oct20
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BG-1, 1936Jan22; 1937Jul03; 1942Apr19
FG-1, 1944Oct15; 1945Feb16
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XB2G-1, 1942Apr19
Greyhound (Grumman C-2A), 1978Apr14; 1985Jun19, Jul08; 1991Mar08; 2000Jun29; 2001Oct01; 2008Jun25; 2010Jan12, Nov08
Growler (Boeing)
EA-18, 2001Nov15
EA-18G, 2003Dec18; 2004Oct22; 2005Jan27, Aug04, Oct12; 2006Mar30, Aug03, Aug15, Sep22; 2007Feb05, Apr09, Apr20, Jun25, Sep24, Oct31; 2008May13, Jul17, Jul23, Jul31, Nov21; 2009Jul29, Aug05, Sep22, Oct02, Nov23; 2010May14, Sep28, Nov12
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F2F-1, 1935Feb19; 1936Jan22
FF-1, 1934Apr19
XFF-1, 1931Apr02
Gulfstream III (Gulfstream Aerospace C-20D), 1987Jun22
Gyrodyne RON-1, 1958Apr02
Hall Aluminum Aircraft Co., XPTBH-2, 1937Dec17
Hanriot HD-2, 1918Jan18; 1919Jul01
Hansa-Brandenburg W.29, 1918Feb15
Harrier (Hawker Siddeley/McDonnell Douglas/Boeing)
AV-8A, 1968Sep; 1969Oct22; 1971Jan06, Jan26, Apr16, Oct28; 1972Mar23; 1974Sep14; 1976Oct04; 1977Jan13; 1979Mar26, Oct01; 1981Apr13, Nov05; 2007Nov27
AV-8C, 1979May22
Harrier II (McDonnell Douglas/Boeing)
AV-8B, 1976Jul27; 1978Nov09; 1981Nov05; 1982Jun02; 1983Aug29; 1984Jan12; 1985Jan30; 1986Aug19; 1987Jan05, Jun26, Sep30; 1990Aug05; 1991Jan28, Feb09, Feb20, Feb23, Feb25, Feb27; 1992Aug26, Sep11; 1993Mar23; 1995Jun02; 2001Mar07, Oct19, Nov01, Nov03, Nov22, Dec07, Dec11, Dec13; 2003Sep30; 2005Nov11; 2006Jul07; 2007Jul10; 2008Nov07; 2010Feb01, Jul28
YAV-8B (McDonnell Douglas), 1979Jan25
Havoc (Douglas BD-1), 1942May10
Hawk (Curtiss 75A), 1942Nov08
Hawk (Curtiss F6C), 1926Dec13
F6C-1, 1926May14
F6C-2, 1926Oct22
F6C-3, 1928May19; 1930May31
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XF6C-6, 1930Sep01
Hawkeye (Grumman)
2000, 1998Apr11; 2002May13; 2004Jan23; 2009Sep21
E-2, 1994Feb18
E2/C2, 1982Jul07
E-2A, 1962Dec19; 1969Jan14
E-2B, 1971Aug26
E-2C, 1977Apr08; 1982Mar16; 1985Jul08, Oct07; 1987Jan06; 1988Apr14, Jul02, Jul13; 1989Dec01; 1991Jan29, Feb02; 1992Mar04, Dec16; 1993Jan18; 1996Feb05, Apr29; 1998Apr11; 2000Jun29; 2001Apr19, Jul09, Jul31, Oct22, Nov10; 2002May13; 2003Mar22, Nov22; 2004Jan23, Dec04; 2005Aug29, Dec19; 2009Sep21; 2010Jan12
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E-2D, 2005Mar14; 2007Apr30, Aug03; 2008Oct28; 2009Jun11; 2010Jul29
Heinkel He 115B, 1943Oct04
Helistat, 1986Jul01
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F6F, 1944Jun11, Aug09, Aug31, Nov25; 1945Feb16, Jul24; 1950Jan13, Aug24; 1951Sep07; 1953Aug12, Sep11; 1958Aug19
F6F-3, 1943Aug30, Nov11, Nov18; 1944Feb17, Apr19, May17, Jun15, Sep11, Oct23; 1945Mar18
F6F-3N, 1944Aug15
F6F-5, 1944Aug15; 1946Mar02; 1981Jun15
F6F-5K, 1952May16, Aug28
Helldiver (Curtiss)
SBC-3, 1939Aug04
Helldiver (Curtiss)
SB2C, 1939May15; 1941Oct01; 1944Jun11, Aug09, Nov25
SB2C-1, 1943Nov11
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AC-130, 2002Jan03; 2007Jan07
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AC-130U, 2001Oct14
C-130, 1964Mar23; 1968Jan19; 1969Nov05; 1976May06; 1980Apr24; 1998Jun06; 2006Feb17,

Oct02; 2007Sep04; 2008May02, Aug07; 2010Jan12
C-130BL, 1961Apr10
C-130T, 2005Oct10
EC-130, 1992May07
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GV-1, 1962Jan23
HC-130, 1979Apr30
HC-130B, 1969Aug24; 1980Oct04
HC-130H, 1969May07; 1981Mar08; 2000Jan31; 2002May10; 2004Dec26; 2005Jun24; 2008Jan05; 2009Sep29; 2010Jan20, Nov08
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KC-130, 1962Apr15; 1972Jun20; 1983Jul06; 1989Sep17; 1991Jan08; 2001Oct19, Nov01, Nov25; 2005Dec19; 2006Feb17
KC-130F, 1962Oct08; 1963Oct30
KC-130F/R/T, 2001Aug31
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KC-130R, 1975Oct03
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LC-130, 1964Aug30; 1969Aug31; 1979Jan02; 1984Dec28; 1991Jun03; 1995Aug19
LC-130F, 1963Feb22; 1964Jun26; 1967Jun18
LC-130R, 1999Feb24
MC-130E/H, 2001Oct19
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Hermes, *See* Mercury
Hip (Mil Mi-8), 1986Apr14; 1991Feb06
Hornet (McDonnell Douglas/Boeing)
CF-18, 1991Jan29
F/A-18, 1974Aug28; 1975Aug02; 1976Jan28; 1977Mar01; 1979Jan16, Oct30; 1980Nov13; 1981Jun29; 1982Jan08, Aug08; 1983Jan07, Mar25, Sep26; 1984Nov28; 1985Mar29, Jul15, Oct19; 1986Aug18; 1987Apr25; 1989Jun24; 1991Jan24, Mar29, Oct18; 1992Jan13; 1993Apr12; 1994May16; 1997, 1997 Mar01; 1998May18; 1999Apr13; 2000Apr26; 2003Mar28, Apr05, Jul10, Jul30; 2006May24, Jul07; 2007Oct23; 2010May14
F/A-18A, 1978Nov18; 1981Feb19, Mar23; 1985Feb21; 1986Apr14; 1989Oct30; 1991Jan24, Feb05; 1992Dec27; 1993Jan18; 2000Apr28; 2001Apr23
F/A-18A/C, 1991Feb27
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Hoverfly (Sikorsky)
HNS-1, 1943Dec20; 1944Jan03, May17, Aug11, Oct02; 1945May02; 1946Mar01, Jul13, Sep18; 1947Jan15
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M500, 2001Oct12
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Huron (Beechcraft)
UC-12 2008Jul14
UC-12B, 1979Sep15
Interstate TDR-1, 1944Sep27, Oct15, Oct20, Oct26
Intruder (Grumman)
A2F, 1958Feb03
A-6, 1958Feb03; 1967Apr24; 1968Jan23; 1969Apr14; 1971Jan29, Jan31, Feb05, Feb28; 1972May10, Jul31; 1976Jun05, Jun06; 1979Jul27; 1990May18; 1994Mar03
A-6A, 1965Oct17; 1967Feb26; 1970Sep25; 1971Dec15, Dec31; 1972Apr25, May09, Jun20
A-6E, 1979Oct14; 1981Mar10; 1983Dec03; 1984Jan04; 1986Mar24, Apr14, Sep01; 1987Jun30; 1988Apr14, Jun14, Jul22; 1989Apr03, Jun24, Aug03, Sep30; 1990Aug02; 1991Jan18, Jan19, Jan20, Jan23, Jan24, Jan29, Feb02, Feb07, Feb08, Feb26, Feb27; 1992Jan31, Feb11; 1994Mar03; 1995Apr10; 1996Jun04, Jun28
EA6A, 1981Nov07
KA-6D, 1971Dec15; 1985Oct07; 1988Jul22; 1989Sep30; 1991Feb02
YA-6A, 1962Dec19
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B-26, 1963May08
JD-1, 1946Oct30
Iroquois (Bell)
H-1, 1991Apr15; 2002May03; 2003Oct09
UH-1, 1967Apr01; 2002May03
HH-1K, 1967Apr01; 1988Oct01
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UH-1B/L/N, 1967Apr01
UH-1E, 1965Apr24, Oct28; 1970May31
UH1N, 1986May27; 1988Apr14; 1990Jul16, Aug05, Oct08; 1991Feb25, May12; 1992Sep11; 1998Jul08; 2001Dec06; 2006Feb17; 2007Oct22; 2010Jan12
Jake (Aichi E13A1), 1942Feb20, Nov01
Jayhawk (Raytheon T-1A), 1996May01
Jianjiji J-8, 2001Apr01
Jill (Nakajima B6N1), 1942Nov01
Josephine Ford, 1926May09
JSTARS (Northrop Grumman E-8), 2001Nov26
Judy (Yokosuka D4Y1), 1942Nov01; 1944Oct23; 1945Mar18
Junkers Ju 52, 1944Aug15
Junkers Ju 88D-1, 1943Oct04
Kaman
HTK, 1957Jul30
HTK-1, 1957May23
K-225, 1951Dec12
OH-43D, 1962Oct27; 1964Mar23
Kate (Nakajima B5N2), 1942Jun03, Nov01
Kfir (Israel Aircraft Industries F-21A), 1986Mar18; 1989Sep22
King Air 90 (Beechcraft T-44A), 1976May26; 1977Apr05
Kingfisher (Naval Aircraft Factory)
OS2N, 1941Oct01
OS2N-1, 1940May27; 1943May15, Dec08
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OS2U, 1941Oct01; 1944May08
OS2U-3, 1940May27; 1942Jan23, Oct21; 1943Jan28, May15, Dec08
Kiowa (Bell OH-58D), 1991Jan18
Kirkham (Curtiss 18-T), 1918Mar30, Aug19
Kitten (Loening M-2), 1918Aug11
Knighthawk (Sikorsky CH-60S), 2000Jan27, May15, Nov17; 2001Feb06
Lakota (Eurocopter UH-72A), 2008Oct06; 2009Nov
Lancer (Rockwell B-1B), 2001Dec12; 2002Jan03
Learjet 24, 1981Jul08
Levy-Le Pen HB-2, 1918Jun29
Liberator (Consolidated)
B-24, 1942Jun06, Jul07; 1943Jul17; 1944Apr18
LB-30, 1942Jun06
PB4Y, 1944Dec26
PB4Y-1, 1943Feb12, Jul06, Sep30, Dec27; 1944Jan01, Feb04, Apr18, Jun10, Jul06, Jul14, Jul29, Aug09, Aug12, Sep03; 1945Feb16, Jun10
Liftmaster (Douglas)
C-118, 1965May18
R6D-1, 1955Mar22; 1956Oct11; 1960Feb25
Lightning (Lockheed P-38), 1944Dec26
Lightning II (Lockheed Martin)
F-35, 2006Jul07; 2007Feb05; 2010Nov18, Dec09
F-35A, 2006Dec15; 2009Feb25, Mar19, Nov14
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F-35B/C, 2010Apr12
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Lily (Kawasaki Ki-48-I), 1941Dec20
Little Bird (Boeing AH-6J), 2001Oct12
Lockheed Martin VH-71A, 2005Jul07; 2007Jul03, Nov; 2008Feb27; 2009Jan09, May15
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XFO-1, 1951Mar31
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OL, 1926Jun06
XOL-7, 1928Feb27
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JB-2, 1944Nov17
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Mako Shark (AgustaWestland MH-68A), 2004Oct02
Marauder (Martin B-26), 1942Jun03
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XPBM-1, 1937Jun30
Marlin (Martin)
P-5, 1963Jun20
P-5B, 1962Oct24
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XP5M-1, 1948Apr30
Mars (Martin)
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BM-1, 1928Jun30; 1931Apr09
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MBT, 1920May12
MO-1, 1924Dec14
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NBS-1, 1921Jun21
NM-1, 1924Dec13
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XT5M-1, 1928Jun30; 1930Mar21; 1931Apr09
Martlet IV (Grumman), 1943Mar04
Mauler (Martin BTM), 1946Mar11
Mavis (Kawanishi H6K4), 1942Feb20, Nov01
May (Ilyushin Il-38), 1979Nov21; 1988Jul02
McDonnell Douglas MD-83, 2000Jan31
Mentor (Beechcraft)
T-34, 1977Nov14
T-34B, 1976Jun24
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Mercator P4M-1Q (Martin), 1955Jun01; 1956Aug22; 1959Jun16
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E6A, 1987Feb19; 1988May16; 1989Aug03, Nov06; 1992May07; 1994Sep30; 2003Feb04
E-6B, 1998Sep25; 2003Feb04; 2006Nov30; 2009Feb23; 2010Jun08
Messerschmitt Bf 109, 1943Jul10
Mirage (Dassault-Breguet)
F-1, 1991Jan24
F.1EQ-5-200, 1987May17
Missileer (Douglas F6D), 1960Jul21
Mitchell (North American)
B-25, 1942Jul07; 1944Mar26, Dec26; 1982Apr18
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PBJ-1, 1943Dec17; 1944Mar15
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Mojave (Sikorsky)
CH-37C, 1962Oct27; 1965Apr24
HR2S-1, 1956Nov09
Mule (Piasecki H-25), 1966Mar31
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Mustang (North American)
P-51, 1945Feb16; 1950Jul23
P51C, 1944May08
Naval Aircraft Factory
PN-7, 1924Oct25
PN-9, 1925May01, Aug31; 1927Mar31
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TS-1, 1923Jun13, Jul05
XT2N-1, 1928Jun30
Nell (Mitsubishi G3M2/3), 1941Dec08; 1942Nov01
Neptune (Lockheed)
DP-2E, 1972Mar29
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P2V, 1948Sep09; 1955Dec20; 1957Sep21; 1958Aug24; 1959Feb16, Apr15; 1960Dec19; 1962May24
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P2V-3, 1949Oct05
P2V-3C, 1949Mar07; 1950Feb07, Apr21; 1951Feb05
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P2V-5, 1953Jan18; 1954Sep04; 1955Feb01, May05, Jun22
P2V-6M, 1956Apr03
P2V-7, 1962Feb08
SP-2H, 1967Mar14
XP2V-1, 1943Feb19
Nieuport 28, 1919Jul01
Nighthawk (Lockheed F-117A), 1995Mar06; 1999Mar27
Nightingale (Douglas)
C-9, 2000Apr04
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Nimrod MR.2 (BAE Systems), 2003Dec15
North American
O-47, 1940Oct12
X-15, 1958Aug25; 1962Apr05
Northrop Grumman X-47B, 2007Aug03; 2010Feb07
Northrop XBT-1, 1934Nov18
Ohka (Yokosuka MXY7), 1945Mar18, May10
Orion (Lockheed)
NP-3D 2000Jan31
P-3, 1970Sep03; 1972Apr11; 1979Dec31; 1980Apr30, Jun10, Jul15; 1981Mar08; 1983Jul20; 1987Aug10; 1993Sep09
P-3A, 1964Mar28, May01; 1974Apr11; 1976Jul12
P-3B, 1972May05; 1973Oct06; 1979Mar11; 1980Jan02, Apr25, Aug22; 1985Apr01; 1993Apr22, Aug17
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HV-22, 2004Apr07
MV-22 1999Jan14, May27; 2003Aug28; 2004Apr07; 2005Mar28, Jun18, Sep28, Dec08; 2007Feb08, Jun13
MV-22B, 2000Jan10, Oct13, Nov08; 2006Mar03, Jul29; 2007Jul10, Aug14; 2009Jun25, Nov06; 2010Jan12, Jul28
V-22, 1985Apr01; 1986May02; 1988May23; 1989Mar19, Sep14; 1992Aug05, Oct22; 1993Dec09; 1997Mar15; 1998Mar03; 2004Apr07, Jun21, Nov12
V-22A, 1992Jul20
Otter (De Havilland UC-1), 1955Jan17
Over-Water-Land (Curtiss), 1913Oct05
Panther (Grumman)
F9F, 1953Dec03; 1954Apr01
F9F-2, 1950Nov18; 1951Aug25; 1981Jun15
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F9F-3, 1950Jul03, Nov18
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XF9F-1, 1946Oct02
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Pave Low III (Sikorsky MH-53J), 2001Nov02
Pave Low IV (Sikorsky MH-53M), 2006Jul16
Peacemaker (Convair B-36), 1949Oct05
Pennsylvania Aircraft Syndicate XOZ-1, 1937Aug09
Peregrine (Teledyne Ryan BQM-145A), 1990May18
Pete (Mitsubishi F1M2), 1942Nov01; 1943Jul06
Phantom (McDonnell FH-1), 1943Jan07; 1948May05
Phantom II (McDonnell)
F-4, 1962Jun01; 1969Feb03; 1971Dec12; 1972May31; 1975Aug02; 1983Jan07; 1988Apr14; 1989Dec01
F-4A, 1963Jun13
F-4B, 1962Oct08; 1963Aug01; 1965Apr10, Jun17, Dec02; 1967Feb26, Apr24, Jun05, Jul29, Oct24; 1972Apr06, May06, Jun20, Jun21; 1973Jan12;

2010Apr17
F-4D/E, 1988Jul02
F4H-1, 1959Dec06; 1960Sep05, Sep25; 1961May24, Aug28; 1962Jan24, Feb21, Mar01, Mar03, Mar31, Apr03, Apr12, May10; 1992Jan18
F-4J, 1969Jan14, Jun24; 1970Mar28; 1972Jan19, Apr06, May10, Jun20, Jun21, Sep11, Dec28; 1973Sep07; 1977Jul13; 1981Jun15; 1982Aug05
F-4K, 1968Jul18
F4N, 1983Apr07
F4S, 1981Jul23; 1986Mar25; 1988Nov29; 1997Jun09
QF-4, 1999Jun30; 2000Mar31
QF-4B, 1972Mar24
QF-4S, 1997Jun09
XF4H-1, 1958May27
YF4H-1, 1961Nov22, Dec05
Pinto TT-1 (Temco), 1959Mar13
Pioneer (AAI Corporation/Israel Aircraft Industries)
Plus, 1998Mar12
RQ-2, 2007Oct25
RQ-2A, 1987Sep10, Oct18; 1991Feb03, Feb06, Feb27; 1993Apr26; 1999Jun01, Mar10; 2000Mar13; 2008Aug07
Pitcairn
XOP-1, 1931Jan22, Jun01, Sep23; 1932Nov22; 1935Mar12
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Pogo (Convair XFY-1), 1951Mar31; 1954Nov02
Porter (Pilatus PC-6A), 1964Jun06
Poseidon (Boeing P-8A), 2005Mar30, Oct31; 2006Feb01; 2007Jun15, Dec11; 2009Jan02, Apr25, Jul30, Aug01, Oct15; 2010Apr09, Apr10, Aug11, Oct15
Privateer (Consolidated PB4Y-2), 1945Feb16, Apr23, May09, Jun10; 1946May21; 1950Apr08; 1951Jun12
Prowler (Grumman)
EA-6B, 1971Jan29; 1972Jul01; 1981May26; 1985Apr12, Oct07; 1986Mar24, Aug05; 1987Jul14; 1988Apr14; 1989Oct29, Dec02; 1991Feb26, Jul29; 1992Jan13; 1993Apr12, Apr22, Aug17; 1995Jun02, Aug30; 1996Jul01; 1998Feb03; 1997Jun08; 1999Mar24, Aug10; 2001Feb16; 2003Mar27; 2004Apr02; 2005Mar15, Sep17; 2006Jan04, Mar30; 2007Oct31
Expanded Capability (EXCAP), 1984Apr26
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Improved Capability (ICAP) III, 2001Nov16, 2004Apr02; 2005Mar15; 2006Jan04, Mar30
Puma (Aerospatiale SA-330J), 2000Feb08; 2009Sep30; 2010Jul28
R-34 (airship), 1919Jul01
R-38 (ZR 2), 1919Jul11, Dec05; 1921Aug23
Ranger (airship), 1942Aug16
Raven (General Dynamics EF-111A), 1986Apr14; 1996Jul01
Rescuer (Piasecki)
HRP-1 1952Nov18
XHRP-X, 1945Mar07
Retriever (Piasecki)
HUP, 1960Dec22
HUP-3, 1961Apr17, Jul21; 1962Feb20
Rockwell XFV-12A, 1977Aug26
Rockwell-MBB X-31A, 1987Dec10; 1991Sep06; 1993Nov24
Rufe (Mitsubishi A6M2-N), 1942Nov01
Rumpler, 1918Sep24
Sabre (North American)
F-86E, 1953Jul11
QF-86, 1986Aug18
Sabreliner (North American)
CT-39, 2001Aug31
T-39, 1986Jan13
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Savage (North American)
AJ, 1958Oct08
AJ-1, 1950Apr21, Aug31; 1951Feb05
AJ-2, 1957Jun06
XAJ-1, 1946Jun24
ScanEagle (Boeing), 2007Nov17; 2009Apr08
Sea Bat (Sikorsky)
HSS-1, 1961Apr17, Jul10
HSS-1N, 1958May26; 1960Jun10; 1961Jul21
Sea Cobra (Bell)
AH-1J, 1972Aug31; 1992Sep03
AH-1T, 1976May20, Nov05; 1978Jul21; 1988Apr14; 1990Aug05; 1991May12
Sea Dart (Convair XF2Y-1), 1951Jun17; 1953Apr09
Sea Dragon (Sikorsky)
MH-53, 2000Jan27; 2002Nov13
MH53E, 1983Sep01; 1987Apr01; 1991Feb18; 1994Aug31; 1998Jul03; 1999Apr11, Oct31;

2004Dec26; 2005Aug29, Oct10; 2006Sep19; 2007Sep04; 2010Jan12, Jul28
YCH-53E, 1974Mar01, Aug10; 1975Feb15
Sea King (Sikorsky)
H-3, 2007Mar06
HAS.1/2, 1974Jul15
HH-3A, 1972Aug06
HH-3F, 1980Oct04; 1989Sep14
HSS-2, 1960Dec22; 1961May17, May24, Dec01, Dec30; 1962Feb05, May24
RH-3A, 1962Oct16; 1966Sep03
SH-3, 1989Jun22; 1991Oct20
SH-3A, 1962Oct24; 1963Sep06; 1965Mar06, Mar23, Jun03, Dec04, Dec15; 1966Jun03, Jul18, Aug26, Sep12, Nov11; 1967Jun05; 1971Jan31; 1980Oct06
SH-3D, 1969Jul16, Nov14; 1970Apr11; 1971Feb05; 1973Mar29; 1974Sep08; 1975Nov22
SH-3G, 1972Apr16, Dec07, Dec13; 1973May25, Jul28, Nov16; 1981Mar10; 1982Dec03; 1984Jan10; 1986Dec31; 1987May17; 1989Apr19; 1990Jul16
SH-3H, 1971Oct28; 1978Jan07; 1982Dec03; 1984Mar21; 1985Mar06; 1986May27; 1989Aug03; 1990Aug02; 1991Aug27; 1992Oct15
UH-3H, 2002Aug06; 2009Dec11
XHSS-2, 1959Mar11
Sea Knight (Boeing Vertol)
CH-46, 1972Jun20; 1975Dec06; 1983Nov23; 1991Feb24, Mar03, May12; 2000Jan27
CH-46A, 1970May02
CH-46D, 1970Oct25; 1972May13; 1974Aug18; 1975Feb06; 2002Nov13
CH-46E, 1976Jul09; 1977Aug11; 1988Apr14; 1990Jul16, Aug05; 1992Sep11; 1997Jun09; 2003Mar23; 2004Dec26; 2005Aug29; 2006Feb17; 2007Oct22; 2009Jul10, Oct02; 2010Jan12, Jul28
CH-46F, 1970May31; 1974Jul15
H-46, 1999Apr11
HH-46A, 1984Mar20
RH-46A, 1962Oct16
UH-46A, 1970Sep14
Sea Ranger (Bell TH57), 1986May27; 2006Aug25
Sea Stallion (Sikorsky)
CH-53, 1971Oct08; 1973Jan27; 1991Feb24, May12
CH-53A, 1971Apr01, Oct08
CH-53D, 1970May31, Jun09; 1972May13; 1974Mar01, Aug18; 1975Apr12, Aug30; 1990Jul16, Aug05; 2010May07
H-53, 1994Aug31
RH-53D, 1973May25, Aug29; 1974Apr22; 1979Apr30; 1980Apr24, Nov25; 1981Jun16; 1984Aug03, Sep20; 1987Jul27
Sea Star (Lockheed T2V-1), 1957May27; 1958May04
Seafire FR.47 (Supermarine), 1950Jul03
Seaguard (Sikorsky HH-52A), 1969Aug24; 1970May02; 1989Sep12
Seagull (Curtiss)
SOC, 1941Oct01; 1944May08
SOC-1, 1936Jul01; 1939Oct23; 1941Aug05, Nov04; 1944Jan22; 1946Jul13
SOC-2, 1936Jul01; 1941Aug05; 1946Jul13
SOC-3, 1936Jul01; 1941Nov04; 1943Jul10, Sep09; 1944Jan22; 1946Jul13
SOC-3A, 1943Jul10
XO3C-1, 1934Dec15
XSOC-1, 1934Dec15; 1939Oct23
Seagull (Naval Aircraft Factory)
SON-1, 1939Oct23; 1941Aug05; 1943Feb11, Jul10, Sep09; 1944Jan22
Seahawk (Curtiss)
F7C, 1979Feb09
XF7C-1, 1929May25
Seahawk (Curtiss)
SC-1 1979Feb09
SC-2, 1925Oct27
Seahawk (Sikorsky)
H-60, 2002Apr04
HH-60, 1996Jan07; 2000Jan27, Jan31
HH60H, 1988Aug17, Oct01; 1989Jul08; 1997Jun18; 1999Sep15; 2000Jan31, May11; 2001Sep19, Dec05; 2002Jan13; 2004Dec26; 2005Mar20; 2008Jun25; 2010Nov08
HH60J, 1989Sep14; 2001Aug03; 2002May10; 2008Mar23; 2009Jul10; 2010Jan12
HH-60M, 2007Dec12
MH-60, 2003Jun24; 2005Aug29
MH-60G, 1996Jun06
MH-60K, 2001Oct12, Oct19
MH-60L, 2001Oct12
MH-60R, 2001May25; 2002Apr04; 2005May09, Jul28, Dec05; 2006Mar31; 2008Jan22; 2009Jan13
MH-60R/S, 2007Dec12; 2008Jul17
MH-60S, 2001Feb06; 2002Feb08, Mar31, Jul24;

2003Jan16; 2004Dec01, Dec26; 2005Jun21, Aug29, Oct10; 2007Jan30, Mar09, Oct22; 2009Sep17; 2010Jan12, Feb16, Mar26, Jul28, Nov18, Dec10
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SH-60, 2000Jan31, May25; 2003Jan28; 2004Sep23; 2005Apr29
SH-60B, 1978Feb28, Jul25; 1979Feb09, Aug30, Dec12; 1980Nov11; 1981Jan06; 1983Jan21, Sep28; 1985Feb21, Mar06; 1986May27; 1987Jul06, Dec25; 1988Jul02; 1989Sep06; 1990Jan25; 1991Jan18, Jan24; 1992Feb06; 1994Apr29; 1996Feb20; 1998Jan19, Mar05, Mar25, Jul08; 2000Dec30; 2001Apr01, Oct01, Nov18; 2002Jan08, Apr04, Jun17, Jul23; 2003Mar13; 2004Mar21, Mar22, Aug28, Sep17, Dec26; 2005May11, Dec22; 2006Apr04; 2007Sep04, Sep26, Oct22; 2008Jun25; 2009Mar20, Mar29, Apr21, May13, May23, May26, Aug18, Sep29, Sep30, Oct15; 2010Jan12, Apr01, May26, May27, Jul02
SH-60B/F, 2000May11
SH-60F, 1985Mar06; 1987Mar19, Jun30; 1988Aug17; 1989Jun22; 1990Mar27; 1991Aug27; 1998Jun17; 2000Aug23; 2001Dec05; 2004Dec26; 2005Mar20; 2007Oct22; 2008Jun25; 2010Aug18, Nov08
SH-60R, 1999Aug05; 2000May11; 2001Jan25, May25
UH-60, 2006Feb17; 2007Sep04; 2010Jul28
UH-60M, 2007Dec12
Seahorse (Sikorsky)
HUS-1 1959Aug20; 1960Jun03; 1961Jan31, Feb21, May05, Jul21, Oct08, Oct31
SH-34J, 1986Jul01
UH-34D, 1962Apr15, Oct27; 1964Nov04; 1965Apr24, May12, Oct28; 2008Aug04
Seamaster (Martin XP6M-1), 1955Jul14
Seamew (Curtiss)
SO3C, 1941Oct01
SO3C-1, 1943Jan28
Seasprite (Kaman)
H-2, 1971Mar16
H-2/SR, 1974Sep17
HH-2D, 1979Sep18
NUH-2H, 1971Mar29
SH-2D, 1971Mar16, Oct05; 1973Oct06
SH-2F, 1973Oct06; 1975Jan28, Aug08; 1980Nov08; 1987Jul06, Dec12; 1990Jan25, Mar21; 1992Feb06
SH-2G, 1990Mar21
UH-2A, 1967Jul29
UH-2B, 1969Sep23
UH-2C, 1969Jan14; 1972Jul15
Sentinel (Stinson)
L-5, 1950Jul23
OY-1, 1944Jun15; 1945Feb16
OY-2, 1950Aug03
Sentry (Boeing E-3A), 1991Jan24
Shadow (AAI Corporation RQ-7B), 2008Jul12
Shadow (Lockheed)
ES-3A, 1991May15; 1992May22; 1995Aug30; 1999Aug10
NS-3A, 1989Sep07
Shadow 200 (AAI Corporation), 2007Oct25; 2008Jul12, Aug07
Shenandoah (ZR 1), 1919Jul11; 1922Feb11, Jul01; 1923Mar15, Sep04; 1924Jan16, Aug08, Aug15
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Shooting Star (Lockheed)
P-80A, 1946Nov11
QT-33, 1973Aug16; 1975Nov25
TV-2, 1958Aug24
Sikorsky
HO3S-1, 1949Oct30; 1950Aug03, Aug07, Sep23; 1951Jul03
HO3S-1G, 1949Mar24
HO4S-3, 1955Jan17; 1961Oct31
HOS, 1946Sep18
HRS-3, 1960Aug11
VS-300, 1942Jun26
XHOS-1, 1945Mar07
XPBS-1, 1937Sep09
XR-4, 1943May07
Skyhawk (Douglas)
A-4, 1966Jun16, May11; 1967Apr24; 1979Feb27; 2000Oct30
A-4C, 1962Oct08, Oct20, Nov16; 1964Aug05; 1965Dec02; 1967May01, Jun05; 2007Jan29
A4D, 1959Jan24, Apr25; 1960Mar26; 1961Nov18
A4D-1, 1955Oct15
A4D-2, 1961Apr17
A-4E, 1965Sep09, Oct17; 1967Jul29, Oct21; 1972May17; 1997Aug08; 2008Jun20
A-4F, 1972Apr25; 1973Sep07; 1981Jun15

A-4L, 1971Aug03
A-4M, 1970Apr10; 1971Apr16; 1979Feb27; 1980Jun03
A-4N, 1973Oct06
TA-4, 1994Jan01
TA4J, 1984Oct02; 1985Jun19; 2003Apr30
XA4D-1, 1954Jun22
YA-4B, 1963Jan29
Skyknight (Douglas)
F3D, 1957Aug12
F3D-2, 1952Aug07, 1952Nov03; 1953Jun23; 1954Jun01
XF3D-1, 1946Apr03; 1949Jul15
Skymaster (Douglas)
C-54, 1946Sep18; 1964Mar28; 1965May18
C-54Q, 1974Apr02
R5D, 1950Dec06; 1955Dec20; 1956Oct31; 1958Sep30; 1959Oct01
R5D-1, 1943May03
R5D-2, 1955Jan17
R5D-3, 1955Jan17
SC-54, 1962May24
Skyraider (Douglas)
A-1, 1959Aug27; 1986Jun28
A-1E, 1963May08
A-1H, 1964Aug05; 1965Jun20
AD, 1944Jul06; 1946Mar11; 1950Jul03, Nov09, Nov18; 1951Oct29; 1952Aug28; 1953Dec03
AD-1, 1946Dec06
AD-4, 1950Jul19; 1951May01; 1953May21; 1954Jul26
AD-4NA, 1957Mar07
AD-5, 1954Jun01
AD5-W, 1961Apr17
BT2D, 1946Mar11
NA-1E, 1971Jul07
XBT2D, 1944Jul06
Skyray (Douglas)
F4D, 1959Dec04
F4D-1, 1953Oct03, Oct16; 1955Feb23; 1958May22, Aug24; 1960Mar26; 1961Jul18; 1962Sep08; 2000Oct30
XF4D-1, 1947Jun17
Skyrocket (Douglas D-558-2), 1951Aug07, Aug15; 1953Aug21
Skyship 500 (blimp), 1983Jun23
Skystreak (Douglas D-558-1), 1947Aug20, Aug25
Skytrain (Douglas)
C-117, 1976Jul12
R4D, 1942Mar02; 1947Jan29, Mar04; 1958Aug24
R4D-5, 1955Jan17
R4D-5L, 1956Oct31
R4D-6, 1955Jan17
R4D-8, 1962Apr15
Skywarrior (Douglas)
A-3, 1972Feb11; 1982Oct28; 1991Sep27; 2000Oct30
A-3A, 1966Sep08
A-3B, 1963Aug23
A3D, 1956Jul31, Sep03; 1957Jun06, Jul16, Oct11; 1959Aug25
A3D-1, 1956Mar31; 1957Jan15, Mar21
EA-3B, 1973Oct06; 1989Sep07; 1991Sep27
EKA-3B, 1969Jan14; 1971Jan29; 1972May09
KA-3B, 1975Aug01
XA3D-1, 1952Oct28
Sparrowhawk (Curtiss)
F9C-2, 1933Apr04; 1933Jul07; 1934Jul19; 1935Feb11; 1990Jun24
XF9C-1, 1932May08
Spectre (McDonnell F-110A), 1962Jan24
Spitfire Mk V (Supermarine), 1942Apr13, May03
Starlifter (Lockheed C-141A), 1987Jul27
Stearman
NS, 1936Aug07
NS-1, 1934May22, Dec21
PT-13, 1941Jul25
Stearman-Hammond JH-1, 1937Dec23; 1938Aug24
Stout Engineering Laboratory ST-1, 1922Apr25
Stratofortress (Boeing)
B-52, 1972Apr16, Dec25, Dec29
B-52D, 1968Jan23
B-52H, 1996Sep03; 2003Jun22
Stratolab (balloon), 1956Nov08; 1957Jun27; 1961May04
Stratolifter (Boeing EC-135), 1998Sep25
Stratotanker (Boeing KC-135), 1985Oct07
Strike Eagle (McDonnell Douglas F-15E), 1993Jan17; 2001Feb16; 2003Jul10; 2009Sep29
Super Cobra (Bell AH-1W), 1987Oct08; 1990Jul16; 1991Feb24; 1992Sep11; 1995Jun02; 1996Dec09; 2001Sep19, Oct19, Nov02, Nov25, Nov26, Dec13; 2002Mar04; 2006May02; 2007Mar21; 2009Mar29
Super Hornet (Boeing)
F/A-18E, 1996Apr12; 2000Dec07; 2001Mar24, Aug29; 2002Jul24, Nov06, Dec04; 2003Mar24, Mar30; 2006Jan04; 2010Dec18

F/A-18E1, 1995Nov29
F/A-18E/F, 1992Dec07; 1996Feb15; 1998Aug13, Aug20, Oct01; 1999May27, Nov17; 2000Feb15; 2001Jun25, Dec01; 2002Jul30; 2003Sep10; 2005Apr18; 2007Feb05, Jun25; 2008Jul17, Nov04, Nov07; 2010Feb01, Mar31, Apr12, May05, May14, Sep28
F/A-18F, 1997Jan18; 1998Dec03; 1999Mar03; 2000Jul16; 2001Sep24, Nov15; 2003Mar30, Apr03, Jul01, Sep24, Nov13; 2004Aug30; 2005Jan27, Aug04; 2006Mar30; 2007May18, Oct09; 2010Mar04
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Super Tiger (Grumman F11F-1F), 1958Apr18
Superfortress (Boeing B-29), 1942Jul07; 1944Oct10; 1945Feb16, Mar27, Aug09; 1946Jul01; 1951Aug25; 1952Aug07
Superfortress (Boeing KB-50), 1958Oct08
Taylorcraft LNT-1, 1943Apr04
TC-13 (airship), 1937Jul02
TC-14 (airship), 1937Jul02
TC-18F (Boeing), 1994Sep30
Tellier flying boat, 1917Nov18, Nov22
Temco XKDT-1, 1957Sep03
Texan II (Beechcraft)
T-6A 1997Jun02; 1998Jun15; 2001Apr03; 2003Jun30, Aug05; 2004Mar11
T-6B, 2009Aug27; 2010May18, Apr19
Texan (North American SNJ), 1953Jan12
Thunderbolt (Republic P-47), 1944Jun15, Dec26
Thunderbolt II (Fairchild)
A-10, 1991Jan20
A-10A, 2006Jul07
Tier III Minus (Lockheed Martin), 1995Jun01; 1996Mar29; 1998Jun29
Tiger (Grumman F11F-1), 1956Sep21; 1959Jul30; 1981Jun15
Tiger II (Northrop)
F-5E, 2008Sep29
F-5N, 2008Sep29
Titan (Cessna C-28A), 1987Oct30
Tomcat (Grumman)
F-14, 1973Aug16; 1974Mar01; 1982Feb13; 1984Oct12; 1992Jan13; 1996Apr04; 1997Apr10; 2001Nov08, Dec06; 2004Jun24; 2006Apr27, Jul28, Sep22
F-14A, 1969Feb03; 1970Dec21; 1971Nov30, Dec02; 1972Apr06, Apr28, Oct01, Oct08; 1973Nov21; 1974Mar18, Sep17; 1975Mar02, Aug02; 1981Aug19; 1983Dec03; 1985Oct07; 1986Apr14, Sep29; 1987Nov16; 1988Apr14, Jul02; 1989Jan04; 1991Feb02, Feb06, Apr19, May01; 1992Dec27; 1993Jan18; 1994Jul31, Oct25; 1995Jun02, Aug30; 2003Sep24; 2006Apr27
F-14A+/A (Plus), 1991May01
F-14A/B, 1996Jan10
F-14B, 1991Jan21, May01; 1994May02; 1996Jan18, Jun14; 2001Aug10, Oct14, Nov02, Nov10, Nov15, Nov25, Nov26, Dec01; 2002Mar12; 2004Jul20
F-14D, 1989Sep14; 1990Nov16; 1992Jul10; 1995Jul14; 1996Sep03; 2000Mar27; 2003Mar01, Apr05, Jul01; 2005Nov04, Dec11; 2006Feb08, Sep22
NF-14D, 2004Jul23
Tornado GR.1 (Panavia), 2001Feb16, Aug10
Tracer (Grumman)
E-1B, 1962Oct24; 1966Nov11
WF-2, 1956Dec17
Tracker (Grumman)
S-2 1962Aug30; 1969Aug01; 1971Nov08; 1972Jan21; 1976Aug29
S-2D, 1962Oct24
S-2E, 1966Jun03, Nov11
S2F, 1959Feb16, Apr15; 1962Sep08
S2F-1, 1954Jun01
S2F-1S, 1961Apr17
S2F-3, 1962Feb20
TS-2A, 1976May26
U-2F, 1962Oct14
XS2F-1, 1952Dec04
Trader (Grumman)
C-1A, 1979Jun20; 1980Jun06; 1981Jan14; 1983Mar21; 1988Sep30
TF-1, 1956Dec17; 1958Jun26; 1961Apr17; 1962Jan17
TF-1Q, 1957Jan18
Tradewind (Convair)
R3Y-1 1955Feb24

XP5Y-1, 1950Apr18
Triad (Curtiss), 1911May08, Jul10
Trimotor (Fokker F.VIIa/3m), 1926May09
Trimotor (Ford 4-AT), 1929Nov29
Trojan (North American)
T-28, 1963May08; 1984Feb13, Mar14
T-28B/C, 1976Jun24
Tweet (Cessna)
T-37, 1997Jun02
T-37B, 1994Jul01
Val (Aichi D3A1), 1941Dec07; 1942Feb27, Jun03, Oct26, Nov01; 1943Aug15
Venom (Bell UH-1Y), 2002May31; 2003Feb12, Oct09, Nov21; 2004May17; 2005May07; 2008Aug08, Oct07; 2009Jan09, Mar29; 2010Sep
Ventura (Lockheed Vega)
B-34, 1942Jul07
PV-1, 1942Nov16; 1943Feb01, May11, Nov01; 1944Feb24, Sep03; 2001Aug05
Vigilante (North American)
A3J, 1960Dec13
A-5A, 1962Oct19, Oct20
RA-5C, 1964Mar13; 1967Jun05, Jul29; 1969Jan14; 1972May31; 1979Sep28, Nov20
Vigilante UAV (SAIC), 1997Dec11
Viking (Lockheed)
S-3, 1989Apr16; 1995May03; 1999Mar24
S-3A, 1969Aug01; 1971Nov08; 1972Jan21; 1973Oct01; 1974Jan20, Mar01; 1975Mar17; 1976Mar02; 1981Jul01, Jul16; 1983May23; 1987Dec17
S-3B, 1984Sep13; 1985Oct28; 1987Dec17; 1991Feb20, Apr19; 1993Apr01; 1995Aug30; 1997Apr21; 1999Apr13, Aug10; 2000Jan31; 2001Aug01, Oct01; 2002Jun17; 2003Mar25, May01; 2009Jan31
Vindicator (Vought)
SB2U, 1941Oct01
SB2U-3, 1941Dec05, Dec07, Dec17; 1942Jun03
Viper (Bell AH-1Z), 1991Feb24; 2000Dec07; 2002May03, May31, Aug26; 2003Feb12; 2005May07; 2010May28, Nov28
Voodoo (McDonnell RF-101C), 1962Oct23
Vought
SBU-1, 1936Jan22; 1937Jul03
SU-4, 1937Jul03
VE-7, 1920Jun18; 1922May24; 1924Mar08
VE-7H, 1922Oct08
VE-7SF, 1922Oct17
VE-9, 1926Aug27
VS-173, 1940Feb27; 1942Nov23
XF5U-1, 1942Nov23
UO-1, 1923Aug23, Nov12; 1924Nov11; 1925Oct27; 1928Jan05, Jan11; 1929Aug20; 1989Jul22
Warhawk (Curtiss)
P-40, 1940Oct12; 1942Nov08; 1943Jul17; 1944Dec26
P-40B, 1941Dec18, Dec20
P-40C, 1941Jul25
P-40E, 1942Feb27, Apr22; 1943Jan08
P-40F, 1942Jul01
P-40L, 1943Feb14
Warning Star (Lockheed)
EC-121, 1970Mar16
EC-121J, 1965Aug26
EC-121K, 1962Oct19
EC-121M, 1969Apr14; 1972May09; 1973Oct06
NC-121K (Lockheed), 1969Aug24
WV-2E, 1958Mar01
Wessex HU.5 (Westland), 1974Jul15
White Hawk (Sikorsky VH60N), 1989Nov03; 1994Jul07
Widgeon (Grumman)
J4F-1 1942Aug01
J4F-2, 1943Jul18
Wildcat (General Motors)
FM, 1944Aug09
FM-2, 1944Jun04; 1945Feb16
Wildcat (Grumman)
F4F, 1941Oct01; 1942May10
F4F-3, 1941Nov28, Dec07, Dec08, Dec11; 1942Feb01, Feb20, Mar10, May04, May26, Jun03
F4F-3A, 1941Dec08; 1942Mar04, Apr18
F4F-4, 1942Aug20, Oct11, Oct14, Oct25, Nov08; 1943Jan31, Jul13, Aug27, Oct04
F4F-4B, 1943Mar04
XF4F-1, 1935Nov15; 1936Jul10
Wright
B-1 (later AH-4), 1911Nov14; 1912Jul26
B-2 (later AH-5), 1912Dec02; 1913Jun20
XM-1 (airship), 1946Oct27
Yellow Peril (Naval Aircraft Factory XN3N-1), 1935Feb09; 1936Mar18
Zeke/Zero (Mitsubishi A6M), 1981Apr15
A6M, 1941Dec10; 1942Feb19, Jun03, Nov01; 1943Jan31, Feb12, Jul02, Aug15, Nov11

Missiles and Rockets

AAM-N-2 (Sparrow I), 1951Jan16; 1952Sep15; 1956Mar12; 1957Apr12
AAM-N-6 (Sparrow III), 1953Feb13; 1958Feb14, Dec08; 1962May10
AAM-N-7 (Sidewinder I), 1952Sep03; 1953Sep11; 1956Mar12, Jul14; 1959 Jul30
AARGM (Advanced Anti-Radiation Guided Missile), *See* AGM-88E
ADM-141C Improved TALD (tactical air launch decoy), 1996Jan24
Aerobee, *See* RTV-N-8
AGM-12 (Bullpup), 1960Jun03
AGM-45 (Shrike), 1986Apr14
AGM-53A (Condor), 1970Sep25; 1971Feb05
AGM-62 (Walleye), 1963Jan29
AGM-65 (Maverick), 1976Feb18; 1987Jun30, Sep21; 1988Jun14
  E, 1980Jun03; 1992Feb11; 2003Mar25; 2007Jul27
  F, 1983Sep20; 1997Apr21
AGM-84 (Harpoon), 1972Apr11; 1977Aug29; 1979Jul18; 1984Sep13; 1985Oct28; 1986Mar24; 1987Jun30; 1988Jun14; 1989Apr16; 1990Jun26; 1991Oct18; 1992Apr08; 1993Aug17; 1999Apr13; 2001Oct19
  E (SLAM), 1988Nov03; 1989Jun24; 1991Jan19; 1996Sep12; 1999Mar24
  H (SLAM-ER), 1997Mar18; 1998Apr08
  K (SLAM-ER), 2000Mar16, Jun29; 2004Feb05; 2009Jul02, Aug
AGM-86C (ALCM), 1996Sep03
AGM-88 (HARM), 1986Mar24, Apr14; 1987Jul14; 1988Jun14; 1993Apr22, Aug17; 1998Dec03; 1999Mar27; 2001Feb16; 2003Mar24, Mar27
  A, 1981Oct05; 1985Jan24; 1986Aug05; 1987Jun30
  E, 2008Sep30
AGM-109L (Tomahawk), 1981Sep18
AGM-114 (Hellfire), 1987Oct08; 1991Jan18; 1991Feb15, Feb24; 1998Jan19; 2007Jan30
  B, 2002Jan13
  K, 1996Jul10
  N, 2006May02
  R, 2010Apr08
AGM-119B (Penguin Mk 2), 1994Apr29; 1996Feb20
AGM-154 (JSOW), 2007Sep
  A, 1997Sep01; 1998Jul08; 1999Jan25; 2001Feb16
  C, 2001Dec04; 2004Nov16, Dec14; 2007Jan31; 2010Mar04, Oct15
AGM-158 (JASSM), 2010Apr12
AIM-7 (Sparrow), 1965May10, Jun17; 1972Jan19; 1989Jan04; 1991Jan17
  E-2, 1975Nov25
AIM-9 (Sidewinder), 1970Mar28; 1972Jan19, May06, May10, Sep11, Dec28; 1973Jan12; 1979Dec17; 1987Oct08; 1989Jan04; 1991Jan24; 2008Dec02
  D, 1967May01
  D/B, 1967Apr24
  G, 1971Mar29
  L, 1981Aug19
  M, 1991Jan17, Feb06
  X, 1999Jun30; 2000Mar31; 2004May15; 2010Feb25
AIM-54 (Phoenix)
  A, 1966Sep08; 1972Apr28; 1973Nov21; 1975Jan28, Mar02; 1987Mar18
  C, 2004Jul15
AIM-120 (AMRAAM), 1985Jul15; 1986Aug18; 1987Sep21; 1992Dec27; 1993Sep03; 2008Jul23
ALCM (Air Launched Cruise Missile), *See* AGM-86C
AMRAAM (Advanced Medium Range Air-To-Air Missile), *See* AIM-120
AQM-37 (Challenger), 1984Mar12
ASM-N-7 (Bullpup), 1958Mar19
ASROC (Anti-Submarine Rocket), *See* RUR-5
Atlas (SM-65), 1959Sep09
Bat (ASM-N-2), 1945Apr23; 1946Mar12, May21
BGM-71 (TOW), 1987Oct08; 1991Feb24
  E, 1996Jul10
BGM-84A (Harpoon), 1972Apr11; 1974Apr11
BGM-109 (Tomahawk), 1981Jan15; 1991Jan18; 1992Apr01; 1993Jan17, Jun26; 1996Sep03; 1998Aug20
Blue Scout (RM-90), 1962Dec18
BQM-34E (Firebee), 1971Jul30; 1972Mar29; 1973Sep06
BQM-74 (Chukar)

C, 1979Jul27
E, 2008Jul23, Aug07
BQM-126A, 1987Mar30
BQM-145A (Peregrine), 1990May18; 1994Mar31
Bullpup, 1959Apr25. *See also* AGM-12, ASM-N-7
Bumblebee (RTV-6), 1944Sep01; 1946Mar12
BW-0 (Terrier), *See* RIM-2A
Chukar, *See* BQM-74C, BQM-74E
Condor, *See* AGM-53A
Corvus (XASM-8), 1960Jul18
CTV-N-10 (Lark), 1950Jan13
Dove (XASM-4), 1946Mar12
Eagle (XAAM-N-10), 1960Jul21
Exocet (AM.39), 1987May17; 1991Jan24, Feb08
Firebee, 1976Feb11. *See also* BQM-34E
FKR (frontoviye krilatiye raketi) Metor, 1962Oct24
FROG (free rocket over ground) 3/5 Luna, 1962Oct24; 1991Jan28
Gargoyle, 1946Mar12. *See also* LBD-1
Gorgon (TD2N/TD3N), 1945Mar08
II-A (CTV-N-4), 1946Mar12
II-C (RTV-N-15), 1946Mar12
III-A (CTV-N-6), 1946Mar12
IV (PTV-2), 1947Jul09
HARM (High-speed Antiradiation Missile), *See* AGM-88
Harpoon, 1976Aug20; 1981Nov17; 1983Aug25; 2000Mar16, Jun29; 2004Feb05; 2009Jul02, Aug. *See also* AGM-84, BGM-84AA
Hellfire, 2002Jan13; 2006May02; 2007Jan30; 2010Apr08. *See also* AGM-114
HY-2G (Silkworm), 1987Oct16; 1988Apr14
Hydra unguided rocket, 2005Jul22
JAGM (Joint Air-to-Ground Missile), 2010Mar31, May05
JASSM (Joint Air-to-Surface Standoff Missile), *See* AGM-158
JCM (Joint Common Missile), 2005Apr18
JSOW (Joint Standoff Weapon), *See* AGM-154
Jupiter (SM-78), 1955Nov08; 1956Dec08
Kingfisher (XAUM-2, -4, -6), 1946Mar12
Lark, 1945Mar21; 1946Mar12. *See also* CTV-N-10
LBD-1 (Gargoyle), 1945Jul13
Little Joe (KAN-1, -2), 1945May10, Jul20; 1946Mar12
Loon (LTV-N-2), 1946Mar12; 1950Mar22, May03
Maverick, 2003Mar25; 2007Jul27. *See also* AGM-65
Mk 32 (rocket), 1967Jul29; 1969Jan14
MQM-8G (Vandal), 1989Feb23
Nike (MIM-3), 1958Sep28
Nike-Asp (sounding rocket), 1959Jul14
PAC-3 (Patriot), 1991Jan17
Patriot (Phased Array Tracking Intercept of Target), *See* PAC-3
Pelican, 1942Jun17; 1943Oct12; 1944Jul29, Sep18
Penguin, 2008Apr28. *See also* AGM-119B
Peregrine, *See* BQM-145A
Phoenix, *See* AIM-54
Polaris (UGM-27), 1956Dec08; 1959Jan21
A-1, 1960Jul20, Nov15; 1965Oct14
A-2, 1961Oct23; 1962Jun26
A-3, 1962Jun29; 1963Oct26; 1964Sep28; 1965Oct14
PTV-2 (Gorgon IV), 1947Jul09
RAM (Rolling Airframe Missile), *See* RIM-116A
Regulus, 1952Nov03, Dec16; 1953Mar06, Jul15; 1959Sep21
I (SSM-N-8), 1959Jun08; 1960Mar25
II (SSM-N-9), 1957Nov13; 1958Sep16, Dec12; 1962May10
Retrorocket ASR (rearward-firing antisubmarine rocket), 1942Jul03
RIM-2 (Terrier), 1950Aug24, Nov10; 1952Apr01, May16, Sep01; 1953Aug12; 1956Dec03; 1958Dec05; 1959Dec07; 1961Apr29
A (BW-0), 1951Jan16, Sep07
RIM-8 (Talos), 1945Jan11; 1951Mar06; 1959Feb24
RIM-24A (Tartar), 1958Aug19
RIM-66 (Standard MR), *See* Standard Missile, MR
RIM-116A (RAM), 1992Nov14
RIM-161B (SM-3), *See* Standard Missile, SM-3
Roland, 1991Jan18; 2003Mar24
RTV-N-8 (Aerobee), 1947Nov24; 1950Jan10
RUR-5 (ASROC), 1960Jun21
SA-2 (Guideline), 1972May31; 1986Mar24; 1991Jan21; 2003Mar24
SA-3 (Goa), 1993Jan13
SA-5 (Gammon), 1986Mar24
SA-6 (Gainful), 1995Jun02
SA-7 (Grail), 1972May01
Sandal (SS-4/R-12), 1962Oct14, Oct27
Scud (SS-1/R-11), 1986Apr14
Scud-B (SS-1/R-17E), 1991Jan17, Feb01
Seaspar (RIM-7), 1965May10
Shrike, *See* AGM-45
Sidewinder, *See* AAM-N-7, AIM-9
Silkworm, 1991Feb23; 1993Jan13. *See also* HY-2G
Skean (SS-5/R-14), 1962Oct14

SLAM (Standoff Land Attack Missile), *See* AGM-84E
SLAM-ER (Standoff Land Attack Missile–Extended Range), *See* AGM-84H, AGM-84K
SM-2, *See* Standard Missile
SM-3, *See* Standard Missile
Sparoair, 1963Aug02
  Sparoair II, 1961Jul18
Sparrow, 1961Jul18. *See also* AAM-N-2, AAM-N-6, AIM-7, Sparoair
  Sparrow III, 1958Feb14; 1962May10; 1972Jul15; 1973Aug16
SS-1 (R-11, R-17), *See* Scud
SS-4 (R-12), *See* Sandal
SS-5 (R-14), *See* Skean
SSC-2A (Salish), 1962Oct24
Standard Missile
  MR, 1976Nov13
  SM-2 Block II, 1988Jul02
  SM-2ER, 1988Apr14
  SM-3, 2000Jan26; 2010Feb01
SUBROC (Submarine Rocket), *See* UUM-44
SWOD (Special Weapons Ordnance Device), 1946Mar12, Aug14
Talos, *See* RIM-8
Tartar, 1945Jan11. *See also* RIM-24A
Terrier, 1945Jan11. *See also* RIM-2
Thor (SM-75), 1958Dec16
T-LAM (Tomahawk–Land Attack Missile), 2001Oct14; 2010May05
  Tomahawk II, 1980Nov22; 1985Oct15
Tomahawk (RGM/UGM-109B), 1975Sep26; 1976Feb11, Jun05, Jun06; 1978Feb02; 1979Feb14. *See also* AGM-109, BGM-109, T-LAM
TOW (Tube-launched, Optically tracked, Wire command-link), *See* BGM-71
UUM-44 (SUBROC), 1959Aug03
V-1 (flying bomb), 1944Jul06, Aug12, Nov17; 1947Feb12
V-2 (rocket), 1944Jul06; 1947Sep06
Vandal, *See* MQM-8G
Viking (sounding rocket), 1950May11; 1951Aug07; 1956Dec08; 1957May01
Walleye, 1966Jan20; 1989Jun24; 1990Jun26. *See also* AGM-62
Zuni (5-in FFAR), 1967Jul29, Oct25; 1969Jan14

Ships

Naval/Military Ships by Country

Australia
Canberra (RAN cruiser), 1942Aug09
Sydney (FFG 03), 2001Nov18

Canada
John A. Macdonald, 1969Aug24
Louis S. St-Laurent, 1969Aug24
Saguenay, 1939Oct16
Toronto (FFH 333), 2007Sep30

Costa Rica
Juan Rafael Mora, 2007Apr19

Cuba
GC-107 class, 1962Aug30
SC-13, 1943May15

Denmark
Olfert Fischer (F 355), 2007Sep30

France
Ardente, 1918Apr22
Charles de Gaulle (R 91), 2001Dec18
Jean Bart, 1942Nov08
Lamotte-Picquet, 1945Jan02
Le Conquerant, 1942Nov13
Leger, 1918Oct22
Octant, 1945Jan02
Primaguet, 1942Nov08

Germany
Admiral Graf Spee, 1939Oct16
Alsterufer (blockade runner), 1943Dec27
Bismarck, 1941May19
Burgenland (blockade runner), 1944Jan04
Emmy Friedrich (tanker), 1939Oct16
Frankfurt, 1921Jun21
G-102, 1921Jun21
Karlsruhe (F 212), 2005Apr29
Milchkühe, 1943Oct04
Odenwald (blockade runner), 1941Nov04
Ostfriesland, 1921Jun21
Prinz Eugen, 1941May19
Rheinland-Pfalz (F 209), 2009Mar29
Rio Grande (blockade runner), 1944Jan04
Scharnhorst, 1943Oct19
Spessart (A 1442), 2009Mar29
T22, 1943Dec27
T23, 1943Dec27
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Tirpitz, 1943Oct04, Oct19
U-66, 1942Jan13
U-67, 1942Feb16; 1943Jul13
U-84, 1943Jul13
U-86, 1943Nov29
U-117, 1921Jun21
U-118, 1943Jun05
U-123, 1942Jan13
U-125, 1942Jan13
U-129, 1942Feb16
U-134, 1943Jul18
U-156 (WWI), 1918Jul19
U-156 (WWII), 1942Feb16
U-161, 1942Feb16
U-166, 1942Aug01
U-172, 1943Nov29
U-176, 1943May15
U-185, 1943Jul13
U-217, 1943Jun05
U-219, 1943Nov29
U-228, 1943Jun05
U-238, 1943Nov29
U-249, 1945May09
U-264, 1943Oct04
U-305, 1943May22
U-388, 1943Jun20
U-420, 1943Jun20
U-422, 1943Oct04

U-455, 1943Oct04
U-460, 1943Oct04
U-487, 1943Jul13
U-502, 1942Feb16
U-505, 1944Jun04
U-508, 1943Aug27
U-530, 1944Jun24
U-549, 1944May29
U-569, 1943May22
U-603, 1943Jun05
U-640, 1943May14
U-641, 1943Jun05
U-656, 1942Mar01
U-758, 1944Jan11
U-761, 1944Feb24
U-764, 1943Nov29
U-847, 1943Aug27
U-850, 1943Nov29
UB-110, 1918Jul19
UB-123, 1918Oct10
Weserland (blockade runner), 1944Jan01
Z23, 1943Dec27
Z24, 1943Dec27
Z27, 1943Dec27
Z32, 1943Dec27
Z37, 1943Dec27

Greece
Psara (F 454), 2009Mar29

Iran
Boghammar RL-120-2A (gunboat), 1988Apr14, Jul02
Hengam class, 1988Jul02
Joshan (P 225), 1988Apr14
Sabalan (F 73), 1988Apr14
Sahand (F 74), 1988Apr14

Iraq
Al-Qadisiya, 1991Jan23
FPB 57 (missile boat), 1991Jan29
Ibn Khaldoum (A 507), 2003Mar25
Ibn Marjid (507), 1991Feb08
Osa I class, 2003Mar25
Osa II, 1991Jan29
P-205, 2003Mar25
P4027, 1991Jan24
Spasilac class, 1991Jan24
SR.N6 Mk 6C, 1991Jan23
TNC 45 (missile boat), 1991Jan29, Feb08
Yevgenya class, 1991Jan24
Zhuk class, 1991Jan23, Jan24

Italy
Guiseppe Garibaldi (C 551), 2001Dec18

Japan
Abukuma, 1944Oct23
Agano, 1943Nov05, Nov11
Akagi, 1941Dec07; 1942Feb19, Feb27, Jun03
Akashi, 1944Mar30
Akatsuki, 1942Oct25
Akebono, 1944Nov11
Akigumo, 1942Oct26
Akishimo, 1944Nov11
Akizuki, 1942Oct25
Amagi, 1945Jul10
Amagiri, 1942Aug28; 1943Nov05
Aoba, 1945Jul24
Arashio, 1942Jun03
Asagiri, 1942Aug28
Asakaze, 1942Mar10
Asanagi, 1942Mar10
Asashimo, 1944Dec26; 1945Mar18
Ashigara, 1944Dec26
Atago, 1943Nov05
Ch 24, 1944Feb17
Ch 29, 1944Feb17
Chikuma, 1942Oct26; 1943Nov05; 1944Oct23
Chitose, 1942Aug24; 1944Jun15, Oct23
Chiyōda, 1944Jun15, Oct23
Chōkai, 1942Nov12; 1944Oct23
Fujinami, 1943Nov05; 1944Oct23
Fumizuki, 1944Feb17
Fusō, 1944Oct23
Fuyuzuki, 1945Mar18
Gyoraitei No. 10, 1944Feb17
Hamakaze, 1945Mar18
Haruna, 1944Oct23; 1945Jul10, Jul24
Harusame, 1942Oct25
Hatsuharu, 1944Nov11
Hatsukaze, 1943Jul17
Hatsushimo, 1945Mar18

Hatsutaka, 1944Apr19
Hatsuyuki, 1943Jul17
Hatsuzuki, 1944Oct23
Hayashimo, 1944Oct23
Hibiki, 1942Jun06
Hiei, 1942Nov12
Hiryū, 1941Dec07; 1942Feb19, Feb27, Jun03, Aug07
Hiyō, 1944Jun15
Hyūga, 1945Jul24
I-168, 1942Jun03
I-175, 1943Nov18
I-18, 1943Feb11
I-19, 1942Sep15
I-205, 1945Mar18
I-21, 1942May02
I-22tou, 1941Dec07
I-23, 1942Feb01
I-26, 1942Aug31
I-368, 1945Feb16
I-404, 1945Jul24
I-52, 1944Jun24
I-56, 1944Oct23
I-6, 1942Jan11
I-69, 1942Feb10
I-70, 1941Dec10
Ikazuchi, 1942Oct25
Ise, 1945Jul24
Isokaze, 1945Mar18
Isuzu, 1942Nov12; 1943Dec04
Iwate, 1945Jul24
Izumo, 1945Jul24
Jintsū, 1942Aug24
Junyō, 1942Jun03, Oct26; 1944Jun15
Kaga, 1941Dec07; 1942Feb19, Feb27, Jun03
Kagero, 1943May08
Kashi, 1944Dec26
Kashii, 1945Jan02
Kasuga, 1945Jul10
Kasumi, 1944Dec26; 1945Mar18
Katori, 1942Feb01; 1944Feb17
Katsuragi, 1945Jul10
Kaya, 1944Dec26
Kikuzuki, 1942May04
Kinu, 1944Oct23
Kinugasa, 1942Nov12
Kisaragi, 1941Dec11*Tenryu*, 1941Dec11
Kiso, 1944Nov11
Kiyoshimo, 1944Oct23, Dec26
Komahashi, 1945Jul24
Kongō, 1944Oct23
Kumano, 1944Oct23, Nov25
Kuroshio, 1943May08
Maikaze, 1944Feb17
Makigumo, 1942Oct26
Matsu, 1944Aug04
Maya, 1942Nov12; 1943Nov05
Michisio, 1943May08
Mikuma, 1942Jun03
Mitsuki, 1942Aug24
Mogami, 1942Jun03; 1943Nov05; 1944Oct23
Murakumo, 1942Oct11
Musashi, 1944Oct23
Myōkō, 1944Oct23
Nachi, 1944Oct29, Nov05
Naganami, 1943Nov11
Nagara, 1943Dec04
Nagato, 1944Oct23; 1945Jul10
Naka, 1944Feb17
Nashi, 1945Jul24
Natsugumo, 1942Oct11
Noshiro, 1943Nov05; 1944Jan01, Oct23
Nowaki, 1944Oct23
Oite, 1942Mar10; 1944Feb17
Okinami, 1944Oct23, Nov11
Okinoshima, 1942May04
Oyashio, 1943May08
Oyodo, 1944Dec26; 1945Jul24
Q-007, 1951Jul03
RO-43, 1945Feb16
RO-61, 1942Aug30
RO-62, 1941Dec11
RO-66, 1941Dec11
Ryūhō, 1942Apr18; 1944Jun15
Ryūjō, 1942Jun03, Aug24
Samidare, 1942Oct14, Oct25
Satsuki, 1944Sep21
Sazanami, 1941Dec07
Settsu, 1945Jul24
Shirakumo, 1942Aug28
Shiratsuyu, 1942Oct25
Shirayuki, 1942Oct11
Shōhō, 1942May04

Shōkaku, 1941Dec07; 1942May04, Aug24, Oct26; 1944Jun15
Sōryū, 1941Dec07; 1942Feb19, Feb27, Jun03
Suzunami, 1943Nov11
Suzutsuki, 1945Mar18
Suzuya, 1944Oct23
T 133, 1944Aug04
Tachikaze, 1944Feb17
Taihō, 1944Jun15
Takao, 1943Nov05
Tama, 1944Oct23
Tenryu, 1942Nov12
Terutsuki, 1942Oct26
Tone, 1944Oct23; 1945Jul24
Tsugaru, 1942Mar10
Urakaze, 1943Nov11
Uranami, 1944Oct23
Ushio, 1941Dec07
Uzuki, 1942Aug24
W.15, 1943Jul17
W.21, 1943Dec25
W.22, 1943Dec25
Wa 1, 1942May04
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Wakaba, 1944Oct23
Wakatake, 1944Mar30
Wakatsuki, 1943Nov11
Yaezakura, 1945Jul10
Yahagi, 1944Oct23; 1945Mar18
Yakaze, 1942Mar10
Yamashiro, 1944Oct23
Yamato, 1941Dec10; 1944Oct23; 1945Mar18
Yasojima, 1944Nov25
Yūbari, 1942Mar10; 1943Nov11
Yudachi, 1942Oct25
Yūgiri (DD 153), 1996Jun04
Yugiri, 1942Aug28
Yukikaze, 1945Mar18
Yūnagi, 1942Mar10; 1943Jul17
Yura, 1942Oct25
Yuzuki, 1942May04
Zuihō, 1942Oct26; 1944Jun15, Oct23
Zuikaku, 1941Dec07; 1942May04, Aug24, Oct14, Oct26; 1944Jun15, Oct23

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al-Sanbouk (P 4050), 1991Jan18
Istiqlal (P 5702), 1991Jan18

Libya
Ean Mara, 1986Mar24
G–class missile boat, 1986Mar24
La Combattante II, 1986Mar24
Nanuchka II–class corvette, 1986Mar24
Waheed, 1986Mar24

Netherlands
Evertsen (F 805), 2007Sep30

Philippines
Datu Kalantiaw (PF 76), 1981Sep20

Portugal
Álvares Cabral (F 331), 2007Sep30

Russia/Soviet Union
Admiral Kuznetsov (Project 1143.5), 1996Jan07
Admiral Vinogradov (DDG 554), 1992Oct15
Echo I class, 1980Aug21
Foxtrot class (Project 641), 1962Oct24
K-122, 1980Aug21
K-314 (610), 1984Mar21
Komar class, 1962Oct24
P-6 (Project 1830-R), 1962Oct24
Petropavlovsk, 1984Mar21
Trawler *No. 477*, 1979Nov21
Udaloy class, 1992Oct15
Victor class, 1984Mar21

South Korea
Cheonan (PCC 772), 2010Mar26
Munmu the Great (DDH 976), 2009May13

Spain
Victoria (F 82), 2009Mar29

Turkey
Gökçeada (F 494), 2010Sep08

United Kingdom
Attacker (D 02), 1944Aug15
Caradoc, 1939Oct16

Cardiff (D 108), 1991Jan18
Cardigan Bay (L 3009), 2008Feb22
Cumberland (F 85), 2000Oct12
Eagle (D 94), 1942May03
Emperor (D 98), 1944Aug15
Enterprise (light cruiser), 1943Dec27
Formidable (67), 1945Mar18, Jul10
Garry, 1918Jul19
Glasgow, 1943Dec27
Hermes (R 12), 1974Jul15
Hunter (D 80), 1944Aug15
Illustrious (87), 1944Apr19, May17; 1945Mar18
Illustrious (R 06), 1998Mar03; 2007Jul10
Implacable (86), 1945Jul10
Indefatigable (10), 1945Mar18, Jul10
Indomitable (92), 1945Mar18
Invincible (R 05), 1998Jan18, Mar03
Khedive (D 62), 1944Aug15
Marlborough (F 233), 2000Oct12
Orion (light cruiser), 1939Oct16
Perseus (A 197), 1952Apr28
Prince of Wales, 1941Aug05
Pursuer (D 73), 1944Aug15
Renown, 1943Sep19
Scourge, 1943Oct04
Scylla (F 71), 1987Dec25
Searcher (D 40), 1944Aug15
Sir Tristram (L 3505), 2003Jun24
Stalker (D 91), 1944Aug15
Tactician, 1944Apr19
Triumph (R 16), 1950Jul03, Jul18, Sep14
Victorious (38), 1943Mar04; 1945Mar18, Jul10
X-craft (submarine), 1943Oct04

United States
Aaron Ward (DD 483), 1942Apr09
Abbot (DD 629), 1943Oct18
Abraham Lincoln (CVN 72), 1991Jun12, Jul13; 1993May07, Sep03, Oct03, Oct29, Dec01; 1994Oct25; 1998Aug20; 2000Jan31, May17, Dec29; 2002Jul24, Nov06, Dec04; 2003Mar24, Mar26, Mar30, Apr03, May01; 2004Dec26; 2008Jan03; 2010Feb07
Abraham Lincoln (SSBN 602), 1965Oct14
Absecon (AVP 23), 1943Jan28; 1957Sep21
Absecon (WAVP 374), 1957Sep21
Ahrens (DE 575), 1944May29
Ainsworth (FF 1090), 1976Aug20
Ajax (AG 15), 1924Jan03
Alabama (BB 8), 1921Jun21
Alabama (BB 60), 1943Dec08
Alameda County (AVB 1), 1957Sep28
Alan B. Shepard (T-AKE 3), 2009Sep17
Albacore (SS 218), 1944Jun15
Albemarle (AV 5), 1941May15; 1945Jul14
Alcona (AK 157), 1946Jul13
Altamaha (CVE 18), 1944Feb04, Dec18
America (CV 66), 1976Jul27; 1979Jan16, Oct30; 1981Jan14, May04, Jul16, Oct21; 1984Mar13; 1986Mar10, Mar24, Apr14, Oct17; 1989Apr16, Aug01; 1990Nov08, Dec28; 1991Jan09, Jan15, Jan17, Feb01, Feb14, Feb20, Feb23, Feb27, Mar04, Mar16, Apr03, Apr08, Apr18; 1993Oct29; 1994Sep12; 1995Sep09, Dec11; 1996Jan07; 2005May14
(CVA 66), 1967May20, Jun05; 1971Aug26; 1972May09, Sep11; 1973Jan27, Mar04; 1974Jul15
America (LHA 6), 2008Jun27
Anchorage (LSD 36), 1970Oct25; 1998Aug20; 2000Oct12
Anderson (DD 411), 1942Oct26
Andrew Jackson (SSBN 619), 1963Oct26
Antietam (CVA 36), 1953Jan12
(CVS 36), 1953Jul08; 1956Oct29; 1957Apr21, Aug12; 1961May04, Sep11, Oct31; 1962Feb20
Anzio (CG 68), 2009Oct15
Anzio (CVE 57), 1945Feb16
Archer (BAVG 1), 1941Mar11
Argonaut (SM 1), 1932Mar07
Argonaut (SS 166), 1940Oct09
Argonne (AG 31), 1942Oct18
Arkansas (BB 33), 1922Sep27
Arkansas (CGN 41), 1982Dec03
Arleigh Burke (DDG 51), 1993Jun26
Arlington (AGMR 2), 1957Oct03
Aroostook (CM 3), 1923Mar19; 1927Mar31; 1928Apr18; 1929Jan23; 1930Mar10, Dec02
Arthur W. Radford (DD 968), 1978Jul25
Ashland (LSD 48), 2005Aug19; 2007Jan07; 2010Jan12, Apr10
Aspen (WLB 208), 2010Nov08
Astoria (CA 34), 1942Jun03, Aug09
Attu (CVE 102), 1945Jun05
Augusta (CA 31), 1941Aug05
Austin (LPD 4), 1999Oct31

Badoeng Strait (CVE 116), 1950Jul22, Aug03, Sep14; 1957May17
Bagley (FF 1069), 1988Apr14
Bainbridge (DDG 96), 2007Sep30; 2009Apr08
Bainbridge (DLGN 25), 1964Jul31; 1969Jan14
Ballard (AVD 10), 1944Jun15
Barb (SS 220), 1978Feb02
Barbero (SSG 317), 1959Jun08, Sep21
Barnegat (AVP 10), 1941Jul03; 1942Nov13; 1943Jan28
Barnes (CVE 20), 1943Nov18
Barr (DE 576), 1944May29
Barracuda (SS 163), 1932Mar07; 1935Apr29
Bataan (CVL 29), 1944Jun15; 1950Dec17
Bataan (LHD 5), 2000Nov08; 2001Nov22; 2003Apr20; 2004Jan19; 2005May07, Aug29; 2007Jul10; 2009Jun, Jun25, Nov06; 2010Jan12
Beale (Destroyer No. 40), 1918Jan22
Belknap (CG 26), 1975Nov22
Belknap (DLG 26), 1973Oct06
Belleau Wood (CVL 24), 1943Sep01, Oct05, Nov18, Dec04; 1944Jan07, Jan29, Feb17, Jun15, Oct29; 1945Jun05
Belleau Wood (LHA 3), 1986Aug19; 1987Jan05; 1992Sep11; 1995Feb28; 1999Oct07; 2000Jul26; 2004Sep09
Beltrami (AK 162), 1946Jul13
Benjamin Stoddert (DDG 22), 1969Jan14
Bennington (CV 20), 1945Jun05
(CVA 20), 1954May26; 1955Apr22, Aug22
(CVS 20), 1961Jan01; 1962May10; 1966May18; 1967Nov09; 1970Jan15
Biddle (DLG 34), 1974Sep08
Bigelow (DD 942), 1978Jan07
Billingsley (DD 293), 1913Jun20
Birmingham (CL 62), 1943Jul12
Birmingham (Cruiser No. 2), 1910Nov14; 1911Jan18; 1914Apr20, May24; 2008Dec02
Bismarck Sea (CVE 95), 1945Feb16
Block Island (CVE 21), 1944Jan11, May29
Block Island (CVE 106), 1945Mar18
Blue Ridge (LCC 19), 1975Apr29; 1980Oct06
Bogue class, 1942Jun15
Bogue (ACV 9), 1943Mar05, May22, Jun05
(CVE 9), 1943Nov29; 1944May29, Jun24, Jun29
Bon Homme Richard (CV 31), 1945Jul10, Jul24
(CVA 31), 1956Jul14; 1957Jun06; 1958Dec08; 1967May01, Jul29; 1970Jan15
Bonhomme Richard (LHD 6), 2001Dec01; 2002Mar04; 2003Apr20; 2004Dec26; 2007May23
Bonita (SS 165), 1932Mar07; 1935Apr29
Boston (CA 69), 1952Jan04
(CAG 1), 1952Jan04; 1955Nov01; 1959Dec03
Bougainville (CVE 100), 1945Jun05
Boutwell (WHEC 719), 1980Oct04
Boxer (CV 21), 1948Mar10; 1949Dec29; 1950Jul23, Sep14; 1951Mar29; 1952Aug06, Aug28
(CVA 21), 1954Mar19
(CVS 21), 1958Oct21, Nov10
(LPH 4), 1958Oct21; 1962Oct01, Oct27, Nov20; 1964Aug29; 1965Apr24, Sep11; 1966Feb26, Mar16; 1969Dec01
Boxer (LHD 4), 2001Sep10; 2003Mar23, Apr20; 2004Jan14; 2005Jun22; 2007Oct22; 2008Oct07; 2009Jan09, Mar20, Mar29, Apr08
Briscoe (DD 977), 1996Feb20; 1998Aug20; 2000Sep14
Brister (DER 327), 1967Mar14
Brooklyn (CL 40), 1943Jul12; 1944Jan22
Bunker Hill (CG 52), 1989Sep06; 1991Jan24
Bunker Hill (CV 17), 1943Nov11, Nov18, Dec08, Dec25; 1944Jan01, Jan29, Feb17, Mar30, Jun15; 1945Mar18
(CVS 17), 1953Jul08
Cabot (CVL 28), 1944Jan29, Feb17, Jun15, Nov25, Dec18; 1945Aug01
California (BB 44), 1924Nov11; 1938Jun01
California (CGN 36), 1981Jul16
Callaghan (DDG 994), 1983Jul20
Camden (AOE 2), 1975Feb06; 1976May28
Canberra (CA 70), 1952Jan04
(CAG 2), 1952Jan04; 1962Oct01
Cape Corwin (WPB 95326), 1970Sep14
Cape Esperance (CVE 88), 1944Dec18
Cape Gloucester (CVE 109), 1945Aug06
Capodanno (FF 1093), 1975Aug08
Carbonero (SS 337), 1946Mar05
Card (CVE 11), 1943Aug27, Oct04
(AKV 40), 1964May02
Carl Vinson (CVN 70), 1974Jan18; 1983Oct09; 1986Aug19; 1996Sep03; 1999Jan25; 2001Sep10, Sep11, Oct07, Oct17, Dec16; 2005Mar20, May11, Jun30; 2007Mar30; 2010Jan12, Apr07
Caron (DD 970), 1993Jan17
Carr (FFG 52), 2009Aug18
Carter Hall (LSD 50), 2010Jan12, Jul28

Casablanca (ACV 55), 1943Jul08
(CVE 55), 1944Jun29
Casco (AVP 12), 1942Jun03, Jul19, Aug30
Catamount (LSD 17), 1960May22
Catawba (T-ATF 168), 2000Oct12
Catskill (MCS 1) 1966Sep03
Cavalla (SS 244), 1944Jun15
Chancellorsville (CG 62), 1993Jun26; 2008Jun25
Chandler (DDG 996), 1987Dec12
Charger (CVE 30), 1944Jun29
Charles Ausburn (DD 294), 1923Jul05
Charles P. Cecil (DD 835), 1966Aug26
Charleston (PG 51), 1936Jul01
Chatelain (DE 149), 1944Jun04
Chenango (ACV 28), 1942Nov08
(CVE 28), 1944Feb17, Apr21, Jul21; 1945Mar18
Chester (CA 27), 1942Feb01
Chester (Cruiser No. 1), 1910Oct07
Cheyenne (SSN 773), 2010May05
Chicago (CA 29), 1942Aug09
Childs (AVD 1), 1939Sep21
Chincoteague (WPB 1320), 2004Dec02
Chourre (ARV 1), 1944Dec07
Cimarron class, 1942Aug24
Cincinnati (CL 6), 1934Dec05
Cleveland (CL 55), 1942Aug12; 1943Jan14, Jul15
Cleveland (LPD 7), 1972Aug31; 2000Jan31; 2007Oct22
Cole (DDG 67), 2000Oct12
Columbia (SSN 771), 1998Aug20
Comfort (AH 20), 2001Sep11
Commencement Bay (CVE 105), 1944Nov27
Compass Island (EAG 153), 1956Dec03
Concord (T-AFS 5), 2003Jun24
Constellation (CVA 64), 1960Dec19; 1964Aug05; 1966Mar02, Jul01; 1968Nov01; 1970Mar28; 1971Dec31; 1972Jan18, Jan19, Feb29, Mar30, Apr16, Apr25, Apr30, May10, Oct11; 1973Feb11; 1974Nov19; 2010Apr17
(CV 64), 1978Dec27; 1979Feb22, Mar07, Apr16; 1980Apr16, Apr30, Aug17; 1981Nov17; 1985Feb21; 1988Aug02; 1990Oct01; 1993Mar04; 1994Jul31; 1996Jul01; 2000Jan31; 2001Sep10; 2003Mar23, Mar24
Conyngham (DDG 17), 1987May17
Coontz (DDG 40), 1987May17
Coontz (DLG 9), 1966Jul01
Copahee (AVG 12), 1942Jun15
Coral Sea (CVB 43), 1947Oct01; 1948Apr27; 1949Mar07; 1950Apr21, Aug31; 1952Sep11
(CVA 43), 1956Feb29, Jul26, Oct29; 1961Jan01, Dec14; 1965Feb07, Mar26; 1967Oct21, Oct24, Oct25, Nov06; 1968Jan23, Jul18; 1971Dec15, Dec31; 1972Feb29, Mar30, Apr16, Apr30, May06, May09, Jun21; 1975Apr19, Apr29, May12; 2007Jan29
(CV 43), 1980Feb05, Apr16, Apr30, May27; 1983Jul18, Aug01; 1985Oct13, Nov23; 1986Mar24, Apr14, Apr28, Sep01; 1987Sep29; 1989Apr19, Aug01
Coral Sea (CVE 57), 1944Apr21, Jul21
Core (ACV 13), 1943Jul13
Coronado (LPD 11), 1971Oct08; 1974Jul15; 1976Jul27
Corregidor (CVE 58), 1944Apr21, Jul21; 1945Apr20
Cowpens (CG 63), 1993Jan17; 1998Aug20; 2001Feb15
Cowpens (CVL 25), 1943Oct05, Oct18, Nov18, Dec04; 1944Jan29, Feb17, Jun12, Jun15, Dec18; 1945Jun20
Crommelin (FFG 37), 1985Feb21; 2004Sep23; 2008May22
Current (ARS 22), 1945Mar11
Currituck (AV 7), 1944Jun26; 1965Jun23; 1967May24, Oct31
(AVP 7), 1944Oct17
Curtis Wilbur (DDG 54), 2001Oct07
Curtiss (AV 4), 1940Nov15; 1941Dec07; 1942Feb21; 1944Feb14; 1945Mar18
Curts (FFG 38), 1991Jan24; 2004Aug28, Sep17
Cusk (SS 348), 1946Mar05; 1947Feb12; 1948May05; 1950Mar22, May03
CVLG(N)-43, 1944Aug24
CVN-21, 2005May14; 2007Jan16
CVN-76, 1994May05
Dahlgren (DD 187), 1943Jul18
Dallas (WHEC 716), 2008Aug07
Daniel Webster (SSBN 626), 1964Sep28
Davis (DD 395), 1944Jan04
Davis (DD 937), 1967Jun05
DD-445 class, 1939Oct23
Decatur (DD 936), 1961Sep13
Decatur (DDG 73), 2003Dec15
DeKalb, 1918Jul30
Deliver (ARS 23), 1969Jan14
Dennis J. Buckley (DDR 808), 1956Aug22

Denver (LPD 9), 1972Aug31; 1993Apr26; 2009Sep30
Detroit (CL 8), 1923Aug23; 1924Oct12
Dewey (DLG 14), 1959Dec07
Diligence (WMEC 616), 2003Jan28; 2007Jul23
Dolphin (WPB 87354), 2007Jul23
Donald B. Beary (FF 1085), 1975Aug08
Donald Cook (DDG 75), 2000Oct12
Donner (LSD 20), 1961Jan31, Feb21; 1962May24
Doyle (FFG 39), 2010Dec06
Dubuque (LPD 8), 2010Jul28, Sep08
Duluth (LPD 6), 1970Oct25; 1998Aug20; 2000Oct12
Duncan (FFG 10), 1989Oct03
Dunlap (DD 384), 1944Jan07
Duxbury Bay (AVP 38), 1958Jan02; 1964Jan01
Dwight D. Eisenhower (CVN 69), 1970Aug15; 1980Apr16, May08, Aug17, Sep22, Dec08, Dec22; 1982Jun24, Jun25; 1983Aug01, Aug26, Oct04, Oct23; 1984Jul02; 1985Mar07; 1990Aug02, Aug07, Aug15, Aug22, Sep03; 1993May07, Dec01; 1994Feb21, Mar07, Sep12, Oct06, Oct20; 1999Dec03; 2000Sep27; 2007Jan07, Jul10; 2008Jul31; 2010Mar10
Edisto (AG 89), 1959Apr26
Edisto (WPB 1313), 2010Jun18, Nov08
Edson (DD 945), 1981Mar08
Edward McDonnell (DE 1043), 1973Oct06
Elliot (DD 967), 1998Aug20; 2002Jan13
Ellyson (DD 454), 1928Feb27
(DMS 19), 1928Feb27
Elm (WLB 204), 2007Jul23
Elmer B. Montgomery (FF 1082), 1988Jul02
Elrod (FFG 55), 1987Dec25; 2010Jul02
Empire State (T-AP 1001), 1994Mar24
Enterprise (CV 6), 1933Jun16; 1934Nov15; 1938May12; 1939Feb20, Aug04, Sep28; 1941Nov28, Dec07, Dec10, Dec16; 1942Jan16, Jan23, Feb01, Feb17, Feb24, Mar04, Apr18, Jun03, Aug07, Aug20, Aug24, Oct26, Nov12; 1943Jul15, Nov18, Dec04; 1944Jan29, Feb17, Feb20, Jun13, Jun15; 1945Mar18; 1956Oct02
(CVS 6), 1953Jul08
Enterprise (CVAN 65), 1956Nov02; 1958Feb04; 1961Nov25; 1962Jan17, Feb20, Oct19, Oct20, Oct24, Oct31, Nov16, Nov20, Dec15, Dec19; 1964Jul31; 1965Dec02; 1967Feb26, May01; 1968Jan23; 1969Jan14, Apr14; 1971Jan19, Jul30, Aug31, Sep30, Oct31, Dec08, Dec31; 1972Jan18, Dec28; 1973Jan27, Jan28, Feb14; 1974Mar18, Sep17; 1975Feb06, Mar23, Apr19, Apr29
(CVN 65), 1977Jan14, Feb25; 1978Jul; 1986Apr28; 1988Apr14; 1989Sep17, Dec01; 1996Jun14, Jun28, Sep03, Sep12; 2001Aug01, Aug10, Sep10, Sep11, Oct07; 2004Jun, Jul15; 2006Apr27, May02; 2007Jan16
Erie (PG 50), 1936Jul01
Essex (CV 9) class, 1940Nov16; 1954May27
Essex (CV 9), 1938May17; 1942Dec31; 1943Mar01, Mar04, Jul15, Aug30, Oct01, Oct05, Nov11, Nov18, Dec04; 1944Jan29, Feb17, Jun12, Jun15, Oct23, Nov05, Nov25, Nov29, Dec28; 1945Mar18; 1947Jun04; 1951 Aug23, Aug25, Oct29, Dec11; 1952Feb01; 1953Oct01; 1964Oct01
(CVA 9), 1954Mar19; 1958Jul15, Aug24, Aug28; 1959Dec03
(CVS 9), 1961Apr17; 1962Oct01, Oct24; 1968Oct11; 1969Jun30
Essex (LHD 2), 1995Feb28; 1998Aug20; 2000Jul26; 2001Sep10; 2003Jan16; 2004Sep09, Dec26; 2006Feb17; 2008May02
Ethan Allen (SSBN 608), 1961Oct23; 1962Jun26
Eugene E. Elmore (DE 686), 1944May29
Eversole (DD 789), 1958Jan02
Fanshaw Bay (CVE 70), 1944Oct23
Farragut (DDG 99), 2010Apr01
Fife (DD 991), 2000Jan31
Finback (SS 230), 1944Aug31
Firebolt (PC 10), 2005Apr29
Flaherty (DE 135), 1944Jun04
Fletcher (DD 445), 1943Feb11
Fletcher (DD 992), 1981Nov17; 2003Jan26, Dec05
Flint (AE 32), 1989Oct17
Forrestal (CVA 59), 1952Jul14; 1955Oct01; 1956Oct29; 1957Jan15, Apr25; 1962Feb20; 1963Oct30; 1967Jul29; 1970Jun09; 1971Feb05; 1973Mar29, May03; 1974Sep10
(CV 59), 1974Jul15; 1979Oct02; 1980Jan04; 1981Mar08, May03, Aug19; 1982Jun25; 1986Sep05; 1988Jul02; 1991May30, Jun14; 1992Feb05, Sep14; 1993Sep11
Fort Fisher (LPD 40), 1992Sep11
Fort Mandan (LSD 21), 1961Nov29
Fort McHenry (LSD 43), 2010Jan12

Fox (DLG 33), 1969Nov05
Francis Hammond (FF 1067), 1980Nov08
Franklin (CV 13), 1944Aug31, Oct10, Oct29; 1945Mar18
(CVS 13), 1953Jul08
(AVT 8), 1964Oct01
Franklin D. Roosevelt (CVB 42), 1945Oct27; 1946Jul21, Aug08, Nov11; 1950Feb07; 1952Sep01
(CVA 42), 1956Oct29; 1958Oct23; 1961Nov18; 1965Mar06; 1966Nov04; 1969May26; 1973Oct06
(CV 42), 1976Oct04; 1977Jan13, Apr21
Freedom (LCS 1), 2010Feb16, Apr07
Gallatin (WHEC 721), 2004Oct02
Galveston (CLG 3), 1958May28; 1959Feb24; 1969Sep23
Gambier Bay (CVE 73), 1944Oct23
Gannet (AM 41), 1923Mar19; 1926Jun06; 1928Apr18
Gannet (AVP 8), 1936Apr27; 1939Sep14
Gary (FFG 51), 1988Apr14; 2001Oct07; 2003Mar13
George E. Badger (AVD 3), 1940Nov15
George H. W. Bush (CVN 77), 1944Aug31; 2008Aug11; 2009Jan10; 2010Jan27
George Washington (CVN 73), 1994Jun05, Oct06; 1996Sep03, Nov; 1997Mar01; 1998Jan18, Mar03, Mar12, Apr03; 2000Aug23; 2001Sep11; 2002Jul23; 2004Jun, Jul05; 2005Dec02; 2008Apr07, May22, Sep25
George Washington (SSBN 598), 1959Dec30; 1960Jul20, Nov15
Gerald R. Ford (CVN 78), 2007Jan16, Feb05, Nov; 2008Sep10
Gettysburg (CG 64), 2005Dec22; 2006Apr04; 2009Mar20, May13, May26
Gilbert Islands (CVE 107), 1945Mar18
Gillis (AVD 12), 1942Jun03, Jun06
Goldsborough (AVD 5), 1941Jul04
Governor Cobb (WPG 181), 1944Oct02
Grapple (T-ARS 53), 2010Jan25
Grayback (SSG 574), 1958Mar07, Sep16
Green Bay (LPD 20), 2009Jan24
Greenwich Bay (AVP 41), 1964Jan01
Gregory (DD 802), 1953Jan18
Grey (FF 1054), 1985Sep02
Gridley (Destroyer No. 92), 1919May17
Guadalcanal (CVE 60), 1944Jun04
Guadalcanal (LPH 7), 1964Mar23; 1965Apr24; 1966Jul18; 1969Mar03; 1973Oct06; 1976Jul27; 1980Oct12; 1986Mar24; 1987Jul27; 1990Jan25; 1991Apr19; 1993Oct17
Guam (LPH 9), 1966Sep12; 1970May31, Sep03; 1971Oct28; 1972Jan18; 1983Oct25; 1990Sep07, Sep16; 1991Jan02, Feb26; 1992Nov07; 1996May20; 1998Jan18
Guitarro (SSN 665), 1979Feb14; 1981Jan15
Gunston Hall (LSD 44), 1989Sep17; 2010Jan12
Gyatt (DD 712), 1956Dec03
Hackleback (SS 295), 1945Mar18
Haiti Victory (T AK 238), 1960Aug11
Half Moon (AVP 26), 1945Jan02
Halford (DD 480), 1940May27
Halibut (SSGN 587), 1960Mar25
Halsey Powell (DD 686), 1953Jan18
Hamlin (AV 15), 1944Sep11; 1945Feb19, Mar18
Hammann (DD 412), 1942Jun03
Hancock (CV 19), 1944Oct10, Nov25; 1945Jan21, Mar18, Jun20; 1952Apr28
(CVA 19), 1954Jun01; 1958Aug24, Aug28; 1962Apr15, May10; 1965Feb07, Mar26; 1966Jun16, Jul01; 1968Jan23; 1970Nov21; 1971Jan01, Jan31, Apr30, May10; 1972Feb29, Mar30, Apr25, Apr30; 1973Oct29; 1975Mar23, Apr12, Apr19, Apr29, May12
Hancock (transport), 1918Jan22
Harold E. Holt (DE 1074), 1975May12
Harpers Ferry (LSD 49), 2008May02; 2009Sep25, Oct02; 2010Mar26
Harriet Lane (WMEC 903), 2002May10
Harry S. Truman (CVN 75), 1995Feb02; 1999Mar03; 2001Jan01, Feb05, Feb16; 2003Apr11, Jul17; 2004Jun, Dec04; 2005Jan30, Mar20, Aug29; 2007Nov17; 2008Feb22; 2009Aug05; 2010Jul28, Aug18
Hartford (SSN 768), 2009Mar20
Hawes (FFG 53), 2000Oct12; 2009Oct07
Hayler (DD 997), 1996May06; 1998Aug20; 2002Jan08
Helena (CL 50), 1943Jan05, Feb11
Hermitage (LSD 34), 1982Jun24
Hewitt (DD 966), 1993Jan17; 1994Apr29; 1996Sep03
Hitchiti (ATF 103), 1969Jan14
Hobson (DMS 26), 1952Apr26
Hoel (DDG 13), 1987Oct16
Hoist (ARS 40), 1975Aug08
Hornet (CV 8), 1938May17; 1941Oct20; 1942Feb17, Apr18, Jun03, Oct05, Oct16, Oct26; 1989Jul22

Hornet (CV 12), 1944Mar30, Jun15, Sep11; 1945Jun05; 1952Apr26; 1998May26
(CVA 12), 1953Oct01; 1954Jul26
(CVS 12), 1965Mar06; 1966Aug25; 1969Jul16, Nov14; 1970Jun26
Houston (CA 30), 1934Jul19
Houston (transport), 1918May24
Howard (DDG 83), 2008Jun25
Hugh Purvis (DD 709), 1969Nov05
Hull (DD 350), 1944Dec18
Hull (DD 945), 1976Jun30
Huntington (Armored Cruiser No. 5), 1917Apr26, May28, Sep17, Oct13
Hutchins (DD 476), 1940May27
Inchon (LPH 12), 1970Jun20; 1973Jan27; 1974Jul15; 1975Oct27, Nov08; 1992Apr13; 1994Mar03, Jul06, Aug17; 1995Mar01
(MCS 12), 1995Mar01; 1999Apr11
Independence (CVA 62), 1959Aug25; 1961Apr17; 1962Oct20, Oct24, Nov16; 1965Jun17, Oct17; 1970Sep03; 1971Aug03; 1972Jan01
(CV 62), 1973Oct06; 1974Sep08; 1976Jul27; 1979Jun20; 1980Dec08; 1981May26; 1982Jun25; 1983Oct23, Oct25, Dec03; 1990Aug02, Aug05, Aug07, Oct01, Oct28, Nov01, Dec20; 1992Mar21, May31, Aug23, Aug26; 1995Jun30; 1996Jun04; 1997; 1998Feb08, Mar03, Jul18
Independence (CVL 22), 1943Jan14, Jul15, Aug30, Oct05, Nov11, Nov18; 1944Sep06, Nov25; 1946Jul01
Independence (LCS 2), 2010Dec10
Indiana (Battleship No. 1), 1920Oct13
Ingraham (FFG 61), 2001Nov18; 2009Sep29
Intrepid (CV 11), 1944Jan29, Feb17, Oct29, Nov25; 1945Mar18, Aug06
(CVA 11), 1956Mar12; 1961Jun01
(CVS 11), 1962May24, Oct01; 1965Mar23; 1966May15; 1967May20, Jul29; 1974Mar15; 1981May04
Iowa (BB 61), 1984Mar20; 1987Sep10, Oct18; 1989Apr19; 2007Oct25
Iowa (Coast Battleship No. 4), 1921Jun21
Iwo Jima (LHD 7), 1994May05; 2001Jun30; 2003Aug14; 2004Jun21; 2005Aug29, Nov28; 2006Jun06, Jul16; 2010Nov05
Iwo Jima (LPH 2), 1961Aug26; 1962Oct27, Nov20; 1965May01, May12; 1970Apr11; 1973Oct06, Dec17; 1976Jul27; 1990Sep07, Sep16; 1991Feb26; 1992Jul24, Aug26, Sep03, Nov07
IX 514, 1986May27; 1996Jun06; 1999Dec17; 2006Aug25
Jallao (SS 368), 1944Oct23
James E. Williams (DDG 95), 2007Sep26
James Parker (AP 46), 1943Jul06
Jarrett (FFG 33), 2000Jan31; 2009Oct19
Jarvis (WHEC 725), 2004Sep09
Jason (AC 12), 1924Jan25
(AV 2), 1932Apr02
Jefferson City (SSN 759), 1996Sep03
Jenks (DE 665), 1944Jun04
John C. Stennis (CVN 74), 1993Dec01; 1996Jan18; 1997Jan18; 1998Mar12; 2000Jan31, Apr06; 2001Sep10, Sep11, Dec16, Dec18; 2002Mar04; 2004Jun; 2007May23; 2009Jan13
John F. Kennedy (CVA 67), 1970Sep03
(CV 67), 1973May03, Oct06; 1974Jan04, Mar01; 1975Oct27, Nov22; 1982Feb03, Jun25; 1983Oct23, Dec03; 1986Mar10; 1987Jan29; 1989Jan04; 1990Aug15, Aug30, Sep14, Nov08; 1991Jan17, Jan19, Feb23, Mar12, Mar28, Dec04; 1992Oct07; 1993Jan18, Feb25; 1996Sep13; 2001Sep11; 2002Mar06, Jun17; 2003Nov22; 2004Jun, Jul20, Nov06; 2008Nov17
John L. Hall (FFG 32), 1984Sep20; 1998Jul08; 2003Jan28
John R. Pierce (DD 753), 1962May24
John Young (DD 973), 1987Oct16
Joseph P. Kennedy Jr. (DD 850), 1944Aug12
Joseph Strauss (DDG 16), 1980Jul15; 1988Apr14
Jouett (DD 396), 1944Jan04
Juneau (LPD 10), 2008May02
Jupiter (Fuel Ship No. 3), 1917Jun05; 1919Jul11, Nov21
(AC 3), 1922Mar20
Kadashan Bay (CVE 76), 1945Jan02
Kalinin Bay (CVE 68), 1944Oct23
Kanawha (AO 1), 1939Jun13
Kansas City (AOE 3), 1989Oct17
Kasaan Bay (CVE 69), 1944Aug15
Kauffman (FFG 59), 2002Jul23
Kearsarge (CVS 33), 1959Sep29; 1962Oct03; 1963May16; 1968Jan23
Kearsarge (LHD 3), 1995Jun02; 1997May29; 1999Aug19; 2001Sep10; 2003Apr20, Jun12; 2005Jun21, Aug19; 2010Jul28
Kenneth Whiting (AV 14), 1944May08; 1945Mar18

Key Largo (WPB 1324), 2004Dec02
Kidd (DDG 993), 1987Oct16
Kilauea (T-AE 26), 1989Sep06
Kitkun Bay (CVE 71), 1944Oct23; 1945Jan02
Kitty Hawk (AVP 1), 1941Nov26; 1942May26
Kitty Hawk (CVA 63), 1961Apr29; 1964Apr19, Jun06; 1967Feb26, Apr24; 1969Apr14; 1971Jan31, Mar10, Apr30, May10, Jun30; 1972Mar30, Apr16, Apr30, May06, May09, Oct11
(CV 63), 1978Feb; 1979Oct26, Nov21, Dec21, Dec24; 1980Jan04, Jan22; 1984Mar21; 1991Mar29, Jul30; 1992Dec16, Dec19, Dec27; 1993Jan13, Jan18; 1998Jul18; 2000Jan31; 2001Sep10, Oct01, Oct07, Oct12, Oct19; 2003Mar24; 2004Jun; 2005Dec02; 2008Mar13, Apr07, May22
Kleinsmith (APD 134), 1958Oct23
Knight Island (WPB 1348), 2007Jul23
Kwajalein (CVE 98), 1944Dec18
La Salle (LPD 3), 1966Nov03
(AGF 3), 1987May17
Laboon (DDG 58), 1996Sep03
Lake Champlain (CG 57), 1990Jan25, Jun26; 2009May23
Lake Champlain (CVA 39), 1957Apr25; 1962Oct03
(CVS 39), 1957Oct16; 1961May05, Nov29; 1962Oct01; 1963Sep25; 1965Jan19, Aug21
Lake Erie (CG 70), 2000Jan26
Lake class (cutter), 1942Jan13
Lang (FF 1060), 1985Sep02
Langley (CV 1), 1919Jul11; 1921Aug11; 1922Mar20, Oct17, Oct26, Nov18; 1923Feb21, Jun13, Nov05, Dec07; 1924May02, Nov17; 1925Jan22, Mar02, Apr02, Apr08; 1926Jun16, Aug09; 1928Apr18, Jul25; 1929Jan23, Apr09, May08, Sep; 1930Mar10, Apr14; 1931Feb15, Sep23, Dec09; 1932Mar07, May02; 1933Mar10, Aug08; 1935Apr29, Jul30; 1936Apr27, Sep15; 1949Jan23
(AV 3), 1936Sep15; 1938Feb02; 1939Sep21; 1942Jan03, Feb27
Langley (CVL 27), 1944Jan29, Feb17, Jun12, Jun15, Sep09, Nov05, Nov25; 1945Jan02, Jan21, Feb16
Lansdowne (DD 486), 1942Sep15
Lapwing (AM 1) class, 1936Jan22
Lapwing (AVP 1), 1936Apr27; 1939Sep14
Leahy (CG 53), 1992Dec16
Leary (DD 879), 1969Nov05
Leftwich (DD 984), 1987Oct16; 1991Jan24
Leonard F. Mason (DD 852), 1966Mar16
Leutze (DD 481), 1940May27
Lewis and Clark (T-AKE 1), 2010Jul28
Lewis B. Puller (FFG 23), 1989Oct03
Lexington (CC 1), 1922Jul01
Lexington (CV 2), 1918Sep23; 1922Apr01, Jul01; 1925Jan17, Mar02; 1927Dec14; 1928Jan05, Jun12; 1929Jan23; 1930Mar10, Apr14; 1931Feb15, Mar31, Nov02; 1932Mar07; 1933Feb10; 1934Apr19, Dec05; 1935Jan02, Apr29; 1936Apr27; 1937May04, Jul03, Jul04; 1938Mar16, Jun01; 1939Aug30; 1941Dec05, Dec07, Dec16, Dec17; 1942Feb01, Feb20, Mar10, May04; 1943Dec04
provides electric power, 1929Dec18
Lexington (CV 16), 1943Oct05, Nov18, Dec04; 1944Mar18, Mar30, Jun15, Nov05; 1945Jun20
(CVA 16), 1958Aug24; 1959Apr25, Jul05; 1961Jan01
(CVS 16), 1962Dec15
(CVT 16), 1976Apr15
(AVT 16), 1988Sep30; 1989Oct29; 1991Mar08, Nov08; 1992Feb05, Nov14
Leyte (CV 32), 1947Apr16, May02; 1950Aug14, Sep06, Dec04
(CVS 32), 1953Jul08; 1954Jan04
Leyte Gulf (CG 55), 2001Nov18
Liberty (AGTR 5), 1967Jun05
Liscome Bay (CVE 56), 1943Nov18
Lockwood (FF 1064), 1990Jan25
Long Beach (CGN 9), 1964Jul31; 1975Feb06
Long Island (AVG 1), 1941Jun02, Jul01
(ACV 1), 1942Aug20
(CVE 1), 1944Jun29
LST-32, 1957Sep28
Lunga Point (CVE 94), 1945Jan02, Feb16, Aug06
Maddox (DD 731), 1964Aug02
Mahlon S. Tisdale (FFG 27), 1989Oct03
Makassar Strait (CVE 91), 1944Aug20
Makin Island (CVE 93), 1945Aug06
Makin Island (LHD 8), 2007Oct22; 2009Apr16, Jul10, Nov24
Mal de Mer, 1944Apr01
Manila Bay (CVE 61), 1944Apr21, Jun15; 1945Jan02
Marblehead (CL 12), 1944Jan04
Marcus Island (CVE 77), 1944Dec12
Mars (AFS 1), 1964Feb28; 1975Feb06; 1976May28

Maryland (BB 46), 1922May24; 1923Dec07; 1926Nov19; 1933Apr18, Jun22, Aug09; 1934Apr28
Massachusetts (BB 59), 1942Nov08
Massey (DD 778), 1967Jun05
Mauna Kea (AE 22), 1995Jun30
Mayrant (DD 403), 1941Aug05
McCampbell (DDG 85), 2009Sep30
McClusky (FFG 41), 2004Jan09; 2007Apr26
McFarland (AVD 14), 1942Oct16
McFaul (DDG 74), 2008Aug07
McInerney (FFG 8), 1980Nov11; 1981Jan06; 2008Sep13; 2009Oct05; 2010Apr03
Meade (DD 602), 1942Nov12
Medusa (AR 1), 1924Sep18
Mellon (WHEC 717), 1980Oct04
Mercury, 1918Dec06
Mercy (T-AH 19), 1991Mar04
Meredith (DD 434), 1942Oct14
Mesa Verde (LPD 19), 2007Dec15; 2010Jan12, Jan18
Meyerkord (DE 1058), 1975Jan28
Midway class, 1955Feb06
Midway (CVB 41), 1943Jul15; 1945May01, Sep10; 1946Mar01; 1947Sep06; 1949Oct05; 1950Aug14; 1952May26, Sep01
(CVA 41), 1953Sep02; 1955Feb06; 1958Aug24, Dec08; 1962Mar13; 1963Jun13; 1965Jun17, Jun20; 1970Jan31; 1971May10, Jun30, Jul30, Sep30, Oct31; 1972Jan19, Aug06, Dec23; 1973Jan12, Oct05; 1975Apr19, Apr29, May02
(CV 41), 1976Aug18; 1979Apr16, May30, Nov18, Nov21, Dec24; 1980Jan22, Feb05, May27, Aug17, Sep22, Nov06; 1981Mar10; 1986Mar25, Sep01; 1988Sep13; 1989Aug01, Oct30, Dec01; 1990Nov01, Nov08, Nov15; 1991Jan12, Jan17, Jan24, Feb23, Mar11, Apr17, Jun12; 2004Jan10
Milius (DDG 69), 1998Aug20
Miller (FF 1091), 1981Mar08
Milwaukee (CL 5), 1924Oct12
Mississippi (Battleship No. 23), 1914Jan20, Apr21
Mississippi (BB 41), 1923Nov12; 1924Dec14
(AG 128), 1952Sep01; 1953Aug12
Mississippi (CGN 40), 1982Dec03
Missouri (BB 63), 1945Aug14; 1991Feb03, Feb06, Feb18, Feb23, Feb27
Mitscher (DL 2), 1957May23; 1960Jul01
Mobile Bay (CG 53), 1991Jan24
Mobile Sea Base *Hercules*, 1988Apr14
Mobile Sea Base *Wimbrown VII*, 1988Apr14
Moctobi (ATF 105), 1969Jan14
Monaghan (DD 354), 1944Dec18
Monterey (CVL 26), 1943Jun17, Nov18, Dec08, Dec25; 1944Jan01, Jan29, Feb17, Jun15, Sep03, Dec18
Morgenthau (WHEC 722), 2010Nov08
Mount Hood (AE 11), 1944Nov10
Mount Hood (AE 29), 1981Sep20
Mount Whitney (LCC 20), 2002Nov13; 2005Nov28; 2006Jul16; 2008Aug07
Mullinnix (DD 944), 1959Dec03
Munro (WHEC 724), 2008Mar23
Mustin (DD 413), 1942Oct26
Mustin (DDG 89), 2005May11
Myles C. Fox (DD 829), 1959Dec03
Nantucket (WPB 1316), 2002May10
Narwhal (SS 167), 1932Mar07; 1940Oct09
Nashville (LPD 13), 1982Jun24; 2006Jan16, Jul16
Nassau (ACV 16), 1943May11
(CVE 16), 1943Nov18
Nassau (LHA 4), 1979Oct02; 1980Mar06; 1981Apr13; 1983Aug01; 1987Sep30; 1990Sep06, Sep14; 1991Feb26, Feb27; 2000Dec20; 2005Feb; 2010Jan12
Natoma Bay (CVE 62), 1944Apr21, Jun15; 1945Mar18
Nautilus (SS 168), 1939Mar27; 1940Oct09
Navasota (T-AO 106), 1990Jan25
Neches (AO 5), 1941Dec16
Nehenta Bay (CVE 74), 1944Dec18
Neosho (AO 23), 1942May04
Neptune (Fuel Ship No. 8), 1917Jun05
Nevada (Battleship No. 36), 1916Nov18
(BB 36), 1946Jul01
New Jersey (BB 16), 1921Jun21
New Jersey (BB 62), 1969Apr14; 1983Jul18
New Orleans (CA 32), 1934Jul19
New Orleans (LPD 18), 2009Mar20
New Orleans (LPH 11), 1971Jan31; 1972Aug05; 1973Jan27, Jul28, Nov16; 1975Jul24; 1991Jan12, Mar06, Aug27; 1993Oct17
New York (BB 34), 1938Dec09
New York (LPD 21), 2008Mar01; 2009Aug21, Nov07
Niagara Falls (AFS 3), 1970Sep14
(T-AFS 3), 2004Dec26
Nicholas (FFG 47), 1991Jan18, Jan24; 2010Apr01

Nimitz (CVN 68) class, 1995Feb02
Nimitz (CVN 68), 1968Jun22; 1975Aug14; 1976Jul27; 1977Jan14; 1978Jan07; 1979Dec21; 1980Jan04, Jan22, Apr16, Apr24, May08; 1981May26, Aug19; 1982Feb13, Dec03; 1984Nov30; 1985Jun14, Aug29; 1986Jan08; 1987Jan29; 1988Sep13; 1991Jul13; 1997Sep01; 1998Jan18, Feb08; 2000Jan31; 2003Mar30; 2007Jan16, Mar30, May23
Noa (DD 343), 1939Oct23
Noa (DD 841), 1962Feb20
Norfolk (DL 1), 1960Jun21
Normandy (CG 60), 2005Apr29
North Carolina (Armored Cruiser No. 12), 1914Aug21; 1915Oct15, Nov05; 1916Mar04, Jul12, Jul17; 1917Oct11, Oct13
North Carolina (BB 55), 1942Sep15; 1943Dec08
Northwind (AG 278), 1946Jul1; *See also Staten Island* (WAGB 278)
Northwind (WAG 282), 1947Jan15
(WAGB 282), 1969Aug24
Norton Sound (AV 11), 1945Jul14; 1946Jul13; 1947Nov28; 1948Oct01; 1949Jan26; 1950Jan10, May11, Nov10
(AVM 1), 1951Aug08, Sep07; 1952Nov03; 1958Sep06; 1985Oct15
O'Brien (DD 415), 1942Sep15
Oak Hill (LSD 51), 2007Jul10
Observation Island (EAG 154), 1958Dec05; 1959Aug27
Ogden (LPD 5), 1990Oct28; 1991Mar03; 1992Sep11; 1995Feb28
Ohio (Battleship No. 12), 1920Jul06
Okinawa (LPH 3), 1962Oct01, Oct20, Oct27, Nov20; 1965Apr24; 1968Apr04; 1970Oct25; 1971Jul26; 1972May13; 1975Apr12, Apr19, May12; 1987Oct08; 1990Oct08; 1991Jan12
Oklahoma (Battleship No. 37), 1916Nov18
(BB 37), 1923Feb18
Oliver Hazard Perry (FFG 7), 1978Jul25
Omaha (CL 4) class, 1923Aug23; 1936Sep18
Omaha (CL 4), 1941Nov04; 1944Jan04
Ommaney Bay (CVE 79), 1945Jan02
Orion (Fuel Ship No. 11), 1914Jan20
Oriskany (CV 34), 1947Jun04; 1976Sep30; 1980Mar01; 2004Apr05; 2006May17
(CVA 34), 1952Nov18; 1965Sep09; 1966Sep16, Oct26; 1967Jul29, Oct24; 1970Nov21; 1971Jun30, Jul30, Sep30, Oct31; 1972Dec13; 1973Jan27, Feb11, Feb14, Feb25, Aug15; 2008Jun20
Oscar Austin (DDG 79), 2007Nov17
Owl (AM 2), 1939Sep14
Ozark (MCS 2), 1966Sep03
Palau (CVE 122), 1949Jan23
Passumpsic (T-AO 107), 1980Aug22
Patoka (AO 9), 1924Aug08, Oct12; 1931Feb15
Patterson (DD 392), 1942Aug09
Paul (FF 1080), 1981Mar08
PCF 78, 1967Mar14
Pearl Harbor (LSD 52), 2010Jul28
Peary (DD 340), 1925Jun17
Pecos (AO 6), 1942Feb27
Peleliu (LHA 5), 1989Oct17; 1991Jun12; 1992Nov14; 1994Mar03, Mar24; 1999Oct07; 2001Sep10, Oct19, Nov02, Nov03, Nov25; 2003Sep03; 2005Nov11; 2006Feb15; 2007Oct22; 2010Jul28
Pennsylvania (Armored Cruiser No. 4), 1911Jan18, Feb17, Sep07
Pennsylvania (BB 38), 1943May11
Pensacola (LSD 38), 1989Sep17
Peterson (DD 969), 1993Jun26; 2001Nov18
Petrel (WPB 87350), 2010Nov08
Petrof Bay (CVE 80), 1944Oct23, Nov10
Phelps (DD 360), 1942May04
Philadelphia (CL 41), 1943Jul10, Jul12, Sep09; 1944Jan22
Philippine Sea (CG 58), 2003Dec15
Philippine Sea (CV 47), 1947Jan29; 1950Jul22, Aug05, Aug21; 1951Dec19
(CVA 47), 1954Jul26
Pillsbury (DE 133), 1944Jun04
Pittsburgh (CA 4), 1931Oct07; 1932Mar24
*Plymouth R*ock (LSD 29), 1961Sep13
Pocomoke (AV 9), 1941Jul18
Point Defiance (LSD 31), 1958Sep28
Point Ellis (WPB 82330), 1967Mar14
Ponce (LPD 15), 1980Apr30; 1990Jun03; 2010Jul28
Pope (DE 134), 1944Jun04
Potomac (AG 25), 1941Aug05
Preble (DDG 88), 2008Jan22
Princeton (CG 59), 1991Feb18; 2001Nov28; 2010Sep08
Princeton (CV 37), 1951Apr02, May01
(CVA 37), 1952Dec16
(CVS 37), 1958Jan02, Aug24
(LPH 5), 1961Oct08; 1962Apr15; 1964Nov04; 1969May18; 1970Feb13

Princeton (CVL 23), 1943Sep01, Nov01, Nov05, Nov11, Nov18; 1944Jan29, Feb17, Jun15, Oct23
Pringle (DD 477), 1940May27
Quincy (CA 39), 1942Aug09
PT-223, 1944Dec26
PT-77, 1944Dec26
Pueblo (AGER 2), 1968Jan23
R-4 (SS 81), 1925Aug31
R-8 (SS 85), 1936Aug19
Raleigh (CL 7), 1924Aug11
Raleigh (LPD 1), 1965Apr24
Ralph Talbot (DD 390), 1918Oct25; 1942Aug09
Ramage (DDG 61), 2010Jan25
Randolph (CV 15), 1945Mar11, Mar18; 1947Mar
(CVA 15), 1956Feb29, Jul14, Jul26, Oct29
(CVS 15), 1961Jun01, Jul21; 1962Feb20, Oct01, Oct20, Oct24; 1969Feb13
Ranger (CV 4), 1931Sep26; 1934Jun04, Jun21; 1935Jan14, Apr29; 1936Jan22, Apr27; 1937May04, Jul03; 1938Aug24; 1939Sep14, Oct16; 1941Dec20; 1942Apr22, Jul01, Nov08; 1943Jan08, Feb14, Jul15, Aug09, Sep19, Oct04, Oct19; 1944Aug07
Ranger (CVA 61), 1959Jul05; 1963Apr01; 1965Feb07; 1968Jan23; 1969Apr14; 1970Nov21; 1971Jan01, Jan31, Mar10, Apr30, May10; 1972May09
(CV 61), 1973Jan27, Jan28, Feb25, Aug15; 1976May28, Jul12; 1980Nov06; 1983Mar21, Jul18, Oct10, Nov01; 1985Oct19; 1987Jul14; 1989Aug03; 1990Aug02, Nov08, Dec08; 1991Jan12, Jan15, Jan17, Jan18, Jan29, Feb06, Feb23, Feb26, Feb27; 1992Sep16, Dec07, Dec19
Reeves (CG 24), 1989Oct30
Reid (FFG 30), 1987May17
Reliance (WMEC 615), 1984Nov30
Relief (AH 1), 1931Mar31
Richard E. Byrd (T-AKE 4), 2007May15; 2009Sep30
Richmond (CL 9), 1930Apr14; 1938Mar16
Robert E. Peary (FF 1073), 1979May05
Robert G. Bradley (FFG 49), 2000Jan28
Rocky Mount (AGC 3), 1944Jan29
Rodman (DMS 21), 1952Apr26
Rodney M. Davis (FFG 60), 2007Apr19; 2008Dec05; 2009Apr21
Rogers (DD 876), 1966Jul01; 1969Jan14
Ronald Reagan (CVN 76), 1995Feb02; 2000Jan31; 2004May27, Jun; 2006Jan04, Nov03; 2007Mar30, Oct22; 2008Feb11, Jun25; 2010Nov08
Russell (DDG 59), 1996Sep03; 2001Dec12
S-1 (SS 105), 1923Nov05; 1926Jul28
S-20 (SS 125), 1942Mar07
S-48 (SS 159), 1941Oct21
Sable (IX 81), 1942Aug12; 1943May08
Sacagawea (T-AKE 2), 2008Feb22
Saginaw Bay (CVE 82), 1944Nov10
Saipan (CVL 48), *See also Arlington* (AGMR 2); 1948May05; 1954Apr18, Oct13; 1955Oct10
(AVT 6), 1957Oct03
Saipan (LHA 2), 1979Jul17, Oct01; 1980Apr30; 1983Oct25; 1990Jun03, Aug05; 1993Apr12; 1999Jan14; 2003Apr20; 2005Feb, May25; 2006Sep19
Salamaua (CVE 96), 1945Jan02, Jun05
Salisbury Sound (AV 13), 1964Mar28
Samuel B. Roberts (FFG 58), 1988Apr14; 2004Jan12; 2007Sep04; 2008Dec02
San Diego (Armored Cruiser No. 6), 1918Jul19
San Diego (LPD 22), 2010May07, Jun12
San Jacinto (CG 56), 2000Dec30; 2010May26
San Jacinto (CVL 30), 1944Jun15, Aug31, Dec18; 1945Mar18, Jun05
San Jose (AFS 7), 1974Aug18
San Marcos (ex-second class battleship *Texas*), 1942Apr19
San Pablo (AVP 30), 1944Feb15
Sandpiper (AM 51), 1923Feb18; 1929Jan23; 1930Apr14
(AVP 9), 1936Apr27
Sangamon class, 1942Aug24
Sangamon (AVG 26), 1942Nov08
(CVE 26), 1944Jan25, Feb17, Apr21, Jun29, Jul21, Oct20, Oct23; 1945 Mar18
Santee (ACV 29), 1942Aug24, Nov08, Dec27; 1943Mar05
(CVE 29), 1944Apr21, Oct23
Saratoga (CC 3), 1922Jul01
Saratoga (CV 3), 1918Sep23; 1922Apr01; 1925Jan17, Mar02; 1927Nov16, Dec02; 1928Jan11, Jan27, Dec14; 1929Jan23, Apr09; 1930Mar10, Apr14; 1931Feb15, Nov02; 1932Mar07; 1933Feb10, Aug08; 1934Apr19, Nov07; 1935Apr29; 1936Apr27; 1937May04, Jul03; 1938Mar16; 1939Jun13; 1941Dec07, Dec08, Dec16; 1942Jan11, Jun06, Aug07, Aug24, Aug31, Oct19; 1943Feb21, Mar04, Jul15, Nov01, Nov05, Nov11, Nov18; 1944Jan29, Feb17, Mar27, Apr19, May17, Aug07;

1945Feb16; 1946Jul01; 1989Jul22
Saratoga (CVA 60), 1957Jun06; 1958Jul15; 1959Apr25; 1962Nov16; 1963Dec21; 1966Mar02; 1967May20, Jun05; 1969Jun24; 1970Sep03; 1972May31, Jun21
(CV 60), 1972Aug06; 1975Jan18; 1976Mar02, Jul27; 1980Sep30; 1982Oct16; 1985Oct07; 1986Mar24; 1988Nov29; 1990Aug07, Aug22, Nov08, Dec21; 1991Jan06, Jan17, Jan18, Jan19, Jan21, Jan29, Feb02, Feb23, Mar11, Mar28; 1992Jul24, Aug26, Oct07; 1994Feb01, May02
Saufley (DD 465), 1916Jun09
Savage (DER 368), 1981Oct05
Savannah (CL 42), 1942Nov08; 1943Jul10, Sep09
Savo Island (CVE 78), 1945Jan02
Scott (DDG 995), 1998Mar05
Sea Cliff (DSV 4), 1990Jun24
Sealift Antarctic (T-AOT 176), 1980Apr25
Seattle (Armored Cruiser No. 11), 1917Jan15, Jun11
Seminole (AT 65), 1942Oct25
Semmes (DDG 18), 1984Sep20
Shangri-La (CVA 38), 1956Sep01, Sep02, Sep03; 1958Aug24; 1960Nov17; 1961Jun01, Sep11; 1962Oct01
(CVS 38), 1970Jan15
Shawmut (Minelayer No. 4), 1919Feb03, Apr07
Shelton (DD 790), 1958Jan02
Shiloh (CG 67), 1996Sep03; 1998Aug20
Shreveport (LPD 12), 1975Nov08; 1980Apr30; 1984Aug03, Sep20; 2001Dec05; 2002Jan13; 2007Jul10
Sicily (CVE 118), 1950Jul22, Aug03, Sep14, Dec07
Simpson (FFG 56), 1988Apr14
Sims (DD 409), 1942Feb01, May04
Sims (DE 1059), 1971Mar16
Sirius (T-AFS 8), 2000Feb08
Somers (DD 381), 1941Nov04; 1944Jan01
South Carolina (CGN 37), 1978Jan07; 1980Dec08
South Dakota (BB 57), 1943Dec08
Spearhead (JHSV 1), 2010Jul22
Spence (DD 512), 1944Dec18
Spiegel Grove (LSD 32), 1962May24; 1974Jul15
Springfield (CLG 7), 1963Jan07
Spruance (DDG 111), 2010Jun05
St. Lo (CVE 63), 1944Oct23
Stanly (DD 478), 1940May27
Stark (FFG 31), 1987May17
Staten Island (WAGB 278), 1969Aug24
Stein (FF 1065), 1990Jan25
Stephen W. Groves (FFG 29), 2004Mar21; 2006Aug05
Sterett (CG 31), 1983Jul20
Stevens (DD 479), 1940May27
Stewart (Destroyer No. 13), 1918Apr22
Stockdale (DDG 106), 2008May10, Sep30; 2009Apr18
Stormes (DD 780), 1961Nov29
Stout (DDG 55), 2007Sep26
Stribling (DD 867), 1975Aug08
Stringham (Torpedo Boat No. 19), 1912Jul26
Sumter (LST 1181), 1990Jun03
Suwannee (AVG 27), 1942Nov08
(CVE 27), 1944Feb17, Apr21, Jul21, Oct23
Swan (AM 34), 1931Feb15
Tallahatchie County (AVB 2), 1970Jan15
Tallulah (T-AO 50), 1974Sep12
Tangier (AV 8), 1941Dec07, Dec16; 1945Jan02
Tarawa (LHA 1) Expeditionary Strike Group, 2005Oct10; 1991Jan12, May12; 1992Aug26, Sep11; 2000Oct12; 2003Apr20; 2007Nov05; 2009Mar31; 1973Dec07; 1976May29; 1979May05
Teal (AM 23), 1923Feb18; 1929Jan23
(AVP 5), 1936Apr27; 1942Aug30
Tennessee (BB 43), 1930Apr14
Terry (Destroyer No. 25), 1918Jan22
Texas (ex-battleship, renamed *San Marcos*); 1942Apr19
Texas (Battleship No. 35), 1910Oct31; 1919Feb03, Mar09, Jul01
Texas (CGN 39), 1991Jun18
Thach (FFG 43), 2008Jun25
Theodore Roosevelt (CVN 71), 1981Oct31; 1990Nov08, Dec28; 1991Jan08, Jan14, Jan16, Jan17, Jan19, Jan21, Jan24, Feb02, Feb05, Feb23, Feb27, Apr01, Apr19, May30, Jun14, Jun28; 1993Apr12, Jun26, Jul14; 1995May20, Jun02, Aug30; 1999Apr03, May12; 2001Apr23, Sep19, Sep30, Oct17, Oct18, Oct25, Nov02, Nov25, Nov26, Nov28, Dec05, Dec18; 2002Mar04, Mar06, Mar27; 2003Mar22, Mar26, Mar31, Apr05, Apr11, Sep18; 2005Sep17, Nov04, LateNov, Dec11; 2006Feb08, Jul28, Oct31; 2007Jul10
Thetis (WMEC 910), 1999Nov22
Thetis Bay (CVE 90), 1955Jul01; 1956Jul20
(CVHA 1), 1955Jul01; 1956Jul20
(LPH 6), 1956Jul20; 1959Aug20; 1962Oct01, Oct20,

Oct27, Nov20; 1963Sep25
Threadfin (SS 410), 1945Mar18
Thrush (AVP 3), 1936Apr27; 1939Sep14
Ticonderoga (CG 47), 1998Oct19
Ticonderoga (CV 14), 1944Nov05, Nov25; 1945Jan02, Jan21
(CVA 14), 1963Apr01; 1964Aug02; 1969Apr14, Oct20; 2007May30
(CVS 14), 1969Oct20; 1971Jul24; 1972Apr16, Dec07; 1973May25
Tioga County (LST 1158), 1965May10
Tortuga (LSD 46), 1999Jan14; 2009Sep25, Oct02
Trenton (LPD 14), 1974Jul15; 1988Apr14; 2006Jul16
Tripoli (CVE 64), 1944Jan04
Tripoli (LPH 10), 1971Dec08; 1972Jul22, Aug05; 1974Aug18; 1982Aug02; 1991Jan12, Feb18, Jun18, Jun23; 1992Dec09; 1994Oct06
Truxtun (CGN 35), 1973May18
Tulagi (CVE 72), 1944Aug15; 1945Feb16
Tulare (AKA 112), 1961Oct08
Tunny (SSG 282), 1953Mar06, Jul15
Turner (DD 648), 1944Jan03
Turner Joy (DD 951) 1964Aug02
Tuscaloosa (CA 37), 1941Aug05
Typhoon (PC 5), 2005Apr29
Underwood (FFG 36), 2010May27
United States (CVA 58), 1948Jul29, 1948Mar11, 1949Apr23
Utah (AG 16), 1938Sep14
Valcour (AVP 55), 1964Jan01
Valley Forge (CG 50), 2000May25
Valley Forge (CV 45), 1948Apr29; 1950Jul03, Jul18, Jul22, Aug05, Aug21, Dec06; 1951Dec11
(CVS 45), 1960Jan26, Dec19, Dec22
(LPH 8), 1962May10; 1970Jan15
Vega (AK 17), 1924Jan03
Vella Gulf (CVE 111), 1945Jul24
Vicksburg (CG 69), 2002Jun17
Vincennes (CA 44), 1942Aug09
Vincennes (CG 49), 1988Jul02
Virginia (BB 13), 1921Jun21
Virginia (CGN 38), 1980Dec08
Vogelgesang (DD 862), 1959Dec03
W. S. Sims (DE 1059), 1973Oct06
Waddell (DDG 24), 1987May17
Wadsworth (FFG 9), 1989Oct03
Wainwright (DLG 28), 1972Mar29
(CG 28), 1976Nov13; 1988Apr14
Wake Island (CVE 65), 1945Feb16, Mar18, Nov05
Wally Schirra (T-AKE 8), 2008Mar03; 2009Mar08, Sep01
Ward (DD 139), 1941Dec07
Washington (BB 56), 1942Mar26; 1943Dec08
Washington Chambers (T-AKE 11), 2008Dec02; 2010Sep11
Wasp (CV 7), 1934Mar27; 1940Apr25, Oct12; 1941Jul25; 1942Feb17, Mar26, Apr13, May03, Aug07, Aug24, Sep15
Wasp (CV 18), 1944Jun15; 1945Mar18, Jul18
(CVA 18), 1954Mar19
(CVS 18), 1952Apr26; 1958Jul15; 1960Jul09, Nov17; 1962Oct01, Oct24; 1963May16; 1965Jun03, Oct25, Dec04, Dec15; 1966Jun03, Nov11
Wasp (LHD 1) class, 2009Nov24
Wasp (LHD 1), 1983Dec27; 1985May30; 1987Sep19; 1993Mar23; 1994Aug17; 1995Dec11; 1999Dec03; 2000Sep27; 2004Feb17, Nov12; 2005Oct; 2006Jul16; 2007Jul10, Aug14, Sep04; 2009Oct04
West Virginia (Armored Cruiser No. 5), 1912Mar11
West Virginia (BB 48), 1930Apr14
Whidbey Island (LSD 41), 1989Sep17; 2006Jul16
Whipple (DD 217), 1942Feb27
White Plains (AFS 4), 1976May28
White Plains (CVE 66), 1944Oct23
Whitewood (AN 63), 1946Jul13
Wichita (CA 45), 1944Sep11
William B. Preston (AVD 7), 1942Feb19
William McLean (T-AKE 12), 2008Dec02
William P. Lawrence (DDG 110), 2010Apr17
Williamson (AVD 2), 1942Jun03
Windham Bay (CVE 92), 1945Jun05
Winslow (DD 359), 1944Jan04
Wisconsin (BB 64), 1952Sep01; 1991Feb06, Feb27
Wolverine (IX 64), 1942Aug12
Woodrush (WLB 407), 1980Oct04
Worden (CG 18), 1991Jan24
Wright (AZ 1), 1919Jul11; 1921Dec16; 1923Feb18
(AV 1), 1929Jan23; 1930Mar10, Apr14; 1931Feb15; 1936Apr27
YF-88 (barge), 1926Jun06
Yorktown (CG 48), 2004Mar22
Yorktown (CV 5), 1933Jun16; 1934Nov15; 1937Sep30; 1939Feb20, Aug04; 1941Mar28; 1942Jan23, Feb01, Feb17, Mar10, May02, May04, Jun03; 1998May19
Yorktown (CV 10), 1943Aug30, Oct05, Nov18, Dec04;

1944Jan29, Feb17, Jun15; 1945Mar18, Jul24
(CVS 10), 1958Jun26, Dec28; 1960Jun10; 1965Jul14; 1968Jan23, Dec21; 1970Jun26; 1974Apr14
YP-284, 1942Oct25
Zane (DMS 14), 1942Oct25

Civilian Ships/Vessels

Achille Lauro, 1985Oct07
Aikoku Maru, 1944Feb17
Akagi Maru, 1944Feb17
Al An Wari, 2010Jul02
Al Jawat, 2010May26
al Murtada, 2002Jun17
al Obeid, 2002Jan13
Al Salam Boccaccio 98, 2006Feb03
Al Salam, 2001Feb05
Alaseb, 2009May26
Alaska Ranger, 2008Mar23
Alaska Warrior, 2008Mar23
al-Tovia (70290), 1990Dec21
Amagisan Maru, 1944Feb17
Ambassador, 1974Sep12
Amira, 2009May13
Amuriyah, 1990Oct28
Andalusia, 1982Dec03
Angel Gabriel, 1969Sep23
Asakaze Maru, 1943Dec04
August Moon, 1966Sep16
Avenue Beauty, 2010May26
Awata Maru, 1942Apr18
Azumasan Maru, 1942May04, Oct14
Bison Express, 2009Mar20
Bowdoin, 1925Jun17
Brilliant, 1975Aug08
Bunker Hill (tanker), 1943May07
Carnival Splendor, 2010Nov08
Chun Ying, 2004Mar22
Cuidad de Valencia, 1975Nov08
Daghestan, 1944Jan16
Deepwater Horizon, 2010Apr20, Jul08
El Poder de Dios, 2004Aug28
Eliane, 1974Sep10
Everton, 2004Mar22
Evita, 2010Apr01
Export Leader, 1982Oct07
Flamingo, 1971Feb05
Florence D, 1942Feb19
Fujikawa Maru, 1944Feb17
Fujisan Maru, 1944Feb17
Galilee, 1970Sep14
George Washington (steamship), 1919May16
Glenbank, 1944Jan01
Gosei Maru, 1944Feb17
Goshu Maru, 1944Mar30
Great Eagle, 1992May31
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Naval Air Mine Defense Development Unit, 1957Jan10; 1960Feb29
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Naval Air Reserve Force, 1968Jul01; 1983Oct01; 1984Oct12
Naval Air Research and Development Activities Command, 1959Jan27; 1962Apr30
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Naval Air Technical Training Command, 1945Mar03
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  163, 2001Oct19, Nov02, Nov25; 2008Oct07
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1B, 1927Dec02
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34, 1954Oct31
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102, 1967Jun05; 2001Nov02, Nov10, Nov15, Nov25, Nov26

103, 1969Jun24; 1985Oct07; 1991Jan21; 1994May02; 1996Jun14; 2004Jul20
111, 1950Nov09; 1958Apr18; 1972May06
112, 1956Jun27
114, 1967Apr24; 1972May06
124, 1956Sep02; 1972Oct08
142, 1970Mar28; 1972Dec28
143, 2010Apr17
144, 1956Oct05
151, 1967Oct24; 1986Mar25
154, 2003Sep24
161, 1973Jan12
171, 1949Aug09
172, 1951Aug23, Aug25
191, 1951Apr02
192, 1951May01
193, 1951May01; 1958Dec08
194, 2007May30
201, 1983Apr07
202, 1983Apr07
211, 1956Jul14; 1967May01; 1996Apr04
213, 1958Apr18; 1994Jul31, Oct25; 1996Apr04; 1997Apr10; 2003Apr05; 2004Jul15; 2005Nov04, Dec11; 2006Feb08
301, 1984Oct12; 1987Mar18
781, 1952Nov18
VF(AW) [All-Weather Fighter Squadron] 3, 1955Dec01; 1959Dec04
VF(N) [Night Fighting Squadron]
43, 1944Aug24
75, 1943Oct31
76, 1944Feb17
101, 1944Feb17
VFA (Fighter Attack/Strike Fighter Squadron)
2, 2003Jul01
14, 2001Dec01; 2003Mar30
15, 1995Jun02, Aug30; 2001Aug10, Oct04; 2005Nov04, LateNov
22, 1999Jan25; 2006Jan04
25, 1985Feb21; 2000May17; 2006Jan04
34, 2004Nov06
37, 2001Feb16; 2010Aug18
41, 2001Dec01; 2003Mar30
81, 1991Jan17, Jan29; 2001Jan11
82, 2000Mar18
83, 1991Jan29
86, 2000Mar18
87, 1991Feb05; 1995Jun02, Aug30; 2001Aug10; 2005Nov04, LateNov
94, 1991Jun12; 1994Dec08; 1999Jan25
97, 1993Jan13
102, 2003Nov13
105, 2001Feb16
106, 1986Mar28; 1994Dec08
113, 1985Feb21; 2003Mar22, Mar26; 2006Jan04
115, 2000Dec07; 2001Jun25, Sep24; 2002Jul24, Nov06, Dec04; 2003Mar24; 2006Jan04
122, 1998Oct01; 1999Nov17; 2000Jul16; 2001Sep24
125, 1980Nov13; 1981Feb19
127, 2001Nov02
131, 1985Oct13; 1999Apr13
132, 1985Oct13
137, 1986Mar28
151, 2003Mar25
154, 2003Sep24
203, 2000Apr28
213, 2007May18
303, 1985Oct19
VFP (Photographic Reconnaissance Squadron)
1, 1943Sep15
62, 1962Oct17, Oct23, Nov05
63, 1982Jun30
Detachment 4, 1972Dec13
Detachment C, 1964Jun06
206, 1982Jun30; 1986Oct17; 1987Mar29
306, 1982Jun30
VJ (Utility Squadron)
1B, 1925Oct05
5, 1941Oct08; 1942Apr19
VJ (Weather Reconnaissance Squadron) 2, 1975Apr30
VO (Observation Squadron)
1, 1924Sep18
2, 1924Jan, Sep18; 1949Apr05
6, 1943Dec08
9, 1943Dec08
67, 1967Nov
VOF (Observation Fighter Squadron) 1, 1943Dec15; 1944Aug15
VP (Seaplane Patrol/Patrol Squadron)
1, 1955May05; 1980Jul31, Aug22; 1992Sep11; 1996Sep03
3, 1937Jun21

4, 1980Apr25; 2001Dec12; 2004Dec26
5, 1962Oct24; 1999Mar24; 2009Jun01
5F, 1933Sep07
6, 1951Nov06
8, 2004Dec26
9, 1955Jun22; 1972May05; 1998Aug20; 2004Nov27
10, 1973Oct06; 1980Jan02
10F, 1934Jan10
11, 1942Dec15; 1962Feb08, Oct24
12, 1942Dec15
13, 1944Jan30
14, 1941Dec07; 1942Feb21
16, 1944Jun15; 1996Jan04; 2004Sep09, Sep17, Sep23; 2010Jul02
17, 1967Mar14; 1976Jul12
19, 1954Sep04
21, 1939Sep21; 1941Dec17
22, 1942Jan03, Feb19; 1953Jan18
23, 1942Jan16; 1955Feb01; 1979Jul18; 1980Jan01
24, 1942Jun03; 1956Apr03
26, 1939Sep21; 1980Aug21, Aug22; 1999Sep02; 2008Sep13; 2010Jan12, Jun08
Detachment A, 1950Apr08
30, 1993Sep09; 2007Dec20
31, 1984Jul25; 1993Sep09
33, 1939Sep11, Sep14
34, 1944Feb15
40, 1942Jun06; 1953Jan18; 1967Nov06; 1983Aug31; 1984Jul25; 1999May01
41, 1942Jun03, Jun06
42, 1942Jun03, Jun06
43, 1942Jun06; 1943May11, Dec20
45, 1943May11; 1962Oct24; 1973Oct06; 2000Sep14
46, 1988Apr14; 2007Oct22
47, 2003Dec15; 2006Feb03
49, 1962Oct24; 1970Jul17; 1982Dec03
50, 1989May15
51, 1939Sep11, Sep14; 1942Jun06, Dec15; 1943Feb12
52, 1939Sep14; 1941May15, May19, Dec10
53, 1939Sep14
54, 1939Sep14; 1940Nov15
56, 1986Mar24
60, 1993Apr22, Aug17
61, 1943May11
62, 1943May11; 1987Dec05; 1988Jun14; 1989Mar31; 1993May06; 2010Jan12
63, 1942Jul03; 1943Jul23; 1944Jan18, Feb24
65, 2004Sep17
66, 1985Nov09
68, 1985Apr01
69, 1996Mar21
71, 1941Jul18
72, 1941Jul04, Jul18
73, 1941Jul18, Aug06; 1942Nov13
74, 1941Jul18, Aug06
82, 1941Oct29; 1942Mar01
84, 1943May14, Jun20
91, 1942Dec01
92, 1942Nov13
93, 1989Sep17
101, 1939Sep21; 1941Dec10; 1943Jun29
102, 1939Sep21; 1944Jan30
104, 1946May21
203, 1944Jan04
772, 1951Jun12
834, 1957Nov22
892, 1950Dec18
VPB (Patrol Bombing Squadron)
2, 1945Dec05
21, 1945Mar18
101, 1945Jul20
109, 1945Feb06
110, 1944Aug12
118, 1945Jun10
123, 1945Feb06
124, 1945Feb06
VPU (Patrol Squadron Special Unit) 1, 1996Mar01
VPW (Weather Reconnaissance/Air Early Warning Squadron) 1, 1948Jul08
VQ (Electronic Countermeasures/Fleet Air Reconnaissance Squadron)
1, 1955Jun01; 1956Aug22; 1959Jun16; 1969Apr14; 1992Aug28; 1998Aug20; 2001Apr01; 2004Sep07
2, 1973Oct06; 1991Sep27; 1993Mar31; 2004Sep07; 2005Sep01, Oct10
3, 1987Feb19; 1989Aug03; 1992May01; 1994Sep30
4, 1974May20; 1987Feb19; 1992May01, May07; 1994Sep30; 1996Mar29
5, 1992May22, Aug28
6, 1999Aug10
VR (Transport/Fleet Tactical Support/Fleet Logistics Support Squadron)

1, 1942Mar09; 1943May03; 1960Feb25; 1963Oct30; 1973May08
2, 1942May15, Jun26, Sep07; 1948Aug28, Sep05; 1949Feb25, Mar04
3, 1944Apr23; 1948Nov17; 1955Mar22
6, 1948Oct27, Nov09; 1949Jul31; 1956Oct11
8, 1943Nov27; 1948Oct27, Nov09; 1949Mar31, Jul31
9, 1944Jun01
12, 1944Jun01
21, 1958Jun26
22, 1965Oct15
24, 1968Jan19; 1979Aug30; 1980Nov25; 1985Jul08
30, 1973May08
31, 1953Jun23
40, 1962Jan17
53, 2008Aug26
54, 2006Oct02
55, 2005Feb; 2006Oct02
56, 2005Oct10
57, 1986Nov03; 2005Aug29
58, 2005Aug29
59, 1992Aug28
64, 2005Oct10
VRC (Fleet Tactical Support/Fleet Logistics Support Squadron)
30, 1983Mar21; 2004Dec26; 2008Jun25; 2010Nov08
40, 1960Jul01; 1979Jun20; 1980Jun06; 1981Jan14; 1983May02; 1991Mar08; 1992Sep04; 2010Jan12
50, 1992Mar10, Aug28
VRF (Air Ferry Transport/Aircraft Ferry Squadron)
1, 1986Oct01
31, 1986Oct01
32, 1986Oct01
VS (Scouting Squadron)
1, 1923Feb18
Detachment 14, 1942Jan23, Oct21
2, 1937Jul03; 1942Feb20, Mar10, May04
Detachment 14, 1942Mar08
2B, 1925Oct05
3, 1923Dec03; 1924Feb26; 1937Jul03; 1942Aug24, Oct11, Oct14
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5, 1942Mar10, May02, May04, Aug20
6, 1941Dec07, Dec10; 1942Feb24, Mar04, Jun03
8, 1942Oct26
8A, 1932Apr02
10, 1942Oct26, Nov12
41, 1937Jul03; 1939Sep14; 1941Dec20; 1942Nov08
42, 1937Jul03; 1939Sep14
62, 1943May15
71, 1942Oct11, Oct25
201, 1941Jul01
VS (Carrier Air Antisubmarine/Sea Control Squadron)
21, 1992May31
22, 1973Apr01; 1976Mar02; 1995May03; 1997Apr21; 2009Jan31
24, 1973Apr01; 1991Apr19; 1995Aug30; 2001Aug01
26, 1962Feb20; 1976Aug29
27, 1973Apr01; 1987Dec17
28, 1966Nov11
30, 1973Apr01; 1989Apr16
31, 1973Apr01; 1999Mar24, Apr13; 2002Jun17
32, 1973Apr01; 1991Feb20
34, 1962Oct24
35, 2003May01
37, 1976Aug29
38, 2003Mar25
39, 1961Apr17; 1962Oct24
41, 1974Jan20
0294, 1981Jul01
VT (Torpedo Squadron)
2, 1937Jul03; 1942Mar10, May04; 1944Mar30
3, 1942Jun03
4, 1943Oct04
5, 1942Feb01, Mar10, May02, May04
5A, 1932Apr02
6, 1941Dec07; 1942Jan16, Feb24, Jun03, Oct26; 1943Nov18
7, 1945Jan21
8, 1942Jun03, Aug24, Oct11, Nov12; 1944Mar30
10, 1942Nov12; 1944Feb17, Jun13
11, 1943Jul17
12, 1944Apr19, May17
16, 1944Mar30
20, 1924Jan03; 1932Apr02
21, 1943Jul17
51, 1944Aug31
VT (Training Squadron)
2, 1972Jan06
3, 1972Jan06; 1982Jul13; 2010May18
4, 1974Jan04; 1996May01; 2005Jun22

6, 1972Jan06
9, 2003Jul17
10, 1996Mar29, May01; 2003Jun30, Aug05
19, 1989Oct29
21, 1992May01, Jun27; 1994Oct05
27, 1984Feb13
31, 1963Jun20
86, 1986Jan13; 2008Aug22
VT(N) [Night Torpedo Squadron] 43, 1944Aug24
VTB (Torpedo Bombing Squadron) 1, 1945Dec05
VU (Utility Squadron) 7, 1964Jun24
VW (Airborne Early Warning/Fleet Weather Reconnaissance Squadron)
4, 1958Jul23; 1975Apr30
11, 1965Aug26
12, 1956Jul07
VX (Air Operational Development/Air Test and Evaluation Squadron)
1, 1952Nov18; 1964May01; 1975Jan17; 1983Aug25; 1989Nov06; 2008Oct28; 2009Oct15
3, 1946Jul01; 1948Jun11; 1955Aug22; 1957Jun06
4, 1952Sep15; 1958Feb14, Mar19; 1971Dec12; 1981Feb19
5, 1987Jun30
6, 1955Jan17, Dec20; 1956Oct31; 1958Sep30; 1959Oct01; 1961Apr10; 1963Feb22; 1964Jun26, Aug30; 1967Jun18
9, 1999May27; 2000Feb15; 2004Apr02, Aug30; 2007Oct09; 2008Jul23
20, 2002May01; 2004Mar11; 2006Jul03; 2009Oct15
21, 2007Jan30
23, 2002May01; 2006Mar30, Sep22; 2010Dec18
30, 2002May01; 2004Jul23
31, 2002May01; 2008Jul23
VXE (Antarctic Development Squadron) 6, 1969Aug31; 1979Jan02; 1984Dec28; 1991Jun03; 1995Aug19; 1998Oct20; 1999Feb24
VXN (Oceanographic Development Squadron) 8, 1969Aug24; 1973Mar21
XVF (Experimental Development Squadron) 200, 1945Jun15
XVJ (Experimental Utility Squadron) 25, 1945Jun15
ZP (Airship Patrol/Blimp/LTA Patrol Squadron)
1, 1961Oct31
3, 1961Oct31
12, 1942Jan02
14, 1944Jun01
21, 1943Jul18
31, 1944Feb04
32, 1942Aug16
41, 1943Sep27
51, 1943Feb17
ZW (Airship Early Warning Squadron) 1, 1956Jan03; 1957Jan14, Jul01, Nov01

Individuals

Acosta, Bert, 1921Nov03
Acree, Clifford M., 1991Jan18, Jan20, Mar04
Adams, Charles E., 1942Aug16
Adams, Charles F., 1929Apr09, May10, Sep; 1931Sep23
Adams, Michael S., Jr., 2009Jun
Adamson, Hans C., 1942Oct21
Adkins, Marcelyn A., 1996Mar29
Akers, Frank, 1934May01; 1935Jul30
Alderman, John C., 1950Aug04
Aldrin, Edwin E., Jr., 1966Nov11; 1969Jul16
Ali, fourth Caliph of Islam, 2001Nov09
Allen, Barbara A., 1974Feb22
Allen, Dolph C., 1926Jul28
Allen, Frederick S., 1917Jul09
Allen, Joe P., 1982Nov11
Alman, John S., 1966Jul18
Altman, Scott D., 1994Dec08; 2009May11
Alvarez, Everett, Jr., 1964Aug05
Amado, Paul, 2000May25
Amen, William T., 1950Nov09
Amin, Idi, 1976Jul12; 1977Feb25
Anders, William A., 1968Dec21
Anderson, C. A., 1943Jul10
Anderson, Gareth L., 1967Apr24
Anderson, George W., Jr., 1962Oct23
Anderson, James, 1981Aug19
Anderson, Roy L., 1956Nov09
Anderson, William D., 1941Jul01; 1942Mar01
Andrews, Edward K., 1983Dec03
Angelopoulos, Michael J., 1997Apr21
Ankney, Douglas G., 1972Aug06
Antonelli, Dominic A., 2009Mar15; 2010May14
Antonucci, Robert, 2007Dec02
Aquilino, John C., 2002Mar12
Aquino, Corazon, 1989Dec01
Arcand, Edward, 1996Mar21
Archbishop Makarios III, 1974Jul15
Aristide, Jean-Bertrand, 1994Jul06
Armstrong, Alan D., 1999Mar03
Armstrong, Elwood M., 1981May26
Armstrong, Neil A., 1946Aug13; 1962Apr05, Sep17; 1966Mar16; 1968May06; 1969Jul16; 1979Jul21; 2010Mar10
Armstrong, Richard, 1996Jul01
Arnold, Bram B., 1985Oct19
Arthur, Stanley R., 1991Jan18, Feb26
Ashby, Jeffery S., 1994Dec08
Ashby, Richard J., 1998Feb03
Ashe, Walter D., 1962Aug31
Ashworth, Frederick L., 1945Aug09; 1949Oct05
Aspin, Leslie, 1993Apr28, Apr29, Jul14
Attinello, John S., 1953Dec03
Attridge, Tom, 1956Sep21
Atwater, William B., 1918Feb21
Aurand, Evan P., 1948Mar10
Austin, Frank H., Jr., 1957Feb01
Averill, James K., 1935Oct14
Aydelotte, Samuel R., 1966Nov11
Bachmann, Joseph T., 2009Mar19
Baden, Edward, 1996Mar21
Bailey, C. W., 1918Feb15
Bailey, James W., 2010Apr17
Bailey, Morris H., 1918Aug03, Oct26
Baker, Clarence M., 1968Sep; 2007Nov27
Baker, Felix L., 1941Jul03
Baker, Howard, 1944Feb24
Baker, James A., III, 1991Apr06; 1993Apr14, Jun26
Baker, Michael A., 1995Mar14
Baker, Newton D., 1916Aug12, Oct11; 1917Jan06, May05, Oct06, Nov14; 1918Jul25; 1919Oct22, Nov18
Baker, Timothy H., 1999Mar03
Balaguer, Joaquín, 1961Nov18
Balchen, Bernt, 1929Nov29
Baldwin, Augustus M., 1918Nov01
Ball, John, 1982Aug02
Ballard, Robert D., 1998May19
Ballinger, Drew, 2007Aug03
Bangert, James E., 1967Jul29
Banks, Robin, 1983Mar21
Barile, John, 2007Dec02
Barkelew, E. H., 1923Oct15
Barkley, Joseph, 1957Mar07

Barkley, Stephen J., 1970Mar28
Barksdale, D. A., 1966Jun03
Barlow, John F., 1963Aug23
Barnaby, Ralph S., 1923May26; 1930Jan31; 1945Jul13
Barner, James D., 1927Apr30
Barnhart, Thomas E., 1981May26
Barrett, Terry S., 2000Mar31
Barrett, Thomas W., 1917Jun28
Barrie, Arthur H., 1967Feb26
Barrow, John C., 1954Apr01
Barrows, Albert E., 1967Jul29
Barry, Edmund B., 1918Aug20
Bartek, John F., 1942Oct21
Barzani, Wajih, 2003Apr05
Bashir Gemayel, 1982Sep14
Bassel, Charles B., 2003Jul17
Bates, M. F., 1944Aug11
Batista, Fulgencio, 1958Oct23; 1962Jul25
Batson, Jack E. D., Jr., 1965Jun17
Bauch, Robert, 1987Dec25
Bean, Alan L., 1963Oct18; 1969Nov14; 1973Jul28
Beary, Donald B., 1945Jun05
Beaulier, Jerome E., 1970Mar28
Bedford, Edward W., 1942Apr27
Beesley, Jon, 2009Nov15
Bell, Kamin A., 1987Feb13
Bellinger, Patrick N. L., 1912Nov26; 1913Jun13, Aug30; 1914Apr21, Apr25, Apr28, May02, May06, Aug21; 1915Apr16, Apr23, Aug05, Nov05; 1918Aug27; 1919May08, May17; 1962May29; 1981Jan01
Bellnap, Roger, 1963Aug02
Benjamin, Doug, 2009Oct15
Bennett, Floyd E., 1926May09; 1981Jan01
Benson, William S., 1916May13, Oct27, Dec13; 1917Feb05, Mar22, Nov24
Bergeson, Andrew H., 1944Dec07
Bernhard, Alva D., 1943Jan01
Bernstein, (no first name given), 1918Jul19
Berry, Oliver F., 1946Sep18
Berryman, Michael C., 1991Jan28, Mar04
Betts, Rob, 1996Jan07
Billings, Randall K., 1963Jun13
Billingsley, William D., 1912Dec02; 1913Jun20
bin Abdul Aziz, Fahd, 1992Jan09
bin Laden, Osama, 1998Aug20; 2001Oct02, Oct19, Nov30, Dec17
Bishop, James K., 1991Jan02
Bishop, Maurice, 1983Oct25
Bisz, Ralph C., 2008Jun20
Blackburn, John T., 1956Sep03
Blake, H. S., 1942Nov13
Blankenship, Gregory, 1986Mar25
Blue, Victor, 1913Apr28
Bocchicchio, Jeffrey M., 1998Mar05
Bodinet, P. A., 1943May14
Bogan, Gerald F., 1944Oct21, Oct29, Nov25
Bolger, Joseph F., 1945Sep10
Bolling, Raynal C., 1917Jun17
Bolt, John F., 1953Jul11
Bolton, Walter C., 1944Jan03; 1946Sep18
Bond, Brantley, 2001Oct25
Bordelon, Guy P., Jr., 1953Jul16
Borman, Frank, 1962Sep17; 1965Dec04; 1968Dec21
Bouchoux, Donald R., 1972Jun21
Bounds, David W., 1942Apr27
Boutin, Tom, 2007Aug03
Boutte, L. H., 1942Oct21
Bowditch, Clive, 2007Jul03
Bowen, Harold G., 1940Oct11
Bowen, Ralph, 1940Jul14
Bowles, E. L., 1940Jul14
Bowman, Roscoe L., 1944Nov27
Boyce, A. W., 1986Nov03
Boyington, Gregory, 1943Dec17; 1988Jan11
Boylan, C. J., 1918Aug03
Brady, Francis X., 1954Apr01
Brady, T. J., 1917Nov22
Brand, Vance D., 1966Apr04; 1975Jul24; 1982Nov11; 1984Feb03
Brango, Nicholas, 1958Jul23
Braun, Boynton L., 1936Aug19
Braun, C. V., 1955Feb13
Brazzell, William, 1970May02
Breese, James L., 1919May08
Brennan, Ed, 1963Oct30
Brennan, John, 1992Jan18
Bresnik, Randolph J., 2009Nov16
Brewer, Arthur D., 1918Apr27
Brewer, Everett R., 1918Sep28
Brewster, Ralph O., 1948Mar01
Bridgeman, William B., 1951Aug07, Aug15

Bridget, Francis J., 1942Jan23, Apr27; 1944Dec16
Briggs, Dennis A., 1941May19
Bringle, William F., 1943Dec15; 1961Apr29; 1968Jan23
Bristol, Arthur L., 1934Jun04; 1941Mar01
Bristol, Mark L., 1913Dec17; 1914Jan07, Nov23, Nov25; 1915Mar03, Oct15; 1916Mar04, Jul17, Dec12
Brittain, Carlo B., 1913Oct07
Brix, Earl B., 1923Jun07
Broce, Donald S., 1991Feb06
Brodine, Tom, 2003Mar30
Bronson, Clarence K., 1915Apr16; 1916Mar04, Nov08
Brow, Harold J., 1922Oct14; 1923Nov02, Nov04; 1925Apr08
Brown, Charles R., 1957Apr25
Brown, David M., 2003Jan16; 2004Aug13
Brown, Elton W., Jr., 1950Jul03
Brown, F. Taylor, 1962Mar31
Brown, Harold, 1980Mar01
Brown, Jesse L., 1950Dec04
Brown, John R., 1993May05
Brown, Joseph N., 1918Jun08
Brown, Josie, 1919Jan01
Brown, Michael, 2009Jun19
Brown, Stanley V., 1944Jan04
Brown, Wilson, Jr., 1941Dec07, Dec16; 1942Feb01, Feb20, Mar10
Brugh, Robert L., 1966Sep12
Brush, Frederick J., 1961Sep11
Brzycki, Leo, 1946Sep18
Buchanan, Jeanne, 1996Aug16
Buckmaster, Elliott, 1941Mar28
Buckner, Simon B., Jr., 1945Mar18
Bull, John S., 1966Apr04
Burke, Joe, 1986Sep29
Burke, Richard L., 1946Sep18
Burlingame, Charles F., III, 2001Sep11
Burns, Don, 2002Mar04
Burns, Jason A., 1998Mar05
Bush, Barbara, 1993Apr14, Jun26
Bush, George H. W., 1944Aug31; 1982Mar16; 1986Jan22; 1988Sep29; 1989Jan20; 1990Jun03, Nov08; 1991Jan12, Jan16, Jan21, Feb27, Mar06, Mar13, Sep27; 1992Aug26, Sep11; 1993Jan13, Apr14, Jun26, Sep01; 2001Sep24
Bush, George W., 2001Sep14; 2003May01; 2005Apr29; 2007Feb05, Feb06; 2008Jan03
Bush, Vannevar, 1942Jun25; 1947Sep30
Bushnell, Wilfred, 1929May04; 1931Jul19; 1932Sep25
Byrd, Richard E., Jr., 1918Aug19; 1919Apr28; 1925Jun17; 1926May09; 1929Nov29; 1947Jan29; 1981Jan01, 2007May15
Cabaniss, Robert W., 1927Mar31
Caldwell, Turner F., 1947Aug20
Callan, John L., 1917Aug31
Callaway, Steven W., 1927Apr23; 1943Jul08
Cameron, Kenneth D., 1995Nov12
Cannon, Dorman, 1982Aug02
Carl, Marion E., Jr., 1946Nov11; 1947Aug25; 1953Aug21; 1998Jun26
Carney, James V., 1941Jul18
Carney, Robert B., 1953Nov19; 1954May27; 1955Feb24
Carpenter, Douglas W., 1999Apr13
Carpenter, L. S., 1938Feb02
Carpenter, M. Scott, 1959Apr07; 1961Nov29; 1962May24
Carr, Gerald P., 1966Apr04; 1973Nov16
Carr, William R., 1972May09
Carson, Julian F., 1918Aug13
Carson, R., 1956Sep02
Carter, Billy, 1998Mar25
Carter, James E., Jr., 1978Dec27; 1979Jul19, Oct02; 1980Apr30
Cassady, John H., 1944Mar27; 1946Mar01
Cassara, Richard J., 1991Jan29
Castro, Fidel R., 1958Oct23; 1961Apr17; 1962Jul25, Oct28
Cecil, Henry B., 1917May19; 1918Jun04
Cernan, Eugene A., 1963Oct18; 1966Jun03; 1969May18; 1972Dec07; 2005May12
Chaffee, Roger B., 1963Oct18; 1967Jan27
Chambers, Washington I., 1910Sep26, Oct13, Oct22; 1911Mar09, Apr01, May08, Jul03, Jul06, Sep07, Oct16, Oct17, Dec26; 1912Mar09, Jul31, Dec19; 1913Mar13, Apr10, May09, Oct07, Dec17; 2008Dec02
Champion, Carleton C., 1927May05, Jul04, Jul25
Chapin, Frederick L., 1909Sep01
Chebi, Carl P., 1997Mar18
Cheney, Richard B., 1991Jan07, Apr17; 2001Sep24
Chennault, Claire L., 1941Dec18
Cherry, William T., Jr., 1942Oct21
Chesarek, William D., Jr., 2007Mar21
Cheslak, David J., 1996Jun21
Chevalier, Godfrey de C., 1912Oct25; 1914Apr20;

1916Jul12; 1918Jul23; 1922Oct26, Nov12; 1981Jan01
Chew, Robert S., Jr., 1963Jun13
Child, Warren G., 1917Jun17
Christiansen, Friedrich, 1918Feb15, Apr25
Chronister, Robert S., 1982Dec03
Churchill, Winston S., 1940Sep02; 1941Aug05; 1942Apr13, May03; 1943Aug09, Sep19; 1944Sep11
Clark, E. R., 1959Mar13
Clark, Joseph J., 1944Apr29, Jun15, Jun24, Jul04, Aug04; 1945Jun05; 1952Oct09
Clark, Laurel B. S., 2003Jan16; 2004Aug13
Clark, Richard C., 1967Oct24
Clark, Thurston B., 1939Aug30
Clarke, Ron, 1996Mar21
Claytor, W. Graham, Jr., 1979Feb09
Clement, David, 1967Jul29
Clemmer, (no first name given), 1935Sep02
Clifton, Joseph C., 1943Jan17
Clinton, Hillary R., 1994Jun05
Clinton, William J., 1993Apr28, Sep01, Nov30; 1994Jun05, Oct06; 1995Feb02
Cloud, Benjamin W., 1972Oct11
Cochran, Donnie L., 1986Mar29; 1994Nov15
Cody, Ernest D., 1942Aug16
Coffee, William H., 1946May22
Cohen, William S., 2000Mar01
Coil, Emory W., 1919May14; 1921Aug23
Colegrove, Alan S., 1986Mar25
Coleman, Blake C., 2006Jul28
Coleman, J. F., 1954Nov02
Collins, Michael, 1966Jul18; 1969Jul16
Collins, Steven P., 1989Jan04
Colon, Alberto, 1981May26
Colwell, J. B., 1958May28
Combs, Thomas S., 1943Sep15; 1946Nov25
Cone, Hutch I., 1910Oct07; 1917Oct24, Nov22; 1918Mar19, Mar30, Oct10, Sep01
Coney, W. E., 1943Nov30
Conley, Delbert L., 1925Apr08
Connally, John B., Jr., 1961Jun21
Connell, Byron J., 1925Aug31; 1927Jul08, Aug16, Aug18
Connelly, Joseph B., 1989Jan04
Connor, Patrick K., 1991Feb02
Conolly, Richard L., 1944Jul21
Conrad, Charles, Jr., 1962Sep17; 1965Aug21; 1966Sep12; 1969Nov14; 1973May25, Jul28; 1980Jul18
Cook, Herman C., III, 1989Jan04
Cook, Wilmer P., 1967Oct21
Cooke, Barry T., 1991Feb02
Cooke, Henry D., 1918Jul01
Coolidge, Calvin, 1925Nov30
Coolidge, Grace A., 1924Nov25
Coombe, Reginald C., 1917Nov18
Coontz, Robert E., 1925Mar02
Coop, J. J., 1946May22
Cooper, Elmer G., 1938Feb02
Cooper, L. Gordon, Jr., 1963May16; 1965Aug21
Copeland, Winston W., 1972Jun21
Cordiner, Douglas L. L., 1956Oct31
Cornish, James A., 1947Jan15
Corry, William M., 1917Nov27; 1920Oct02
Costen, William T., 1991Jan18
Courtney, Dale, 2007Dec20
Courvelle, Byron G., 1989Oct29
Covey, Richard O., 1988Sep29
Cowles, William S., 1908Dec02
Cox, Dale W., Jr., 1957Mar21
Cox, George F., 1961Jan31
Crafton, R. W., 1962Feb05
Cragun, Lawrence D., 1981May26
Crain, M. H., 1942Apr27
Craven, Thomas T., 1918Sep01; 1919Apr08; 1921Mar07
Crawford, John H., 1960Jul01
Crew, Charles E., 1962Jan23
Crinkley, Andrew, 1924Oct10
Crippen, Robert L., 1978Mar17; 1981Apr12
Crissman, Charles, 1987Dec25
Croft, H. O., 1940Feb29
Crompton, George, Jr., 1918Dec12
Crow, Thomas S., 1982Oct01
Cruz, Adolph J., 1972May06
Cuddihy, George T., 1924Oct25; 1925Oct26
Culbert, Frederick P., 1918Apr25, Apr27
Cumbie, William, 1956Oct31
Cummings, E. L., 1957Oct15
Cummings, John D., 1972Sep11
Cunningham, Alfred A., 1912May22; 1913Oct07; 1915Nov05; 1917Apr27; 1918Apr15; 1939May27; 1981Jan01; 1987May22
Cunningham, R. Walter, 1968Oct11
Cunningham, Randall H., 1972Jan19, May10

Curry, Dayna, 2001Nov14
Curth, Gregory P., 1987Dec25
Curtiss, Glenn H., 1910Nov29; 1911Jan26, Feb01, Feb17, Jul01, Jul10, Jul13, Sep07, Oct17; 1913Apr28; 1916Aug10; 1918Dec30; 1981Jan01; 1986Jun28
Cutler, Roger W., 1918Jul19
Dains, R. N., 1981Mar10
Dalton, John H., 1993Oct15, Dec01; 1995Feb02; 1996Aug05; 1998May26
Daniels, Josephus, 1913Jun12, Aug30, Oct07; 1914Jan10, Apr20, Jul01, Nov23; 1915Jul07, Jul10, Oct15; 1916Mar30, Jun03, Jul18, Aug12, Oct11; 1917Jan06, Feb04, Apr06, May15, May17, Jul07, Aug08, Sep07, Sep17; 1918Mar25, Apr30, Nov23; 1919Feb15, Mar12, Jun23, Jul02, Oct22, Nov18, Dec05; 1921Jan20
Danzig, Richard J., 1991Jan17; 1999Aug11; 2000Jan19
Darden, Colgate W., Jr., 1918Oct25
Dare, J. A., 1956Dec03
Dashiell, John H., 1918May20
Davenport, Merl W., 1946Nov20
David, Albert L., 1944Jun04
David, Larry L., 1946Sep18
Davidson, James J., 1946Jul21
Davies, Roger, 1974Jul15
Davies, Thomas D., 1946Sep29; 1948Apr27
Davis, Arthur C., 1934Jun21
Davis, Cleland, 1912Oct03
Davis, Craig M., 1996Jan07
Davis, G. A., 1959Dec04
Davis, J. E., 1966Nov11
Davis, John F., 1960Sep25
Davis, Richard, 1996Feb20
Davis, Rodney M., 1979Apr30
Davis, Scott H., 1972Dec28
Davis, William V., 1941Jun11
Davis, William V., Jr., 1958Sep30
Davison, F. Trubee, 1917Mar24
Davison, Ralph E., 1944Jul04, Aug31, Sep06 , Oct17
Dean, John G., 1975Apr12
DeBlanc, Jefferson J., 1943Jan31; 2007Nov22
Decker, Ed, 1959Aug25
Decker, R. S., 1959Mar11
Deede, Leroy C., 1942Apr27
DeEsch, Earl H., 1961Aug28
Delaney, John L., 1944Aug31
Delano, Merrill P., 1918Apr25, Apr27
Denbo, Robert W., 1942May10
Denby, Edwin 1922Apr22; 1923Feb06
Denfeld, Louis E., 1948Jul03, Jul20, Aug17; 1949Jan27, Apr23, Oct05, Nov01
Dennison, Robert L., 1962Oct20, Oct24
Dent, Elbert J., 1918Oct26
Denton, Manuel R., 2008Aug04
DePoix, Vincent P., 1961Nov25
DeRoo, Alta J., 1994Feb18
Dewey, George, 1910Oct01; 1911Apr01
Dichman, Grattan C., 1918Feb13
Diehl, Walter S., 1938Apr21; 1964Mar09
Diez, Luis, 2005Jun22
Dillion, W. M., 1924May02
Dillon, John H., 1963Feb09
DiMascio, Angelo J., 1983Jul01
Dinunzio, Robert L., 2000Sep14
Dixon, F., 1942Jan16
Dixon, Robert E., 1959Dec01
Dobbs, Dane L., 1996Jan18
Dodd, Richard P., 1986Jun01
Doege, Arthur G., 1966Sep12
Dolecek, Edward E., 1923Jun07
Donaho, Doyle G., 1942Jan03
Donahue, H. F., 1942Apr27
Donahue, Robert, 1918Aug31
Doolittle, James H., 1942Apr18; 1958Sep30; 1982Apr18
Doremus, Robert B., 1965Jun17
Dose, Robert G., 1955Aug22; 1957Jun06
Dostum, Abdul R., 2001Nov09
Douglas, Keith A., 1996Jun04
Dow, Neil G., 1965Jun03
Doyle, Eric C., 2002Nov06
Doyle, James H., 1950Sep14
Doyle, Matthew E., 2006Mar30
Dresel, Alger H., 1933Jun23
Drew, Benjamin A., Jr., 2007Aug08
Drexl, W. F., 1942Apr27
Drinker, C. K., 1932Jul28
Driscoll, Dennis R., 1981May26
Driscoll, William P., 1972Jan19, May10
DuBridge, L. A., 1941Nov18
Dufek, George J., 1955Feb01, Nov14; 1956Oct31; 1958Sep30
Duffy, H. F., 1918Sep27, Oct22

Duke, Charles M., Jr., 1968Apr05; 1972Apr16
Dunai, Carey, 1994Jul31
Duncan, Donald B., 1941Jun02; 1942Dec31
Dunn, Herbert O., 1918Jan22
Durgin, Calvin T., 1944Dec13; 1945Jan02, Feb16, Mar18, Aug06
Dwyer, Robert J., 1991Feb05
Dyer, Edward C., 1947Dec01
Eadie, William F., 1942Oct21
Eareckson, W. O., 1943May11
Earhart (Putnam), Amelia, 1937Jul03, Jul04
Eaton, Philip B., 1918Jul19
Eberle, Edward W., 1923Jul05, Dec03; 1925Jan17, Sep29; 1927May27
Eckener, Hugo, 1924Oct12
Ecker, William B., 1962Oct23
Eddy, Mark F., 1991Jan18
Eddy, W. D., 1942Apr27
Edison, Charles, 1939Oct23; 1940May27
Edison, Thomas A., 1915Jul07
Edwards, Joe F., Jr., 1994Dec08
Eiland, Leonard M., Jr., 1967Jul29
Eisele, Donn F., 1968Oct11
Eisengrein, Billy, 2001Sep30
Eisenhower, Dwight D., 1953Jun30, Oct30; 1957Apr25, Jun06; 1958Aug23; 1960Jul20, Nov17
Elder, Robert M., 1948Mar10
Eldridge, Cozy, 1946Sep18
Elizabeth II (queen), 2007Mar21
Elliott, Harold A., 1922Oct08
Ellis, George W., 1961Dec05
Ellyson, Theodore G., 1910Dec23; 1911Jan26, Jul01, Jul03, Jul13, Sep07, Sep16, Oct25; 1912Jun21, Jul31, Nov12, Nov30; 1928Feb27; 1964Dec17; 1981Jan01
Elrod, Henry T., 1941Dec011
Ely, Eugene B., 1910Nov14; 1911Jan18, Oct19; 1933Feb16; 1981Jan01; 2008Dec02
Ely, Nathan D., 1911Oct19; 1933Feb16
Engen, Donald D., 1996Jun13
England, Gordon R., 1991Jan17; 2002Oct11
Engle, Joe H., 1978Mar17; 1981Nov12
Engler, James H., 1988Apr14
Enney, Kenneth E., 1968Nov01
Enwright, Leo F., Jr., 1989Jan04
Epes, Horace H., Jr., 1950Dec06
Eppes, Marion H., 1954May25
Erickson, Frank A., 1942Jun26; 1943Jun10, Oct16, Dec18, Dec20; 1944Jan03; 1946Sep18
Estel, Allen L., 1982Dec03
Estorly, Marcus H., 1918Oct22
Etz, Erik O., 1999Mar03
Evans, Francis T., 1917Feb13; 1918Jan22
Evans, Ronald E., 1966Apr04; 1972Dec07
Evans, William A., 1944Jun26
Everett, William H., 1963Feb22
Every, Martin, 1965Jun03
Ewald, Randall K., 1982Dec03
Fahrney, Delmer S., 1936Jul21
Fahy, Charles, 1918Aug15
Fairfield, Arthur P., 1936Sep18
Fairlamb, George R., Jr., 1942Aug12; 1943Jan14
Farkas, Christopher D., 2010May18
Farrar, Bobby C., 1986Jun06
Farrar, Sean D., 1986Jun06
Farrell, John G., 1942Jun15
Faulkner, C. J., 1931Jun01
Faux, (no first name given), 1918Feb15
Fechteler, William M., 1952Feb01
Feliton, James A., 1943Jan31
Fellers, William M., 1917May05; 1924Dec14
Ferguson, Christopher J., 2008Nov14
Ferguson, Robert H., 1985Oct13
Ferrara, Mario, 1942Apr27
Finletter, Thomas K., 1947Dec30
Finn, John W., 1941Dec07
Fischer, C. Fink, 1942May26
Fisher, A. N., 1946Sep18
Fisher, Dale W., 1964Feb28
Fiske, Bradley A., 1917Aug14; 1921Aug09
Fiske, Clarence O., 1965Jun03
Fitch, Aubrey W., 1942May04, Sep01; 1943Jun30, Jul02
Fitzmaurice, M. J., 1938Feb02
Fitzsimmon, Ricardo, Jr., 1917Nov09
Flatley, James H., III, 1963Oct30
Fleming, Bruce S., 1966Jul18
Fletcher, Frank J., 1941Dec16; 1942Feb01, Mar10, May02, May04, Jun03, Aug07, Aug24
Flint, Lawrence E., Jr., 1959Dec06
Flood, Phillip H., 1963Jun20
Floyd, Robert L., 1999Mar03
Flynn, John P., 1959Jan24

Flynn, Samuel C., Jr., 1972Jun21; 1988Nov29
Ford, Gerald R., Jr., 1943Jun17; 1975Apr29
Fordney, Chester L., 1933Nov20
Foreman, Michael J., 2009Nov16
Forrest, Ruth A., 1996Sep13
Forrestal, James V., 1940Jun20, Aug22; 1946Mar05; 1947May20, Sep17; 1948Mar11, Aug20
Forrester, Patrick G., 2009Aug28
Foss, Joseph J., 1984Jul21
Foster, Thomas F., Jr., 1998Jul08
Fox, Mark I., 1991Jan17
Foyle, Lough, 1918Oct19
Frank, Bill, 2006Feb08
Franke, Fred A. W., Jr., 1962Sep12
Franks, Tommy R., 2001Oct01; 2002Oct29; 2003Mar26
Freckleton, William, 1972May06
Frey, James W., 2008Jul12
Frishmann, Robert F., 1967Oct24
Fritz, Charles, 1967May19
Frohne, Charles T., 1956Sep03
Fruin, Jack L., 1949Aug09
Fuller, John, 2007Dec02
Fuller, Robert L., 1923Jun06, Jun07
Funk, John W., 1996Feb20
Furer, Julius A., 1941Jul12
Furtek, Adolph J., 1946Oct30
Gabler, Barry D., 1986Oct17
Gallery, Daniel V., 1944Jun04
Gann, Harry S., 2000Oct30
Gardner, Dale A., 1983Aug30
Gardner, John R., 1952Aug07
Gardner, Matthias B., 1944Aug07
Garrett, H. Lawrence, III, 1989May15; 1992Jan13
Garriott, Owen K., 1973Jul28
Garrison, Brian M., 2003Mar30
Garroutte, Timmy L., 1989Oct29
Gassett, L., 1942Apr27
Gatch, Thomas L., 1974Mar02
Gates, Artemus L., 1917Mar24; 1941Sep05
Gates, Robert M., 2010Feb01
Gavin, Arthur, 1928May03, May25, Jun26, Jun27
Geiger, Roy S., 1917Dec15; 1918Feb10; 1945Mar18
Gentner, William K., 1943Feb01
George, Chris, 1996Mar21
Gervais de Lafonde, Raymond, 1942Nov08
Ghormley, Robert L., 1942Oct18
Gibson, Edward G., 1973Nov16
Gibson, Robert L., 1984Feb03; 1995Jun27
Gierhart, Michael L., 1984Feb13
Giffen, Robert C., 1942Mar26
Giles, Grover, 1974Mar18
Gillespie, Alex, 1967May19
Gillespie, Charles R., Jr., 1967Oct24
Gillespie, Edward A., 1970Nov24
Ginder, Samuel P., 1940Nov15; 1944Jan29, Feb10
Giordano, Andrew A., 1984May08
Gise, William E., 1943Feb12
Gleason, TSgt (no first name given), 1943Oct31
Gleaves, Albert, 1916Dec12
Glenn, John H., Jr., 1957Jul16; 1959Apr07; 1961Feb21, Nov29; 1962Feb20
Glubb, John B., 1956Feb29
Goldthwaite, Robert, 1951Feb01
Goodman, Robert O., 1983Dec03; 1984Jan04
Goodwin, Ernest S. L., 1939Oct23
Gordon, Dana R., 1998Mar25
Gordon, Nathan G., 1944Feb15; 2008Sep08
Gordon, Richard F., Jr., 1961May24; 1963Oct18; 1966Sep12; 1969Nov14
Gorie, Dominic L., 1994Dec08
Gorton, Adolphus W., 1922Oct08; 1925Apr08; 1928Jul11; 1929Aug20
Gothard, Jackie L., 1981May26
Goto Aritomo, 1942May04, Oct11
Gough, William V., Jr., 1942Apr27
Graham, Stewart R., 1944Jan16, Oct02; 1946May22, Sep18; 1949Mar24; 2004May06
Grant, L. V., 1924Mar08
Gray, Gordon, 1955Oct15
Gray, Michael A., 1982Jan28
Greer, Hall R., 1945May04
Gregory, R. F., 1943May07
Greterman, Gina, 1983Mar21
Griffin, G. G., 1938Feb02
Griffin, Virgil C., 1918Jul14; 1922Oct17; 1923Nov05
Grills, N. G., 1943Jul18
Grinstead, Eugene A., Jr., 1984May08
Grinstead, Morris C., 1943Jul13
Grissom, Virgil I., 1961Feb21, Jul21, Dec06; 1965Mar23; 1967Jan27
Grosshuesch, D. K., 1956Sep01
Grow, Harold B., 1919Apr26

Guarino, L. S., 1950Aug07
Guiliani, Leonard E., 1972May09
Guiliani, Rudolph W., 2001Sep30
Guthrie, R. C., 1936Apr28
Guymon, Vernon M., 1930Jul21
Haise, Fred W., Jr., 1966Apr04; 1970Apr11
Haizlett, R., 1918Aug03
Hajo, Zyad, 2007Aug03
Hale, D. C., 1918Aug15
Hall, Charles Ward, 1920May01
Hall, E. J., 1917Jun04
Hall, Eugene R., 1955Jun01
Hall, John B., 1959Sep25
Hall, William E., 1942May04
Halland, Herman E., 1923Jun06, Jun07; 1933Sep07
Halliwell, Casey, 2010May26
Halsey, William F., Jr., 1941Nov28, Dec07; 1942Jan16, Feb01, Feb24, Mar04, Apr10, Apr18, Oct18; 1944Sep11, Oct23, Dec18; 1945Mar18, Jun05, Jul24
Ham, Kenneth, 2010May14
Hamid Karzai, 2004Dec04
Hamilton, William C., 1998Dec03
Hamlen, Warner L., 1918Oct22
Hammann, Charles H., 1918Aug21; 1919Jun14
Hammond, Randall W., 1991Feb24
Hanrahan, David C., 1918Sep01
Hanson, E. W., 1936Jul01
Hardgrave, Brent, 2008Jan05
Harding, Warren G., 1923Jun13
Hardison, Osborne B., 1924Oct25
Harkness, Harry S., 1911Feb10
Harper, Cecil F., 1923Jun07
Harper, Edwin A., 1962Oct08
Harrell, R. H., 1918Apr22
Harrigan, D. Ward, 1933Jul07
Harrill, William K., 1944Jun15
Harris, Carly R., 1995May03
Harris, Cecil E., 1981Dec02
Harris, Dale, 1959Oct01
Harris, Thomas D., 1961Aug26
Harris, William L., 1978Jun09
Hart, Dirk J., 1999Apr13
Hart, Henry, 1970Jun09
Hart, Seth, 1920Jun18
Hart, Thomas C., 1942Jan15
Hartman, Charles W., III, 1965Jun20
Hartman, Donald, 1970May02
Hartman, Melvin J., 1969May07
Harwood, P., 1956Jul31
Haskins, Michael D., 1994Oct01
Hatfield, V. O., 1938Feb02
Hauck, Frederick H., 1988Sep29
Haviland, Wallis B., 1918Jul24
Hawkes, William M., 1947Jan29; 1956Oct31
Hawkins, Ashton W., 1918Aug05
Hayden, L. C., 1924Dec14
Hayes, Andrew P., 2001Nov15
Hayward, John T., 1949Mar07; 1950Apr21; 1959Apr28
Hayward, Thomas B., 1980Mar01; 1982Jun30
Headridge, William F., 1986Aug05
Healey, Kevin, 1999Apr13
Hean, James H., 1942Jul03
Heap, George L., 1939Oct23
Heath, Leroy A., 1960Dec13
Hegemann, Christian, 2007Dec20
Heinan, Anton, 1923Mar15
Heinemann, Ed, 1991Sep27
Heiringhoff, Winifried, 1970Sep14
Hellridger, John A., 1961Jan31
Helm, James M., 1916Dec30
Helme, Charles F., Jr., 1956Dec03
Henderson, George R., 1924Oct25; 1927Jan01, Apr14; 1950Jul12
Henderson, Lofton R., 1942Aug07
Henning, John A., 1959Oct01
Henson, Alton R., 1956Jul31
Hepburn, Arthur J., 1937Jul03; 1938Dec01
Herbster, Victor D., 1911Nov08; 1914Jul28, Aug21; 1946Dec06
Hergesell, Carl K., 1996Jun21
Herrington, John B., 2002Nov23
Hess, Ronald K., 1956Oct05
Hester, J. H., 1938Feb02
Hewitt, Peter C., 1916Sep12
Heyser, Richard D., 1962Oct14
Hickman, Albert, 1919Mar07
Hicks, George L., 1945Apr23
Hicks, Thomas E., 1943Oct31
Higgins, William R., 1989Aug01
Hightower, J. D., 1965Mar23
Hildebrand, James T., Jr., 1942Jun06

Hill, Homer S., 1971Jan06
Hill, Kenneth W., 1988Apr14
Hill, Stephen P., 1991Jan29
Hilmers, David C., 1985Oct03; 1988Sep29
Hines, Wellington T., 1958Sep30
Hinojosa, Arthuro, 1981May26
Hinton, Walter K., 1919May08; 1981Oct28
Hire, Kathryn P., 1993May06; 1994Dec08; 2010Feb08
Hobaugh, Charles O., 2007Aug08; 2009Nov16
Hock, John E., Jr., 1982Jul07
Hodges, Robert B., Jr., 1998Feb20; 2009Jun02
Hoffman, Richard A., 1962Sep15
Hogg, Neil W. T., 1987Dec25
Hoglind, Hans C., 1952Nov03
Holaday, Duncan, 1998Jun02
Holeridge, S. J., 1918Feb15
Holley, Miles H., 1918Aug20
Hollis, Ferninand, 1998Mar05
Hollyer, John B., 2000Nov08
Holmes, Oscar, 1943Jun20
Holmes, P. L., 1944Feb24
Holterman, Jay M., 2001Oct19
Honan, John B., 1963Jun29
Hood, Donald T., 1918Oct22
Hoover, Herbert C., 1911Oct19; 1931Aug08; 1932Jun01; 1933Feb16; 1985Apr26
Hoover, John H., 1943Nov13, Dec01; 1944Jan29, Feb14
Hoover, Lou, 1931Aug08
Houston, Jerry B., 1972May06
Howard, Edward H., 1918Jul19
Howard, Joseph B., 1967Apr01
Howell, Ralph M., 1972Jun21
Hoyt, Henry W., 1917Sep17; 1921Aug23
Hubbard, Miles H., 1959Dec01
Hudner, Thomas J., 1950Dec04
Hudson, Brent, 1997Apr21
Huffman, Gregory C., 1999Nov24
Hughes, Charles F., 1929Jan16
Hughes, Robert G., 1972May06
Hughes, Sydney, 1957Aug28
Hultgreen, Kara S., 1994Jul31, Oct25
Humphrey, Hubert H., 1967Jul29
Humphreys, Eric, 2002Mar04
Hundt, Lester T., 1941Jul18; 1943Jun17
Hunsaker, Jerome C., 1913Jun12; 1917Aug25, Nov15; 1941Jul12
Hunt, Hardisty, 1961Aug28
Hunt, Jack R., 1957Mar04
Hunt, John M., 2000May25
Hunter, Guy L., 1991Jan18, Jan20, Mar04
Hupp, Arnold J., 1963Jun20
Hurley, Douglas G., 2009Jul15
Hussein bin Talal, 1970Jun09
Hussein, Saddam, 1990Aug07; 1991Jan17, Jan20, Apr06; 1992Dec27; 1993Jan13; 1994Oct06; 1996Sep03; 2001Feb16; 2003Mar22
Hutchins, Carlton B., 1938Feb02
Hutchinson, Harold R.., 1965Jul01
Hutton, Linda V., 1992Sep04
Hwan, Chun D., 1983Oct09
Hyland, L. A., 1929Jun11; 1930Nov05
Iannetti, Peter R., 1981May26
Ignatius, Paul R., 1968Mar28
Ingalls, David S., 1917Mar24; 1918Sep24; 1931Jun01; 1932Jun01; 1941Sep05; 1983Jul23; 1985Apr26
Irvine, Rutledge, 1919Apr26; 1923Apr17, Sep28; 1927May21
Irwin, James B., 1971Jul26
Irwin, Noble E., 1917May17, Nov05; 1918Feb22; 1919Apr08
Iser, Robert W., 1981May26
Jackson, Henry J., 1954Jun01
James, George, 1966Oct26
James, James O., Jr., 1967Jul29
Jameson, William B., 1918Jun13
Jarvis, Gregory B., 1986Jan28
Jaskot, Richard D., 1988Jun14
Jeffrey, Walter G., 1945Dec05
Jennings, Ralph E., 1945Jun20
Jeter, Thomas P., 1926May14
Jett, Brent W., Jr., 1996Jan11
John, William H., 1972Jun21; 1988Nov29
Johnson, Alfred W., 1921Dec16
Johnson, Benjamin, 2001Nov18
Johnson, Charles M., 1918Apr
Johnson, Clara B., 1964Jun24
Johnson, Clinton B., 1965Jun20
Johnson, Douglass P., 1942Nov02
Johnson, Frank M., 1919Mar07
Johnson, George, 2001Sep30
Johnson, Gregory C., 2009May11
Johnson, James E., 1941May19

Johnson, Jay L., 1996Aug05
Johnson, Louis A., 1949Apr23, Oct05; 1950Mar10
Johnson, Lyndon B., 1964Aug05, Aug15; 1965Mar26, Aug31; 1968Mar31, Nov01
Johnson, Robert T., 1944Jan01
Johnson, Roy L., 1955Oct01
Jonassaint, Emile, 1994Jul06
Jones, Devon, 1991Jan21
Jones, Donald S., 1969Jul16
Jones, Robert K., 1981Jan31
Jova, John A., 1918Sep25
Joy, C. Turner, 1951Jul10
June, Harold, 1929Nov29
Kaczmarczyk, Alexander, 1942Oct21
Kakuta Kikuji, 1942Jun03
Karr, Harold H., 1920Jan22
Kazmerchak, Eric, 1998Mar25
Keating, Timothy J., 2008May02
Keck, Louis K., 1962Feb05
Kelley, Roy J., 2001Nov10
Kelley, W. F., 1942Apr27
Kelly, John M., 2003Mar24
Kelly, Robert J., 1992Aug12
Kelly, Scott J., 2007Aug08
Kelso, Frank B., II, 1986Mar24; 1992Jul22, Sep28; 1993Apr28, Apr29; 1994Jan18
Kembro, M. D., 1949Oct30
Kendall, Charles H., 1933Sep02; 1934Aug01
Kendall, David W., 1991Jan29
Kendeigh, Jane, 1945Mar06
Kendrick, David C., 1965Jul01
Kennedy, John F., 1961Jan11, Apr17, May25, Oct01; 1962Mar13, May10, Oct22
Kennedy, Joseph P., Jr., 1944Aug12
Kennedy, Thomas A., 1998Jul08
Kerivan, J. A., 1965Mar23
Kern, Dabney R., 1998Jan19
Kernan, Joseph D., 2008Apr24
Kerr, Konrad, 1966Nov11
Kerwin, Joseph P., 1973May25
Khoy, Saukhm, 1975Apr12
Khrushchëv, Nikita S., 1962Oct14, Oct28
Kicklighter, Donnie E., 1991Mar08
Kiefer, Dixie, 1924Nov11; 1945Jan21
Kiely, Ralph, 1919Jul01
Kilgore, Burnett, Jr., 1989Oct29
Kimball, Dan A., 1951Aug08
Kimmel, Husband E., 1940May07
King, Ernest J., 1934Jun21; 1941Jul01, Dec30; 1942Mar26, Jun25; 1943Aug05; 1944Dec14
Kinkaid, Thomas C., 1942Oct26, Nov12; 1944Oct20, Oct23
Kissinger, Henry A., 1970Nov21
Kivette, Frederick N., 1933Jul07; 1934Jul19
Kleeman, Henry M., 1981Aug19
Klein, Frederick N., 1944Aug20; 1962Aug31
Kleisch, August, 1945May02; 1946Sep18
Klemish, Matthew P., 1994Oct25
Kliewer, David D., 1941Dec11
Klinghoffer, Leon, 1985Oct07
Klusmann, Charles F., 1964Jun06
Kneeland, Leonard L., 1918Aug20
Knowles, Jeff, 2010Jun06
Knowlton, Donald B., 1982Jul13
Knox, Lauren, 1970Sep14
Knox, William F., 1940Oct05, Oct09; 1941Oct01; 1943Mar04
Koch, E. J., 1938Feb02
Koelsch, John K., 1951Jul03
Koga Tadayoshi, 1942Jun03
Konrad, John, 1972Aug29
Kovaleski, Victor T., 1973Jan12
Krasny, Andrew I., 1998Mar25
Kreitler, Walter, 1996Mar01
Kropp, R. G., 1952Aug07
Kullberg, Cecil L., 1941Aug01
Kuperov, Leonid, 1961Apr10
Kurita Takeo, 1944Oct23
Kyle, James R., 1925May01
Lahm, Frank P., 1909Nov03
Laing, James W., 1967Apr24
Lamb, Mike, 1996Mar21
Lamb, William E., 1950Nov18
Lambert, Albert B., 1914Apr20
LaMont, Walter D., 1914Apr21, Apr28, May02
Landgreber, W. P., 1938Feb02
Landon, Henry H., 1917Nov18
Lane, Richard M., 1982Dec03
Lange, Mark A., 1983Dec03
Langley, Samuel P., 1898Mar25, Apr29; 1913May09; 1922Mar20
Langston, Arthur N., 1988Apr14
Lansdowne, Zachary, 1919Jul01; 1924Oct07; 1925Sep03

Lassiter, Lee T., 1972Sep11
Lauderbaugh, David P., 2006Jul28
Lauritsen, C. C., 1943Jun07
Lawrence, George F., 1918Aug05
Lawrence, Wendy B., 1992Mar31; 1995Mar02; 1996Aug16
Lawrence, William P., 1958Sep15; 2010Apr17
Leahy, William D., 1938Jul01; 1944Dec14
Lee, Willis A., 1943Dec08; 1944Mar18
LeFaivre, Edward N., 1958May22
LeFever, Michael A., 2005Oct10
Lehman, John F., Jr., 1981Feb05, Nov13; 1986Jan15, Jan22, May05, Jul01
Leighton, Bruce G., 1919Feb03; 1920Jun28
Leisner, Patrick, 2007Dec20
LeMay, Curtis E., 1962Oct23
Lenoir, William B., 1982Nov11
Leslie, Stephen C., 1988Apr14
Lewis, Earl G., 1967Oct24
Lewis, Frederick L., 1986Jan08
Lewis, M. Lee, 1956Nov08; 1958Jul27
Lewis, R., 1969Jun01
Lilienthal, Donald H., 1971Jan22, Jan27, Feb04, Feb08
Limmer, Ted H., Jr., 1963Oct30
Lind, Don L., 1966Apr04
Linder, James B., 1967Oct24
Lindley, Calvin, 1970May02
Lingard, Eric A. A., 1918Jul19
Liqued, Charles N., 1918Aug19
Litsey, (no first name given), 1942Jun06
Little, R. C., 1958May27
Lloyd, Bruce K., 1961Dec01
Lloyd, James R., 1972Aug06
Lohr, M. C., 1942Apr27
Long, John D., 1898Mar25
Longto, David M., 1962Feb21
Loomis, Alfred L., 1940Jul14
Lopez-Alegria, Michael E., 2002Nov23
Louis, Patrick D., 1981May26
Lounge, John M., 1988Sep29
Lousma, Jack R., 1966Apr04; 1973Jul28; 1978Mar17
Lovell, James A., Jr., 1962Sep17; 1965Dec04; 1966Nov11; 1968Apr05, Dec21; 1970Apr11; 2007Oct05
Lovett, Robert A., 1917Mar24, Sep27
Loy, James M., 2001Oct02
Ludlow, George H., 1918Aug21
Luethi, Carl F., 1945Aug21
Lussier, John P., 2003May01
Lutz, Charles A., 1928May19
Lynch, Jessica D., 2003Mar23
Lyon, Dwaine L., 1988Aug05
Lyon, Rossmore D., 1924Oct10; 1925Apr08; 1943Feb16
Lyons, Raymond R., 1944May08
Lytle, Robert S., 1918Oct02
MacArthur, Douglas A., 1931Jan09; 1942Apr03; 1950Sep14, Nov27
MacDiarmid, D. B., 1943Oct05
MacDonell, Rieman A., 1959Nov02
MacDowell, Charles E., 1946Sep18
MacGregor, Robert E., 1944Jan01
MacIntosh, Jeanine, 2005Jun24
Mack, John L., 1956Jan03
MacKnight, Harding C., 1955Aug22
Maddox, Charles H., 1911Dec20; 1912Jul26
Madenwald, Fred, 1996Apr12
Magor, N. A., 1918Apr25
Magruder, Thomas P., 1923Feb12
Maitland, E. M., 1921Aug23
Maloney, J. F., 1918Mar11
Manby, William J., Jr., 1955Jan27
Mannix, Kevin, 2000May17
Mao Tse-tung (Zedong), 1950Nov06, Dec22
Marek, Jamie, 1997Apr21
Marigliano, Rich, 2007Jul03
Mariner, Rosemary B., 1990Jul12; 1997Aug08
Marrs, Christopher D., 1999Apr13
Marshall, Albert W., 1927Dec14
Martell, Charles B., 1955Nov01
Martin, Cheryl A., 1983Mar21
Martin, Graham A., 1975Apr29
Martin, William I., 1944Jun13
Martis, Daryl J., 2000Mar27
Marvelle, W. B., 1936Aug19
Mashburn, Everett F., 1947Jan15
Mason, Charles P., 1918Jun13; 1923Dec03; 1925Apr02
Mathewson, Rufus W., 1939Oct23
Matthews, Francis P., 1949Apr23, Oct05
Mattingly, Thomas K., II, 1966Apr04; 1972Apr16
Maxfield, Louis H., 1917Sep26; 1918Mar01, Apr25; 1921Aug23
Maxson, Lisle J., 1933Apr18
Mayer, Robert V., 1964Jun26
Mayo, Lisa L., 1989Oct29

Maytham, Thomas E., 1918Dec24
McAdie, Alexander G., 1918Jan25, Feb26, Apr16
McAdoo, William G., 1916Mar30
McAfee, Mildred H., 1942Jul30
McAuliffe, Robert, 1949Mar24
McAuliffe, S. Christa, 1986Jan28
McBratnie, Charles C., 1957Jun06
McCabe, Michael J., 1972May06
McCain, John S., 1942Apr10, May20, Aug07; 1943Aug18; 1944Aug05, Sep14, Nov05, Nov11, Dec12; 1945Jan02, Jan21, Jun05, Jul10, Jul24
McCain, John S., III, 1967Jul29
McCampbell, David S., 1944Jun15, Oct23; 1996Jun30
McCandless, Bruce, II, 1966Apr04; 1984Feb03
McCauley, Brian, 1974Mar22
McClung, Lonny, 2000Aug21
McClure, William H., 1942May10
McCombs, William R., 2006Mar30
McCool, William C., 2003Jan16
McCord, Frank C., 1923Jul05; 1933Apr04
McCracken, Thomas E., 1918Apr27
McCrary, Frank R., 1915Jun01; 1916Jun03; 1923Sep04
McCulloch, David H., 1916Jul17; 1918Oct04
McCullough, Bernard J., III, 2010Jan29
McDade, William M., 1942Oct15
McDivitt, James A., 1962Sep17; 1965Jun03; 1969Mar03
McDonald, John D., 1923Jul05
McDonnell, Edward O., 1916Mar07; 1917Aug14; 1919Feb03, Mar09
McElraft, Ronald D., 1991Feb06
McEntee, William, 1908Sep17; 1910Oct22
McFall, Andrew C., 1922May24
McFillen, Roger, 1974Mar18
McGinnis, Knefler, 1934Jan10; 1935Oct14
McGowan, Douglas L., Jr., 1982Jan28
McGraw, William C., 1962Mar01
McGunigal, Patrick, 1917Sep17
McIlvain, William M., 1917Dec31
McIntyre, Francis B., 2010Sep27
McKay, D. B., 1938Feb02
McKay, Lawrence E., 1967Jul29
McKiernan, David D., 2008Oct06
McKinley, Ashley C., 1929Nov29
McKitterick, Edward H., 1917Jul23; 1918Jan
McLaurin, Lewis J., 1981May26
McLean, William B., 2008Dec02
McMullen, Bethel L., 1964Jun26
McNair, Ronald E., 1986Jan28
McNamara, John F., 1918Mar25
McNamara, Robert S., 1963Jan21; 1967Nov
McVeigh, John J., 1918Aug20
McWhorter, Ernest D., 1937Sep30; 1942Nov08
McWilliams, Dan, 2001Sep30
McWilliams, Jane O., 1973Dec20
Meister, John T., 1988Jun14
Melnick, Bruce E., 1987Jun
Menner, R. T., 1924Sep18
Mercer, Heather, 2001Nov14
Merrick, Richard C., 1951May01
Meyer, George von L., 1909Aug16; 1910Oct01, Oct07, Oct13, Oct31, Nov29; 1912Mar11, Jul25, Dec19
Michael, Stanley J., 1942Aug15
Michaud, Seth R., 2003Jun22
Miears, Roy R., 1956Jul31
Mikawa Gunichi, 1942Aug09, Oct14
Millar, Jeff, 2008Jul23
Miller, Charles T., 1975May12
Miller, Harold B., 1934Jul19
Miller, Henry J., 1982Dec03
Miller, Henry L., 1942Apr18
Miller, John H., 1957Jun06
Miller, Paul, Jr., 1957Jun06
Miller, Terry A., 1987May17
Miller, Thomas H., Jr., 1960Sep05; 1968Sep; 2007Nov27
Miller, William, 1970Dec21
Millington, William A., 1945Feb16
Mills, Charles A., 1955Dec04
Mills, George H., 1942Jan02, Dec01
Milosevic, Slobodan, 1999Mar24
Minor, Larry, 1969May07
Mirick, C. B., 1929Jun11
Mitchell, Edgar D., 1966Apr04; 1971Jan31
Mitchell, Samuel G., 1953Jan12
Mitchell, William, 1921Jun21
Mitchie, Donald, 1956Oct05
Mitscher, Marc A., 1917Aug31; 1928Jan11; 1941Oct20; 1943Jun30; 1944Jan29, Feb17, Feb22, Mar30, Apr21, Apr29, Jun10, Jun11, Jun13, Jun15, Jul25, Aug05, Sep06, Sep09, Sep12, Oct10; 1945Feb16, Mar18; 1989Jul22
Mixon, Riley D., 1993Jan01
Mizak, Lawrence D., 1981Mar10

Moffett, (Mrs.) William A., 1933Mar11
Moffett, William A., 1921Mar07, Sep01; 1922Mar27; 1925Mar13; 1929Mar13; 1931Sep10, Sep23; 1933Apr04; 1981Jan01
Mohr, Pat, 2002Aug26
Moloney, John F., 1925Oct05
Molten, Robert P., Jr., 1923Mar19
Momsen, Charles B., 1926Jul28
Mongilardi, Peter, Jr., 2007Jan29
Mongillo, Nicolas, 1991Jan17
Monroe, Henry L., 1960Dec13
Monroe, William R., 1941Jul25
Montgomery, Alfred E., 1943Oct05, Nov11; 1944May19, Jun24, Aug04
Montgomery, George S., Jr., 1918Oct19
Moore, Charles B., 1957Jun27
Moore, Charles W., Jr., 2001Sep11
Moore, Donald E., 1962Sep12
Moore, Kevin T., 1972May06
Moore, Wayne T., 1987Sep10
Moorer, Joseph P., 1962Jan17
Moorer, Thomas H., 1942Feb19; 1987Jul25
Moran, Herb, 2002Aug26
Moreno, John A., 1940Aug29
Morin, Howard E., 1912Mar23
Morley, Francis D., 1997Jan18
Morse, Robert W., 1937Jun21
Moseley, T. Michael, 2006Jul07
Mosher, David K., 1959Nov02
Mowry, Brian, 1998Jul08
Muczynski, Lawrence M., 1981Aug19
Mulcahy, Francis P., 1918Oct02; 1932Nov22
Mulcahy, Michael G., 1982Dec03
Mullen, Michael G., 2006Aug03, Oct31
Mullenix, K., 1922May31
Mullinnix, Henry M., 1941Jul01
Mundy, Carl E., Jr., 1992Sep28
Munn, John C., 1987Jan12
Murray, George D., 1916Jul17; 1924Jan03; 1942Oct16, Oct26
Murray, James M., 1914Feb16
Murray, Mark T., 1998Mar25
Mustin, Henry C., 1914Jan20, Aug21; 1915Jul10, Nov05; 1916Dec07; 1919Mar07
Nagumo Chūichi, 1941Dec07; 1942Jun03, Oct26
Nasser, Gamal A., 1958Jul15; 1970Sep03
Nathman, John B., 2006Oct31
Neal, George M., 1951Jul03
Neale, Edgar T., 1942Apr27
Neiman, Jack, 1958May11
Nelms, Frank, Jr., 1918Oct02
Nelson, Claude, 1996Mar21
Nelson, David, 2009Nov14; 2010Apr07, Nov06
Nelson, F. E., 1912Mar11
Nelson, George D., 1988Sep29
Nevius, Colleen, 1983Jun10
Newberry, Truman H., 1908Dec02
Newcomer, Lloyd E., 1961Apr10
Newell, Michael T., 2007May30
Newman, William E., 1992Jan21
Newton, John H., 1941Dec05
Niedzwiecki, J. G., 1938Feb02
Niles, Jeremy P., 2000May25
Nimitz, Chester W., 1942Apr03, Jun03, Jun06; 1944Dec14; 1946Mar02, Mar12, May21, Jul11, Aug14; 1947Jun04; 1975Aug14
Nitze, Paul H., 1963Nov30
Nixon, Richard M., 1943May; 1969Jul16, Aug17; 1970Sep03, Nov21; 1972Mar30, May09, May10, Dec18; 1973Jan27
Noble, Richard K., 1991Jan29
Noble, Warren, 1922Apr01
Noonan, Fred J., 1937Jul03, Jul04
Nordberg, Del W., 1962Mar03, Apr12
Norden, Carl L., 1921Aug01; 1922Apr01
Norfleet, Joseph P., 1922May31
Norris, Jason H., 2003Mar30
Nortz, Joseph E. 1988Apr14
Nott, Hugh G., 1958Mar07
Noyes, Leigh, 1937Jul03, Jul04; 1942Aug07, Sep15
Nugent, Brandon, 2001Dec12
O'Beirne, Frank, 1942Jan03
O'Brien, Jean L., 1996Jan04
O'Connor, Michael B., Jr., 1983Jan21
O'Dea, Jane S., 1997Apr11
O'Donnell, Edward J., 1962Oct24
O'Grady, Scott F., 1995Jun02
O'Hare, Edward H., 1942Feb20; 1943Nov18
O'Keefe, Sean, 1992Jul22, Sep28
O'Loughlin, L. T., 1918Aug03
O'Neil, Hugh D., 1943Oct31
O'Neil, Patrick J., 1973Apr30

Obama, Barack, 2010Mar31
Oehlert, Herschel A., Jr., 1943Jul06
Ofstie, Ralph A., 1923Jun13; 1924Oct25; 1925Oct26; 1944Sep15
Ohman, Klas W., 1999Mar03
Oldendorf, Jesse B., 1945Jul24
Oliver, E. W., 1927Mar31
Onizuka, Ellison S., 1986Jan28
Ormsbee, Francis E., Jr., 1918Sep25
Orville, Howard T., 1934Aug01
Osberg, John W., 1982Oct01
Osborn, George B., 1959Dec30
Osborn, James B., 1960Jul20
Osborn, Oakley E., 1984Jul25
Osborn, Robert, 1943Jan15
Osborn, Robert C., 1994Dec20
Osborn, Shane J., 2001Apr01
Osborne, Randy, 1996Mar21
Osman, Catherine H., 1984Mar20
Oswald, Stephen S., 1995Mar02
Ott, George A., 1933Apr18, Jun22
Overmyer, Robert F., 1982Nov11
Owen, George T., 1922Oct14
Owens, Kathleen P., 1991Mar08
Owl, Everett, 1965Jun03
Ozawa Jisaburō, 1944Jun15, Oct23
Packard, David, 1971Jul13
Paden, Melvin H., 1943Jul13
Page, Arthur H., Jr., 1930May31, Jul21, Sep01
Page, Louis C., 1965Jun17; 1972Jan19
Page, Robert M., 1936Apr28
Pahlavi, Mohammad R., 1978Dec27; 1979Nov04
Papadakis, Robert P., 1988Apr14
Park C. Lee, 1979Oct26
Parker, John, 1985Jan24
Parker, Robert E., 1950Nov18
Parker, Vincent, 2001Nov18
Parkes, Richard, 2007Jul03
Parkinson, Robert, 1992Jan02
Parks, Kenneth P., 1986Aug05
Paschal, Archie, 1918Oct02
Pataki, George E., 2001Sep30
Patton, James B., 1918Jun13
Paul, John G., 1919Feb03
Paunack, Robert R., 1916Nov18
Payne, Earl D., 1941Dec10
Peck, Scott E., 1942Oct01
Peebles, Jack, 1996Mar21
Pemrick, Mark F., 1991Mar08
Penfield, Jeffrey R., 2000Dec07
Pennington, William, 2001Dec12
Pennoyer, Ralph G., 1918May06
Perkins, Albert N., 1946Oct01
Perkins, Michael, 2010May18
Pershing, John J., 1917Jun17
Peters, Jim, 2002Mar04
Peters, Maurice A., 1948Apr01
Petersen, Forrest S., 1958Aug25; 1979Apr23
Petersen, Frank E., 1987Aug21
Pettigrew, Kenneth W., 1972May06
Peyton, Paul J., 1918Feb22
Phillips, C. L., 1969Jun01
Phillips, John L., 2009Mar15
Phillips, Richard, 2009Apr08
Phillips, Ryan M., 2003May01
Piasecki, Frank N., 1945Mar07
Pichon, Carlos F., Jr., 1917Nov09
Pierce, J. A., 1942Jun13
Pierce, M. R., 1924Jan16
Pierson, John H., 1974Jul05
Pilling, Donald L., 1996Jan07
Piper, D. C., 1981Mar10
Pliyev, Issa A., 1962Oct27
Plog, Leonard H., 1950Jul03
Pogue, William R., 1973Nov16
Poindexter, Alan G., 2010Apr05
Polatty, David P., III, 1995Jun30
Pollack, Thomas F., 1942Apr27
Polzin, Matthew, 1996Feb20
Pond, Charles F., 1911Sep07
Pontell, Steven E., 1989Oct29
Pope, S. R., 1927Jul08
Poppen, John R., 1927Jan18; 1932Jul28; 1933Oct24; 1935Jan05
Potter, Stephan, 1918Mar19, Apr25
Pou, Edwin S., 1918Sep27, Oct22
Poulter, Thomas R., 2003Mar30
Powell, Colin L., 1993Jun26
Powers, John J., 1942May04
Pownall, Charles A., 1943Aug30, Sep18, Nov18, Dec04
Prather, Victor A., 1961May04
Pratt, William V., 1930Nov28; 1931Jan09

Preston, Ralph A. D., 1918Oct22
Price, Allen I., 1929Jun11
Price, John D., 1924Jun22, Jul11; 1925Apr08; 1941Jul08; 1944Jan30
Pride, Alfred M., 1921Aug11; 1928Jan05; 1931Sep23
Pritchard, Corey L., 2002Jul24
Protzman, Kevin J., 2002Mar12
Provow, Leslie E., 1983May02
Pullman, Roger, 1996Mar21
Puopolo, Paul A., 1998Jan19
Purdy, C. C., 1918Feb15
Purvis, Robert S., 1943Jan28
Qadhafi, Muammar al-, 1986Mar24, Apr14
Quarderer, Kevin M., 2000Nov08
Quillen, James C., Jr., 1962May22
Quinlan, Michael J., 1986Aug05
Rabideau, Sam, 1996Mar21
Radford, Arthur W., 1943Sep01; 1944May04; 1949Oct05; 1972Nov22
Radocaj, Daniel, 2010Dec18
Rahn, R. O., 1953Oct16; 1955Feb23
Rainey, Barbara A., 1982Jul13
Rainey, Daniel L., Jr., 1986Jan08
Rakhsh, Salman (Sassan), 1988Apr14
Ramgoolan, Seewoosagur, 1975Feb06
Ramsey, DeWitt C., 1922May24; 1944Oct02
Ramsey, Lee M., 1962Dec19
Rancy, William J., II, 1998Feb03
Rankin, Eugene P., 1946Sep29
Ransehousen, Roger S., 1928Feb27
Rasmussen, Robert, 2000Mar20
Rassieur, William T., 1927Mar31
Rather, Roy, 1946May22
Rawles, J., 1938Feb02
Rawlings, H. Bernard, 1945Mar18, Jul10
Read, Albert C., 1919May08, May27; 1967Oct10; 1981Jan01
Read, Duncan H., 1998Mar14
Reagan, Ronald W., 1981Apr12, Jul07
Reber, Earl E., 1928Jul11
Rector, Edward F., 1941Dec20
Redd, John S., 1995Jul01
Redfield, A. W., 1918Dec12
Reed, William F., Jr., 1918Apr17, Jun19; 1922May31
Reedy, James R., 1964Aug30
Reeves, John W., Jr., 1940Apr25; 1944Feb20
Reeves, Joseph M., 1926Dec13
Rehak, Michelle, 1996May06
Reid, Walter S., 1946Sep29
Reinmuth, Michael W., 1999Apr13
Renfro, Edward C., 1956Jan10
Reppy, John D., 1943Aug02
Resnik, Judith A., 1986Jan28
Reynolds, W., 1981Mar10
Rhea, Powel M., 1923Nov05
Rhoads, Eugene S., 1919May08
Rhoads, Eugene T., 1975Apr01
Rhodes, Braxton, 1925Apr02
Rich, Roger L., Jr., 1966May18
Rich, W., 1954Apr01
Richardson, Holden C., 1911Oct10, Dec20; 1912Mar09; 1913May09, Oct05, Oct07; 1914May26; 1915Mar03, Apr16, Nov05; 1918Aug19, Oct04; 1921Oct26; 1960Sep02; 1978Jul22; 1981Jan01
Richardson, James O., 1940May07
Richardson, Jessee C., 1918Aug20
Rickenbacker, Edward V., 1942Oct21
Rickover, Hyman G., 1981Nov13
Ridgeway, Matthew B., 1951Jan17
Ritchey, Luther E., Jr., 2008Aug04
Rittenhouse, David, 1923Sep28
Ritter, Julian, 1970Sep14
Rittierodt, Adam, 2007Dec20
Rivard, Ronald, 1996Jul01
Roberts, Deane C., 1950Dec06
Robertson, George, 2001Oct02
Robertson, Reuben B., Jr., 1957Feb09
Robertson, Shawn, 2002Mar04
Robinson, Brenda E., 1980Jun06; 1981Jan14
Robinson, Gerald A., 1956Oct05
Robinson, Robert B., 1961Nov22
Robinson, Robert G., 1918Oct08, Oct14
Robinson, Thomas, 1950Feb07
Robison, Samuel S., 1913Oct07
Rodd, Herbert C., 1919May08, May16; 1927Aug16, Aug18
Rodgers, John, 1911Mar17; 1912Jul26; 1925Aug31; 1926Aug27
Rodman, Thomas C., 1918Dec30
Roe, J. R., 1927Mar31
Rogers, David A., 2000Aug21
Rogers, E. C., 1941Nov26
Rohlfs, Roland, 1918Mar21

Rominger, Heath, 1998Mar25
Roosa, Stuart A., 1968Apr05; 1971Jan31
Roosevelt, Franklin D., 1918Aug17; 1919Jul02; 1933Mar04, Jun16; 1934Mar27, Jul19; 1935Jan22, Sep26; 1939Sep05, Sep08, Nov04; 1940May07, May16, Jun14, Jun27, Sep02; 1941Mar11, May27, Jun28, Aug05, Nov01; 1942Jan07, Apr13, Apr18, May03, May11; 1943Jun15, Aug09, Sep19; 1944Feb02, Sep11, Oct19
Roosevelt, Franklin D., Jr., 1941Aug05
Roosevelt, Theodore, 1898Mar25
Ropke, H. A., 1918Oct26
Rosado, Douglas, 2008Aug16
Rosendahl, Charles E., 1925Sep03; 1928Mar02; 1931Oct27; 1962Aug31
Ross, Malcolm D., 1956Nov08; 1957Jun27; 1958Jul27; 1961May04
Rotsch, Herman D., 1966Sep12
Roughead, Gary, 2008Apr24; 2009Jul28, Jul30; 2010Feb24, Jul29
Roulette, M., 1918Oct22
Roulstone, Don J., 1961Dec01
Rowell, Ross E., 1927Jul15; 1942Aug07
Rowen, Harold J., 1918Oct26
Royal, James, 1918Oct22
Royce, Donald, 1940Apr23
Royster, William E., 1996Jun04
Rudder, Steven R., 1991Feb24
Ruehlin, John H., 1984May08
Ruehrmund, Paul L., 1964May01
Rullo, Giuseppe A., 1949Oct30
Rumsfeld, Donald H., 2001Jan20, Sep24, Sep25, Nov01
Rushing, Roy, 1944Oct23
Russell, James S., 1967Aug15
Russell, William L., 2010Sep27
Rylee, James E., 1970May02
Sabah, al-Ahmed al-Jaber al-, 1993Apr14
Sadat, Anwar as-, 1973Oct06; 1981Oct21
Sadenwater, Harry, 1919Mar12
Sakaibara Shigematsu, 1943Oct05
Sallada, H. B., 1944Jan29
Sample, William D., 1942Aug24; 1944Sep12, Sep15; 1945Jan29, Jun30
Sanborn, Russell A. C., 1991Feb09, Mar04
Sanders, Billy C., 1982Oct01
Sanguigni, M. J., 1981Mar10
Santomauro, Thomas M., 2003Nov22
Sapp, John W., 1943Mar20
Sather, R. C., 1964Aug05
Saufley, Richard C., 1914Apr21, May06; 1915Apr16, Dec03; 1916Mar29, Jun09
Scarborough, Donald, 1966Sep12
Schieffelin, John J., 1918Jul19
Schildhauer, Clarence H., 1925May01
Schilt, Christian F., 1926Nov13; 1928Jan06
Schirra, Walter M., Jr., 1959Apr07; 1962Oct03; 1965Oct25, Dec15; 1968Oct11; 2007May03; 2008Feb11
Schmidt, Hugo, 1928Feb27
Schmitt, Hal, 2003Mar30
Schmitt, Harrison H., 1972Dec07
Schoech, William A., 1943May08
Schoultz, Robert F., 1984May08
Schrader, James N., 1946Sep18
Schubert, Kerri L., 1997Feb28
Schultz, Samuel J., 1926Aug27
Schur, Mainrad A., 1923Jun06, Jun12
Schwable, Frank H., 1942Nov16
Schweickart, Russell L., 1969Mar03
Schweitzer, Joseph P., 1998Feb03
Sciabarra, Joseph P., 1986Jan15
Scobee, Francis R., 1986Jan28
Scorby, Jack, 1996Mar01
Scott, C. V., 1946May22
Scott, David R., 1966Mar16; 1969Mar03; 1971Jul26
Scott, George H., 1919Jul01
Scott, Norman, 1942Oct11
Scott, Robert F., 1956Oct31
Scott, Thomas B., 1972Dec13
Scott, Winston E., 1996Jan11
Seagraves, Chandler P., 1998Feb03
See, Elliott M., Jr., 1962Sep17
Seitz, George A., 1942Dec01
Service, James E., 1987Aug21
Settle, Thomas G. W., 1929May04; 1931Jul19; 1932Sep25; 1933Sep02, Nov20
Shade, James F., 1922May31
Shannon, Robert, 1962Aug31
Sharer, Don A., 1981Jan20
Sharp, Ulysses S. G., Jr., 1964Aug02
Sheets, Roger E., 1972May09
Shepard, Alan B., Jr., 1959Apr07; 1961Feb21, May05, Dec06; 1971Jan31; 1977Jul23; 1998Jul22;

2000Mar20
Sherlock, James, 1969Jun24
Sherman, Forrest P., 1923Oct15; 1942Sep15; 1949Nov01; 1950Oct28; 1951Jul22
Sherman, Frederick C., 1943Oct05, Nov01, Nov05, Nov11, Nov18, Dec25; 1944Jan01, Jan29, Nov25
Shields, Edward M., 1918Jul19
Shihadeh, Matt, 1999Mar03
Shilling, Eriksen, 1941Dec18
Shinn, Conrad S., 1956Oct31
Shintaku, David, 1996Jul01
Shoemaker, James M., 1927Jan01
Shopsin, Brett, 1996Jan07
Shore, David R., 1974Jul05
Shumway, Carl E., 1918Apr29
Sider, James, 1966Oct26
Sikorsky, Igor I., 1942Jun26
Simms, R. L., 1945Mar18
Simons, Manley H., 1913Oct07
Simpson, James M., 1944Sep03
Sims, William S., 1917Mar24, Nov22; 1918Mar25, Mar30, Sep01, Oct10, Dec08
Sisson, Thomas U., 1941Dec01
Sitler, Todd, 1996Feb20
Sizemore, William G., II, 2006Feb08
Skarbek, James F., 1996Jan18
Slack, Leslie M., 1958Dec05
Slade, Lawrence R., 1991Jan21, Mar04
Slayton, Donald K., 1975Jul24
Slone, Don E., 1983Oct03
Small, David B., Jr., 1982Dec03
Small, Joseph J., III, 1991Feb25, Mar04
Smelley, James B., 1998Jul08
Smith, Allen E., 1944Sep03
Smith, Bernard J., 1996Jul11
Smith, Bernard L., 1912Sep18; 1914Jan06, Apr20, Jul28, Aug21; 1918Mar21, Oct22; 1947Feb02
Smith, Charles H., 1990Jul12
Smith, Dean, 1969Jun24
Smith, James A., 1944Jul06
Smith, John C., Jr., 1965Jun17
Smith, John J., Jr., 1972Jan19
Smith, Kenneth R., 1917Nov22; 1918Apr22
Smith, Leonard B., 1941May19
Smith, Michael J., 1986Jan28
Smith, Robert E., 1986Aug05
Smith, Robert G., 2001May29
Smolinski, Joseph P., 1967Nov06
Smyth, Robert, 1970Dec21
Snevely, John A., Jr., 1991Jan18
Solomon, Virgil, 1956Aug22
Somerville, Elizabeth, 2008Jul23
Somerville, James F., 1944Apr19, May17
Sorgen, Sam, 2008Aug16
Soucek, Apollo, 1929May08, Jun04; 1930Jun04; 1945Oct27
Soucek, Zeus, 1928May03, May25
South, Thomas W., II, 1956Jul20
Souther, Hugh S., 1919Apr26
Southwick, Charles E., 1967Apr24
Spangler, Selden B., 1954Jun15
Spann, Johnny M., 2001Nov25
Spaulding, Ralph D., Jr., 1944Sep03
Speicher, Michael S., 1991Jan17; 2001Jan11; 2002Oct11; 2009Mar10, Aug02
Spellacy, David M., 1991Feb25
Spencer, Earl W., 1917Jul27
Sprague, Clifton A. F., 1944Oct23
Sprague, William C., 1918Oct26
Spruance, Raymond A., 1942Jun03; 1944Feb17; 1945Mar18; 2010Jun05
Spruill, Donna L., 1979Jun20
Spurlock, David A., 1961Dec30
Squier, George O., 1917Nov21
Stafford, Thomas P., 1962Sep17; 1965Oct25, Dec15; 1966Jun03; 1969May18; 1975Jul24
Stanley, Henry T., 1923Jun06, Jun07
Stanton, Roger, 2009Oct15
Stark, Harold R., 1939Oct23; 1940Jun17, Jun25, Aug05, Oct03; 1941Aug05, Nov27; 1942Mar26
Starkey, Robert C., 1950Apr21
Steele, George W., Jr., 1919Feb03; 1924Oct12, Nov25
Steiger, Earl H., 1943Jul13
Stethem, Robert D., 1985Jun14
Stevens, Donald E., 1950Jul19
Stevenson, A. H., 1918Feb15
Stewart, James L., 1966Jul18
Still, Susan L., 1994Dec08
Stilwell, Joseph W., 1945Mar18
Stinson, Eddie, 1922Apr25
Stockdale, James B., 1965Sep09; 2008May10, Sep30
Stoker, Ellsworth W., 1918Aug20
Stolz, Melvin L., 1914Apr21, Apr25; 1915May08

Stone, Elmer F., 1916Mar30; 1919May08
Stonestreet, Martin B., 1927Mar31
Storrs, A. P., III, 1947Oct01
Stovall, Walter W., 1963Oct30
Stratton, William T., Jr., 1952Nov03
Strider, John P., 1956Oct31
Strohsahl, George H., Jr., 1992Jan01, Jan02
Strong, Barton D., 1992Mar04
Stroop, Paul D., 1959Aug18, Dec01
Strubble, Arthur D., 1950Sep14
Studer, H. W., 1918Apr22
Stufflebeem, John D., 2001Oct16; 2006Jul16; 2008Mar13
Stultz, Jack, 1958May26
Stump, Felix B., 1944Dec12
Sturckow, Frederick W., 2007Jun08; 2009Aug28
Sturtevant, Albert D., 1918Feb15
Sugden, Charles E., 1916Mar30; 1918Mar14
Sullivan, John L., 1948Mar30; 1949Apr23
Sullivan, Patrick L., 1961May17, May24, Dec30
Surovik, George A., 1967Nov06
Swadener, John, 1956Oct31
Swanson, Claude A., 1934Dec15; 1935Feb11, Jun05; 1938Jun08, Dec01
Swartz, Theodore R., 1967May01
Sweeney, William E., 1956Aug15
Sweet, George C., 1908Sep17, Dec02; 1909Nov03
Swider, Frank J., Jr., 1981May26
Swigert, John L., Jr., 1970Apr11
Szymanski, Matthew, 1972Aug06
Tabeling, Roy H., 1946Sep29
Taber, Leslie R., 1918Aug15
Tabor, Richard H., 1958Sep08
Taft, William H., 1912Dec19
Taggert, (no first name given), 1918Jul19
Takagi Takeo, 1942May04; 1943Nov05
Talbot, Ralph, 1918Oct08, Oct14, Oct25
Talley, George C., Jr., 1962Jan17
Tallman, Henry L., 1918Oct02
Tande, Ludwig K., 1981Mar10
Tankersley, Mark W., 2004Jul15
Tanner, William P., 1941Dec07
Taylor, A. Hoyt, 1922Sep27; 1934Mar14
Taylor, Charles C., 1945Dec05
Taylor, David W., 1912Dec19; 1916Jul22, Nov17; 1917May16, Aug25
Taylor, James B., 1918Aug11
Taylor, Jesse J., 1962Jan17
Taylor, Joe, 1996Mar21
Taylor, M. G., 1944Jan01
Taylor, Maxwell D., 1962Oct23
Taylor, Moulton B., 1942Apr09, Apr19; 1945Mar08
Teague, Foster S., 1972Jun21
Tepuni, William, 1942Mar01
Terwilleger, Albert L., 1939Dec01
Thach, John S., 1942Feb20; 1958Apr11; 1981Apr15
Thagard, Norman E., 1995Mar14, Jun27
Thies, William N., 1942Jun03, Jun06
Thomas, Charles S., 1955Apr22
Thomas, Delos, 1919Apr26
Thomas, Kevin J., 1993Jan13
Thornhill, A. F., 1959Jul28
Tillar, Thomas C., 1944Sep11
Timmester, Scott, 2004Jul15
Timmons, David R., 1991Nov12
Tito (Josip Broz), 1952Sep11
Tizard, Henry T., 1940Aug05, Aug29
Toedt, Elizabeth M., 1983Mar21
Tomlinson, Graham, 2008Jun11; 2010Jan07, Mar18
Tomlinson, William G., 1929May25; 1942Sep16
Towers, John H., 1911Jun27, Oct25, Dec20; 1912Oct06, Dec18; 1913Feb08, Mar05, Jun20, Oct07; 1914Jan20, Apr20, Aug21; 1917Feb10, May17; 1919May08, May17; 1931Jun01; 1947Jan01; 1955Apr30; 1981Jan01
Townsend, Marland W., 1972Oct11
Towson, George N., 1945Mar07
Toyoda Soemu, 1944Oct17
Trapnell, Frederick M., 1943Apr21
Trautman, George J., III, 2008Aug08
Trippett, Bill, 1998Jul08
Troubridge, Thomas H., 1944Aug15
True, Edward J., 1943Jul10
Trueman, Dick, 2007Jul03
Trujillo, Héctor, 1961Nov18
Trujillo, José, 1961Nov18
Trujillo, Rafael, 1961Nov18
Truly, Richard H., 1978Mar17; 1981Nov12; 1983Oct01; 1986Feb20; 1989Jul01
Truman, Harry S., 1945Dec28; 1946Aug08; 1947Jul26; 1948Jul29; 1949Apr23; 1950Jun27, Jun30, Dec19
Tucker, Lewis F., 1918Aug20
Tunnell, Richard M., 1957Oct01

Turner, Charles J., 1991Jan18
Turner, John E., 2002Nov06
Turner, Richmond K., 1944Jan29
Tuttle, P. H., 1918Sep27
Tuve, Merle A., 1940Aug17
Tyler, Raymond F., 1942Jan02
Tyree, David M., 1959Oct01
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International Federation of American Homing Pigeon Fanciers, 1918Aug10
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International Ice Patrol, 1946Mar15
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Intrusion Force (Japanese), 1944Dec26
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Jamaica, 1981Jan10
Japanese Museum of Maritime Science, 1979Apr23
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Joint Operations Center, 1951Jun01
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United States Naval Aviation

1910–2010

Volume II
Statistics

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Naval History and Heritage Command
Department of the Navy
Washington, D.C.

Library of Congress Cataloging-in-Publication Data

Evans, Mark L.
United States naval aviation 1910-2010 / Mark L. Evans, Roy A. Grossnick. -- 5th ed.
pages cm
Includes index.
ISBN 978-0-945274-86-5 (v. 1 : alk. paper) 1. United States.
Navy--Aviation. 2. United States. Navy--Aviation--Chronology. I. Grossnick, Roy A. II. Naval History & Heritage Command (U.S.) III. Title.
VG93.E95 2015
359.9'409730904--dc23

2015002942

For sale by the U.S. Government Publishing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328
ISBN 978-0-945274-86-5

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Preface

Naval aviation has celebrated more than 100 years of service to this country. Its story as told in this volume and its companion, the chronology, had its origins in the 1950s. This is the fifth update to the original book, *United States Naval Aviation 1910–1960*, and due to the extensive role naval aviation has played in its country's history, the book is published in two volumes.

This volume provides invaluable facts, figures, and a compilation of data not suitable for a chronological approach. When *United States Naval Aviation 1910–1995* was published, the appendix section had more than doubled in size from the previous edition. Many statistical facts and compilations frequently requested of naval aviation historians were incorporated into that book. The current work further expands the number of chapters. It provides the researcher, Navy study groups, statistical analysis groups, and anyone interested in the topic a more detailed account of specific subjects pertinent to better understanding its history.

To facilitate a better grasp of the various subjects, the chapters have been divided into seven sections covering aircraft, personnel, units, ships, deployments, operations, and other actions. Personnel are key to naval aviation's success, closely followed by technological developments. There are many different functions within naval aviation; this volume attempts to document the multiple aspects, including operational activities, administrative and personnel changes, and the technical evolutions that have kept it in the forefront of the United States' military role in the world.

Compiling statistical information requires the historian to search a very wide range of sources. Over the past 15 years many of those reliable sources have ceased to exist. This drying up of sources resulted when specialized documents were no longer published or compiled within the Navy and from the trend toward computerized data not being maintained or transferred to the Naval History and Heritage Command archives. An exhaustive effort was made to find all possible sources necessary to compile the information presented in these chapters. When records provided conflicting data, I selected the most accurate information after reviewing all possible sources. Professional standards were paramount when conducting this research.

Special recognition is made to the naval aviation historians preceding me who were instrumental in researching and publishing the previous editions of this book: Mr. Adrian O. Van Wyen, Mr. Lee M. Pearson, Dr. William J. Armstrong, and Mr. Clarke Van Vleet. As primary compiler for these chapters, I am fully responsible for any errors of fact or mistakes that may have occurred in this volume.

Roy A. Grossnick
Naval Aviation Historian

Acknowledgments

This centennial update of United States Naval Aviation would not be possible without the previous editions covering the periods 1910–1960, 1910–1970, 1910–1980, and 1910–1995. The dedication and professionalism of the authors of these original editions—Adrian O. Van Wyen, Lee M. Pearson, Clarke Van Vleet, Dr. William J. Armstrong, and Major John M. Elliott, USMC (Ret.)—laid the foundation for this new version.

In addition, the extensive revisions and updates to the previous versions' appendices would not have been possible without the generous support of the Naval Historical Foundation. Updating of this primary reference work on naval aviation was facilitated by a generous donation from former CNO Admiral James L. Holloway III, USN (Ret.). His donation to the Naval Historical Foundation enabled an aviation historian to research, write, and update all the chapters of volume II. The Naval Historical Foundation then gifted the completed text to the Naval History and Heritage Command.

A project of this magnitude requires the work of many people. The authors owe a debt of gratitude to historians Dr. Michael J. Crawford, Dr. Timothy L. Francis, Dr. Jeffrey G. Barlow, Dr. Robert J. Schneller Jr., Dr. John D. Sherwood, and Robert J. Cressman of the Naval History and Heritage Command who reviewed chapter manuscripts. Their subject matter expertise, insight, and exacting verification of salient points ensured the historical accuracy and the development of cogent themes.

Additional people outside the command generously reviewed chapter manuscripts. Vice Adm. Robert F. Dunn, USN (Ret.) of the Naval Historical Foundation; Maj. Elliott; Dr. Sarandis Papadopoulos, Secretariat Historian, Department of the Navy; Capt. Edmund T. Wooldridge, USN (Ret.); and Capt. Rosario M. Rausa, USNR (Ret.) examined the voluminous material and provided critical objectivity and analysis.

Other members of the command played a key role by researching information or by providing their extensive background knowledge in specific areas. The then Head, Archives Branch Curtis A. Utz and archivists Dale J. Gordon and John L. Hodges provided an incalculable wealth of specific knowledge of naval aviation and archival sources.

Historian Dr. Regina T. Akers of the command contributed her unparalleled knowledge of diversity issues to ensure a balanced representation of the people who comprise the rich heritage of naval aviation. Then-Art Director Morgan I. Wilbur cheerfully disregarded the repeated interruptions to help with the accurate and comprehensive selection of images. Librarians Glenn E. Helm, A. Davis Elliott, J. Allen Knechtmann, and Linda J. Edwards provided crucial, enthusiastic, and knowledgeable reference support. Former photographic curator Robert Hanshew offered technical expertise that enabled the timely processing of the numerous photographic images.

The extent of the material involved required the assistance of additional people outside the command. Historian and consultant Harold Andrews was an indispensable technical expert, and his lifetime of experience and attentive character facilitated the compilation of multiple entries. Marine Corps historian Annette D. Amerman and Coast Guard historian Scott Price consistently offered immediate and vital assistance. William C. Booth of Aircraft Inventory N8812A provided indispensable support.

A special acknowledgment goes to editors Wendy Sauvageot, James M. Caiella, and Caitlin Conway of the Naval History and Heritage Command. Their keen professionalism, diligent attention to detail, and unique combination of naval aviation knowledge and matchless editorial skills proved invaluable, and every page bears their legacy.

Because an index is the key to making this book a successful reference document, the final thanks go to those who helped with it: Cmdr. Austin W. O'Toole, USNR; Cmdr. Ronald B. Mitchell, USNR (Fleet Historian, Undersea Warfare Operations Det. D); and Byron W. Hurst, Communication and Outreach Division, NHHC.

Glossary

1st MAW	First Marine Aircraft Wing
6th FLT	Sixth Fleet
7th FLT	Seventh Fleet
A&R	Assembly & Repair
A.P.	armor piercing
AAF	United States Army Air Forces
AAM	air-to-air missile
AARGM	Advanced Anti-Radiation Guided Missile
AAS	United States Army Air Service
ABATU	advanced base training unit
ABDA	American-British-Dutch-Australian Command
ACC	Air Combat Command
ACLS	automatic carrier landing system
ACMR	Air Combat Maneuvering Range
ACNO	Assistant Chief of Naval Operations
ACP	aviation continuation pay
ADVCAP	advanced capability
AED	Aeronautical Engineering Duty
AEDO	Aeronautical Engineering Duty Officer
Aéronautique Militaire	Army Air Service (France)
AESR	active electronically scanned radar
AEW	airborne early warning
AEWWINGPAC	Airborne Early Warning Wing, Pacific
AFB	Air Force base
AIM	aircraft intermediate maintenance
AIM	air-launched aerial intercept guided missile
AIMD	Aircraft Intermediate Maintenance Division
AirDet/AIR DET	air detachment
AirLant/AIRLANT	Air Force, Atlantic Fleet or Commander, Air Force, U.S. Atlantic Fleet
AirPac/AIRPAC	Air Force, Pacific Fleet or Commander, Air Force, U.S. Pacific Fleet
ALARS	air-launched acoustical reconnaissance
ALM	Antilliaanse Luchtvaart Maatschappij (airline)
ALNAV	All Navy
ALVRJ	advanced low volume ramjet
AMD	aeronautical maintenance duty
AMO	aviation medical officer
AMRAAM	advanced medium range air-to-air missile
ANA	Association of Naval Aviation
ANG	Air National Guard
AOCP	aviation officer continuation pay
AOCS	aviation officer candidate school
ARAPHAHO	merchant ship portable modular aviation facility
ARG	amphibious ready group
ARM	antiradiation missile
Arowa	Applied Research: Operational Weather Analysis
ARPA	Advanced Research Projects Agency
ARPS	automatic radar processing system
ASM	air-to-surface missile
ASMD	antiship missile defense
ASO	aviation supply office
ASR	antisubmarine rocket
ASROC	Anti-Submarine Rocket
ASTOVL	advanced short takeoff/ vertical landing
ASV	surface vessel detection
ASW	antisubmarine warfare
ATARS	Advanced Tactical Airborne Reconnaissance System
ATC	Air Transport Command
ATFLIR	advanced targeting forward looking infrared
ATG	air task group
ATS	Air Transport Service
ATU	advanced training unit
AVG	American Volunteer Group

AWACS	airborne warning and control systems
BAMS	Broad Area Maritime Surveillance
BAMS-D	Broad Area Maritime Surveillance Demonstrator
BRAC	Defense Base Closure and Realignment
BTG	basic training group
BuAer	Bureau of Aeronautics
BuC&R	Bureau of Construction and Repair
BuMed	Bureau of Medicine
BuNav	Bureau of Navigation
BuOrd	Bureau of Ordnance
BuPers	Bureau of Naval Personnel
BuShips	Bureau of Ships
BuWeps	Bureau of Naval Weapons
CAA	Civil Aeronautics Administration
CAA	Civil Aeronautics Authority
CAEWWS	Carrier Airborne Early Warning Weapons School
CAINS	carrier aircraft inertial navigation system
CalTech	California Institute of Technology
CAP	Civil Air Patrol
CAP	combat air patrol
CARDIV	carrier division
CASU	carrier aircraft service unit
CASU(F)	combat aircraft service unit (forward)
CC	Construction Corps
CCR	circulation control rotor
CEC	cooperative engagement capability
CG	commanding general
CGAS	Coast Guard Air Station
CHNAVRSCH	Chief of Naval Research
CIA	Central Intelligence Agency
CIC	combat information center
CincPac/CINCPAC	Commander in Chief, Pacific
CincPacFlt/CINCPACFLT	Commander in Chief, U.S. Pacific Fleet
CINCUS	Commander in Chief, U.S. Fleet
CIWS	Close-In Weapons System (Phalanx)
CJTF	Combined Joint Task Force
CNATRA	Chief of Naval Air Training
CNATT	Center for Naval Aviation Technical Training
CNO	Chief of Naval Operations
CNR	Chief of Naval Research
COD	carrier on-board delivery
COIN	counter insurgency
ComAirLant	Commander, Naval Air Force, U.S. Atlantic Fleet
ComAirPac	Commander, Naval Air Force, U.S. Pacific Fleet
ComFAIR/COMFAIR	Commander, Fleet Air
COMHATWING	Commander, Heavy Attack Wing
COMHSLWINGPAC	Commander, Helicopter Antisubmarine Light Wing, U.S. Pacific Fleet
COMINCH	Commander in Chief, U.S. Fleet
COMINCUS	Commander in Chief, U.S. Fleet
COMLATWING	Commander, Light Attack Wing
COMMATWING	Commander, Medium Attack Wing
COMNAVAIRESFOR	Commander, Naval Air Reserve Force
COMNAVAIRLANT	Commander, Naval Air Force, U.S. Atlantic Fleet
COMNAVAIRPAC	Commander, Naval Air Force, U.S. Pacific Fleet
COMNAVELEX	Naval Electronic Systems Command
COMNAVFOR Somalia	Commander, Naval Forces Somalia
COMNAVSUPFOR	Commander, Naval Support Force
COMOPDEVFOR	Commander, Operational Development Force, U.S. Fleet
COMPATWING	Commander, Patrol Wing
COMSTRKFIGHTWING	Commander, Strike Fighter Wing
CONUS	Continental United States
CTF	Combined Task Force
DARPA	Defense Advanced Research Projects Agency
DASH	Drone Anti-Submarine Helicopter

DCNO	Deputy Chief of Naval Operations
DEW	Distant Early Warning line
DICASS	directional command active sonobuoy system
DIFAR	directional frequency analysis and recording
DMZ	demilitarized zone
DOD	Department of Defense
DODGE	Department of Defense Gravity Experiment satellite
EALS	Electromagnetic Aircraft Launch System
ECM	electronic countermeasures
ECMO	electronic countermeasures operator/officer
ECP	Enlisted Commissioning Program
EDO	engineering duty officer
EFM	enhanced fighter maneuverability
ELEX	Naval Electronic Systems Command
EOD	explosive ordnance disposal
ESG	expeditionary strike group
EW	electronic warfare
EXCAP	expanded (extended) capability
FAA	Federal Aviation Administration
FAA	Fleet Air Arm
FAB	Fleet Air Base
FAC	Federal Aviation Commission
FAC	forward air controller
FAETU	fleet airborne electronics training unit
FARP	forward arming and refueling point
FASOTRAGRULANT	Fleet Airborne Specialized Operational Training Group Atlantic
FAW	fleet air wing
FAWTUPAC	Fleet All Weather Training Unit, Pacific
FBM	fleet ballistic missile
FEMA	Federal Emergency Management Agency
FEWSG	Fleet Electronic Warfare Support Group
FKR	frontoviye krilatiye raketi (frontal rocket)
FLIR	forward looking infrared radar
FMS	foreign military sales
FOB	forward operating base
FORSCOM	Forces Command
FROG	free rocket over ground
FTEG	Flight Test and Engineering Group
FY	fiscal year
G.P.	general purpose
GBU	guided bomb unit
GCA	ground-controlled approach
Glomb	guided glider bomb
GMGRU	guided missile group
GMU	guided missile unit
Halon	fire suppression agent
HARM	High Speed Anti-Radiation Missile
HATWING	heavy attack wing
HIPEG	high-performance external gun
HTA	heavier-than-air
HUD	heads-up display
Huff-Duff	high frequency direction-finder
HVAR	High-Velocity Aircraft Rocket
IBM	International Business Machine Company
ICAP	improved capability
IFF	identification friend or foe
IGY	International Geophysical Year
IO	Indian Ocean
IOC	initial operational capability
IR	imaging infrared
IR	infrared
ITALD	Improved Tactical Air Launched Decoy
JAGM	Joint Air-to-Ground Missile
JASSM	Joint Air-to-Surface Standoff Missile
JATO	jet-assisted takeoff
JCM	joint common missile
JCS	Joint Chiefs of Staff
JDAM	Joint Direct Attack Munition
JPALS	Joint Precision Approach and Landing System

JPATS	Joint Primary Aircraft Training System
JRB	joint reserve base
JRFB	joint reserve force base
JSF	joint strike fighter
JSOW	joint standoff weapon
JSTARS	Joint Surveillance Target Attack Radar System
KIA	killed in action
LAMPS	Light Airborne Multipurpose System
Lant/LANT	Atlantic
LANTIRN	low altitude navigation/ targeting infrared for night
Laser-JDAM	Laser-Joint Direct Attack Munition
LCAC	landing craft, air cushion
LCS	littoral combat ship
LDO	limited duty officer
LGB	laser-guided bomb
LIC	low intensity conflict
LJDAM	Laser Joint Direct Attack Munition
Lofti	Low Frequency Transionospheric satellite
LORAN	Long Range Navigation
LRAACA	Long-Range Air Antisubmarine Warfare Capable Aircraft
LSO	landing signal officer
LTA	lighter-than-air
LTV	Ling-Temco-Vought Corp.
MAC	Military Airlift Command
MACV	Military Assistance Command, Vietnam
MAD	magnetic airborne/anomaly detection
MAG	Marine Aircraft Group
MAGTF	Marine Air-Ground Task Force
MATS	Military Air Transport Service
MAU	master augmentation unit
MAW	Marine Aircraft Wing
MAWSPAC	Medium Attack Weapons School, Pacific
MC	Medical Corps
MCAAS	Marine Corps Auxiliary Air Station
MCAF	Marine Corps Air Facility
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCM	mine countermeasures
MEB	Marine Expeditionary Brigade
Med	Mediterranean Sea
MEF	Marine Expeditionary Force
MEU	Marine Expeditionary Unit
MIA	missing in action
MiG	Russian aircraft designed by Artem I. Mikoyan and Mikhail I. Gurevich
MIO	maritime interception operations
MIRALC/SLBD	mid-infrared advanced chemical laser/Sea Lite Beam Director
MIT	Massachusetts Institute of Technology
MLS	microwave landing system
MMA	multimission maritime aircraft
MOL	Manned Orbiting Laboratory
MOUT	military operations in urban terrain
MRASM	medium range air-to-surface missile
MRBM	medium range ballistic missile
MRC	major regional conflict
MSC	Military Sealift Command
MSO	maritime security operations
NAA	National Aeronautic Association
NAAF	Naval Air Auxiliary Facility
NAAS	Naval Air Auxiliary Station
NAATSC	Naval Air Advanced Training Subordinate Command
NAB	Naval Air Base
NACA	National Advisory Committee for Aeronautics
NAD	Naval Aviation Depot
NADC	Naval Air Development Center
NADEP	Naval Aviation Depot
NADS	Naval Air Development Station
NAEC	Naval Air Engineering Center
NAESU	Naval Aviation Electronic Service Unit

NAF	Naval Air Facility
NAF	Naval Aircraft Factory
NAFC	Naval Air Ferry Command
NAILS	Naval Aviation Integrated Logistic Support
NALCOLANTUNIT	Naval Air Logistics Control Office, Atlantic Unit
NAMC	Naval Air Material Center
NAMO	Naval Aviation Maintenance Office
NAMTC	Naval Air Missile Test Center
NAO	naval aviation observer
NAOTS	Naval Aviation Ordnance Test Station
NAP	naval aviation pilot/naval air pilot
NAR	Naval Air Reserve
NARF	Naval Air Rework Facility
NARTS	Naval Air Rocket Test Station
NARTU	Naval Air Reserve Training Unit
NARU	Naval Air Reserve Unit
NAS	Naval Aeronautic Station
NAS	Naval Air Station
NASA	National Air and Space Administration
NASM	National Air and Space Museum
NATB	Naval Air Training Base
NATC	Naval Air Training Center
NATC	Naval Air Training Command
NATEC	Naval Airship Training and Experimental Command
NATMSACT	Naval Air Training Maintenance Support Activity
NATO	North Atlantic Treaty Organization
NATOPS	Naval Air Training and Operating Procedures Standardization
NATS	Naval Air Transport Service
NATT	Naval Air Technical Training
NATTC	Naval Air Technical Training Center
NAVAIR	Naval Air Systems Command
NAVAIRSYSCOM	Naval Air Systems Command
NAVCAD	naval aviation cadet
NAVICP	Naval Inventory Control Point
NAVMAT	Naval Material Command
NAVPRO	Naval Plant Representative Office
NAVRES	Naval Reserve
NAVSEA	Naval Sea Systems Command
Navstar	navigation satellite
NAWC	Naval Air Warfare Center
NAWCAD	Naval Air Warfare Center Aircraft Division
NAWCWD	Naval Air Warfare Center Weapons Division
NAWS	Naval Air Weapons Station
NB	Naval Base
NERV	Nuclear Emulsion Recovery Vehicle
NFO	naval flight officer
NMC	Naval Material Command
NME	National Military Establishment
NMF	Naval Missile Facility
NNV	national naval volunteers
NOB	Naval Operating Base
NORAD	North American Air Defense Command
NorLant	Northern Atlantic Ocean
NorPac	Northern Pacific Ocean
NOTS	Naval Aviation Ordnance Test Station
NOTS	Naval Ordnance Test Station
NR	Naval Reserve/Navy Reserve
NRAB	Naval Reserve Aviation Base
NRFC	Naval Reserve Flying Corps
NRL	Naval Research Laboratory
NROTC	Naval Reserve Officer Training Corps
NS	Naval Station
NSA	Naval Support Activity
NSAWC	Naval Strike and Air Warfare Center
NSC	National Security Council
NSRB	National Security Resources Board
NTPS	Naval Test Pilot School
NVG	night vision goggles

NVN	North Vietnam
NWC	Naval Weapons Center
OASU	Oceanographic Air Survey
OCS	Officer Candidate School
ODM	operational development model
ONR	Office of Naval Research
OPNAV	Naval Operations
Ops	operations
OSD	Office of the Secretary of Defense
OSRD	Office of Scientific Research and Development
P/A	pilotless aircraft
Pac/PAC	Pacific
PASU	Patrol Aircraft Service Unit
Patriot	Phased Array Tracking Intercept of Target missile
PatSU/Patsu	Patrol Aircraft Service Unit
PatWing/PATWING	Patrol Wing
PIMA	planned incremental maintenance availability
PLAF	People's Liberation Armed Forces (Viet Cong)
PLAT	Pilot Landing Aid Television system
PMTC	Pacific Missile Test Center
POL	petroleum, oil, lubricants
POW	prisoner of war
PPI	plan position indicator
RAAF	Royal Australian Air Force
radar	radio detection and ranging
RAF	Royal Air Force
RAG	replacement air group
RAM	Rolling Airframe Missile
RAST	recovery assist, securing, and traversing system
RCA	Radio Corporation of America
RDT&E	research, development, test, and evaluation
retrorocket ASR	rearward-firing antisubmarine rocket
REWSON	reconnaissance, electronic warfare, and special operations
RFC	Royal Flying Corps
RimPac	Rim of the Pacific Exercise (Joint)
RIO	radar intercept officer
RN	Royal Navy
RNAS	Royal Naval Air Station
ROK	Republic of Korea
RPG	rocket-propelled grenade
RPV	remotely piloted vehicle
RVN	Republic of Vietnam
SAM	surface-to-air missile
SAR	search-and-rescue
SCS	sea control ship concept
SDB	small diameter bomb
SEAL	Sea-Air-Land team
SEAPAC	sea activated parachute automatic crew release
SecDef/SECDEF	Secretary of Defense
SecNav/SECNAV	Secretary of the Navy
SEVENTHFLT	Seventh Fleet
SIXTHFLT	Sixth Fleet
SLAM	Standoff Land Attack Missile
SLAM-ER	Standoff Land Attack Missile–Expanded Response
SLCM	Sea/Surface Launched Cruise Missile
SLEP	Service Life Extension Program
SoLant/SOLANT	Southern Atlantic Ocean
SolRad	Solar Radiation (satellite)
SoPac/SOPAC	Southern Pacific Ocean
SPASUR	Navy Space Surveillance System
SSM	surface-to-surface missile
STAG	Special Task Air Group
STM	supersonic tactical missile
STOL	short takeoff and landing
STOVL	short takeoff/vertical landing
STRATCOM	Strategic Command
SWIP	System Weapons Integration Program
SWOD	Special Weapons Ordnance Device
T&E	test and evaluation
TACAMO	Take Charge and Move Out
TACAN	tactical air navigation system
TACELWING	Tactical Electronic Warfare Wing
TACGRU	tactical group
TALD	tactical air launch decoy

TARPS	Tactical Aerial Reconnaissance Pod System
TERCOM	terrain contour matching
TF	task force
TG	task group
TINS	Thermal Imaging Navigation Set
TLAM	Tomahawk land-attack missile
TOW	tube-launched, optically tracked, wire-command-link
TRAM	Target Recognition Attack Multisensor
TraWing/TRAWING	Training Air Wing
TRIM	Trail Road Interdiction Mission
TU	task unit
TWA	Trans World Airlines
UAS	unmanned aerial systems
UAV	unmanned aerial vehicle
UCAS	unmanned combat air system
UDT	underwater demolition team
UN	United Nations
USA	United States Army
USAAF	United States Army Air Forces
USAAS	United States Army Air Service
USACOM	United States Atlantic Command
USAF	United States Air Force
USCG	United States Coast Guard
USMC	United States Marine Corps
USN	United States Navy
USNR	United States Naval/Navy Reserve
USNRF	United States Naval/Navy Reserve Force
USNS	United States Naval Ship
V/STOL	vertical and/or short takeoff and landing
VAST	versatile avionics shop test
VCNO	Vice Chief of Naval Operations
VFAX	advanced experimental fighter aircraft
Viet Cong	People's Liberation Armed Forces
VOD	vertical on-board delivery
VOR	very-high frequency omni-range direction finder
VORTAC	very-high frequency omni-range direction finder tactical air navigation system
VSTOL	vertical/short takeoff and landing
VT	variable-time (fuze)
VTOL	vertical takeoff and landing
VTUAV	vertical takeoff and landing tactical unmanned aerial vehicle
VTXTS	fixed-wing experimental training aircraft training system
VWS	ventilated wet suit
WAVES	Women Accepted for Volunteer Emergency Service
WestPac/WESTPAC	Western Pacific Ocean
WNY	Washington Navy Yard
WWI	World War I
WWII	World War II

Note: Acronyms or abbreviations for squadron designations, air groups or air wings, aviation ship designations, and aviation ratings may be found in the Vol. II appendices, as will other more specialized acronym meanings.

Chapter 1

Aircraft Designations and Popular Names

Background on the Evolution of Aircraft Designations

Aircraft model designation history is very complex. To fully understand the designations, it is important to know the factors that played a role in developing the different missions that aircraft have been called upon to perform. Technological changes affecting aircraft capabilities have resulted in corresponding changes in the operational capabilities and techniques employed by the aircraft. Prior to WWI, the Navy tried various schemes for designating aircraft.

In the early period of naval aviation a system was developed to designate an aircraft's mission. Different aircraft class designations evolved for the various types of missions performed by naval aircraft. This became known as the Aircraft Class Designation System. Numerous changes have been made to this system since the inception of naval aviation in 1911.

While reading this section, various references will be made to the Aircraft Class Designation System, Designation of Aircraft, Model Designation of Naval Aircraft, Aircraft Designation System, and Model Designation of Military Aircraft. All of these references refer to the same system involved in designating aircraft classes. This system is then used to develop the specific designations assigned to each type of aircraft operated by the Navy. The F3F-4, TBF-1, AD-3, PBY-5A, A-4, A-6E, and F/A-18C are all examples of specific types of naval aircraft designations, which were developed from the Aircraft Class Designation System.

Aircraft Class Designation System

Early Period of Naval Aviation up to 1920

The uncertainties during the early period of naval aviation were reflected by the problems encountered in settling on a functional system for designating naval aircraft. Prior to 1920, two different Aircraft Class Designation Systems were used. From 1911 up to 1914, naval aircraft were identified by a single letter indicating the general type and manufacturer, followed by a number to indicate the individual plane of that type-manufacturer. Under this system:

"A" was used for Curtiss hydroaeroplanes

"B" for Wright hydroaeroplanes

"C" for Curtiss flying boats

"D" for Burgess flying boats

"E" for Curtiss amphibian flying boats

This system had been established in 1911 by Capt. Washington I. Chambers, Director of Naval Aviation. The following is a list of the types of aircraft and their designations in existence from 1911–1914:

Aircraft Designation System 1911–1914

A-1	Curtiss hydroaeroplane (originally an amphibian, and the Navy's first airplane)
A-2	Curtiss landplane (rebuilt as a hydroaeroplane)
A-3	Curtiss hydroaeroplane
A-4	Curtiss hydroaeroplane
B-1	Wright landplane (converted to hydroaeroplane)
B-2	Wright type hydroaeroplane
B-3	Wright type hydroaeroplane
C-1	Curtiss flying boat

C-2 Curtiss flying boat

C-3 Curtiss flying boat

C-4 Curtiss flying boat

C-5 Curtiss flying boat

D-1 Burgess Co. and Curtis flying boat

D-2 Burgess Co. and Curtis flying boat

E-1 OWL (Over Water and Land; originally the A-2, it was rebuilt as a short-hulled flying boat for flying over water or land and fitted with wheels for use as an amphibian)

A new Aircraft Class Designation System was established by Capt. Mark L. Bristol, the second Director of Naval Aviation who assumed the position from Capt. Chambers in December 1913. The new system was issued on 27 March 1914 as General Order 88, "Designation of Air Craft." This system changed the original designation of the aircraft to two letters and a number, of which the first letter denoted class; the second, type within a class; and the number the order in which aircraft within the class were acquired. The four classes set up on 27 March 1914 are as follows:

Aircraft Designation System, 1914-1920

Aircraft Classes

"A" for heavier-than-air craft. Within the "A" class:

L stood for land machines

H stood for hydroaeroplanes

B stood for flying boats

X stood for combination land and water (amphibians)

C stood for convertibles (could be equipped as land or water machines)

"D" for airships or dirigibles

"B" for balloons

"K" for kites

Under this new system the A-1 aircraft (the Navy's first airplane) was redesignated AH-1, with the "A" identifying the plane as a heavier-than-air craft and the "H" standing for hydroaeroplane. General Order No. 88 also provided a corresponding link between the old aircraft designations and the new system: "The aeroplanes now in the service" are hereby designated as follows:

A-1 became the AH-1

A-2 became the AH-2

A-3 became the AH-3

B-1 became the AH-4

B-2 became the AH-5

B-3 became the AH-6

C-1 became the AB-1

C-2 became the AB-2

C-3 became the AB-3

C-4 became the AB-4

C-5 became the AB-5

D-1 became the AB-6

D-2 became the AB-7

E-1 became the AX-1

Despite the phrase, "now in the service," the A-1, B-1, and B-2, and probably the D-1 had ceased to exist before the order was issued.

The Early 1920s

In General Order 541, issued in July 1920, two overall types of aircraft were identified and assigned permanent letters, which have remained in effect since that date. Lighter-than-air types were identified by the letter Z and heavier-than-air types were assigned the letter V. Within these two categories, various class letters were assigned to further differentiate the aircraft's operation or construction. Class letters assigned to the Z types were R for rigid, N for nonrigid, and K for kite. By combining the type and class designation, the different airships in the Navy's inventory could be categorized. As an example:

ZR referred to rigid dirigibles (airships)

ZN stood for nonrigid airships

ZK for kite balloons

The class letters assigned to the heavier-than-air vehicles covered a wider range and generally reflected the mission responsibilities of the aircraft classes. Class letters assigned to the V types were:

F	Fighting
O	Observation
S	Scouting
P	Patrol
T	Torpedo
G	Fleet (utility)

By combining the V designation for heavier-than-air vehicles with the class letters, the following aircraft class definitions were assigned in 1920:

VF	Fighting plane
VO	Observation plane
VS	Scouting plane
VP	Patrol plane
VT	Torpedo and bombing plane
VG	Fleet plane (most likely a general utility aircraft)

This class designation system for aircraft has continued to remain a functional system and is still used today. There have been many additions, deletions, and major changes to the system over the years but the concept has remained intact. The current naval aircraft inventory still lists VP and VT aircraft classes. Only VP retains the same definition it was assigned in 1920. The VT designation now refers to training aircraft.

The 1920 designation system established by General Order 541 was modified on 29 March 1922 by Bureau of Aeronautics Technical Note 213. It added the identity of the manufacturer to the aircraft model designation. The aircraft class designations remained the same as those issued by General Order 54l (G.O. 541); however, besides the six aircraft classes listed in the order—VF, VO, VS, VP, VT, and VG—two additional classes were added: VA for training aircraft and VM for Marine expeditionary aircraft.

The mid- to late-1920s

Only a few modifications were made to the Aircraft Class Designation System between 1922 and 1933. The Bureau of Aeronautics, established in July 1921 was thereafter responsible for changes to the system. In response to a Secretary of Navy letter dated 13 February 1923, the Bureau of Aeronautics issued a Technical Note on 10 March 1923 that

changed the VA training aircraft designation to VN, dropped the VG designation, and added the VJ designation for transport plane. This was followed by the addition, in 1925, of the VX designation for experimental aircraft, which was dropped from the Aircraft Class Designation list in January 1927. In July 1928, the VM designation was dropped and the VJ designation was changed from transport to general utility aircraft. Two new designations were also instituted, VB for bombing and VH for ambulance. An additional class, VR, was added in July 1930, assigned for transport aircraft. This designation has remained in effect for transports since then.

The 1930s

Similar changes took place in the Aircraft Class Designation System during the early 1930s. By July 1933, there were ten aircraft class designations and this list did not vary much from those identified in the previous ten years. The aircraft class designations identified in July 1933 were:

VB	Bombing
VF	Fighting
VH	Ambulance
VJ	General Utility
VN	Training
VO	Observation
VP	Patrol
VR	Transport
VS	Scouting
VT	Torpedo

A major change was instituted to the designation system on 2 January 1934. Prior to 1934, aircraft classes had been established according to the primary mission the aircraft was to perform. The fact that many aircraft were capable of performing more than one mission was recognized in the revised system by assigning an additional letter to the previous two-letter aircraft class designation. In the new three-letter designation, the first identified the type of vehicle, such as, V for heavier-than-air (fixed-wing) and Z for lighter-than-air. For heavier-than-air, the second letter identified the primary mission of the aircraft, using the same ten letter designations listed in the above paragraph. The third letter indicated the secondary mission of the aircraft class, such as:

F	Fighting
O	Observation
B	Bombing
T	Torpedo
S	Scouting

By assigning these five secondary mission letters to the primary aircraft letter designations, seven new aircraft class designations were established:

VBF	Bombing-Fighting
VOS	Observation-Scouting
VPB	Patrol-Bombing
VPT	Patrol-Torpedo
VSB	Scouting-Bombing
VSO	Scout-Observation
VTB	Torpedo-Bombing

On the eve of WWII, the Model Designation of Airplanes for 1 July 1939 was very similar to what had been identified in 1934. There were 11 primary aircraft class designations and six others that included a secondary mission letter. The 1 July 1939 list included the following designations:

VB	Bombing
VF	Fighting
VM	Miscellaneous
VO	Observation
VP	Patrol
VS	Scouting
VT	Torpedo
VN	Training
VR	Transport (multi-engine)
VG	Transport (single engine)
VJ	Utility
VOS	Observation-Scouting
VPB	Patrol-Bombing
VSB	Scouting-Bombing
VSO	Scouting-Observation
VTB	Torpedo-Bombing
VJR	Utility-Transport

World War II

The designation changes for the aircraft classes and squadron system during WWII and the immediate post-war period are identified in the Model Designation of Naval Aircraft, the Aviation Circular Letters, and in the Navy Department Bulletins.

By mid-1943, many new aircraft class designations had been added to the Model Designation of Naval Aircraft. These included:

VA	Ambulance
VBT	Bombing-Torpedo
VSN	Scout training
VL	Glider
VLN	Training glider
VLR	Transport glider
VH	Helicopter
VHO	Observation helicopter
VD	Drone
VTD	Torpedo and/or target drone
ZN	Nonrigid airship
ZNN	Nonrigid training and/or utility airship
ZNP	Nonrigid patrol and/or scouting airship

As the war progressed, more changes were made to the Model Designation of Naval Aircraft. In July 1944, a major change was instituted for the Aircraft Class Designation System. Naval aircraft were divided into three main types identified by a letter:

V	Fixed-wing vehicle (airplane, glider, and drone)
H	Rotary-wing vehicle (helicopter)
Z	Lighter-than-air vehicle (airship)

The three main types were then each subdivided into classes. Those under the heavier-than-air fixed-wing type included:

VF	Fighter
VF(M)	Fighter (medium or 2-engine)
VSB	Scout Bomber
VTB	Torpedo Bomber
VO/VS	Observation Scout
VPB(HL)	Patrol Bomber (heavy or 4-engine landplane)
VPB(HS)	Patrol Bomber (heavy or 4-engine seaplane)
VPB(ML)	Patrol Bomber (medium or 2-engine landplane)
VPB(MS)	Patrol Bomber (medium or 2-engine seaplane)
VR(HL)	Transport (heavy or 4-engine landplane)
VR(HS)	Transport (heavy or 4-engine seaplane)
VR(ML)	Transport (medium or 2-engine landplane)
VR(MS)	Transport (medium or 2-engine seaplane)
VJ(M)	Utility (medium or 2-engine)
VJ	Utility
VN	Training
VSN	Training
VSN(M)	Training (2-engine)
VK	Drone
VKN	Drone (target training)
VL	Glider
VLN	Glider (training)
VLR	Glider (transport)

The helicopter type (H) had the following classes:

HO	Helicopter (observation)
HN	Helicopter (training)
HR	Helicopter (transport)

The lighter-than-air type (Z) had the following classes:

ZN	Nonrigid airship
ZNN	Nonrigid airship (training)
ZNP	Nonrigid airship (patrol and escort)

This July 1944 change to the Model Designation of Naval Aircraft was still in effect at the close of WWII and only a couple of additions had been made, they included:

VKC	Assault drone
HJ	Utility helicopter

Post–World War II and the late 1940s

On 11 March 1946, a major revision was issued to the Class Designation of Naval Aircraft. Aviation Circular Letter Number 43-46 divided naval aircraft into four types and assigned a letter designation. They were:

V	Heavier-than-air (fixed-wing)
K	Pilotless aircraft
H	Heavier-than-air (rotary-wing)
Z	Lighter-than-air

V type aircraft class designations and primary missions were:

Class	Designation	Primary Mission
VF	Fighter	destroy enemy aircraft in the air
VA	Attack	destroy enemy surface or ground targets
VP	Patrol	search for enemy
VO	Observation	observe and direct ship and shore gunfire
VR	Transport purposes	
VU	Utility	
VT	Training purposes	
VG	Glider	

H type (rotary-wing) class designations and primary missions were:

HH	Air-sea rescue
HO	Observation
HT	Training
HR	Transport
HU	Utility

K type (pilotless aircraft) class designations and primary missions were:

KA	Attack aircraft targets
KS	Attack ship targets
KG	Attack ground targets
KD	Target aircraft
KU	Utility purposes

Z type (lighter-than-air) class designations and primary missions were:

ZP	Patrol and escort
ZH	Air-sea rescue
ZT	Training
ZU	Utility

This order provided that "no changes . . . be made in the model designation of aircraft already produced or in production, except that the mission letter of all BT class aircraft shall be changed to A." Thus, the SB2C and TBF/TBM aircraft remained in use until they were removed from the inventory, while the BT2D and BTM aircraft were redesignated as AD and AM. These aircraft were assigned to the new attack squadrons established in the latter part of 1946.

In 1947 a modification was made to CNO's Aviation Circular Letter No. 43-46 of 11 March 1946 whereby a fifth class designation was added to the naval aircraft types. This was the M type for guided missiles and its class designations and primary missions were:

AAM	Air-to-air
ASM	Air-to-surface
AUM	Air-to-underwater
SAM	Surface-to-air
SSM	Surface-to-surface
SUM	Surface-to-underwater
UAM	Underwater-to-air
USM	Underwater-to-surface
TV	Test vehicle

Two years later, in 1949, the class designations were:

V type (heavier-than-air, fixed-wing) classes

VF	Fighter	Air defense and escort
VA	Attack	Surface and ground attack
VP	Patrol	ASW (antisubmarine warfare) reconnaissance and attack
VO	Observation	Gunfire and artillery spotting
VR	Transport	Air logistic support
VU	Utility	Fleet utility support
VT	Training	Basic and fleet training
VG	Glider	

H type (heavier-than-air, rotary-wing) classes

HH	Air-sea rescue
HO	Observation
HT	Training
HR	Transport
HU	Utility

K type (pilotless aircraft) classes

KD	Aerial target

M type (guided missile) classes

AAM	Air-to-air
ASM	Air-to-surface
AUM	Air-to-underwater
SAM	Surface-to-air
SSM	Surface-to-surface

SUM	Surface-to-underwater
UAM	Underwater-to-air
USM	Underwater-to-surface
TV	Test vehicle

Z type (lighter-than-air) classes

ZP	Patrol and escort
ZH	Search and rescue
ZT	Training
ZU	Utility

The 1950s, 1960s, 1970s, and 1980s

During the early 1950s several changes were made to the V (heavier-than-air fixed-wing) type. The VG glider class was dropped and these classes were added:

VS	Search	Submarine search and attack (carrier)
VW	Warning	Airborne early warning

In the 1953 the nine classes of the V type were further divided into sub-classes. These were:

VA	Attack		Surface and ground attack
		VA (Int'd)	Interdiction
		VA (GS)	Ground support
		VA (AW)	All-weather and ASW
		VA (W)	Air early warning (AEW) and ASW
		VA (H)	Heavy
		VA (P)	Photographic
VF	Fighter		Air defense and escort
		VF (Int)	Interceptor
		VF (Day)	Day, jet
		VF (Day)(Prop)	Day, reciprocating
		VF (AW)	All-weather, jet
		VF (AW)(Prop)	All-weather, reciprocating
		VF (P)	Photographic, jet
		VF (P)(Prop)	Photographic, reciprocating
		VF (D)	Drone control
		VF (FT)	Flight test
VO	Observation		Gunfire and artillery spotting
VP	Patrol		ASW reconnaissance, mining, and weather
		VP (L)	Landplane
		VP (S)	Seaplane
		VP (MIN)	Mining
		VP (WEA)	Weather
		VP (Q)	Countermeasures
VR	Transport		Air logistic support

		VR (H)	Heavy landplane
		VR (M)	Medium landplane
		VR (S)	Heavy seaplane
		VR (C)	Carrier
VS	Antisubmarine		Submarine search and attack
		VS	Search and attack
		VS (S)	Attack
		VS (W)	Search
VT	Training		Basic, fleet, and primary training
		VT (Jet)	Jet
		VT (ME)	Two-engine, reciprocating
		VT (SE)	One-engine, reciprocating
		VT (E)	Electronic
		VT (Nav)	Navigation
VU	Utility		Fleet utility support
		VU (Gen)	General
		VU (SAR)	Search and rescue
		VU (Tow)	Tow
VW	Warning		Airborne early warning
VW			Air early warning

Between 1953 and 1960 there was only one change in the V class and a few modifications in the sub-classes. The VG class, for in-flight refueling, tanker, was added in 1958. In 1960 the type letter for the heavier-than-air fixed-wing class was still identified as V, however, it was omitted from the acronym for the class designation. The class designations for the heavier-than-air fixed-wing type and their basic mission were as follows:

A	Attack
F	Fighter
G	In-flight refueling tanker
O	Observation
P	Patrol
R	Transport
S	Antisubmarine (for carrier-based aircraft)
T	Training
U	Utility
W	Airborne early warning

The H type classes for 1953 were:

HO	Observation
HR	Transport
HS	Antisubmarine
HT	Trainer
HU	Utility
HC	Cargo

In 1955 a new H type class was added and designated HW for aircraft early warning. This class remained in effect for only a short time and was removed by 1961. The only other change for the H type during the 1950s was the removal of the HC cargo class by 1961.

The Z type classes for 1953 were:

ZP	Patrol
ZT	Trainer

There were several changes to the Z type classes in the 1950s. In 1954 two new classes were added, ZS search and antisubmarine and ZW air early warning. The other changes in 1954 included the dropping of the ZT trainer designation and modifying the ZP designation to patrol and antisubmarine. In 1955 the ZS designation was dropped after being in effect for only a year.

The K type class for 1953 was:

KD	Target

This designation was modified in 1955 to KK Target Drone. Sometime in the latter part of the 1950s, the K type designation was dropped and a new D type was listed as remotely controlled tactical airborne vehicle. Within this type, the class was identified as DS antisubmarine.

The M type for 1953 was modified as follows:

M	Tactical weapon
RV	Research vehicle

A Bureau of Aeronautics Aviation Circular Letter Number 25-51 of 14 July 1951 removed the guided missile type from the naval aircraft types and listed only four types of naval aircraft. They were:

V	Heavier-than-air (fixed-wing)
H	Heavier-than-air (rotary-wing)
Z	Lighter-than-air
K	Target drones

The Bureau of Naval Weapons Instruction 13100.1A "Model Designation of Naval Aircraft", dated 17 May 1961, lists the type letter designations as follows:

V	Heavier-than-air (fixed-wing) [the V is omitted from the aircraft designation]
H	Heavier-than-air (rotary-wing)
Z	Lighter-than-air
D	Remotely controlled tactical airborne vehicle
R	Rotorcycle

The classes within each of these five aircraft type designations were:

V type heavier-than-air (fixed-wing) classes

VA	Attack
VF	Fighter
VG	In-flight refueling tanker
VO	Observation
VP	Patrol
VR	Transport
VS	Antisubmarine

VT Training

VU Utility

VW Airborne early warning

H type heavier-than-air (rotary-wing) classes

HO Observation

HR Transport

HS Antisubmarine

HT Training

HU Utility

Z type lighter-than-air classes

ZP Patrol

ZW Airborne early warning

D type remotely controlled tactical airborne vehicle class

DS Antisubmarine

R type rotorcycles class

RO Observation (equipment)

In 1962 a major change occurred in the model designation for naval aircraft. The Department of Defense (DoD) consolidated the aircraft designation systems of the Navy, Army, and Air Force. A new DoD Directive was established that designated, redesignated, and named military aircraft. Under the new system, the V for heavier-than-air fixed-wing types was dropped completely and a single letter was used to identify the basic mission of the vehicle. The basic mission and associated type symbols were as follows:

A	Attack	Aircraft designed to search out, attack, and destroy enemy land or sea targets using conventional or special weapons. Also used for interdiction and close air support missions.
B	Bomber	Aircraft designed for bombing enemy targets.
C	Cargo/transport	Aircraft designed for carrying cargo and/or passengers.
E	Special Electronic	Aircraft possessing electronic countermeasures (ECM) capability or installation having electronic devices to permit employment as an early warning radar station.
F	Fighter	Aircraft designed to intercept and destroy other aircraft and/or missiles.
H	Helicopter	A rotary-wing aircraft designed with the capability of flight in any plane; e.g., horizontal, vertical, or diagonal.
K	Tanker	Aircraft designed for in-flight refueling of other aircraft.
O	Observation	Aircraft designed to observe (through visual other means) and report tactical information concerning composition and disposition of enemy forces, troops, and supplies in an active combat area.
P	Patrol	Long-range all-weather multi-engine aircraft operating from land and/or water bases, designed for independent accomplishment of antisubmarine warfare, maritime reconnaissance, and mining.

S	Antisubmarine	Aircraft designed to search out, detect, identify, attack, and destroy enemy submarines.
T	Trainer	Aircraft designed for training personnel in the operation of aircraft and/or related equipment, and having provisions for instructor personnel.
U	Utility	Aircraft used for miscellaneous missions such as carrying cargo and/or passengers, towing targets, etc. These aircraft will include those having a small payload.
V	VTOL and STOL	Aircraft designed for vertical takeoff or landing with no takeoff or landing roll, or aircraft capable of takeoff and landing in a minimum prescribed distance.
X	Research	Aircraft designed for testing configurations of a radical nature. These aircraft are not normally intended for use as tactical aircraft.
Z	Airship	A self-propelled lighter-than-air aircraft.

The only type symbol not in use by the Navy from the above listing was the B for bomber aircraft. The O observation aircraft designation was in the naval inventory but was used primarily by the Marine Corps.

Between 1962 and 1990 there were only two modifications to the listing of basic mission and aircraft type symbols in DoD's *Model Designation of Military Aircraft, Rockets and Guided Missiles*. These changes involved the addition of the letter R for reconnaissance and the deletion of the Z type for airships. The basic mission for the R type was an aircraft designed to perform reconnaissance missions.

Even though a consolidated DoD directive was issued on aircraft designations for the Navy, Air Force, and Army in 1962, the Navy continued to publish a listing of naval aircraft classes and sub-classes that differed slightly from the DoD directive. However, the Navy did follow the new procedures for designating its aircraft, as an example, the AD-5 Skyraider aircraft designation was changed to A-1E. The December 1962 issue of the "Allowances and Location of Naval Aircraft" lists the following classes and sub-classes for fixed-wing aircraft (note the continued use of "V" as part of the class designation and the failure to change the VG class designation for air refueler to K, as listed by the DoD instruction):

VF	Fighter	
	VF FB	Fighter-bomber
	VF P	Photo reconnaissance
VA	Attack	
	VA L	Light Attack
	VA LP	Light Attack (Prop)
	VA M	Medium Attack
	VA H	Heavy Attack
	VA P	Photo Reconnaissance (long range)
	VA Q	ECM Reconnaissance (long range)
	VA QM	Tactical ECM
	VA QMP	Tactical ECM (Prop)
VS	ASW (carrier based)	
VP	ASW Patrol	
	VP L	ASW Patrol (land based)
	VP S	ASW Patrol (sea based)
VW	Airborne early warning	
	VW M	AEW Medium (carrier based)

	VW H	AEW Heavy (land based)
VR	Transport	
	VR H	Heavy transport
	VR M	Medium transport
	VR C	Carrier transport
VG	Air refueler, heavy	
VT	Trainer	
	VT AJ	Advanced jet trainer
	VT BJ	Basic jet trainer
	VT SJ	Special jet trainer
	VT AP	Advanced prop trainer
	VT BP	Basic prop trainer
	VT PP	Primary prop trainer
	VT SP	Special prop trainer
VK	Drone	
	VK D	Drone control

The only change to this listing occurred in 1965 with the addition of the VO class for observation. Between 1965 and 1988 there was no change to the aircraft class listing in the "Allowances and Location of Naval Aircraft." However, there were numerous changes in the listing for the sub-classes. The final publication of the "Allowances and Location of Naval Aircraft" was March 1988.

On 2 May 1975, the Navy selected a derivative of the YF-17 as the winner of the Navy's VFAX competition for a new multimission fighter attack aircraft. The VFAX was designed to replace two aircraft in the Navy's inventory, the F-4 Phantom II and the A-7 Corsair II. This program was reinstituting an old Navy policy, whereby, multimission requirements for attack and fighter, be incorporated into a single aircraft. Fighter and light attack missions had previously been assigned to various types of aircraft, particularly in the period prior to WWII and also in the 1950s. The Navy was now reverting to an old policy and designing a plane with a dual capacity as a fighter and an attack aircraft to meet new multimission requirements.

The VFAX aircraft was initially assigned the F-18A designation. A new model designation F/A (strike fighter) was established and assigned to the aircraft in the late 1970s. The Navy accepted its first F/A-18 Hornet on 16 January 1979. The F/A designation was identified as a sub-class and listed under the VF class in the Navy's "Allowances and Location of Naval Aircraft." Under the DoD model designation listing the F/A-18 designation is listed under both the A and F symbol designations as A-18 and F-18.

The 1990s

The following is a list of the Naval Aircraft Class and Sub-classes used in the 1990s:

VF	Fighter	
	VF FA	Strike Fighter
	VF FB	Fighter
	VF P	Photo Reconnaissance
VA	Attack	
	VA L	Attack, light
	VA M	Attack, medium
	VA H	Attack, heavy
	VA P	Attack, photo reconnaissance
	VA Q	Attack, electronic countermeasures
	VA QM	Attack, tactical electronic countermeasures

VS	Sea Control (was Antisubmarine until 1993)	
	VS	ASW carrier based
VP	Patrol	
	VP L	Patrol, land based
VW	Warning	
	VW A	AEW medium, carrier based
VR	Transport	
	VR H	Transport, heavy
	VR M	Transport, medium
	VR C	Transport, cargo, carrier based
VG	In-flight Refueling	
VO	Observation	
	VO L	Observation
VQ	Reconnaissance	
	VQ	Reconnaissance
VU	Utility	
	VU L	Utility
	VU S	Utility, search and rescue
VT	Training	
	VT AJ	Training, advanced jet
	VT SJ	Training, special jet
	VT PP	Training, primary prop
	VT SP	Training, special prop
H	Rotary-Wing	
	H F	Rotary-Wing, fighter
	H A	Rotary-Wing, attack
	H S	Rotary-Wing, ASW
	H H	Rotary-Wing, heavy
	H M	Rotary-Wing, medium
	H L	Rotary-Wing, light
	H T	Rotary-Wing, trainer
	H R	Rotary-Wing, transport
VK	Drones	
	VK D	Drones
	VK K	Drones jet

The Post-2006 Period

The publication "Allowance and Location of Naval Aircraft" was discontinued by the Navy Department and, with it, the end of publishing the Naval Aircraft Classes and Sub-classes. Consequently the DoD publication "Model Designation of Military Aerospace Vehicles" (DoD 4120.15-L) is now the defacto source for aircraft designations, known as MDS (aircraft Mission Design Series). The following lists of symbols are used to create the aircraft designators:

Status Prefix Symbols

G	Permanently Grounded	Aircraft permanently grounded (may be used for ground training).

J	Special test (Temporary)	Aircraft in special test programs by authorized organizations, on bailment contract with a special test configuration, or with installed property temporarily removed to accommodate a test.
N	Special test (Permanent)	Aircraft in special test program by authorized activities or on bailment contract where the configuration changes so drastically that returning to the original operational configuration is impractical or uneconomical.
X	Experimental	Aircraft in a development or experimental stage.
Y	Prototype	A model suitable for evaluation of design, performance, and production potential.
Z	Planning	Aircraft in the planning or predevelopment state.

Modified Mission Symbols

A	Attack	Aircraft modified to find, attack, and destroy enemy targets using conventional or special weapons. This symbol also describes aircraft used for interdiction and close air support missions.
C	Transport	Aircraft modified to carry personnel, cargo, or both.
D	Director	Aircraft modified for controlling drone aircraft or missiles.
E	Special Electronic Installation	Aircraft modified with electronic devices for one or more of the following missions: (1) Electronic countermeasures (2) Airborne early warning radar (3) Airborne command and control, including communications relay (4) Tactical data communications link for all non-autonomous modes of flight.
F	Fighter	Aircraft modified to intercept and destroy other aircraft or missiles.
H	Search and Rescue	Aircraft modified for search and rescue missions.
K	Tanker	Aircraft modified to refuel other aircraft in flight.
L	Cold Weather	Aircraft modified for operation in Arctic and Antarctic regions, includes skis, special insulation, and other equipment for extreme cold-weather operations.
M	Multimission	Aircraft modified to perform several different missions.
O	Observation	Aircraft modified to observe (through visual or other means) and report tactical information concerning composition and disposition of forces.
P	Patrol	Long-range all-weather multi-engine aircraft that operate from land or water bases modified for independent antisubmarine warfare, maritime reconnaissance, and mining.
Q	Drone	An aerospace vehicle modified for remote or automatic control.
R	Reconnaissance	Aircraft modified for photographic or electronic reconnaissance missions.
S	Antisubmarine	Aircraft modified to find, identify, attack, and destroy enemy submarines.
T	Trainer	Aircraft modified for training purposes.
U	Utility	Aircraft modified to perform multiple missions such as battlefield support, localized transport, and special light missions.
V	Staff	Aircraft modified to provide support for the President or Vice President of the United States.

W	Weather	Aircraft modified and equipped for meteorological missions.

Basic Mission Symbols

A	Attack	Aircraft designed to find, attack, and destroy enemy land or sea targets using conventional or special weapons. This symbol also applies to aircraft used for interdiction and close air support missions.
B	Bomber	Aircraft designed for bombing enemy targets.
C	Transport	Aircraft designed primarily to carry personnel, cargo, or both.
E	Special Electronic Installation	Aircraft designed for one or more of the following missions: (1) Electronic countermeasures (2) Airborne early warning radar (3) Airborne command and control, including communications relay (4) Tactical data communications link for all non-autonomous modes of flight.
F	Fighter	Aircraft designed to intercept and destroy other aircraft or missiles. Includes multipurpose aircraft also designed for ground support missions such as interdiction and close air support.
L	Laser	Vehicle designed for employing a high-energy laser weapon.
O	Observation	Aircraft designed to observe (through visual or other means) and report tactical information concerning composition and disposition of forces.
P	Patrol	Long-range all-weather multi-engine aircraft operating from land or water bases designed for independent antisubmarine warfare, maritime reconnaissance, and mining.
R	Reconnaissance	Aircraft designed for photographic or electronic reconnaissance missions.
S	Antisubmarine	Aircraft designed to find, detect, identify, attack, and destroy enemy submarines.
T	Trainer	Aircraft designed for training purposes.
U	Utility	Aircraft designed to perform multiple missions such as battlefield support, localized transport, and special light missions. Included are aircraft designed for small payloads.
X	Research	Aircraft designed for testing highly experimental configurations. These aircraft are not generally intended for use as operational aircraft.

Vehicle Type Symbols

D	UAV Control Segment	Vehicles designed to control or direct UAVs.
G	Glider	Engine or engineless fixed-wing aircraft flown by using air currents to keep it aloft.
H	Helicopter	Rotary-wing aircraft (deriving lift from a rotating lifting surface).
Q	Unmanned Aerial Vehicle	An unmanned aircraft that uses aerodynamic forces for lift, autonomously or remotely piloted, expendable or recoverable, and can carry a lethal or nonlethal payload.
S	Spaceplane	Aircraft designed to travel above the earth's atmosphere and return to earth in support of space operations.

V	VTOL and STOL	Aircraft designed to take off and land vertically or in a very short distance.
Z	Lighter-Than-Air Vehicle	Nonrigid or semi-rigid aircraft that achieves its primary lift through use of hot gases or lighter-than-air gases (includes blimps and balloons).

Note: During the period of 2000–2010 the Navy quit using or no longer had basic mission aircraft with the following designations:

VA	Attack
VF	Fighter
VO	Observation
VS	Antisubmarine

The F/A-18 aircraft fell into the category of VA and VF but was identified as a multimission aircraft with the designation strike fighter.

Aircraft Designation List

The Aircraft Designation Listings have been divided into four separate lists to help clarify the different designation systems used by the Navy. They are:

- 1911–1922 Designation Systems (there were three separate systems during this period)
- 1922–1923 Designations
- 1923–1962 Navy System
- 1962 to Present DoD Designation System.

Column headings within each of these vary. However, if the popular name (official name assigned by the Navy) or common name (name usually assigned by the manufacturer) was known it is included in each of the listings. The popular or common name may not always apply to all the specific aircraft model designations. The primary emphasis for the Aircraft Designation Listings is to provide a composite list of all the aircraft designations the Navy has had in its inventory. It should also be noted, some aircraft in these listings were not assigned bureau numbers, especially in the case of experimental aircraft. Others were one-of-a-kind models, and some were acquired through a means other than the usual ordering via aircraft production contracts, these include foreign aircraft acquired for evaluation. A separate listing—Naval Aircraft Redesignated in 1962—has been added to help clarify the redesignations that occurred in 1962.

1911–1922 Designation Systems

Within this time frame there were three separate designation systems. The three separate columns identify those systems. Column three (Other Designation Systems or Popular Name) covers the period 1917–1922 during which there was no standard designation system. During WWI the Navy generally adopted whatever designations were assigned by the developer or manufacturer.

1911 Designation System	1914 Designation System	Other Designation Systems, Popular or Common Name	Manufacturer or other Source
A-1	AH-1	Triad	Curtiss
A-2/E-1	AX-1	OWL (Over-Water-Land, also called Bat Boat)	Curtiss
A-3	AH-3		Curtiss
A-4	AH-2		Curtiss
B-1	AH-4		Wright
B-2	AH-5		Wright
B-3	AH-6		Wright
C-1	AB-1		Curtiss

1911 Designation System	1914 Designation System	Other Designation Systems, Popular or Common Name	Manufacturer or other Source
C-2	AB-2		Curtiss
C-3	AB-3		Curtiss
C-4	AB-4		Curtiss
C-5	AB-5		Curtiss
D-1	AB-6		Burgess & Curtis
D-2	AB-7		Burgess & Curtis
E-1	AX-1	OWL (Over-Water-Land, also called Bat Boat)	Curtiss (1913)
	DN-1	(Navy's first LTA vehicle, D stood for dirigible and N for non-rigid)	Connecticut Aircraft Company
	AH-7		Burgess-Dunne
	AH-8		Curtiss
	AH-9		Curtiss
	AH-10		Burgess-Dunne
	AH-11		Curtiss
	AH-12		Curtiss
	AH-13		Curtiss
	AH-14		Curtiss
	AH-15		Curtiss
	AH-16		Curtiss
	AH-17		Curtiss
	AH-18		Curtiss
	AH-19	Martin S	Martin
	AH-20	Thomas HS	Thomas Brothers
	AH-21	Thomas HS	Thomas Brothers
	AH-22		Martin
	AH-23		Wright
	AH-24	Sturtevant S	Sturtevant
	AH-25		Burgess
	AH-26		Burgess
	AH-27		Burgess
	AH-28		Burgess
	AH-29		Burgess
	AH-30		Curtiss
	AH-31		Burgess
	AH-32		Curtiss
	AH-33		Curtiss
	AH-34		Curtiss
	AH-35		Curtiss
	AH-36		Curtiss
	AH-37		Curtiss
	AH-38		Curtiss
	AH-39		Curtiss
	AH-40		Curtiss
	AH-41		Curtiss
	AH-42		Curtiss
	AH-43		Curtiss
	AH-44		Curtiss
	AH-45		Curtiss

1911 Designation System	1914 Designation System	Other Designation Systems, Popular or Common Name	Manufacturer or other Source
	AH-46		Curtiss
	AH-47		Curtiss
	AH-48		Curtiss
	AH-49		Curtiss
	AH-50		Curtiss
	AH-51		Curtiss
	AH-52		Curtiss
	AH-53		Curtiss
	AH-54		Curtiss
	AH-55		Curtiss
	AH-56		Curtiss
	AH-57		Curtiss
	AH-58		Curtiss
	AH-59		Curtiss
	AH-60		Curtiss
	AH-61	D-1	Gallaudet
	AH-62	R-3	Curtiss
	AH-63		Paul Schmitt, Paris
	AH-64		Curtiss
	AH-65	R-3	Curtiss
		18-T Kirkham Fighter	Curtiss
		AR-1	Morane-Saulnier
		Avorio Prassone	Italian Govt.
		C-1	Fokker, Netherlands
		C-1F	Boeing
		Camel (F-l)	Sopwith, from Army
		Caproni Ca-44	Caproni, Italy
		CR-1,-3	Curtiss
		CS-1	Curtiss
		CS-II	Dornier
		CT	Curtiss
		D-1	Gallaudet Aircraft Corp.
		D-1	Dornier, Swiss Agent
		D-4	Gallaudet Aircraft Corp.
		D-7 or D.VII	Fokker
		DH-4	Dayton-Wright, from Army
		DH-4B/4B-1	NAF and Army
		DH-9A	British Govt.
		DN-1	Connecticut Aircraft Co.
		Donne Denhaut	French Govt.
		DT-1,-2	Douglas, NAF, LWF
		E-1 (M Defense)	Standard, from Army
		EM-1,-2	G. Elias & Brothers
		EO-1	G. Elias & Brothers
		F Boat	Curtiss, Alexandria (Briggs)
		F-5/F-5L	Curtiss, Canadian Aeroplanes Ltd., and NAF
		F-6	NAF

1911 Designation System	1914 Designation System	Other Designation Systems, Popular or Common Name	Manufacturer or other Source
		FT-1	Fokker, Netherlands
		Gastite Kite	Goodrich
		GS-1,-2 Gnome Speed Scout	Curtiss
		H-12,-12L	Curtiss
		H-16	Curtiss, NAF
		H-4-H	Standard
		HA-1,-2	Curtiss
		HB-2	Levy-Lepen
		HD-1,-2	Hanriot
		Heinkel Seaplane	Casper Werke, Germany
		HPS-1	Handley Page
		HS-1,-1L	Curtiss, Boeing, Loughead, LWF, Gallaudet, Standard
		HS-2L	Curtiss, Boeing, NAF, Gallaudet, Standard, Loughead, LWF
		HS-3	Curtiss, NAF
		HT-2	Burgess
		JL-6	Junkers-Larsen
		JN-4	Curtiss
		JN-4B	Curtiss
		JN-4H	From Army
		JN-4HG	From Army
		JN-6H	From Army
		JN-6HG-I	From Army
		K Boat	Austrian Govt.
		K-4 (variant of NO-1)	J. V. Martin
		KF-1 (also known as KIV)	J. V. Martin
		L-2	Curtiss
		L-3	Longren
		Le Pen Seaplane	From Abroad
		LePere	From Army
		LS-1	Loening Aeronautical Engineering Co.
		M-3 Kitten	Loening Aeronautical Engineering Co.
		M-8	Loening Aeronautical Engineering Co.
		M-8-0 (M-80)	Loening Aeronautical Engineering Co.
		M-8-1 (M-81)	NAF (Loening design)
		M-8-1S (M-81S)	Loening
		M2O-1	Martin
		M.5	Macchi
		M.8	Macchi
		M.16	Macchi
		MB-3	Thomas Morse
		MB-7	Thomas Morse
		MBT/MT	Martin
		MF Boat	Curtiss and NAF
		MO-1	Martin
		MS-1	Martin

1911 Designation System	1914 Designation System	Other Designation Systems, Popular or Common Name	Manufacturer or other Source
		MT/MBT	Martin
		Model 10	Alexandria Aircraft
		Model 39-A, -B	Aeromarine Plane & Motor Co.
		Model 40F	Aeromarine Plane & Motor Co.
		Model 700	Aeromarine Plane & Motor Co.
		N-1	NAF
		N-9, -9H	Curtiss, Burgess
		N-10 (2 reworked N-9)	Curtiss
		NC-1, 2, 3, 4	Curtiss
		NC-5 to -10	NAF
		Nieuport 28	From Army
		Night Bomber	Sperry
		NO-1	NAF
		NW-1, -2	Wright
		O-SS	British
		Panther	Parnall
		Paul Schmitt Seaplane	Paul Schmitt, Paris
		PT-1,-2	NAF
		R-3	Curtiss
		R-6,-6L	Curtiss
		R-9	Curtiss
		S-4B	Thomas Morse
		S-4C	Thomas Morse Scout
		S-5	Curtiss
		S-5 (not the same aircraft as Curtiss S-5)	Thomas Morse
		SA1	NAF
		SA2	NAF
		SC-1, -2	Martin
		SE-5	From Army
		SH-4	Thomas-Morse
		Sopwith Baby	Sopwith
		Sopwith Camel	Sopwith
		Sopwith Pup	Sopwith
		Sopwith 1$^{1}/_{2}$ Strutter	Sopwith
		SS-Z-23	British Admiralty
		ST-1	Stout Metal Airplane Co.
		Swift	Blackburn Aeroplane Co.
		Tellier Flying Boat	French Govt.
		TF Boat	NAF
		TG-1,-2,-3,-4,-5	NAF
		TS-1	NAF and Curtiss
		TS-2,-3	NAF
		TR-2 (TS-3 A6449 redesignated, one of a kind)	NAF
		TR-3,-3A	NAF (Rebuilt TS-2)
		TW-3	Wright
		U-1	Caspar, Germany

1911 Designation System	1914 Designation System	Other Designation Systems, Popular or Common Name	Manufacturer or other Source
		U-2	Burgess
		USXB-1	Dayton Wright, from Army
		VE-7,-7F	Lewis & Vought and NAF
		VE-7G,-7GF	NAF
		VE-7H	NAF
		VE-7S,-7SF,-7SH	NAF
		VE-9,-9H	Chance Vought
		Zodiac-Vedette	French Govt.
		Viking IV	Vickers
		VNB-1	Boeing
		WA	Dayton-Wright
		WP-1	Wright
		WS Seaplane	Dayton-Wright
		XDH-60 Moth	De Havilland
		XS-1	Cox-Klemin
		Exp. Seaplane	NAS Pensacola
		Glider	Am. Motorless
		Hydroaeroplane	Pensacola and Curtiss
		Richardson Seaplane	Washington Navy Yard
		Seaplane	Aeromarine
		Seaplane	DWF, Germany
		Seaplane	Farman
		Seaplane	Loening
		Seaplane	Standard
		Seaplane	Wright
		Seaplane	Wright-Martin

1922–1923 Designations

Original Navy Designation	Other Designation, Popular or Command Name	Manufacturer or other Source
BR		Bee Line
HN-1,-2		Huff-Daland
HO-1		Huff-Daland
NM		NAF

1923–1962 Navy System

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
	AE-1	(L-4)(HE-1)	Piper
A-1	AD-1 thru -7	Skyraider (XBT2D-1)	Douglas
	A2D-1	Skyshark	Douglas
A-3	A3D-1, -2	Skywarrior	Douglas
A-4	A4D-1, -2, -5	Skyhawk	Douglas
	AF-2, -3	Guardian (XTB3F-1)	Grumman
A-6	A2F-1	Intruder	Grumman
F-4	AH	Phantom II	McDonnell
A-2	AJ-1, -2	Savage	North American
A-5	A3J-1 thru -3	Vigilante	North American

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
	AM-1	Mauler (XBTM-1)	Martin
	AU-1	Corsair (XF4U-6)	Vought
		B-314	Boeing
		Bulldog IIA	Bristol
	BD-1, -2	Havoc (A-20)	Douglas
	BG-1		Great Lakes
	XB2G-1		Great Lakes
	BM-1, -2	(XT5M-1)	Martin
	BT-1		Northrop
	XBT-2	(SBD-1)	Northrop/Douglas
	XBTC-2		Curtiss
	XBY-1		Consolidated
	XB2Y-1		Consolidated
	XBFC-1	(XF11C-1)	Curtiss
	BFC-2	Goshawk (F11C-2)	Curtiss
	BF2C-1	(F11C-3)	Curtiss
	XBTC-1	Cancelled	Curtiss
	XBTC-2		Curtiss
	XBT2C-1		Curtiss
	BTD	Destroyer	Douglas
A-1	XBT2D-1	Skyraider (AD-1)	Douglas
	XBTK-1	(BK-1 original designation, changed before first aircraft completed)	Kaiser-Fleetwings
	XBTM-1	Mauler (AM-1)	Martin
	CS-1, -2		Curtiss
	SC-1, -2	(CS-1)	Martin
	D-558-1	Skystreak	Douglas
	D-558-2	Skyrocket	Douglas
	XDH-80	Puss Moth	De Havilland
QH-50D,-50C	DSN	DASH	Gyrodyne
	F-5L		NAF
	XFA-1		General Aviation
	F2A-1 thru -3	Buffalo	Brewster
	F3A-1	Corsair (F4U)	Brewster
	FB-1 thru -5		Boeing
	F2B-1		Boeing
	F3B-1		Boeing
	F4B-1 thru -4		Boeing
	XF5B-1		Boeing
	XF6B-1		Boeing
	XF7B-1		Boeing
	XF8B-1		Boeing
	F2C-1	(F2C-1 a paper designation for R2C-1, never used as F2C-1)	Curtiss
	F4C-1		Curtiss
	F6C-1 thru -4	Hawk	Curtiss
	F6C-6	Hawk	Curtiss
	XF6C-5 thru -7		Curtiss
	F7C-1	Seahawk	Curtiss

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
	XF8C-1	Falcon	Curtiss
	F8C-1, -3	Falcon (OC)	Curtiss
	F8C-4, -5	Helldiver (O2C)	Curtiss
	XF8C-2, -4	Helldiver	Curtiss
	XF8C-7, -8	Helldiver (O2C)	Curtiss
	XF9C-1, -2		Curtiss
	F9C-2	Sparrowhawk	Curtiss
	XF11C-1	(XBFC-1)	Curtiss
	XF11C-2	Goshawk (XBFC-2)	Curtiss
	XF11C-3	(XBF2C-1)	Curtiss
	F11C-2	Goshawk (BFC-2)	Curtiss
	XF13C-1 thru -3		Curtiss
	XF14C-2		Curtiss
	XF15C-1		Curtiss
	XFD-1		Douglas
	FD-1	Phantom (FH-1)	McDonnell
	XF2D-1	Banshee (F2H)	McDonnell
F-10	F3D-1, -2	Skyknight	Douglas
F-6	F4D-1	Skyray	Douglas
	F5D-1	Skylancer	Douglas
	FF-1, -2		Grumman
	F2F-1		Grumman
	F3F-1 thru -3		Grumman
	XF4F-3 thru -6, -8	Wildcat	Grumman
	F4F-3, -3A, -4, -7	Wildcat (FM)	Grumman
	XF5F-1	Skyrocket	Grumman
	XF6F-3, -4, -6	Hellcat	Grumman
	F6F-3, -5	Hellcat	Grumman
	F7F-1 thru -4	Tigercat	Grumman
	F8F-1, -2	Bearcat	Grumman
	F9F-2 thru -5	Panther	Grumman
F-9	F9F-6 thru -8	Cougar	Grumman
	XF10F-1	Jaguar	Grumman
F-11	F11F-1	Tiger (F9F-9)	Grumman
	XFG-1/XFG2G-1		Eberhart
	FG-1	Corsair (F4U)	Goodyear
	F2G-1, -2	(FG/F4U)	Goodyear
	XFH-1		Hall
	FH-1	Phantom	McDonnell
F-2	F2H-1 thru -4	Banshee (F2D)	McDonnell
F-3	F3H-1, -2	Demon	McDonnell
F-4	F4H-1	Phantom II	McDonnell
	FJ-1, -2	Fury	North American
F-1	FJ-3, -4	Fury	North American
	XFJ-1, -2		Berliner-Joyce
	XF2J-1		Berliner-Joyce
	XF3J-1		Berliner-Joyce
	XFL-1	Airabonita	Bell

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
	F2L-1	Airacobra (XTDL-1)	Bell
	FM-1, -2	Wildcat	General Motors
	FO-1	Lightning (P-38)	Lockheed
	XFR-1	Fireball	Ryan
	FR-1	Fireball	Ryan
	XF2R-1		Ryan
	XFT-2		Northrop
	F2T-1	Black Widow (P-61)	Northrop
	FU-1		Vought
	XF2U-1		Vought
	XF3U-1	(SBU)	Vought
	XF4U-1, -3 thru -5	Corsair	Vought
	F4U-1 thru -5, -7	Corsair (AU/FG/F3A/F2G)	Vought
	XF5U-1		Vought
	F6U-1	Pirate	Vought
	F7U-1 thru -3	Cutlass	Vought
F-8	F8U-1, -2	Crusader	Vought
	F8U-3	Crusader III	Vought
	F2W-1		Wright
	F3W-1	Apache	Wright
	XFY-1	Pogo	Consolidated
F-7	F2Y	Sea Dart (Never used in F-7 designation)	Convair
	GB-1, -2	Traveler (JB)	Beech
	GH-1 thru -3	Nightingale (NH)	Howard
	GK-1	Forwarder (JK)	Fairchild
	GQ-1	Reliant	Stinson
C-130	GV-1	Hercules (R8V)	Lockheed
	HE	(L-4)(AE)	Piper
	XHL-1		Loening
	XHJH-1		McDonnell
	XHJP-1		Piasecki
	XHJS-1		Sikorsky
	HNS-1	Hoverfly	Sikorsky
	XHOE-1		Hiller
H-43	HOK-1		Kaman
	HOS-1		Sikorsky
	HO2S-1		Sikorsky
	HO3S-1		Sikorsky
	XHO3S-3		Sikorsky
H-19	HO4S-3	(HRS)	Sikorsky
	HO5S-1		Sikorsky
H-46	HRB-1		Vertol
	XHRH-1	Order cancelled	McDonnell
	HRP-1, -2	Rescuer (Flying Banana)	Piasecki
H-19	HRS-1 thru -3	(HO4S)	Sikorsky
H-37	HR2S-1	Mojave	Sikorsky
	HSL-1	Model 61	Bell
H-34	HSS-1	Sea Bat	Sikorsky

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
H-3	HSS-2	Sea King	Sikorsky
	HTE-1, -2	UH-12A	Hiller
	HTK-1		Kaman
H-13	HTL-1 thru -7	Did not use Sioux	Bell
H-43	HUK-1	Did not use Huskie	Kaman
H-2	HU2K-1	Seasprite	Kaman
H-13	HUL-1	Did not use Sioux	Bell
	HUM-1	MC-4A	McCulloch
H-25	HUP-1 thru -3	Retriever	Piasecki (Vertol)
H-34	HUS-1	Seahorse	Sikorsky
H-52	HU2S-1		Sikorsky
	XJA-1	Super Universal	Fokker
	JR-1 thru -3	(RR)	Ford
	JA-1	Norseman	Noorduyn
	JB-1	Traveler (GB)	Beech
	JD-1	Invader	Douglas
	JE-1		Bellanca
	JF-1 thru -3	Duck	Grumman
	J2F-1 thru -5	Duck	Grumman
	J2F-6	Duck	Columbia
	XJ3F-1	G-21	Grumman
	J4F-1, -2	Widgeon	Grumman
	JH-1		Stearman-Hammond
	JK-1		Fairchild
	J2K-1	Coast Guard only	Fairchild
	XJL-1		Colombia
	JM-1, -2	Marauder	Martin
	JO-1, -2	Model 12A	Lockheed
	XJO-3		Lockheed
	XJQ-1, -2	(XRQ/R2Q)	Fairchild
	J2Q-1	Coast Guard (R2Q)	Fairchild
	XJW-1	UBF	Waco
	JRB-1 thru -4	Voyager/Expediter	Beech
	JRC-1	Bobcat	Cessna
	JRF-1 thru -6	Goose, G-21	Grumman
	XJR2F-1	Albatross (UF/UH-16)	Grumman
	JRM-1 thru -3	Mars (XPB2M)	Martin
	JRS-1		Sikorsky
	JR2S-1	VS-44A	Vought Sikorsky
	XLBE-1	Glomb	Pratt-Read (Gould)
	LBP-1	Glomb	Piper
	LBT-1	None acquired (XLBE-1)	Taylorcraft
	LNE-1		Pratt-Read (Gould)
	XLNP-1		Piper
	XLNR-1		Aeronca
	LNS-1		Schweizer
	XLNT-1		Taylorcraft
	XLRA-1		Allied

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
	XLR2A-1		Allied
	XLRN-1		NAF
	XLRQ-1		Bristol
	LRW-1		Waco
	XLR2W-1		Waco
		M-130, PanAm owned	Martin
		Me-108B	Messerschmitt
		Me-262S	Messerschmitt
	NB-1 thru -4	Model 21	Boeing
	XN2B-1	Model 81	Boeing
	N2C-1, -2	Fledgling	Curtiss
L-4	NE-1, -2	Grasshopper	Piper
	NH-1	Nightingale (GH)	Howard
	NJ-1		North American
	XNK-1		Keystone
	XNL-1		Langley
	N2M-1		Martin
	N2N-1		NAF
	N3N-1 thru -3	Yellow Peril	NAF
	NP-1		Spartan
	XNQ-1		Fairchild
	XNR-1		Maxon
	NR-1	Recruit	Ryan
	NS-1		Stearman
	N2S-1 thru -5	Kaydet/Caydet	Stearman/Boeing
	NT-1		New Standard
	N2T-1	Tutor	Timm
	NY-1 thru -3	(PT-1)	Consolidated
	N2Y-1		Consolidated (Fleet Aircraft Inc.)
	XN3Y-1		Consolidated
	XN4Y-1	(PT-11)	Consolidated
	O2B-1	DH-4B metal fuselage	Boeing
	OC-1, -2	Falcon (F8C-1, -3)	Curtiss
	XOC-3		Curtiss
	O2C-1, -2	Helldiver (F8C-5)	Curtiss
	XO3C-1	(SOC)	Curtiss
	OD-1		Douglas
	XO2D-1		Douglas
O-1	OE-1, -2	Bird Dog	Cessna
	XOJ-1		Berliner-Joyce
	OJ-2		Berliner-Joyce
	XOK-1		Keystone
	OL-1 thru -9		Loening Aeronautical Engineering Company
	XO2L-1		Loening
	O2N-1	None accepted (XOSN-1)	NAF
	OO	Schreck FBA	Viking
	XOP-1, -2		Pitcairn

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
	O2U-1 thru -4		Vought
	O3U-1, -2	(O3U-2 redes. SU-1) -3, -4, -6 (O3U-4 redes. SU-2, -3)	Vought
	XO3U-5, -6		Vought
	XO4U-1, -2		Vought
	XO5U-1		Vought
	OY-1	Sentinel (L-5) Stinson V-76	Convair (Stinson, Vultee, Consolidated)
	XOZ-1		Penn Acft. Syndicate
	XOSE-1, -2		Edo
	XOSN-1		NAF
	OS2N-1	Kingfisher (OS2U)	NAF
	XOSS-1		Stearman
	OS2U-1 thru -3	Kingfisher	Vought
		(P-59)	Bell
		(P-63)(L-39)	Bell
	PB-1	Flying Fortress (B-17)	Boeing
	P2B-1, -2	Superfortress (B-29)	Boeing
	PD-1	(PN-12)	Douglas
	P2D-1		Douglas
	XP3D-1		Douglas
	UF-1	Albatross (XJR2F/UH-16)	Grumman
	PH-1 thru -3		Hall
	XP2H-1		Hall
	PJ-1, -2	FLB, Coast Guard	North American
	PK-1	(PN-12)	Keystone
	PM-1, -2	(PN-12)	Martin
	XP2M-1		Martin
	P3M-1, -2	(XPY-1)	Martin
	P4M-1	Mercator	Martin
P-5	P5M-1, -2	Marlin	Martin
P-6	XP6M-1	Seamaster (never used in P-6 designation)	Martin
P-6	P6M-2	Seamaster (never used in P-6 designation)	Martin
	PN-7 thru -12		NAF
	P2N	Never used in this designation (NC boats)	NAF
	P3N		NAF
	XP4N-1, -2		NAF
	PO-1	Constellation	Lockheed
	PO-2	Warning Star (WV)	Lockheed
	XPS-1, -2	(XRS-2)	Sikorsky
	PS-3	(RS-3)	Sikorsky
	XP2S		Sikorsky
	PV-1, -3	Ventura	Lockheed
	PV-2	Harpoon	Lockheed
P-2	P2V-1 thru -7	Neptune	Lockheed
P-3	P3V-1	Orion	Lockheed
	XPY-1	Admiral (P3M-1, -2)	Consolidated
	P2Y-1 thru -3		Consolidated
	XP3Y-1	(PBY)	Consolidated

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
	XP4Y-1	Model 31	Consolidated
QP-4B	P4Y-2	Privateer (PB4Y-2)	Consolidated
	XP5Y-1	(R3Y)	Convair
	XPBB-1		Boeing
	PB2B-1, -2	Catalina	Boeing
	PBJ-1	Mitchell (B-25)	North American
	PBM-1 thru -3, -5	Mariner	Martin
	XPB2M	Mars (JRM)	Martin
	PBN-1	Nomad	NAF
	PBO-1	Hudson	Lockheed
	XPBS-1		Sikorsky
	PBY-1 thru -6A	Catalina	Consolidated
	XPB2Y-1	Coronado	Consolidated
	PB2Y-2 thru -5	Coronado	Consolidated
	PB4Y-1	Liberator (B-24)	Consolidated
	PB4Y-2	Privateer	Consolidated
	XPTBH-2		Hall
	R2C-1, -2	(F2C-1 paper designation for R2C-1, never used)	Curtiss
	R3C-1 thru -4		Curtiss
	RA-1 thru -4	(TA)	Atlantic
	RB-1	Conestoga	Budd
	RC-1	Kingbird	Curtiss
	R4C-1	Condor	Curtiss
C-46	R5C-1	Commando (may not have been used under C-46 designation)	Curtiss
	RD-1 thru -4	Dolphin	Douglas
	R2D-1	DC-2	Douglas
	R3D-1 thru -3	DC-5	Douglas
C-47	R4D-1 thru -7	Skytrain	Douglas
C-117	R4D-8	Skytrain	Douglas
C-54	R5D-1 thru -5	Skymaster	Douglas
C-118	R6D-1	Liftmaster, DC-6A	Douglas
	XRE-1 thru -3	Skyrocket	Bellanca
	RG-1		Romeo Fokker, Italy
	XRK-1	Envoy	Kinner
C-3	RM-1	Model 4-0-4 (VC-3A)	Martin
	XRO-1	Altair	Detroit/Lockheed
	XR2O-1	Electra	Lockheed
	XR3O-1	Electra	Lockheed
	R4O-1	Model 14	Lockheed
	R5O-1 thru -6	Lodestar	Lockheed
	XR6O-1	Constitution	Lockheed
C-121	R7O-1	Constellation	Lockheed
	R2Q-1	(J2Q) Coast Guard	Fairchild
	XR3Q-1	Reliant	Stinson
C-119	R4Q-1, -2	Packet	Fairchild
	RR-4, -5	(JR)	Ford
	RS-1 thru -3, -5	(PS)	Sikorsky

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
	RT	Delta	Northrop
	R6V-1	Constitution	Lockheed
C-121	R7V-1	Constellation	Lockheed
	R8V-1G	Hercules	Lockheed
	RY-1 thru -3		Consolidated
	XR2Y-1		Convair
	R3Y-1, -2	Tradewind	Convair
C-131	R4Y-1, -2	Convair Liner	Convair
	ROE-1		Hiller
	RON-1	(HOG-1)	Gyrodyne
	SC-1, -2	Seahawk	Curtiss
	XS2C-1	Shrike	Curtiss
	XS3C-1		Curtiss
	SDW-1	(DT)	Dayton-Wright
	XSE-2		Bellanca
	SF-1	(FF-1)	Grumman
	XSG-1		Great Lakes
	XSL-1		Loening
	XS2L-1		Loening
	XSS-2		Sikorsky
	SU-1 thru -3	Corsair (O3U)	Vought
S-2	S2F-1 thru -3	Tracker	Grumman
	XS2U-1W	Cancelled (XWU-1)	Vought
	XSBA-1	(SBN)	Brewster
	SB2A-1 thru -4	Buccaneer	Brewster
	XSBC-1	(XF12C-1)	Curtiss
	XSBC-2 thru -4		Curtiss
	SBC-3, -4	Helldiver	Curtiss
	SB2C-1 thru -5	Helldiver (SBF/SBW)	Curtiss
	XSB2C-6		Curtiss
	SBD-1 thru -6	Dauntless	Douglas
	XSB2D-1	Destroyer	Douglas
	SBF-1, -3, -4	Helldiver (SB2C/SBW)	Fairchild Aircraft Ltd., Canada
	SBN-1	(XSBA)	NAF
	SBU-1, -2		Chance Vought
	SB2U-1 thru -3	Vindicator	Vought-Sikorsky, Chance Vought
	XSB3U-1		Vought-Sikorsky
	SBW-1, -3 thru -5	Helldiver (SB2C/SBF)	Canadian Car & Foundry
	SNJ-1 thru -7	Texan	North American
	XSN2J-1		North American
	SNB-1, -2	Kansan	Beech
C-45	SNB-5	Navigator	Beech
	SNC-1	Falcon	Curtiss
	SNV-1, -2	Valiant	Vultee
	SOC-1 thru -4	Seagull	Curtiss
	XSO2C-1		Curtiss
	SO3C-1 thru -3	Seamew	Curtiss

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
	XSOE-1		Bellanca
	SON-1	(SOC-3)	NAF
	XSO2U-1		Vought
	TB-1		Boeing
	T2D-1		Douglas
	XT3D-1		Douglas
	TG-1, -2		Great Lakes
	T3M-1, -2		Martin
	T4M-1		Martin
	XT5M-1	(BM)	Martin
	XT6M-1		Martin
	XTN-1		NAF
	XT2N-1		NAF
	TA-1 thru -3	(RA)	Atlantic
	XTE-1		Edo
	TE-2		Edo
C-1	TF-1	Trader	Grumman
	XTF-1W	Tracer (WF-2)	Grumman
T-2	XT2J-1, -2	Buckeye	North American
T-2	T2J-1	Buckeye	North American
T-39	T3J-1		North American
T-33	TO-1, -2	Shooting Star (TV)	Lockheed
	TT-1	Pinto	Temco
T-33	TV-1, -2	Shooting Star (TO)	Lockheed
T-1	T2V-1	Seastar	Lockheed
	TBD-1	Devastator	Douglas
	XTB2D-1		Douglas
	TBF-1	Avenger (TBM)	Grumman
	XTBF-2, -3	Avenger (TBM)	Grumman
	XTB3F-1	Guardian (AF)	Grumman
	XTBG-1		Great Lakes
	TBM-1 thru -4	Avenger (TBF)	General Motors
	XTBU-1	Seawolf (TBY)	Vought
	TBY-2	Seawolf (XTBU)	Consolidated
	TDC-1, -2	(PQ-8) drone	Culver
	TD2C-1	(PQ-14) drone	Culver
	XTD3C	(PQ-15) drone	Culver
	XTD4C-1	(XUC) drone	Culver
	TDD	(OQ-2A) drone	Radioplane
	TD2D	Katydid, drone	McDonnell
	TD3D	(OQ-16) drone	Frankfort
	TD4D	(OQ-17) drone	Radioplane
	XTDL-1	(P-39Q) drone	Bell
	TDN-1	Drone	NAF
	TD2N	Gorgon	NAF
	TD3N	Gorgon	NAF
	TDR-1	Drone	Interstate
	XTD2R-1	Drone	Interstate

Post-1962 DoD Designation	Original Navy Designation	Popular or Common Name, other Designation and Miscellaneous Data	Manufacturer or Source
	XTD3R-1	Drone	Interstate
	TS-1		Curtiss
	XUC	(XTD4C)	Culver
U-1	UC-1	Otter	De Havilland
U-16	UF-1, -2	Albatross (XJR2F)	Grumman
U-11	UO-1	Aztec	Piper
	UO-1	(not the same as Piper UO-1)	Vought
E-1	WF-2	Tracer	Grumman
E-2	W2F-1	Hawkeye	Grumman
	XWU-1	Cancelled (XS2U-1W)	Vought
	WV-1	Constellation	Lockheed
EC-121	WV-2, -3	Warning Star	Lockheed

Note:

- The list does not include all X model designations.
- Aircraft designations in parentheses are a cross reference to a similar model or a redesignation of that aircraft. Parentheses are also used to identify Army Air Corps/Air Force designations. Civilian model designations are not placed in parentheses.
- The designations T-28B/C, T-34B, and C-130BL were used by the Navy prior to the change to the DoD Designation System in 1962.

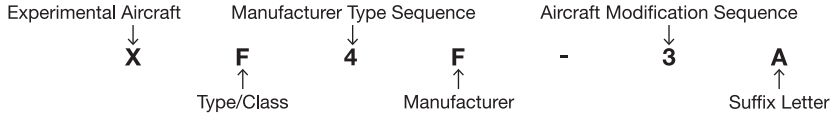
How to Read the 1923 to 1962 Aircraft Model Designations for U.S. Naval Aircraft

There have been several systems to designate U.S. naval aircraft. However, the most common system covered the period 1923 to 1962 and consisted of four major elements:

- Aircraft Type/Class
- Manufacturer Type Sequence
- Manufacturer
- Modification

In the beginning there were just two classes: heavier-than-air (fixed-wing) identified by the letter V and lighter-than-air identified by the letter Z. The letter H for heavier-than-air (rotary-wing) was added with the introduction of the helicopter in the 1940s. Late in 1945 the letter K was added for pilotless aircraft, making four distinct types. In March 1946 the type/class designation was separated into two distinct headings of Type and Class. The letter V was omitted in the model designation, but H, K, and Z were used where applicable. The letter X was added as a prefix designating an experimental model.

In designating the first model of a class produced by a given manufacturer, the first number (1) is omitted in the Manufacturer Type Sequence position, but is shown in the Modification Sequence position. Thus, in the VJ class, the first utility aircraft produced by Grumman Aircraft Corporation was the JF-1. When a major modification was instituted for the JF-1 without changing the character of the model, that modification changed the designation to JF-2. The second modification changed the designation to JF-3. The second utility aircraft built by Grumman was designated the J2F-1 and successive modifications to this aircraft became J2F-2, J2F-3, etc. It must be remembered that the aircraft Modification Sequence Number is always one digit higher than the actual modification number. The basic designation could be expanded to show additional characteristics, as demonstrated below:



Suffix letters came into a more general use during the period of rapid expansion immediately prior to U.S. entry into WWII. Unfortunately, the use of suffix letters was not strictly defined and the same letter was frequently used to denote several different characteristics causing considerable confusion. By the time the system was abandoned, it was necessary to know the aircraft in question rather than relying on the suffix letter to tell the specific characteristics being identified.

The following lists provide all of the letter designations necessary to understand the system:

Table 1. Type/Class Designation

Type/Class	Meaning	Period
A	Attack	1946–1962
A	Ambulance	1943–1946
B	Bomber	1931–1946
BT	Bomber Torpedo	1942–1946
D	Target Drone	1946–1947
F	Fighter	1922–1962
G	Glider	1946–1962
G	Transport, Single Engine	1939–1946
G	In-Flight Refueling Tanker	1960–1962
H	Hospital	1929–1942
H	Air-Sea-Rescue	1946–1962
J	Utility	1931–1946
J	Transport	1928–1931
JR	Utility Transport	1935–1946
K	Drone	1945–1962
L	Glider	1941–1945
M	Marine Expeditionary	1922–1925
N	Trainer	1922–1946
O	Observation	1922–1962
OS	Observation Scout	1935–1945
P	Patrol	1922–1962
P	Pursuit	1923
PB	Patrol Bomber	1935–1946
PT	Patrol Torpedo	1922
PT	Patrol Torpedo Bomber	1937–1938
R	Transport	1931–1962
R	Racer	1923–1928
S	Scout	1922–1946
SB	Scout Bomber	1934–1946
SN	Scout Trainer	1939–1946
SO	Scout Observation	1934–1946
T	Torpedo	1922–1935
T	Transport	1927–1930
T	Training	1946–1962
TB	Torpedo Bomber	1936–1946
TD	Target Drone	1942–1946
U	Utility	1946–1962

Table 2. Special Purpose Suffix		
Suffix	**Meaning**	**Example**
A	Target towing and photography	JRF-1A
A	Nonfolding wings and no carrier provisions	SB2C-1A
A	Armament on normally unarmed aircraft	J2F-2A
A	Arresting gear normally on noncarrier planes	SOC-3A
A	Amphibious version	PBY-5A
A	Land-based version of carrier aircraft	F4F-3A
A	Built for the Army Air Force	SBD-3A
B	Special armament version	PB4Y-2B
B	British lend-lease version	JRF-6B
C	Carrier operating version of a noncarrier aircraft	SNJ-2C
C	British-American standardized version	PBM-3C
C	Equipped with two .50-cal. machine guns	TBF-1C
C	Cannon armament	F4U-1C
D	Drop tank configuration	F4U-1D
D	Special search radar	TBM-3D
E	Special electronic version	SB2C-4E
F	Converted for use as a flagship	PB2Y-3F
G	Air-sea-rescue version	TBM-5G
H	Hospital version	SNB-2H
H	Air-sea rescue version	PB2Y-5H
J	Target towing version	TBM-3J
K	Target drone version	F6F-5K
L	Search light version	P2V-5L
M	Weather reconnaissance version	PB4Y-2M
N	Night operating version (all weather)	F6F-5N
P	Photographic version	SBD-2P
Q	Countermeasure version	TBM-3Q
R	Transport version	PBM-3R
S	Antisubmarine version	P5M-2S
T	Training version	R4D-5T
U	Utility version	PBM-3U
W	Special search version	PB-1W
Z	Administrative version	R4D-5Z

Table 3. Manufacturer's Designation		
Letter	**Manufacturer**	**Period**
A	Aeromarine Plane and Motor Co.	1922
A	Atlantic Aircraft Corp. (American Fokker)	1927–1930
A	Brewster Aeronautical	1935–1943
A	General Aviation Corp. (ex-Atlantic)	1930–1932
A	Noorduyn Aviation, Ltd. (Canada)	1946
B	Beech Aircraft Co.	1937–1962
B	Boeing Aircraft Co.	1923–1962
B	Budd Manufacturing Co.	1942–1944
C	Cessna Aircraft Corp.	1943–1951
C	Culver Aircraft Corp.	unknown–1946
C	Curtiss Aeroplane and Motor Co.	1922–1946
C	Curtiss-Wright Corp.	1948–1962
C	De Havilland Aircraft of Canada	1955–1962
D	Douglas Aircraft Co.	1922–1967
D	McDonnell Aircraft Corp.	1942–1946
D	Radioplane Co.	1943–1948
D	Frankfort Sailplane Co.	1945–1946
DH	De Havilland Aircraft Co. Ltd. (England)	1927–1931
DW	Dayton-Wright Airplane Co.	1923
E	Bellanca Aircraft Corp.	1931–1937
E	Cessna Aircraft Co.	1951–1962
E	Edo Aircraft Corp.	1943–1962
E	G. Elias & Brothers	1922–1924
E	Gould Aeronautical Corp.	1942–1945
E	Hiller Aircraft Corp.	1948–1962
E	Piper Aircraft Corp.	1941–1945
E	Pratt-Read	1942–1945
F	Fairchild Aircraft, Ltd. (Canada)	1942–1945
F	Columbia	1943–1944
F	Grumman Aircraft Engineering Corp.	1931–1962
G	Gallaudet Aircraft Corp.	1929–1935
G	Globe Aircraft Corp.	1946–1948
G	Goodyear Aircraft Corp.	1942–1962
G	Great Lakes Aircraft Corp.	1929–1935
H	Hall Aluminum	1928–1945
H	Howard Aircraft Co.	1941–1944
H	Huff, Daland & Co.	1922–1927
H	McDonnell Aircraft Corp.	1946–1962
H	Stearman-Hammond Aircraft Corp.	1937–1939
J	Berliner/Joyce Aircraft Co.	1929–1935
J	North American Aviation	1937–1962
K	Fairchild Aircraft Corp.	1937–1942
K	Kaman Aircraft Corp.	1950–1962
K	Kaiser Cargo Inc. Fleetwings Div.	1948–1962
K	Keystone	1927–1930
K	Kinner Airplane & Motor Corp.	1935–1936
L	Bell Aircraft Corp.	1939–1962

Table 3. Manufacturer's Designation		
Letter	**Manufacturer**	**Period**
L	Columbia	1944–1946
L	Grover Loening, Inc.	1923–1933
L	Loening Aeronautical Engineering Corp.	1922–1932
M	General Motors Corp. (Eastern Aircraft Div.)	1942–1945
M	Glenn L. Martin Co.	1922–1962
N	Gyrodyne Company of America	1955–1962
N	Naval Aircraft Factory	1922–1948
N	Naval Air Development Station	1948–1962
O	Lockheed Aircraft Corp.	1931–1962
P	Pitcairn Autogyro Co.	1931–1932
P	Piasecki Helicopter Corp.	1946–1955
P	Vertol Aircraft Corp.	1955–1962
P	Spartan Aircraft Co.	1940–1941
Q	Bristol Aeronautical Corp.	1941–1943
Q	Fairchild Engine and Airplane Co.	1928–1962
Q	Stinson Aircraft Corp.	1934–1936
R	Aeronca Aircraft Corp.	1942–1946
R	Ford Motor Co.	1927–1932
R	Interstate Aircraft and Engineering Corp.	1942–1962
R	Radioplanes Co.	1948–1962
R	Ryan Aeronautical Co.	1948–1962
S	Schweizer Aircraft Corp.	1941
S	Sikorsky Aviation Corp.	1928–1962
S	Sperry Gyroscope Co.	1948–1962
S	Stearman Aircraft Co.	1934–1945
T	Taylorcraft Aviation Corp.	1942–1946
T	Tempco Aircraft Corp.	1955–1962
T	New Standard Aircraft Corp.	1930–1934
T	The Northrop Corp.	1933–1937
T	Northrop Aircraft Inc.	1944–1962
T	Timm Aircraft Corp.	1941–1943
U	Lewis & Vought, Chance Vought, Vought-Sikorsky	1922–1962
V	Vultee Aircraft Inc.	1943–1945
V	Lockheed Aircraft Corp.	1942–1962
W	Canadian Car and Foundry Co., Ltd.	1942–1945
W	Waco Aircraft Corp.	1934–1945
W	Willys-Overland Co.	1948–1962
W	Wright Aeronautical Corp.	1922–1926
X	Cox-Klemin Aircraft Corp.	1922–1924
Y	Consolidated Aircraft Corp.	1926–1954
Y	Convair Division (General Dynamics Corp.)	1954–1962
Z	Pennsylvania Aircraft Syndicate	1933–1934

A basic company name has been used in some of the above entries even though the company may have undergone restructuring.

Naval Aircraft Redesignated in 1962

In 1962 a standardized system for designation of U.S. aircraft went into effect. The following is a list of naval aircraft that were redesignated in 1962:

Old Designation	New Designation	Popular Name
Attack		
A-1		
AD-5	A-1E	Skyraider
AD-5W	EA-1E	Skyraider
AD-5Q	EA-1F	Skyraider
AD-5N	A-1G	Skyraider
AD-6	A-1H	Skyraider
AD-7	A-1J	Skyraider
A-2		
AJ-1	A-2A	Savage
A-3		
A3D-1	A-3A	Skywarrior
A3D-1Q	EA-3A	Skywarrior
A3D-2	A-3B	Skywarrior
A3D-2Q	EA-3B	Skywarrior
A3D-2P	RA-3B	Skywarrior
A3D-2T	TA-3B	Skywarrior
A-4		
A4D-1	A-4A	Skyhawk
A4D-2	A-4B	Skyhawk
A4D-2N	A-4C	Skyhawk
A4D-5	A-4E	Skyhawk
A-5		
A3J-1	A-5A	Vigilante
A3J-2	A-5B	Vigilante
A3J-3	A-5C	Vigilante
A-6		
A2F-1	A-6A	Intruder
A2F-1H	EA-6A	Intruder
Fighters		
F-1		
FJ-3	F-1C	Fury
FJ-3D	DF-1C	Fury
FJ-3M	MF-1C	Fury
FJ-3D2	DF-1D	Fury
FJ-4	F-1E	Fury
FJ-4B	AF-1E	Fury
F-2		
F2H-3	F-2C	Banshee
F2H-4	F-2D	Banshee

Old Designation	New Designation	Popular Name
F-3		
F3H-2	F-3B	Demon
F3H-2M	MF-3B	Demon
F3H-2N	F-3C	Demon
F-4		
F4H-1F	F-4A	Phantom II
F4H-1	F-4B	Phantom II
F4H-1P	RF-4B	Phantom II
F-6		
F4D-1	F-6A	Skyray
F-7		
YF2Y-1	YF-7A	Sea Dart
F-8		
F8U-1	F-8A	Crusader
F8U-1D	DF-8A	Crusader
F8U-1KD	QF-8A	Crusader
F8U-1P	RF-8A	Crusader
F8U-1T	TF-8A	Crusader
F8U-1E	F-8B	Crusader
F8U-2	F-8C	Crusader
F8U-2N	F-8D	Crusader
F8U-2NE	F-8E	Crusader
F-9		
F9F-5KD	DF-9E	Cougar
F9F-6	F-9F	Cougar
F9F-6D	DF-9F	Cougar
F9F-6K	QF-9F	Cougar
F9F-6K2	QF-9G	Cougar
F9F-7	F-9H	Cougar
F9F-8	F-9J	Cougar
F9F-8B	AF-9J	Cougar
F9F-8P	RF-9J	Cougar
F9F-8T	TF-9J	Cougar
F-10		
F3D-1	F-10A	Skyknight
F3D-2	F-10B	Skyknight
F3D-2M	MF-10B	Skyknight
F3D-2Q	EF-10B	Skyknight
F3D-2T2	TF-10B	Skyknight
F-11		
F11F-1	F-11A	Tiger
F-111		
TFX	F-111B	

Old Designation	New Designation	Popular Name
Patrol		
P-2		
P2V-4	P-2D	Neptune
P2V-5F	P-2E	Neptune
P2V-5FD	DP-2E	Neptune
P2V-5FE	EP-2E	Neptune
P2V-5FS	SP-2E	Neptune
P2V-6	P-2F	Neptune
P2V-6M	MP-2F	Neptune
P2V-6T	TP-2F	Neptune
P2V-6F	P-2G	Neptune
P2V-7	P-2H	Neptune
P2V-7S	SP-2H	Neptune
P2V-7LP	LP-2J	Neptune
P-3		
YP3V-1	YP-3A	Orion
P3V-1	P-3A	Orion
P-4		
P4Y-2K	QP-4B	Privateer
P-5		
P5M-1	P-5A	Marlin
P5M-1S	SP-5A	Marlin
P5M-1T	TP-5A	Marlin
P5M-2	P-5B	Marlin
P5M-2S	SP-5B	Marlin
Antisubmarine		
S-2		
S2F-1	S-2A	Tracker
S2F-1T	TS-2A	Tracker
S2F-1S	S-2B	Tracker
S2F-2	S-2C	Tracker
S2F-2P	RS-2C	Tracker
S2F-3	S-2D	Tracker
S2F-3S	S-2E	Tracker
Airborne Early Warning		
E-1		
WF-2	E-1B	Tracer
E-2		
W2F-1	E-2A	Hawkeye
Observation		
O-1		
OE-1	O-1B	Bird Dog

Old Designation	New Designation	Popular Name
OE-2	O-1C	Bird Dog
Helicopters		
H-1		
HU-1E	UH-1E	Iroquois
H-2		
HU2K-1	UH-2A	Seasprite
HU2K-1U	UH-2B	Seasprite
H-3		
HSS-2	SH-3A	Sea King
HSS-2Z	VH-3A	Sea King
H-13		
HTL-4	TH-13L	Sioux
HTL-6	TH-13M	Sioux
HTL-7	TH-13N	Sioux
HUL-1	UH-13P	Sioux
HUL-1M	UH-13R	Sioux
H-19		
HRS-3	CH-19E	
HO4S-3	UH-19F	
H-25		
HUP-2	UH-25B	Retriever
HUP-3	UH-25C	Retriever
H-34		
HSS-1L	LH-34D	Seahorse
HUS-1	UH-34D	Seahorse
HUS-1Z	VH-34D	Seahorse
HUS-1A	UH-34E	Seahorse
HSS-1	SH-34G	Seahorse
HSS-1F	SH-34H	Seahorse
HSS-1N	SH-34J	Seahorse
H-37		
HR2S-1	CH-37C	Mojave
H-43		
HUK-1	UH-43C	
HOK-1	OH-43D	
H-46		
HRB-1	CH-46A	Sea Knight
H-50		
DSN-1	QH-50A	DASH
DSN-2	QH-50B	DASH

Old Designation	New Designation	Popular Name
DSN-3	QH-50C	DASH
Bombers		
JD-1	UB-26J	Invader
JD-1D	DB-26J	Invader
Utility		
U-1		
UC-1	U-1B	Otter
U-6		
L-20A	U-6A	Beaver
U-11		
UO-1	U-11A	Aztec
U-16		
UF-1	HU-16C	Albatross
UF-1L	LU-16C	Albatross
UF-1T	TU-16C	Albatross
UF-2	HU-16D	Albatross
Cargo/Transport		
C-1		
TF-1	C-1A	Trader
TF-1Q	EC-1A	
C-45		
SNB-5P	RC-45J	
SNB-5	TC-45J	
C-47		
R4D-5	C-47H	Skytrain
R4D-5Q	EC-47H	Skytrain
R4D-5L	LC-47H	Skytrain
R4D-5S	SC-47H	Skytrain
R4D-5R	TC-47H	Skytrain
R4D-5Z	VC-47H	Skytrain
R4D-6	C-47J	Skytrain
R4D-6Q	EC-47J	Skytrain
R4D-6L	LC-47J	Skytrain
R4D-6S	SC-47J	Skytrain
R4D-6R	TC-47J	Skytrain
R4D-6Z	VC-47J	Skytrain
R4D-7	TC-47K	Skytrain
C-54		
R5D-1Z	VC-54N	Skymaster
R5D-2	C-54P	Skymaster
R5D-2Z	VC-54P	Skymaster
R5D-3	C-54Q	Skymaster

Old Designation	New Designation	Popular Name
R5D-3Z	VC-54Q	Skymaster
R5D-4R	C-54R	Skymaster
R5D-5	C-54S	Skymaster
R5D-5Z	VC-54S	Skymaster
R5D-5R	C-54T	Skymaster
C-117		
R4D-8	C-117D	Skytrain
R4D-8L	LC-117D	Skytrain
R4D-8Z	VC-117D	Skytrain
R4D-8T	TC-117D	Skytrain
C-118		
R6D-1	C-118B	Liftmaster
R6D-1Z	VC-118B	Liftmaster
C-119		
R4Q-2	C-119F	Packet
C-121		
R7V-1	C-121J	Constellation
WV-2	EC-121K	Warning Star
WV-2E	EC-121L	Warning Star
WV-2Q	EC-121M	Warning Star
WV-3	WC-121N	
C-130		
GV-1U	C-130F	Hercules
GV-1	KC-130F	Hercules
C-130BL	LC-130F	Hercules
C-131		
R4Y-1	C-131F	Convair Liner
R4Y-2	C-131G	Convair Liner
C-140		
UV-1	C-140C	Jet Star
Training		
T-1		
T2V-1	T-1A	Seastar
T-2		
T2J-1	T-2A	Buckeye
T2J-2	T-2B	Buckeye
T-28		
T-28A	T-28A	Trojan
T-28B	T-28B	Trojan
T-28BD	DT-28B	Trojan
T-28C	T-28C	Trojan

Old Designation	New Designation	Popular Name
T-33		
TV-2	T-33B	Shooting Star
TV-2D	DT-33B	Shooting Star
TV-2KD	DT-33C	Shooting Star
T-34		
T-34B	T-34B	Mentor
T-39		
T3J-1	T-39D	Sabreliner
Airship		
ZPG-2W	EZ-1B	Reliance
ZPG-2	SZ-1B	
ZPG-3W	EZ-1C	

DoD Designation System, 1962 to Present

In the following list the primary emphasis is on new aircraft model designations accepted after the Navy adopted the Department of Defense aircraft designation system in 1962. Aircraft that were in service and redesignated under the DoD Designation System will only have the primary designation (basic mission) listed. As an example, the AD-6 and AD-7 were redesignated A-1H and A-1J respectively. However, only A-1, the primary designation, will be listed instead of all the model variations. The modified mission designations will normally not be listed. Hence, designations such as RC-45J or TC-45J will not always be listed, however, the basic mission designation C-45 will be. Only officially designated popular names are placed in this list. A more comprehensive list of pre-1962 aircraft designations will be found in the **1923–1962 Navy System** list.

Post-1962 DoD Designation	Original Navy Designation Before 1962	Popular Name Only, other Designations and Miscellaneous Data	Manufacturer or Source
A-1 (series)	AD	Skyraider	Douglas
EA-1E		Skyraider	Douglas
A-2	AJ	Savage	North American
A-3A/B	A3D	Skywarrior	Douglas
EA-3B		Skywarrior	Douglas
KA-3B		Skywarrior	Douglas
EKA-3B		Skywarrior	Douglas
NA-3B		Skywarrior	Douglas
RA-3B		Skywarrior	Douglas
ERA-3B		Skywarrior	Douglas
NRA-3B		Skywarrior	Douglas
TA-3B		Skywarrior	Douglas
UA-3B		Skywarrior	Douglas
A-4 (series)	A4D	Skyhawk	Douglas
NA-4E/F/M		Skyhawk	Douglas
OA-4M		Skyhawk	Douglas
EA-4F		Skyhawk	Douglas
TA-4B/E/F/J		Skyhawk	Douglas
NTA-4J		Skyhawk	Douglas
A-5	A3J	Vigilante	North American
RA-5C		Vigilante	North American
A-6A/B/C/E/F	A2F	Intruder	Grumman

Post-1962 DoD Designation	Original Navy Designation Before 1962	Popular Name Only, other Designations and Miscellaneous Data	Manufacturer or Source
EA-6A	A2F-1Q	Intruder	Grumman
NA-6A/E		Intruder	Grumman
KA-6D		Intruder	Grumman
EA-6B		Prowler	Grumman
JA-6B		Intruder	Grumman
A-7A/B/C/E		Corsair II	Vought
NA-7C/E		Corsair II	Vought
EA-7L		Corsair II	Vought
TA-7C		Corsair II	Vought
AV-8A/TAV-8A		Harrier	Hawker-Siddeley
AV-8C		Harrier	British Aerospace
AV-8D		Harrier	British Aerospace
AV-8B/TAV-8B		Harrier II	McDonnell Douglas/Boeing
NAV-8B		Harrier II	McDonnell Douglas
NTAV-8B		Harrier II	McDonnell Douglas
A-12A		Avenger II	McDonnell Douglas
F/A-18A/B/C/D		Hornet	McDonnell Douglas/Boeing
F/A-18E/F		Super Hornet	Boeing
EA-18G		Growler	Boeing
NFA-18A/C/D		Hornet	McDonnell Douglas
RFA-18A		Hornet	McDonnell Douglas
TFA-18A		Hornet	McDonnell Douglas
EB-47E		Stratojet	Boeing
NB-47E		Stratojet	Boeing
C-1A	TF-1	Trader	Grumman
C-2A		Greyhound	Grumman
VC-3A	RM	Model 404	Martin
TC-4C		Academe	Grumman
UC-8A		Buffalo, DHC-5	De Havilland
C-9B		Skytrain II, DC-9	McDonnell Douglas
UC-12B/F/M		Huron	Beech
NC-12B		Huron	Beech
RC-12F/M		Huron	Beech
TC-12B		Huron	Beech
TC-18F			Boeing
C-20D		Gulfstream III	Gulfstream Aerospace
C-20G		Gulfstream IV	Gulfstream Aerospace
EC-24A	DC-8		McDonnell Douglas
C-26B/D			Fairchild
UC-27A		F-27F	Fokker (Fairchild-built)
C-28A		Model 404	Cessna
UC-35C/D		Encore	Cessna
C-37A/B		Gulfstream	Gulfstream
C-40A		Clipper	Boeing
C-45H/J	SNB-5	Navigator	Beech
C-47	R4D	Skytrain	Douglas
C-54	R5D	Skymaster	Douglas

Post-1962 DoD Designation	Original Navy Designation Before 1962	Popular Name Only, other Designations and Miscellaneous Data	Manufacturer or Source
C-117D	R4D-8	Skytrain	Douglas
NC-117D		Skytrain	Douglas
TC-117D		Skytrain	Douglas
C-118B	R6D	Liftmaster	Douglas
C-119	R4Q	Packet	Fairchild
C-121	R7V	Constellation	Lockheed
EC-121	WV	Warning Star	Lockheed
NC-121K		Warning Star	Lockheed
C-130F/T	GV/R8V	Hercules	Lockheed
DC-130A		Hercules	Lockheed
EC-130G/Q		Hercules	Lockheed
KC-130C/F/R/T		Hercules	Lockheed Martin
KC-130J		Super Hercules	Lockheed Martin
LC-130F/R		Hercules	Lockheed
NC-130H		Hercules	Lockheed Martin
C-131F/G/H	R4Y	Samaritan	Convair
NKC-135A		Stratotanker	Boeing
UC-880		Convair 880	Convair
E-1B	WF	Tracer	Grumman
E-2A/B/C	W2F	Hawkeye	Grumman
TE-2A/C		Hawkeye	Northrop Grumman
YE-2C		Hawkeye	Grumman
E-6		Hermes (redesignated Mercury)	Boeing
E-6A		Mercury	Boeing
F-1 (series)	FJ	Fury	North American
F-2 (series)	F2H	Banshee	McDonnell
F-3 (series)	F3H	Demon	McDonnell
F-4A/B/C/J/N/S	F4H	Phantom II	McDonnell
QF-4B		Phantom II	McDonnell Douglas
RF-4B		Phantom II	McDonnell Douglas
EF-4J		Phantom II	McDonnell Douglas
YF-4J		Phantom II	McDonnell Douglas
F-5E/F/N		Tiger II	Northrop
F-6 (series)	F4D	Skyray	Douglas
F-8 (series)	F8U	Crusader	Vought
RF-8G		Crusader	LTV
DF-8L		Crusader	LTV
F-9 (series)	F9F	Cougar	Grumman
F-10 (series)	F3D	Skyknight	Douglas
F-11 (series)	F11F	Tiger	Grumman
F-14A/A+/B/C/D		Tomcat	Grumman
NF-14A/B/D		Tomcat	Grumman
F-16A/N		Fighting Falcon	General Dynamics
TF-16		Fighting Falcon	General Dynamics
YF-17			Northrop
F/A-18A/B/C/D		Hornet	McDonnell Douglas
TF-18A		Hornet	McDonnell Douglas

Post-1962 DoD Designation	Original Navy Designation Before 1962	Popular Name Only, other Designations and Miscellaneous Data	Manufacturer or Source
F/A-18E/F		Super Hornet	Boeing
F-21A		Kfir	Israel Aircraft Industries
F-35B/C		Lightning II	Lockheed Martin
F-86H		Sabre	North American
QF-86F/H		Sabre	North American
F-111B			Grumman/General Dynamics
AH-1G/S		Cobra	Bell
AH-1J/T/W		Sea Cobra	Bell
AH-1Z		Viper	Bell
JAH-1T		Sea Cobra	Bell
MH-1W			Bell
NAH-1Z			Bell
HH-1K/N		Iroquois	Bell
UH-1C/D/E/H/L/ M/N	HU-1	Iroquois	Bell
UH-1Y		Venom	Bell
NUH-1E/N		Iroquois	Bell
TH-1E/F/L		Iroquois	Bell
H-2	HU2K	Seasprite	Kaman
HH-2D		Seasprite	Kaman
SH-2D/F/G		Seasprite	Kaman
YSH-2E/G		Seasprite	Kaman
UH-2C		Seasprite	Kaman
H-3	HSS-2	Sea King	Sikorsky
HH-3A		Sea King	Sikorsky
SH-3A/D/G/H		Sea King	Sikorsky
NSH-3A		Sea King	Sikorsky
UH-3A		Sea King	Sikorsky
NVH-3A		Sea King	Sikorsky
YSH-3J		Sea King	Sikorsky
CH-3B		Sea King	Sikorsky
OH-6A/B		Cayuse	Hughes
TH-6B			McDonnell Douglas
H-13	HTL/HUL	Sioux	Bell
H-19	HRS-3	Chickasaw	Sikorsky
H-l9	HO4S-3	Chickasaw	Sikorsky
H-25	HUP	Retriever	Piasecki (Vertol)
H-34	HSS-1	Sea Bat	Sikorsky
H-34	HUS	Seahorse	Sikorsky
H-37	HR2S	Mojave	Sikorsky
H-43	HOK	Huskie	Kaman
H-46	HRB	Sea Knight	Boeing Vertol
CH-46A/D/E/F		Sea Knight	Vertol
HH-46A		Sea Knight	Vertol
NCH-46A		Sea Knight	Vertol
UH-46A/D		Sea Knight	Vertol
QH-50D, -50C	DSN	DASH	Gyrodyne
H-51		L-186, tri-service evaluation	Lockheed

Post-1962 DoD Designation	Original Navy Designation Before 1962	Popular Name Only, other Designations and Miscellaneous Data	Manufacturer or Source
H-52	HU2S	Coast Guard	Sikorsky
CH-53A/D		Sea Stallion	Sikorsky
CH-53E		Super Stallion	Sikorsky
JCH-53E		Super Stallion	Sikorsky
YCH-53E		Super Stallion	Sikorsky
MH-53E		Sea Dragon	Sikorsky
NMH-53E			Sikorsky
RH-53D		Sea Stallion	Sikorsky
NRH-53D		Sea Stallion	Sikorsky
TH-57A/B/C		Sea Ranger	Bell
OH-58A		Kiowa	Bell
CH-60S		Seahawk	Sikorsky
SH-60B/F		Seahawk	Sikorsky
NSH-60B/F		Seahawk	Sikorsky
YSH-60B		Seahawk	Sikorsky
SH-60R		Seahawk	Sikorsky
NSH-60R		Seahawk	Sikorsky
HH-60H/J		Seahawk	Sikorsky
MH-60R/S		Seahawk	Sikorsky
YMH-60R		Seahawk	Sikorsky
MH-60S		Seahawk	Sikorsky
UH-60L		Black Hawk	Sikorsky
VH-60D/N		Nighthawk	Sikorsky
YCH-60		Black Hawk	Sikorsky
HH-65A/B/C		Dolphin, Coast Guard	Aerospatiale
UH-72A		Lakota	EADS North America
O-1A/B/C/G	OE	L-19A	Cessna
O-2A			Cessna
P-2	P2V	Neptune	Lockheed
DP-2E/H		Neptune	Lockheed
EP-2H		Neptune	Lockheed
NP-2H		Neptune	Lockheed
SP-2H		Neptune	Lockheed
P-3A/B/C	P3V	Orion	Lockheed
EP-3A/B/J		Orion	Lockheed
NP-3A/C/D		Orion	Lockheed
RP-3A/D		Orion	Lockheed
TP-3A		Orion	Lockheed
UP-3A/B		Orion	Lockheed
NUP-3A		Orion	Lockheed
WP-3A		Orion	Lockheed
VP-3C		Orion	Lockheed
QP-4B	PB4Y-2K	Privateer	Consolidated
P-5	P5M	Marlin	Martin
P-8A		Poseidon	Boeing
S-2 (series)	S2F	Tracker	Grumman
ES-2D		Tracker	Grumman

Post-1962 DoD Designation	Original Navy Designation Before 1962	Popular Name Only, other Designations and Miscellaneous Data	Manufacturer or Source
TS-2A		Tracker	Grumman
US-2A/B/C/D		Tracker	Grumman
YS-2G		Tracker	Grumman
S-3A/B		Viking	Lockheed
KS-3A		Viking	Lockheed
ES-3A		Shadow	Lockheed
NS-3A		Viking	Lockheed
US-3A		Viking	Lockheed
T-1	T2V	Seastar	Lockheed
T-2A/B/C	T2J	Buckeye	North American
DT-2B		Buckeye	North American
YT-2B		Buckeye	North American
T-6A		Texan II	Raytheon/Beech
T-28A/B/C	T-28	Trojan	North American
T-29B/C		Flying Classroom	Convair/General Dynamics
T-33A	TO/TV	Shooting Star	Lockheed
QT-33A		Shooting Star	Lockheed
T-34B/C	T-34	Mentor	Beech
NT-34C		Mentor	Beech
YT-34C		Mentor	Beech
T-38A/B		Talon	Northrop
QT-38A		Talon	Northrop
T-39D/G/N	T3J	Sabreliner	North American/Boeing
CT-39E/G		Sabreliner	North American/Boeing
T-41B		Mescalero	Cessna
T-42A		Cochise	Beech
T-44A		King Air 90	Beech
T-45A/B/C		Goshawk	McDonnell Douglas/Boeing
T-47A		Cessna Citation II	Cessna
U-1	UC	Otter	De Havilland
NU-1B		Otter	De Havilland
U-3A/B		Model 310	Cessna
U-6A		Beaver, L-20A	De Havilland
U-8D/F/G		Seminole	Beech
U-9D		Aero Commander	Aero Design
U-11A	UO	Aztec	Piper
U-16	JR2F/UF	Albatross	Grumman
HU-16E		Albatross	Grumman
U-21A		Ute	Beech
HU-25A/B/C		Guardian	Dassault-Breguet
RU-38A		(for Coast Guard)	Schweizer Acft
OV-1A/B/C		Mohawk	Grumman
XV-6A		Kestrels	Hawker-Siddeley
OV-10A/D		Bronco	North American
YOV-10D		Bronco	North American
XFV-12A		Prototype of a high performance V/STOL fighter, never operational.	Rockwell International

Post-1962 DoD Designation	Original Navy Designation Before 1962	Popular Name Only, other Designations and Miscellaneous Data	Manufacturer or Source
AV-16A		Joint proposal in 1973 for an advanced version of the AV-8.	McDonnell Douglas/Hawker-Siddeley
V-22		Osprey	Bell/Boeing
HV-22A/B			Bell/Boeing
MV-22A/B		Osprey	Bell/Boeing
SV-22A			Bell/Boeing
X-22A			Bell
X-25A			Bensen
X-26A			Schweizer
X-26B		QT-2PC	Lockheed/Schweizer
X-28A			Pereira
X-29A			Grumman
X-31A			Rockwell/DASA
X-45A			Boeing
X-46A			Boeing
X-47A/B			Northrop
X-49A			Sikorsky/Piasecki
MZ-3A			American Blimp
SZ-1A			Airships Ind.
YEZ-2A		Operational development model airship.	Westinghouse Airships Inc.

How to Read the DoD Aircraft Model Designations

The Navy system had worked well for 40 years, however, Congress decreed in 1962 that there should only be one system to designate military aircraft in the United States. The new system was based on that of the Air Force and the aircraft manufacturer was no longer identified. While there were relatively few changes to Air Force aircraft designations, the Navy made a complete change. Aircraft models all started with the numeral 1, except for those aircraft on hand which were used by both services, in which case the existing Air Force designation applied. Thus, the FJ-3 became the F-1C, while the SNB-5P became the RC-45J. It must be emphasized that the placement of the dash is critical to distinguish aircraft under the new system from those under the previous Navy system. For example, the F4B-4 was a Boeing biplane fighter of the mid 30s, while the F-4B is an early version of the 1960s Phantom II.

The new system consisted of a Status Prefix Symbol (letter), a Basic Mission Symbol (letter), a Design Number (numeral), a Modified Mission Symbol (letter), a Series letter, and a Type Symbol (letter). A Design Number was assigned for each basic mission or type. New design numbers were assigned when an existing aircraft was redesigned to an extent that it no longer reflected the original configuration or capability. A Series Letter was assigned to each series change of a specific basic design. To avoid confusion, the letters "I" and "O" were not used as series letters. The Series Letter was always in consecutive order, starting with "A."

A typical designation was as follows:

This was the Y/FJ -4B under the Navy system and the YAF-1E under the new DoD system.

Status Prefix Symbols	
Letter	**Title**
G	Permanently Grounded
J	Special Test, Temporary
N	Special Test, Permanent
X	Experimental
Y	Prototype
Z	Planning

Modified Mission Symbols	
Letter	**Title**
A	Attack (currently not used by Navy)
C	Transport
D	Director
E	Special Electronic Installation
F	Fighter (currently not used by Navy)
H	Search/Rescue/Medevac
K	Tanker
L	Cold Weather
M	Multi-mission
O	Observation (currently not used by Navy)
P	Patrol
Q	Drone
R	Reconnaissance
S	Antisubmarine
T	Trainer
U	Utility
V	Staff
W	Weather

Basic Mission Symbols	
Letter	**Title**
A	Attack (currently not used by Navy)
B	Bomber (not used by Navy)
C	Transport
E	Special Electronic Installation
F	Fighter (currently not used by Navy)
F/A	Strike Fighter
L	Laser (not used by Navy)
O	Observation
P	Patrol
R	Reconnaissance
S	Antisubmarine
T	Trainer
U	Utility
X	Research

Vehicle Type Symbols	
Letter	**Title**
D	UAV Control Segment
G	Glider
H	Helicopter
Q	Unmanned Aerial Vehicle
S	Spaceplane
V	Vertical Takeoff and Landing (VTOL)/Short Takeoff and Landing (STOL)
Z	Lighter-than-Air Vehicle

Alphabetical Listing of Popular Names

The official assignment of names to naval aircraft began 1 October 1941 when a Navy Department press release reported that the Secretary issued orders assigning names "for popular use" to a number of in-service and developmental aircraft. This decision was first acknowledged in the April 1942 edition of the "Model Designation of Naval Aircraft (SH-3AF)" published by the Bureau of Aeronautics. A War Department Press Release of 4 January 1943 distributed a consolidated list of names for Navy and Army aircraft, thus beginning interservice coordination on aircraft names. This latter press release pointed out that the practice of naming aircraft had long been in effect in England, "In order that the general public may get a better idea of the character of military aircraft and more easily identify the combat planes mentioned in press dispatches from the battlefields of the world. . . ."

Prior to October 1941, manufacturers on occasion chose to use names for an aircraft model or a series of models; thus, the Curtiss Company used the name Helldiver for aircraft which they built as naval dive bombers from the late 1920s. The October 1941 action officially assigned the name Helldiver to the latest member of the family, the SB2C. Vought choose to use the name Corsair for a series of carrier-based aircraft, which included the O2U and the O3U/SU; in October 1941 the Navy officially assigned the name Corsair to Vought's new fighter, the F4U.

Although assignment of aircraft names was coordinated by the Army and Navy from 1943, each service had developed its own model designation system independently. The result was that the U.S. military forces used two separate model designation systems. Moreover, when the Navy used an Army Air Forces aircraft, it assigned a designation based upon its own system; thus, the Army Air Force's B-24 became the PB4Y-l in Navy service while such trainers as the Army Air Force's AT-6 and PT-13/-17 were the Navy SNJ and N2S.

On 19 August 1952, the Joint Aircraft Committee of the Munitions Board took an initial step to eliminate multiple designations by establishing the policy that original model designations would generally be retained by the

second service in the event of cross-service procurement of aircraft, thus the North American Trojan which was used as a trainer by the Air Force retained the Air Force designation T-28 when procured for naval service. Designations of aircraft already in service were not changed at that time.

On 18 September 1962, the Department of Defense issued a uniform model designation system and directed its immediate adoption. The new system, adapted from the Air Force model designation system, assigned a basic mission letter followed by a number which indicated the sequential relationship of aircraft designed for the mission. Thus, the Navy AD was redesignated A-l. To avoid compounding the confusion, the new system, insofar as was possible, correlated the new designation of naval aircraft with the older designation; thus, the F9F became the F-9 and the F8U became the F-8. By the same token, the three in-service patrol planes, the P2V, the P3V, and P5M were redesignated P-2, P-3, and P-5 even though the designation P-l was not assigned.

To summarize the foregoing, the Navy developed an aircraft model designation system in the early 1920s and used it until 1962 when it was replaced by a Department of Defense unified system. The official assignment of names to naval aircraft did not begin until 1941; interservice coordination began in 1943, thus, the system for naming aircraft has changed little since the practice became official more than 70 years ago.

In compiling the listing for popular names, one of the thorniest difficulties was the problem of distinguishing between what the official records said and what has long been accepted as fact. For example, few aviation historians believe that the SB2C-5 was ever assigned the name Hellcat, yet it does appear in the Bureau of Aeronautics' Model Designation of Naval Aircraft. Because this particular case is so extraordinary, there seemed ample reason to consider it an error; therefore, the SB2C-5 does not appear in this listing as a Hellcat. Others were equally questionable and were accordingly omitted. However, when sufficient doubt was present, the designation and its name were included here. As a result, some of the information in this listing will raise the eyebrows of those readers who are familiar with the popular names of naval aircraft.

Within the Alphabetical Listing of Popular Names the column headings are:

- **Popular Names**—The popular names the Navy assigned to its aircraft are listed alphabetically. Cross-references are given when different names were assigned to different models of the same basic aircraft. In a few cases two different names were assigned to identical aircraft models. These are cross-referenced here. Also in rare instances entirely different aircraft have the same name, if so, the name is listed twice.
- **Original Navy Designation, pre-1962**—The original designation was the first designation under which the Navy accepted the aircraft. Basic designations are listed unless specific models were assigned different names. The Navy never officially assigned a name to the designation in parentheses. They are listed because they were the original designations of the aircraft to which the Navy later assigned a name under a new designation.
- **Redesignation to the Post-1962 DoD Designation**—In 1962 the Department of Defense standardized its system of aircraft designations. Most naval aircraft, however, retained the same popular name. Basic designations are listed unless specific models were assigned different names. They are included because they are the redesignations of aircraft to which the Navy had previously assigned a name under its original designation. New aircraft acquired after 1962 and the new post-1962 aircraft designation are listed in this column.

Popular Names	Original Navy Designation, pre-1962	Redesignation to the Post-1962 DoD Designation System or New Post-1962 Designation
Academe		TC-4C
Aero Commander		U-9
Albatross	JR2F/UF	U-16
Avenger	TBF TBM	
Avenger II		A-12 (never acquired)
Aztec	UO	U-11
Banshee	F2H	F-2
Bearcat	F8F	

Popular Names	Original Navy Designation, pre-1962	Redesignation to the Post-1962 DoD Designation System or New Post-1962 Designation
Beaver		U-6
Bird Dog	(OE)	O-1
Black Hawk		UH-60L
Black Widow	F2T	
Bobcat	JRC	
Bronco		OV-10
Buccaneer	SB2A	
Buckeye	T2J	T-2
Buffalo	F2A	
Buffalo		UC-8A
Catalina	PBY PB2B PBN	
Caydet (also Kaydet)	N2S	
Cayuse		OH-6A/B
Chickasaw	(HO4S-3)	H-19
	(HRS-3)	H-19
Clipper		C-40A
Cobra		AH-1
Cochise		T-42A
Commando	R5C	
Condor	R4C-1	
Conestoga	RB	
Constellation (*See* Warning Star)	PO WV-1	
R70/R7V		C-121
Constitution	R60/R6V	
Convair Liner	R4Y	C-131
Coronado	PB2Y	
Corsair	F4U FG F3A AU F2G	
Corsair II		A-7
Cougar	F9F-6,-7,-8	F-9
Crusader	F8U	F-8
Crusader III	F8U-3	
Cutlass	F7U	
DASH	(DSN)	QH-50
Dauntless	SBD	
Demon	F3H	F-3
Destroyer	(SB2D) BTD	
Devastator	(XTB2D-1) TBD	
Dolphin		H-65
Duck	(JF) J2F	
Encore		UC-35D
Excalibur	JR2S	
Expediter	JRB-1 thru -4	C-45

Popular Names	Original Navy Designation, pre-1962	Redesignation to the Post-1962 DoD Designation System or New Post-1962 Designation
Falcon	SNC	
Fighting Falcon		F-16A/N, TF-16
Fireball	FR	
Flying Classroom		T-29
Flying Fortress	PB-1G, -1W	
Forwarder	GK	
Fury	FJ	F-I
Goose	JRF	
Goshawk		T-45
Grasshopper	NE	
Greyhound		C-2
Growler		EA-18G
Guardian	AF	
Guardian	HU-25	
Gulfstream		C-37A/B
Gulfstream III		C-20D
Gulfstream IV		C-20G
Harpoon	PV-2	
Harrier		AV-8A
Harrier II		AV-8B
Havoc	BD	
Hawkeye	W2F	E-2/TE-2C
Hellcat	F6F	
Helldiver	SB2C SBC-3, -4 SBW SBF	
Hercules	GV	C-130
Hermes		E-6 (changed to/*See* Mercury)
Hornet		F/A-18
Hoverfly	HNS-1	
Hudson	PBO	
Huron		UC-12/RC-12
Huskie	(HOK) (HUK)	H-43
Intruder	A2F	A-6
Invader	JD	B-26
Iroquois		UH-1/TH-1/HH-1
Jaguar	F10F	
Kansan	SNB-1	
Kaydet (*See* Caydet)	N2S	
Kfir		F-21A
Kingfisher	OS2U OS2N	
Kiowa		OH-58A
Lakota		UH-72A
Liberator	PB4Y-1/P4Y-1	
Liberator Express	RY-1	
Liftmaster	R6D	C-118

Popular Names	Original Navy Designation, pre-1962	Redesignation to the Post-1962 DoD Designation System or New Post-1962 Designation
Lightning II		F-35
Lodestar	R5O	
Mako Shark		MH-68A (CG)
Marauder	JM	
Mariner	PBM	
Marlin	P5M	P-5
Mars	PB2M JRM	
Mauler	(BTM-1), AM	
Mentor	T-34	T-34
Mercator	P4M	
Mercury (*See* Hermes)		E-6A
Mescalero		T-41B
Mitchell	PBJ	
Mohawk	OV-1A/B/C	
Mojave	(HR2S)	H-37
Navigator	SNB-2C, -5	C-45
Neptune	P2V	P-2
Nighthawk		VH-60
Nightingale	GH, NH	
Norseman	JA	
Orion	P3V	P-3
Osprey		V-22A/MV-22B
Otter	UC	U-1
Packet	R4Q	C-119
Panther	F9F-2, -4, -5	DF-9
Phantom	FD, FH	
Phantom II	F4H	F-4
Pinto	TT-1	
Pirate	F6U	
Poseidon		P-8A
Privateer	PB4Y-2, P4Y-2	QP-4B
Prowler		EA-6B
Puss Moth	XDH-80	
Recruit	NR	
Reliance	ZPG-2W	EZ-1
Rescuer	HRP	
Retriever	HUP	H-25
Sabre	(F-86)	QF-86
Sabreliner	(T3J)	T-39
Samaritan		C-131
Savage	AJ	A-2
Sea Bat	(HSS-1)	H-34
Sea Cobra		AH-1J/T/W
Sea Dart	F2Y	F-7
Sea Dragon		MH-53
Seafarer	ZPG-2	SZ-1
Seagull (not official)	SOC, SO3C	

Popular Names	Original Navy Designation, pre-1962	Redesignation to the Post-1962 DoD Designation System or New Post-1962 Designation
Seahawk	SC	
Seahawk		SH-60/HH-60/CH-60/MH-60
Seahorse	(HUS)	H-34
Sea King	(HSS-2)	H-3
Sea Knight	(HRB)	H-46
Seamaster	P6M	
Seamew	SO3C	
Sea Ranger	XPBB-1	
Sea Ranger		TH-57
Seasprite (also Sea Sprite)	HU2K	H-2
Sea Stallion		CH-53/RH-53
Sea Star	T2V	T-1
Sea Wolf (also Seawolf)	TBY	
Seminole		U-8
Sentinel	OY	
Shadow		ES-3A
Shooting Star	TV, TO	T-33
Sioux	(HTL), HUL	H-13
Skyhawk	A4D	A-4
Skyknight	F3D	F-10
Skylancer	F5D	
Skymaster	R5D	C-54
Skyraider	(BT2D), AD	A-1
Skyray	F4D	F-6
Skyrocket	D-558-2	
Skyshark	A2D	
Skytrain	R4D-1, -5, -6, -7 R4D-8	C-47 C-117
Skytrain II		C-9
Skystreak	D-558-1	
Skytrooper	R4D-2,-3,-4	
Skywarrior	A3D	A-3
Stratojet		EB-47E
Stratotanker		NKC-135A
Super Hercules		KC-130J
Super Hornet		F/A-18E/F
Superfortress	P2B-1	
Super Stallion		CH-53E/RH-53/MH-53E
Talon		T-38
Texan	SNJ	
Texan II		T-6A
Tiger	F11F	F-11
Tiger II		F-5E/F/N
Tigercat	F7F	
Tomcat		F-14
Tracer	WF	E-1
Tracker	S2F	S-2
Trader	TF-1	C-1

Popular Names	Original Navy Designation, pre-1962	Redesignation to the Post-1962 DoD Designation System or New Post-1962 Designation
Tradewind	R3Y	
Traveler	GB	
Trojan	T-28	T-28
Tutor	N2T	
Ute		U-21A
Valiant	SNV	
Venom		UH-1Y
Ventura	PV-1, -3	
Vigilante	A3J	A-5
Viking		S-3
Vindicator	SB2U	
Viper		AH-1Z
Volunteer	ZSG-1	
Warning Star (*See* Constellation)	WV	EC-121
White Hawk		VH-60N
Widgeon	J4F	
Wildcat	F4F FM	

Chapter 2

Combat Aircraft Procured

The following tables contain key dates relating to development, procurement, and service use of combat types of airplanes obtained in quantities sufficient to equip a squadron. "Combat type" excludes trainers, transports, and utility types; however, models originally obtained for such purposes and later reported as being utilized for combat missions are included—e.g., the VE-7 and VE-9. Noncombat configurations of combat aircraft, such as TA-4E and PB2Y-3R, are also included. The term "quantities sufficient to equip a squadron" is somewhat elastic; through the 1920s (and 1930s for patrol planes) aircraft are included if as few as nine were obtained. Other than that, the table is limited to aircraft of which at least 18 were purchased.

The complete tabulation consists of five tables: attack planes, fighter planes, patrol and early warning planes, observation planes, and WWI aircraft. Attack and patrol planes each include a number of specific missions identified in the heading of the table. Aircraft did not always lend themselves to the above divisions; for example, a fighter-bomber can be either a fighter or an attack plane. Arbitrary judgments, necessary to place such aircraft in one table, are reflected in designations and cross-references under alternate designations.

WWI aircraft were listed in a separate table because of the lack of data on first flight, contract date, etc., and in order to show shipments overseas.

Description Of Column Headings

Designation—Basic designations and redesignations are included and arranged alphabetically. If aircraft were procured from the Army/Air Force, their designations are also listed.

First Contract—This shows the date of the first contractual commitment for delivery of an airplane. If the first aircraft was ordered by amendment to a design contract, the date of the amendment is used. Letters of Intent and even telegraphic orders are treated as contracts. If a contract date could not be established, an estimate, shown as "(est)", was made from available data. The use of a year followed by a number (as 1922-2), shows that the contract was made in the quarter (in this example, the second) of the calendar year. For cross-service procurement, the date of the Navy's commitment to the Army or Air Force is shown. For WWII Army Air Force bombers, the date of the policy decision that the Navy would procure such aircraft is shown.

First Flight—Refers to first flight of first aircraft, generally an "X" model. Frequently the date of first flight was estimated (shown as "[est]") usually from date of delivery for Navy flight tests. If documentation permitted, specific dates are given; otherwise the month and year are shown. No first flight date is given for aircraft which were in operation with the Army or the Air Force or commercially before they were delivered to the Navy.

Number Accepted, Manufacturer, and *Models Accepted*—These columns are keyed to each other and show model designations and gross acceptances for Navy, for other services, and for allies—whether lend-lease, military assistance programs, or (more recently) military sales in which the Navy served as the agent of the procuring government—are shown in parentheses and included in the overall totals. For aircraft still in production, number accepted is total as of 31 December 2010.

In general, the manufacturer can be readily identified although the following may have become obscure: LWF for Lowe, Willard, and Fowler; NAF for Naval Aircraft Factory; and B/J for Berliner/Joyce. No attempt was made to indicate corporate history except in the use of the family spelling "Loughead" as well as the better-known "Lockheed," and in distinguishing between the Northrop subsidiary of Douglas and the Douglas Company. Thus Vought includes Lewis and Vought, the independent Chance Vought Corporation, the Vought and Vought-Sikorsky divisions of United Aircraft Corporation, the later independent Vought company, and the present Vought Aeronautics Division of Ling-Temco-Vought. McDonnell and Douglas are treated as separate entities.

For aircraft redesignated while in production, both old and new designations are shown (P3V-1/P-3A), indicating that aircraft were accepted under both designations.

Squadron Delivery and Last Report in squadron or inventory—These give the date when the first combat type unit received basic aircraft and similarly gives the date of the last report that such a unit had the aircraft in its custody. Thus these columns show the span of aircraft service life in combat units of the U.S. Navy and identify the first and last squadron to have custody of the aircraft. The occasional assignment of a single experimental aircraft to a combat unit is omitted; this sometimes occurred a year or more in advance of actually equipping the first squadron. For purposes of this table, combat units are defined as squadrons attached to the Atlantic or Pacific Fleet, including

replacement training squadrons but excluding utility, transport, and experimental and evaluation squadrons. Thus units of the training commands and naval reserve are omitted as generally are the pre–WWII District squadrons. If squadron data is incomplete, the ships, or stations to which the unit was attached are given. Particularly, for late WWII and the early post-war years, the final squadrons with a particular aircraft could not be identified beyond the fact that they were in the Atlantic or Pacific Fleets.

A variety of sources were utilized in compiling the service history. Correspondence, individual aircraft history cards, and the monthly status report compiled by the Bureau of Aeronautics, or Deputy Chief of Naval Operations (Air). From 1926 until 1941 this report was titled, "Monthly Report, Status of Naval Aircraft," it then became "Monthly Status of Naval Aircraft"; in 1948, "Location of Naval Aircraft"; and in 1951, "Allowances and Location of Naval Aircraft." Initial assignment data is believed to be exact. The data in "Last Report," are approximate; they were drawn almost entirely from the above reports, and there is uncertainty as to the currency of the data supporting any particular issue. In addition, data within the report were, at times, a month out of phase with the issue date. Unfortunately all of these primary sources are no longer produced and some of the data for the columns listed may no longer be available.

Since the squadron organization did not come into being until after WWI, the table for WWI aircraft shows assignment to stations and final withdrawal from inventory.

Description—This column shows the number of wings and crew provision as a single entry, i.e., B/2 means biplane, two place. Variations in size of crew are shown in parentheses; fighters were single place, unless otherwise indicated. Other notes on equipment and structure are included to indicate basic technological advances. When mission data is shown it generally reflects a change in military requirements.

The standard engine nomenclature is used: R for radial air-cooled (generally followed by a number indicating displacement); J for jet; T for turboprop; O for horizontally opposed; all others were in-line or Vee-type, generally liquid-cooled. Standard power terminology is used: horsepower for propeller drives and pounds thrust for jet units. The practice on turboprops has varied. Sometimes the horsepower absorbed by the propeller and the residual thrust in pounds are both given; at others, the two are combined in equivalent shaft horsepower "eshp." Identifying nomenclature for engine manufacturers was adapted from standard practice as follows:

AL, Allison; ACM, Aircooled Motors; AIR, AiResearch; AM, Aeromarine; BO, Boeing; CAM, Curtiss Aeroplane & Motor Co.; CO, Continental; FR, Franklin; GE, General Electric; LA, Lawrance; Lib, Liberty; LY, Lycoming; PKD, Packard; P&W, Pratt & Whitney Aircraft; RA, Ranger; WAC, Wright Aeronautical Corporation; WE Westinghouse; WR, Warner.

Attack Series
Includes Dive Bomber (VB), Torpedo Planes (VT), Torpedo Bombers (VTB), Scout Bomber (VSB), Carrier Scouts (VS), and Carrier ASW (VS)

Designation	First Contract	First Flight	Last Delivery	Number Accepted	Manufacturer	Models Accepted	Squadron Delivery	Last Report*	Description
A-l	(Redesignation of AD)								
A-2	(Redesignation of AJ)								
A-3	9/29/49	10/28/52	1/61	282	Douglas	XA3D-1; A3D-1, -2, -2P, -2Q, -2T; A-3B; KA-3B, EKA-3B, RA-3B, EA-3B	3/31/56 VAH-1	3/91 KA-3B	M/3 (7in -2Q; 8 in -2T). Swept wing; 2 P&W J57, 9,500 to 10,500#
A-4	9/13/52	6/22/54	2/27/79	2,876 (294)	Douglas	XA4D-1; A4D-1, -2, -2N, -5; A-4A, -4C, -4E, -4F, -4G, -4H, -4K, -4KU, -4M, -4N; TA-4E, -4F/J, -4H, -4J, -4K, -4KU; EA-4F	9/27/56 VA-72	3/94 A-4M	M/1 (2 in TA versions). Modified delta wing; WAC J65, 7,700# or P&W J52, 7,500 to 8500#
A-5	8/29/56	8/31/58	11/5/70	156	North American	A3J-1; A-5A, -5B; RA-5C	6/61 VAH-3	3/81 RA-5C	M/2. Supersonic; 2 GE J79, 17,000#
A-6	3/26/59	4/1960	1/31/92	890	Grumman	A2F-1, A-6A, -6E, EA-6A, -6B, KA-6D, YA-6F	2/63 VA-42	3/97 VA-75	M/2. 2 P&W J52, 8,500#, EA-6B 4 crew, 2 Pratt & Whitney J52-P-408 engines, 10,400#

Attack Series Includes Dive Bomber (VB), Torpedo Planes (VT), Torpedo Bombers (VTB), Scout Bomber (VSB), Carrier Scouts (VS), and Carrier ASW (VS)									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
A-7	3/19/64	9/27/65	10/86	1,491 (498)	Vought	A-7A, -7B, -7D, -7C, -7E, -7H; EA-7L	10/13/66 VA-147	6/92 A-7E	M/1. Developed from F-8; P&W TF-30 (non-afterburning)
F/A-18 (Also listed in the Fighter Series)	5/75	11/78		1,441	McDonnell Douglas/ Boeing	F/A-18A, -18B, -18C, -18D, -18E, -18F, EA-18G	1/7/83 VMFA-314		M/1 (2). 2 F404GE-402, F/A-18D and F/A-18F are 2 seat, EA-18G 2 crew, 2 GE F414-GE-400 turbofan engines
AV-8	12/22/69		4/23/96	494† (58)	Hawker Siddeley/ McDonnell Douglas/ Boeing	AV-8A, TAV-8A, AV-8B, -8C, TAV-8B, EAV-8A for Spain	1/27/71		M/1 (2 in TA version). V/STOL aircraft. One RR F402-RR-401, 21,500#
AD	7/6/44	3/18/45	3/57	3,180 (20)	Douglas	XBT2D-1, -1W, -1P, -1Q, -1N; XAD-1W, -2; AD-1, -1Q, -2, -2Q, -3, -3Q, -4B, -4N, -4Q, -4W, -5, -5W, -5N, -6, -7; EA-1F	12/6/46 VA-19A	12/31/71 EA-1F	M/1 (2 in -5; 2 to 4 in -Q, -W, -N, and -S). First successful USN aircraft orginally designed as both dive bomber and torpedo plane; WAC R-3350, 2700 to 3,150 hp
A3D	(Redesignated A-3)								
A4D	(Redesignated A-4)								
AF	2/19/45	12/46	4/53	389	Grumman	XTB3F-1,-1S, -2S; AF-2W, -2S, -3S	10/18/50 VS-25	8/31/55 VS-37	M/3. ASW attack (S) and search (W); P&W R-2800, 2300 hp; also WE 19XB, 1,600 in XTB3F-1
A2F	(Redesignated A-6)								
AJ	6/24/46	7/3/48	6/54	143	North American	XAJ-1; AJ-1, -2, -2P	9/13/49 VC-5	1/31/60 VAP-62, VCP-61, AJ-2P	M/3. First heavy attack; 2 P&W R-2800, 2300 hp and J33, 4,600#
A3J	(Redesignated A-5)								
AM	1/14/44	8/26/44	10/49	152	Martin	XBTM-1; AM-1, -1Q	3/1/48 VA-17A	10/1/50 VC-4, AM-1Q	M/1 (2 in-1Q). P&W R-4360, 3,310 hp
BF2C	12/16/32	5/11/33 est	10/34	28	Curtiss	XF11C-3; BF2C-1	11/34 VB-5B	2/29/36 VB-5B, BF2C-1	B/1. WAC R-1820, 700 hp
AU	(Designation for last U.S. Navy production version of F4U)								
BFC	(Redesignation XF11C-1, -2)								
BG	6/13/32	6/33 est	11/35	61	Great Lakes	XBG-1; BG-1	10/24/34 VT-1S	6/30/41 VMS-6, BG-1	B/2. 1000# dive bomber; P&W R-1535, 700 hp
BM	6/18/28	5/29 est	1/33	34	Martin	XT5M-1; XBM-1; BM-1, -2	10/24/32 VT-1S	9/30/38 VCS-6, BM-2	B/2. First “heavy” 1000# dive bomber; P&W R-1690, 625 hp
				1	NAF				

Attack Series Includes Dive Bomber (VB), Torpedo Planes (VT), Torpedo Bombers (VTB), Scout Bomber (VSB), Carrier Scouts (VS), and Carrier ASW (VS)									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
BT			10/20/38	54	Northrop	XBT-1; BT-1; XBT-2	4/38 VB-5	1/43 PAC	M/2. 1000# dive bomber; P&W R-1535-94, 825 hp
BTD	6/30/41	4/8/43	10/45	30	Douglas	XSB2D-1; BTD-1; XBTD-2	(Not assigned to Fleet Squadrons)		M/1 (2 in SB2D). WAC R-3350, 2100 hp; also WE 19B Jet, 860# in XBTD-2
BT2D	(Initial designation for AD)								
BTM	(Initial designation for AM)								
CS	6/22 est	11/23 est	1/26	8	Curtiss	CS-1, -2. SC-1, -2	3/1/24 VS-3	12/19/27 VT-2, SC-2	B/2. Conv't 3-in-1—torpedo, scout & bomber; steel tube fuselage & tail; WAC T-2 or T-3, 525 or 625 hp
				75	Martin				
DT	1921	11/21 est	1924-2	41	Douglas	DT-1, -2	12/12/22	4/1/28	B/1 (2 in -2). Conv't; torpedo; welded steel tube forward fuselage and horizontal tail; fuselage skin partially aluminum; folding wings; Lib. 400 or 450 hp; WAC T-3, 650 hp in -4
				6	NAF	DT-2, -4			
				20	LWF	DT-2			
				11	Dayton-Wright	DT-2			
MBT	(Original version of Martin Bomber, *See* MT)								
MT	9/30/19	2/4/20	8/20	10	Martin	MT; MBT	8/20 LANT and PAC	6/2/28 VO-8M, MT	B/3. Land, folding wing on some aircraft; 2 Lib. 400 hp
PT	1921	7/21 est	7/22	33	NAF	PT-1, -2	3/22 VT-1	7/23 VT-1, PT-2	B/2. Lib. 400 hp
S-2	6/30/50	12/4/52	12/67	1,120 (63)	Grumman	XS2F; S2F-1, -2, -3, -2D; S2F-3S/S-2E	2/54 VS-26	3/84 S-2E	M/4. ASW; 2 WAC R-1820, 1,525 hp
S-3	8/69	1/21/72	9/77	187	Lockheed	S-3A, -3B	2/20/74 VS-41	3/09 VS-22	M/4. ASW aircraft. 2 GE TF-34-GE-2, 9,000#
SBA	(Prototype for SBN)								
SB2A	4/4/39	6/17/41	2/44	771 (468)	Brewster	XSB2A-1; SB2A-1, -2, -3, -4	1/31/43 VMF(N)-531	11/30/43 VMF(N)-532, SB2A-4	M/2. Used for training, WAC R-2600, 1700 hp
SBC	6/30/32	6/14/34	4/41	258	Curtiss	XSBC-3, -4; SBC-3, -4	7/17/37 VS-5	6/1/43 VMSB-151, SBC-4	B/2. P&W R-1535, 825 hp in -3; WAC R-1820, 1950 hp in -4
SB2C	5/15/39	12/18/40	10/45	5,516 (1)	Curtiss	XSB2C-2, -5, -6; SB2C-1, -1A, -1C, -3, -4, -4E, -5	12/15/42 VS-9	6/1/49 VA-54, SB2C-5	M/2 (XSB2C-2, sea). WAC R-2600, 1,700 to 1,900 hp; P&W R-2800, 2,100 hp in -6
				834 (26)	CanCar	SBW-1, -1B, -3, -4, -4E, -5			

Attack Series Includes Dive Bomber (VB), Torpedo Planes (VT), Torpedo Bombers (VTB), Scout Bomber (VSB), Carrier Scouts (VS), and Carrier ASW (VS)									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
				300	Fairchild	SBF-1, -3, -4E			
SBD	11/18/34	8/35 est	8/44	5,321 (338)	Douglas	SBD-1, -2, -3, -3A, -4, -4A, -5, -5A, -6	4/11/38 VB-5	9/30/45 PAC, SBD-6	M/2. "All metal," stressed skin; WAC R-1820, 1,000 hp in SBD-1, -2, -3; 1,200 hp in -5 & -6
				55	Northrop	XBT-1, -2, BT-1			
SB2D	(Redesignated to BTD)								
SBF	(SB2C manufactured by Fairchild of Canada)								
SBN	10/15/34	3/36	3/42	30	NAF	SBN-1	8/41 VT-8	12/31/41 VT-8, SBN-1	M/2. Used for training; WAC R-1820, 950 hp; 725 hp in XSBA-1
				1	Brewster	XSBA-1			
SBW	(SB2C manufactured by Canadian Car and Foundry [CanCar])								
SBU	6/30/32	6/33 est	8/37	126	Vought	XF3U-1; XSBU-1; SBU-1, -2	11/20/35 VS3B	4/30/41 VS-41, SBU-1	B/2. P&W R-1535, 700 hp
SB2U	10/11/34	1/4/36	7/41	170	Vought	XSB2U-1,- 3; SBU-1,- 2, -3	12/20/37 VB-3	2/28/43 VB-9, SB2U-1	M/2. -3 Conv't; 1st folding wing dive bomber; P&W R-1535, 835 hp
SC	(CS manufactured by Martin in 1920s)								
SC	(Battleship and cruiser aircraft, WWII, *See* Observation series)								
SF	6/9/31	8/19/32	12/34	35	Grumman	XSF-1; SF-1; XSF-2	3/30/34 VF2B	1/31/36 VS-3B, SF-1	B/2. Retractable landing gear; same basic airframe as FF; WAC R-1820, 700 hp
S2F	(Redesignated S-2)								
SU	(O3U converted to carrier scout, *See* Observation series)								
TBD	6/30/34	4/15/35	11/39	130	Douglas	XTBD-1; TBD-1	10/5/37 VT-3	8/31/42 VT-4, TBD-1	M/3. P&W R-1830, 850 hp
TBF	4/8/40	8/7/41	9/45	2,290 (458)	Grumman	XTBF-1, -2, -3; TBF-1, -1B, -1C	3/25/42 VT-8	10/31/54 VS-27, TBM-3E	M/3. WAC R-2600, 1,700 hp; 1,800 hp in -3
				7,546 (526)	Eastern	XTBM-3, -4, TBM-1, -1C, -3, -3E			
TB3F	(Prototype for AF)								
TBM	(TBF manufactured by Eastern Aircraft Division, General Motors Corp.)								
TBU	(Produced as TBY)								

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Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
TBY	4/22/40	12/22/41	9/45	180	Consolidated	TBY-2	4/45 VT-97	3/31/45 PAC, TBY-2	M/3. P&W R-2800, 2,100 hp; 1850 hp in XTBU-1
				1	Vought	XTBU-1			
T2D	(Initial designation for P2D, *See* Patrol series)								
TG	(T4M as manufactured by Great Lakes Aircraft Corp.)								
T3M	1925	7/26 est	1927	124	Martin	T3M-1, -2	9/7/26 VT-1	7/30/32 VP-3S, T3M-2	B/3. Conv't; WAC T-3, 575 hp; PKD 3A-2500, 770 hp in -2
T4M	6/30/27	5/27 est	12/31	103	Martin	XT4M-1; T4M-1	8/9/28 VT-2B	3/31/38 VT-6, TG-2	B/3. Conv't; generally carrier based; P&W R-1690, 525 hp; WAC R-1820, 575 hp in -2
				50	Great Lakes	TG-1, -2			
T5M	(Initial prototype for BM)								
T2N	(Similar to T5M, included with BM)								

* Dates in this column through 1969 refer to squadrons. After 1969 these dates refer to the inventory unless a squadron is listed.
† Includes 26 remanufactured from AV-8A to AV-8B and aircraft for Italy and Spain, including the EAV-8A.

Fighter Series									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
F-I	(Redesignation of FJ-3 and -4)								
F-2	(Redesignation of F2H-3 and -4)								
F-3	(Redesignation of F3H-3)								
F-4	10/18/54	5/27/58	12/29/71	4,261 (3,057)	McDonnell	F4H-1; F-4A, -4B, -4C, -4D, -4E, -4G,- 4J, -4K, -4M, -4N, -4S; RF-4B, -4C; YF-4K, -4M	12/60 VF-121	12/89 F-4S	M/2. Mach 2 plus; all missile; 2 GE J79, 17,000#
F-5	Acquired from U.S. Air Force and Swiss Air Force surplus			46	Northrop	F-5E, -5F, -5N	9/77 NFWS		M/2 for F-5F and -N. Mach 1.5; AIM-9, M39 20mm gun, F-5F and -N has 2 turbojet GE J85-GE-21C, 5,000# each
F-6	(Redesignation of F4D)								
F-8	6/29/53	3/25/55	1/65	1,264 (42)	Vought	XF8U-1; F8U-1, -1P, -2, -2N, -3 -2NE/F-8E; F-8E; F-8E (FN); F-8J	3/57 VF-32, VC-3	8/82 F-8J	M. Variable incidence wing; supersonic; P&W J57, 15,000# to 18,000#
F-9	(Redesignation of F9F-5 through 8)								

Fighter Series									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
F-10	(Redesignation of F3D)								
F-11	(Redesignation of F11F)								
F-14	2/3/69	12/21/70	7/10/92	679 (78)	Grumman	F-14, -14B, -14A+, -14D	1/14/73 VF-1	9/22/06 VF-31	M/2. Mach 2 plus. 2 P&W TF-30-P-44, up to 20,000#
F-16N	Developed by U.S. Air Force			28	General Dynamics	F-16N, TF-16N, F-16A	4/87 NFWS		M/2. Mach 2 plus; 2 P&W F110, 20,000#
F/A-18 (Also listed in the Attack Series)	5/75	11/78		1,441	McDonnell Douglas/ Boeing	F/A-18A, -18B, 18C, -18D, -18E, -18F, EA-18G	1/7/83 VMFA-314		M/1. FA-18D & -F are 2 seat, EA-18G 2 crew. Mach 2 plus. 2 GE F414-GE-400, 16,000#
F-35	10/25/01	12/15/06		6 Not yet delivered	Lockheed Martin	F-35B, -35C			M/1. Type of engine varies with model, F-35B or F-35C
F2A	6/22/36	12/37	4/42	503 (340)	Brewster	XF2A-1; F2A-1, -2, -3	12/8/39 VF-3	9/30/42 VMF-112, F2A-2; VMF-211, F2A-3	M/1. Midwing, cantilever monoplane; WAC R-1820, 950 to 1,200 hp
F-21A				37	Israel	F-21A	3/85 VF-43	8/26/87	M/1. Mach 2 plus. GE J79-GE-J1E, 30mm cannon, missile, bombs, rockets
F3A	(F4U manufactured by Brewster)								
FB	1925	11/25 est	1/27	43	Boeing	FB-1, -2, -3, -5	12/25/25 VF-2	6/30/30 VF-6M, FB-5	B. Carrier, -2 & -5; conv't, -3; radio, -5; CAM D-12, 410 hp in -1 and -2. PKD 1A-1500, 525 hp in -3 and -5
F2B	1926	12/26 est	2/28	33	Boeing	F2B-1	12/2/27 VF-1B	5/31/35 VN-5D8, F2B-1	B. Conv't; P&W R-1340, 410 hp
F3B	6/30/27	6/27 est	1/29	74	Boeing	F3B-1	10/17/27 VF-1B	4/28/33 VF-2B, F3B-1	B. P&W R-1340, 410 hp
F4B	11/28/28	6/28 est	1/33	188†	Boeing	F4B-1, -2, -3, -4	8/8/29 VB-1B	10/10/42 VJ-5, F4B-4	B. P&W R-1340, 450 hp in -1; 500 hp in -2 to -4
F6C	1925	7/25 est	6/27	75	Curtiss	F6C-1, -3, -4	9/30/25 VF-2	10/31/32 VF-10M, F6C-4	B. Conv't carrier, -2 to -4; CAM D-12, 400 hp in -1 to -3; P&W R-1340, 410 hp in -4
F7C	6/30/27	6/27 est	1/29	18	Curtiss	XF7C-1; F7C-1	12/28/28 VF-5M	3/31/33 VF-9M, F7C-1	B. P&W R-1340, 450 hp
F8C	(For F8C-1, -3 *See* OC in Observation series; F8C-3 became OC-2)								
F8C-2	3/15/28	11/28	11/31	124	Curtiss	XF8C-2, -4, -7; F8C-4, -5; 02C-1, -2	8/30 VF-1B	7/31/38 VMJ-1, O2C-1	B/2. 500# dive bomber; P&W R-1340B, 450 hp; WAC R-1820, 575 hp in 02C-2

Fighter Series									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
F9C	6/30/30	2/12/31	9/32	8	Curtiss	XF9C-1, -2; F9C-2	9/32 *Akron* Unit	1/31/35 *Macon* Unit, F9C-2	B. Skyhook; droppable under-carriage; metal monocoque fuselage; WACR-975, 400 hp
F11C	4/16/32	3/20/32	5/33	29	Curtiss	XF11C-1, -2; F11C-2 redesignated BFC-2	3/22/33 VF-1B	5/31/38 VB-6, BFC-2	B. WAC R-1820, 600 hp
F12C	(XF12C-1 monoplane successively modified to XS4C-1 and XSBC-1 and then crashed; it was replaced by XSBC-2 biplane, which became XSBC-3)								
FD	(Original designation for FH)								
F3D	4/3/46	3/23/48	10/53	268	Douglas	XF3D-1; F3D-1, -2, -2M	2/51 VC-3	5/31/70 EF-10B	M/2. Jet night-fighter; 2 WE J34, 3,250#, 3400# in -2
F4D	12/16/48	1/25/51	12/58	421	Douglas	XF4D-1; F4D-1, F-6	4/16/56 VC-3	2/29/64 VMF-115, F4D-1, F-6	M. Modified delta wing; tailless; WE J40, 13,700# in XF4D-1; P&W J57, 16,000#
FG	(F4U manufactured by Goodyear)								
FF	4/2/31	12/21/31	11/33	28	Grumman	XFF-1; FF-1, -2	6/21/33 VF-5B	3/31/36 VF-5B, FF-1	B/2. Metal monocoque fuselage; retractable landing gear; WAC R-1820, 600 hp
F2F	11/2/32	10/9/33	8/35	56	Grumman	XF2F-1; F2F-1	2/19/35 VF-2B	9/30/40 VF-2, F2F-1	B. P&W R-1535, 650 hp
F3F	10/15/34	3/20/35	5/39	164	Grumman	XF3F-1, -2, -3; F3F-1, -2, -3	4/3/36 VF-5B	10/31/41 VMF-111, VMF-211, F3F-2	B. P&W R-1535, 700 hp in -1; WAC R-1820, 950 hp in -2 and -3
F4F	7/28/36	9/2/37	5/45	1,978 (431)	Grumman	XF4F-2/3; -4, -5, -6, -8; F4F-3, -3A -4, -7	12/5/40 VF-4	11/30/45 PAC, FM-2	M. Folding wings on F4F-4/FM-1. P&W R-1830, 1,050 to 1,200 hp; WAC R-1820,1350 hp in -5 and -8/ FM-1, -2
				5,927 (651)	Eastern	FM-1, -2.			
F6F	6/30/41	6/26/42	11/45	12,275 (1,182)	Grumman	XF6F-1/-3, -4, -6; F6F-3, -3E, -3N, -5, -5N	1/16/43 VF-9	8/31/53 VC-4, F6F-5N	M. P&W R-2800, 2,000 hp to 2,325 hp
F7F	6/30/41	11/3/43	11/46	364	Grumman	XF7F-1, -2; F7F-1, -1N, -2N, -3, -3N, -4N	1/44 VMF(N)-531	3/31/54 VJ-62, F7F-3N/-4N	M. (2-place in -2N, -3N). Tricycle landing gear; 2 P&W R-2800, 2,400 hp; 2,100 hp in -4
F8F	11/27/43	8/31/44	5/49	1,263	Grumman	XF8F-1, -1N, -2, F8F-1,-1B, -1N,-2,-2N, -2P	5/21/45 VF-19	1/31/53 VF-921, VF-859, F8F-2	M. Medium altitude interceptor; P&W R-2800, 2750 hp; 2,500 hp in -2

Fighter Series									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
F9F-2/-5	12/16/46	11/21/47	12/52	1,388	Grumman	XF9F-2, -3; F9F-2,- 3, -4, -5, -5P	5/8/49 VF-51	10/31/58 VAH-7, F9F-5	M. Straight wing; P&W J42, 5,750# in -2; J48, 7,000# in -5; AL J33, 5,400# in -3; 6,500# in -4
F9F-6/-8	3/2/51	9/20/51	12/59	1,985	Grumman	F9F-6, -6P, -7, -8,- 8P, -8T	11/52 VF-32	2/29/60 VFP-62, F9F-8P	M. (2 place in -8T). Swept wing; P&W J48, 7,250# in -6,- 8; AL J33, 6,250# in -7
F11F	4/27/53	7/30/54	12/58	201	Grumman	F9F-9; F11F-1, -1F	3/8/57 VA-156	4/30/61 VF-33, VF-111, F11F-1	M. Supersonic; WAC J65, 10,500#; GE J79, 14,350# in -1F
FH	1/7/43	1/26/45	5/48	61	McDonnell	XFD-1; FD-1/ FH-1	7/23/47 VF-17A	7/1/50 VMF-122, FH-1	M. First USN all jet; tricycle landing gear; 2 WE J30, 1,560#
F2H	3/2/45	1/11/47	8/53	894	McDonnell	XF2H-1; F2H-1, -2, -2N, -2P, -3, -4	3/49 VF-171	9/30/59 VAW-11, F2H-3/-4	M. Pressurized cabin; ejection seat; 2 WE J34, 3,150#; 3,250# in -3 and -4
F3H	9/30/49	8/7/51	11/59	519	McDonnell	XF3H-1; F3H-1, -1N, -2, -2N, -2M; F-3B, -3C; MF-3B	3/7/56 VF-14	8/31/64 VF-161, F-3B	M. Sparrow missile: I in -2M, III in -2; WE J40, 13,700 and 10,900# in -1 and -1N; AL J71, 14,400#
F4H	(Redesignated F-4)								
FJ	1/1/45	9/11/46	4/48	33	North American	XFJ-1; FJ-1	11/18/47 VF-5A	10/1/49 VF-51, FJ-1	M. Straight wing; power boost control; GE TG-180 in XFJ-1; AL J35 (TG-180), 4,000# in FJ-1
FJ-2/-4	2/10/51	12/27/51	5/58	1,115	North American	XFJ-2, -2B; FJ-2, -3, -3M, -4, -4B; F-1C, -1E	1/54 VMF-122	9/30/62 VA-216, F-1E	M. Swept wing; GE J47, 6,000# in -2; WAC J65, 7,800#
FR	2/11/43	6/25/44	11/45	69	Ryan	XFR-1, FR-1	3/45 VF-66	6/30/47 VF-1E, FR-1	M. Combination jet-propeller; tricycle gear; WAC R-1820, 1,400 hp; plus GE I-16, 1,610#
FU	(Single seat fighter-trainer version of UO, 20 aircraft converted from UO-3, delivered January–July 1927)								
F3U	(Original XF3U-1 was replaced by XSBU-1 after original acceptance; it was later reaccepted under different serial number.)								
F4U	6/30/38	5/29/40	1/53	7,829 (1,067)	Vought	XF4U-1, -3, -4, -5; F4U-1, -1C, -1D, -2, -4, -4B, -4C, -4P, -5, -5N, -5NL, -5P, -7; AU-1	10/3/42 VF-12	12/31/55 VC-4, F4U-5N	M. Inverted gull wing; 20MM cannon in -1C, -4B, -5 and in subsequent -2, night fighter; P&W R-2800, 2,000 hp to 2,700 hp
				735 (430)	Brewster	F3A-1			

Fighter Series									
Designation	First Contract	First Flight	Last Delivery	Number Accepted	Manufacturer	Models Accepted	Squadron Delivery	Last Report*	Description
				4,006 (989)	Goodyear	FG-1, -1D			
F6U	12/29/44	10/2/46	2/50	33	Vought	XF6U-1; F6U-1	VX-3	3/52	M. Skin of dural-balsa sandwich; afterburning, WE J34, 4,100#
F7U	6/25/46	9/48	12/55	307	Vought	XF7U-1; F7U-1, 3, -3M, -3P	4/54 VF-81	11/30/57 VA-66, F7U-3	M. Swept wing; tailless; 2 WE J34, 4,900# in -1; J46, 5,800# in -3
F8U	(Redesignated F-8)								
MB-3	1921		1/22	11	Thomas Morse	MB-3	Quantico 3/22	Quantico 11/23	B. WAC H, 300 hp. Land
TS	1921	4/22 est	10/23	34	Curtiss	TS-1	12/22 Langley	5/31/27 VF-1, TS-1	B. Conv't; LA J-1, 200 hp in -1; AM U-8-D, 210 hp in -2; WAC E-2, 180 hp in -3
				9	NAF	TS-1, -2, -3			
VE-7	1920	5/20 est	1924	60	Vought	VE-7, -7SF	7/20 GITMO	5/1/28 VT-6D-14, VE-7	B/2 (SF, single place). Land; -7H, Sea; WAC E-2, 180hp. *See* Observation series
				69	NAF	VE-7, -7G, -7GF, -7H, -7SF			

* Dates in this column through 1969 refer to squadrons. After 1969, these dates refer to the inventory unless a squadron is listed.
† Omits 23 F4B-4A obtained from Army 12/39 and 1 F4B-4 built from spares 6/34.

Patrol And Early Warning Series									
Designation	First Contract	First Flight	Last Delivery	Number Accepted	Manufacturer	Models Accepted	Squadron Delivery	Last Report*	Description
A-29	(*See* PBO)								
B-24	(*See* PB4Y-1)								
B-25	(*See* PBJ)								
B-34	(*See* PV)								
EC-121	(*See* WV)								
E-I	6/15/56	12/17/56	12/61	88	Grumman	WF-2	11/59 VAW-12	3/31/78 E-1B	M/4. Carrier parasol radome; 2 WAC R-1820, 1,525 hp
E-2	3/12/59	10/21/60		253 (14)	Northrop Grumman	W2F-1; E-2A -2B, -2C, -2D; TE-2C	1/64 VAW-11		M/5. Carrier; 2 position parasol rotodome; 4 vertical tails; 2 AL T56, 4,050 eshp., E-2D has 2 Rolls-Royce T-56-A-427 turboprop, 5100 shp each
E-6	Commercial 707-320	1989		16	Boeing	E-6A, -6B	8/3/89 VQ-3		M/22. 4 CFM-56-2A-2 high bypass turbofans
EC-130				18 EC-130Q	Lockheed	C-130G, EC-130Q	12/26/63 VR-1 and VR-21, C-130Gs forerunner of EC-130Q	5/26/92 VQ-4	*See* C-130 specifications

Patrol And Early Warning Series									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
P-2	2/19/43	5/17/45	9/62	1,036 (193)	Lockheed	XP2V-1, -2; P2V-2, -3, -3W, -4,- 5, -6, -6B, -7, -7U, -7S; SP-2H	3/47 VP-ML-2	4/82 SP-2H	M/7-9. Land; 2 WAC R-3350, 3,090 to 3,700 hp; also in -7, 2 WE J34, 3,400#
P-3	2/2/59		11/30/90	610 (36)	Lockheed	YP3V-1; P3V-1/P-3A, -3B, -3C, -3F; YP-3C; RP-3A, -3D; WP-3D; EP-3E	8/22/62 VP-8		M/12. Land; 4 AL T56, 4,500 to 4,900 eshp. EP-3E has a crew of 24 and 4 Allison T-56-A-14 turboprop engines at 4,600 shp each
P-4	(Redesignation of P4Y-2)								
P-5	6/26/46	4/30/48	12/60	239 (21)	Martin	XP5M-1; P5M-1, -2	4/23/52 VP-44	10/31/67 VP-40, SP-5B	M/7. Boat; long hull; faired step; 2 WAC R-3350, 3,250 hp
P-8	circa 2005–2006	4/25/09		On order	Boeing	P-8A			M/9. 2 CFM 56-76-7B engines with 27,300 # thrust each
PB2B	(PBY-5 manufactured by Boeing of Canada, Vancouver, B.C.)								
PBJ	7/7/42		6/45	706	North American	PBJ-1, -1C, -1D -1G, -1H, -1J	2/43 VMB-413	1/31/46 PAC, PBJ-1J	M/4-5. Land; 2 WAC R-2600, 1,700 hp
PBM	6/30/37	2/18/39	3/49	1,366	Martin	XPBM -1 -2, -3, 3C, -3D, -3R, -3S, -5, -5A; PBM-1, -3C, -3D, -3R, -3S, -5, -5E,-5G	9/1/40 VP-55	7/31/56 VP-50, PBM-5S2	M/7–9. Boat; (-5A, amphibian); WAC R-2600, 1,600 to 1,900 hp; 2 P&W R-2800, 2,100 hp in -5
PBN	(PBY manufactured by Naval Aircraft Factory; longer bow)								
PBO	9/41		10/41	20	Lockheed	PBO-1	10/29/41 VP-82	10/31/42 VP-82, PBO-1	M/5. 1st USN land type patrol; 2 WAC R-1820, 1,000 hp
PBY	10/28/33	3/35	9/45	2,387 (636)	Consolidated	XP3Y-1; XPBY-5A; PBY-1, -2, -3,- 4, -5, -6A, OA-10, -5B, -6A	10/5/36 VP-11F	6/1/49 VP-32, PBY-6A	M/5–8. Boat (-5A & -6A, OA-10 & -10B, amphibian); 2 P&W R-1830, 900 to 1,200 hp
				290 (270)	Boeing	PB2B-1, -2			
				155 (137)	NAF	PBN-1			
				230 (230)	Vickers	PBV-1A, OA-10B			
PB2Y	7/23/36	12/17/37	9/44	176 (33)	Consolidated	XPB2Y-1, -3; PB2Y-2, -3, -3B	12/31/40 VP-13	11/30/45 PAC, PB2Y-3/-5	M/9-10. Boat; 4 P&W R-1830, 1,200 hp
				41	Rohr	PB2Y-3R			
PB4Y-1	7/7/42		1/45	977†	Consolidated	PB4Y-1, P4Y-1	10/42 VP-51	5/31/56 VJ-62 P4Y-1P	M/6–11. Land; twin tail; 4 P&W R-1830, 1,200 hp
PB4Y-2	5/3/43	10/43	10/45	739‡	Consolidated	PB4Y-2, P4Y-2	8/44 VB-200	6/30/54 VW-3, P4Y-2S	M/11. Land; single tail; 4 P&W R-1830, 1,200 hp

Patrol And Early Warning Series									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
PD	12/29/27	5/29 est	6/30	25	Douglas	PD-1	7/10/29 VP-7B	10/31/36 VP-6F PD-1	B/4. Boat; aluminum alloy with fabric covered wings; 2 WAC R-1750, 525 hp
P2D	7/25	1/27/27	6/32	30	Douglas	T2D-I, P2D-I	5/25/27 VT-2	2/28/37 VP-3F, P2D-1	B/3. Twin float; duralumin and fabric; 2 WAC R-1820, 575
PH	12/29/27	11/29 est	7/32	10	Hall	XPH-1, PH-1	6/24/32 VP-8S	5/19/37 VP-8F, PH-1	B/5. Boat; lightweight metal structure with fabric covered wings; 2 WAC R-1820, 575 hp
PK	11/30/29	3/31 est	12/31	18	Keystone	PK-1	9/23/31 VP-1B	7/30/38 VP-1, PK-1	B/5. Boat; twin tail; 2 WAC R-1820 575 hp
PM	5/31/29	7/30 est	10/31 est	55	Martin	PM-1, -2	8/21/30 VP-8S	4/30/38 VP-16, PM-1	B/5. Boat; 2 WAC R-1820, 575 hp
P3M	2/28/28	12/28 est	5/31	9	Martin	P3M-1, XPY-1	4/29/31 VP-10S	5/31/38 VP-15, P3M-2	M/4-5. (1st monoplane patrol); 2 or 3 P&W R-1340, 450 hp
				1	Consolidated				
P4M	7/6/44	9/20/46	9/50	21	Martin	XP4M-1, P4M-1	6/28/50 VP-21	5/31/60 VQ-1, P4M-1	M/9. Land; 2 P&W R-4360, 3,250 hp and 2 AL J33, 4,600#
P5M	(Redesignated P-5)								
PO-1W	(Initial designation for WV, the Airborne Early Warning version of the Lockheed Constellation)								
PV	7/7/42		12/45	2,162	Lockheed	PV-1 -2, -2C, -2D, -3	10/42 VP-82	8/1/48 VP-ML-3, PV-2	M/4. Land; 2 P&W -2800, 2,000 hp
P2V	(Redesignated P-2)								
P3V	(Redesignated P-3)								
PY	(Prototype for P3M)								
P2Y	5/26/31	3/26/32	5/35	47	Consolidated	XP2Y-1; P2Y-1, -2, -3	2/1/33 VP-10S	3/31/41 VP-43, P2Y-3	Sesquiplane/5. Enclosed cabins (2 or 3 in XP2Y-1) WAC R-1820, 575 to 700 hp
P3Y	(Initial designation of PBY)								
P4Y	(Redesignation of PB4Y-1 and -2)								
PT	(Torpedo plane manufactured by Naval Aircraft Factory, *See* Attack series)								
WF	(Redesignated E-1)								
W2F	(Redesignated E-2)								

Patrol And Early Warning Series									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
WV	9/28/48		9/58	152	Lockheed	PO-1W; WV-2,-3	7/52	3/31/79 EC-121K	M/26–31. Land; vertical fin and belly radomes; 4 WAC R-3350, 2,500–3,250 hp

* Dates in this column through 1969 refer to squadrons. After 1969, these dates refer to inventory unless a squadron is listed.
† Transport versions of PB4Y-1, 3 RY-1, and 5 RY-2, not included in totals.
‡ Transport versions of PB4Y-2, 33 RY-3, of which three were for U.K., not included in totals.

Observation Series									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
M-8	1919	8/19 est	3/21	17	Loening	M-8, M-80, M-81-S, M-81	8/20† LANT	7/21 PAC, M-81	1st USN production monoplane; M-8 and M-80, land; M-81, conv't; M-80, 2-place reconnaissance; M-81, 1-place fighter or 2-place; Hispano Suiza, 300 hp
				36	NAF				
MO	1922	12/22 est	1/24	36	Martin	MO-1	2/21/23 VO-2	Prior to 1/26	M/3. Conv't; aluminum frame; CAM D-12, 300 hp
O2B	1924	3/25 est	1925	30	Boeing	O2B-1	4/25 Quantico	2/28/29 VO-9M, O2B-1	B/2. Land; DH-4B with steel tube fuselage; Lib., 400 hp
O-1	(Redesignation of OE)								
OC	6/30/27	12/27 est	1928	27	Curtiss	F8C-1, -3; OC-1, -2	1/21/28 VO-7M	9/35 VJ-7M, OC-2	B/2. Land; Marine obs. and attack; P&W R-1340, 410 hp
O2C	(Redesignation for F8C-5, *See* Fighter Series)								
OE	6/51 est		8/1/67	97 (4)	Cessna	OE-1, -2; O-1G	11/51 VMO-1, VMO-6	3/31/70 O-1C, O-1G	M/2. Land; CO O-470, 265 hp
OJ	6/28/29	5/31 est	12/34	40	B/J	XOJ-1; OJ-2	3/33 VS-6B	2/29/36 VS-5B, OJ-2	B/2. Conv't; P&W R-985, 400 hp
OL	1924	5/25 est	3/32	84	Loening	OL-1, -2, -3, -6, -8	2/26 Quantico	7/38 NRAB Oakland	B/2–3. Amph; PKD 1500, 400 to 525 hp; Lib., 400 hp in -2; P&W R-1340, 450 hp in -8 and -9
				26	Keystone	OL-9			
OS2N	(OS2U manufactured at NAF)								
OS2U	3/22/37	5/38 est	11/42	1,218 (154)	Vought	XOS2U-1; OS2U-1, -2, -3	8/16/40 VO-4	5/31/46 PAC, OS2U-3	M/2. Conv't; P&W R-985, 450 hp
				300	NAF	OS2N-1			
O2U	1926	11/26 est	2/30	291	Vought	O2U-1,- 2, -3, -4	12/17/27 VO-7M	4/30/36 VB-2B, O2U-2	B/2. Conv't; P&W R-1340, 450 hp
O3U	1/18/30	6/30 est	7/35	330	Vought	O3U-1, -2, -3, -6; XO4U-2; X03U-6; SU-1, -2, -3, -4	7/15/30 VO-3B	3/42 VJ-3	B/2. Conv't; amph. or land; P&W R-1340, 450 hp

Observation Series									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
OV-1O	10/15/64	7/16/65	1977	356 (239)	North American	OV-1OA, -10B, -10D	2/23/68 HML-267	4/94 VMO-4, OV-10D	M/2. Light Armed Reconnaissance Aircraft (LARA) for Counter-insurgency (COIN) missions; 2 Air T76, 715 shp
OY	11/1/43		8/45	306	Consolidated	OY-1, -2	1/44 VMO-1, -2, 3-, -4	11/30/54 VMO-1, OY-2	M/2. Land; LY O-435, 185 hp
SC	(CS design, manufactured by Martin in 1920s, *See* Attack Series)								
SC	3/31/43	2/16/44	10/46	577	Curtiss	XSC-1A, -1A, -2; SC-1, -2	10/12/44 *Alaska* (CB 1)	10/1/49 HU-2, SC-1	M/1. Sea; WAC R-1820, 1,300 hp
SOC	6/19/33	4/34 est	8/39	259	Curtiss	XO3C-1; XSOC-1, SOC-1, -2, -3	11/12/35 VS-5B	11/30/46 LANT, SOC-1	B/2. Sea; P&W R-1340, 550 hp
				44	NAF	SON-1			
SO3C	5/9/38	10/6/39	1/44	794 (250)	Curtiss	XSO3C-1; SO3C-1, -2, -2C, -3	7/42 VCS-12	3/31/44 VS-46, SO3C-3	M/2. Conv't; RA V-770, 520 hp
SON	(SOC-3 manufactured by the Naval Aircraft Factory)								
SU	(O3U converted to carrier-based scout)								
UO	1922	19/22 est	16/27 est	163 (2)	Vought	UO-1, -4, FU-1	6/14/24 *Tennessee* (BB 43)	12/31/29 VS-8A, VO-6M, UO-1	B/2. Conv't; LA/ WAC R-790 (J-1 to J-5) 200 to 220 hp
VE-7	(*See* Fighter Series. Of the 129 total, 70 were VE-7SF fighters; 39 were VE-7 and VE-7H trainers; 20 were VE-7G observation planes)								
VE-9	1922	6/22 est	7/23	21	Vought	VE-9, VE-9H	6/22 *Nevada* (BB 36)	10/30/30 Navy Mission Rio de Jeneiro, Brazil, VE-9	B/2. Land; -9H, Sea; WAC E-3 180 hp

* Dates in this column through 1969 refer to squadrons. After 1969 these dates refer to the inventory unless a squadron is listed.
† Estimated date.

World War I Aircraft													
						Service History							
						Delivery				Withdrawal from Inventory			
						Continental		For Overseas Shipment					
Designations	First Order (Fiscal Year)	Delivery (D) or First Flight (F)	Number Accepted	Manufacturer	Models Accepted*	Date	Destination	Date	Destination	Date	Location	Model	Description
DH-4	1918	5/24/18 (D)	333	Dayton-Wright	DH-4, -4B	6/4/18	Miami	5/24/18		10/31/26	Dahlgren	DH-4B-2	B/2. Land; bomber & fighter; British design; USN obtained from U.S. Army; two syn. Marlin guns, 2 flex. Lewis guns; Lib., 360 hp
F-5	1918	7/15/18 (F)	30	Canadian Aeroplanes	F-5L	10/4/18	Hampton Roads	10/12/18	Pauillac	1/31	Hampton Roads	F-5L	B/4. Boat; ASW; British F-5 adapted to American manufacture; 5 Lewis guns, 4-230# bombs; 2 Lib., 360 hp
			60	Curtiss	F-5L								
			137	NAF	F-5L								
H-12	1917	3/17 (D)	20	Curtiss	H-12	1/17/18	Hampton Roads		United States Only	7/17/20		H-12	B/2–4. Boat; training or ASW; 2-160# (Mk IV) bombs, Lewis gun, radio; 2 CAM V2-3, 200 hp or 2 Lib., 300 hp
H-16	1918	2/1/18 (D)	124	Curtiss	H-16	2/18	Hampton Roads	3/18	England	5/30	NAF	H-16	B/4. Boat; ASW; was 1st aircraft built at NAF; radio; 5 Lewis guns, 4-230# bombs; 2 Lib., 360 hp
			150	NAF	H-16		Pensacola						
HS	1918	10/21/17 (F) (with Lib. engine)	678	Curtiss	HS-1, -2L, -3L	1/14/18	Hampton Roads	3/25/18	Pauillac	9/28	Hampton Roads	HS-2L	B/3. Boat; pusher; ASW; some aircraft delivered as HS-1, and converted to HS-2 with 25% greater wing area; Lewis gun, 2-230# (180# in HS-1) bombs; Davis gun or radio in some machines; Lib., 360 hp
			250	LWF	HS-2L								
			80	Standard	HS-2L								
			60	Gallaudet	HS-2L								
			25	Boeing	HS-2L								
			2	Loughead	HS-2L								
NC	1918	10/4/18 (F)	4	Curtiss	NC-1 thru -4	5/2/19	Rockaway			5/20/24		NC-10	B/5. ASW; boat; 3 Lib., 360 or 400 hp; NC-TA (Trans-Atlantic Type) had 3 tractor and 1 pusher, Lib. 400 hp
			6	NAF	NC-5 thru -10								
R	1916	11/16 est. (D)	200	Curtiss	R-3, -5, -6, -6L, -9	6/20/17	Pensacola	1/18	Azores	9/26	Pearl Harbor	R-6L	B/2. Twin Float; Curtiss, 200 hp; trainer, but used for ASW; R-9 fitted for Lewis gun and small bombs; R-6L with Lib., 360 hp) used as torpedo plane

* Excludes aircraft erected from spares at the Naval Aircraft Factory and various air stations, even when Bureau Numbers were assigned.

Chapter 3

Transport and Training Aircraft Procured

In basic organization and concept this table generally follows the table on combat aircraft (Chapter 2); the major difference is that this includes only the major/primary transport and training aircraft used by the Navy since the beginning of WWII. Service history data is somewhat broader because of aircraft assignment to shore stations in some cases rather than squadrons. The descriptive data is generally self-explanatory. For explanation of engine nomenclature, *See* discussion of combat aircraft.

Transport and Training Aircraft Data

Transport Aircraft									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Base or Squadron Delivery**	**Last Report***	**Description†**
Boeing-314	(Acquired Feb 1942 from Pan AM)			5	Boeing	Boeing 314		End of WWII	M. Flying boat, four WAC R-2600, 1,600 hp each
GV/C-130	6/30/59	6/13/61		187	Lockheed Martin	C-130F, C-130T, C-130G; LC-130F, LC-130B, LC-130R; KC-130; EC-130Q, EC-130E; DC-130A; HC-130R; KC-130J; NC-130H	VMGR-352		M/7 crew. In-flight refueling and transport. Four AL T56-A-16, 4,910 eshp each
JRB/C-45	6/12/40	10/27/40	10/10/44	209	Beech	JRB-1, JRB-2, JRB-3, JRB-4	NAS Anacostia	9/69	M/2 crew. Six passengers, two P&W R-985, 450 hp each
JRC	4/21/43	1943‡	12/20/43	67	Cessna	JRC-1		5/47	M/2 crew. Four or five passenger, two Jacobs R-775, 450 hp each
JRF	4/24/39	11/29/39	12/18/45	256	Grumman	XJ3F-1; JRF-1, JRF-3, JRF-4, JRF-5, JRF-6B	VJ-1	12/58	M/2 or 3 crew. Four to seven passengers, amphibian two P&W R-985, 450 hp each
JRM	6/27/44	11/1/45	4/4/47	5	Martin	JRM-1	VR-2	1/57	M. Flying boat, four WAC R-3350-8, 2,300 hp each
J4F	6/10/42	2/28/44		131	Grumman	J4F-1, J4F-2	NAS New York	8/48	M/2 crew. Three passenger amphibian, two RA L-440, 200 hp each
RY	3/14/44	10/12/45		47	Convair	RY-1, -2, -3	MarFair West	3/49	M/3 crew. 44 passengers, four P&W R-1830-94, 1,350 hp each
R3Y	9/26/50	2/25/52	11/28/56	11	Convair	XP5Y-1; R3Y-1, R3Y-2	VR-2	1/72	M. Nose loading door for vehicles, flying boat, four AL XT40-A-4, 5,500 eshp each
R4D/C-47	9/16/40	2/9/42	5/31/45	609	Douglas	R4D-1 thru R4D-7	BAD-1 (Marine Corps)	11/83	M/3 crew. 27 passengers, two P&W R-1830-92, 1,200 hp each
R4D-8/C-117				100	Douglas	R4D-8	NAS Norfolk 12/51	China Lake 1982	M/3. 30 passengers, Two WAC R-1820-20, 1,475 hp each, converted from earlier R4D versions
R4Q/C-119	4/22/48	9/1/50	25/5/53	99	Fairchild	R4Q-1, R4Q-2	VMR-252	5/75	M/5 crew. 44 passenger, two WAC R-3350-36WA, 3,400 hp each

Transport Aircraft									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Base or Squadron Delivery**	**Last Report***	**Description†**
R4Y/C-131	7/26/54	8/31/55	30/12/57	39	Convair	R4Y-1, R4Y-1Z, C-131H	Hq Marine Corps Flt. Sect.	3/88	M/4 crew. 44 passengers, two P&W R-2800-52W, 2,500 hp each
R5C	6/1/48	3/19/43	7/6/45	130	Curtiss	R5C-1	VMJ-3	8/56	M/4 crew. 50 troops, two P&W R-2800-51, 2,000 hp each
R5D/C-54	7/31/42	2/22/43	5/31/45	194	Douglas	R5D-1, R5D-2, R5D-3, R5D-4	VR-1	7/73	M/4 crew. 30 passengers, four P&W R-2000-7, 1,350 hp each
R5O	11/13/39	6/12/42	10/5/43	95	Lockheed	XR5O-1; R5O-1, R5O-2, R5O-3, R5O-4, R5O-5, R5O-6	NAS Jacksonville	6/50	M/2 crew. Four to seven passengers, two WAC R-2800-40, 1,200 hp each
R6D/C-118	8/18/50	6/6/52	27/5/53	65	Douglas	R6D-1, R6D-1Z	VR-3	10/83	M/4 crew. Four P&W R-2800-52W, 2,500 hp each
R7O/R7V	9/26/50	3/11/52‡	5/28/54	55	Lockheed	R7V-1, R7V-1P; R7V-2	VR-7	9/74	M. Accommodates 72 troops, four WAC R-3350-91, 3,250 hp each
C-1				87	Grumman	C-1A (TF-1)	VR-22	4/85	M/2. Accommodates 9 passengers. Designed as COD aircraft. Two WR-1820-82, 1,525 hp each
C-2			2/6/90	39	Grumman	C-2A	VRC-50		M/3. Accommodates 39 passengers. Designed as COD aircraft. Two AL T56-A-8B, 4,050 shp each
C-9				16	McDonnell Douglas	C-9, C-9B (DC-9)	VR-30 NAS Alameda		M. Accommodates 107 passengers. P&W JT8-D-9, 14,500#
C-12				90	Beech/Hawker Beechcraft	UC-12B, -12F, -12M, -12W			M/2 crew. Light passenger and cargo, 2 Pratt & Whitney PT6A-60A engines, each deliver 1050 shaft hp
C-20			12/13/94	7	Gulfstream	C-20D, C-20G	NAF Washington		M/5. Accommodates 14 passengers, two RR Spey Mk 511-8, 11,400# each
C-26B	1998 From other military services			7	Fairchild	C-26D, RC-26D, EC-26D			M/2 crew & 19 passengers. 2 Allied Signal (Garrett) TPE-331 12UAR turboprop engines
UC-35	Accepted 11/99			13	Cessna	UC-35C, UC-35D			M/2 crew & 7 passengers. 2 Pratt & Whitney JT15D-5D
C-37A Gulfstream V	Deployed 2005			4	Gulfstream	C-37A, C-37B			M/3–4 crew & 5–8 passengers. 2 Rolls Royce BR 710-A1 turbofan engines
C-40A	Accepted 4/01			8	Boeing	C-40A	CNARF 5/01		M/4 crew & 121 passengers. 2 CFM56-7 SLST engines
C-45 (*See* JRB)									
C-47 (*See* R4D)									
C-54 (*See* R5D)									
C-117 (*See* R4D-8)									
C-118 (*See* R6D)									
C-119 (*See* R4Q)									
C-130 (*See* GV)									
C-131 (*See* R4Y)									

Training Aircraft									
Designation	**First Contract**	**First Flight**	**Last Delivery**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description†**
JN-4		5/10/17	4/11/23	216	Curtiss	JN-4A, -4B, -4H, -6H, -4HG	Marine Advance Base Force, Philadelphia	4/27	B/2. Land; flight and gunnery trainer; 1 Wright-Hispano, 150 hp
N-9		11/16/15	10/28/18	531	Curtiss	N-9H	Miami	8/28	B/2. Water; single float; primary trainer; CAM OXX-6, 100 hp; -9H Hispano-Suiza A 150 hp
NB	2/11/23	1/21/23‡	11/23/25	93	Boeing	NB-1, -2, -3, -4	*Langley* (CV 1)	12/31	B/2. Land, conversion; primary and gunnery trainer; 1 .30 cal. machine gun on Scarff ring; Law J-1, 200 hp; Wright-Hispano E-4, 180 hp
NE		3/16/42	8/9/45	250	Piper	NE-1, -2	NRAB Anacostia	12/47	M/2. Land; primary trainer; CO O-170, 65 hp
NH		1/15/43	3/7/44	205	Howard	NH-1	NAS Atlanta	11/47	M/4. Instrument trainer; P&W R-985 400 hp
NJ		11/16/37	8/28/38	40	North American	NJ-1	NAS Pensacola	8/44	M/2. Basic trainer; fixed under carriage, P&W R-1340-6, 500 hp
NR		8/4/41	10/8/41	100	Ryan	NR-1	NAS Jacksonville	9/43	M/2. Primary trainer; all metal; Kinner R-440-3, 125 hp
NY		5/18/26	2/21/30	292	Consolidated	NY-1, -2, -2A, -3	Pensacola	12/37	B/2. Land, converted; primary trainer; steel tube fuselage, wooden wings; WAC R-790-8, 220 hp
NS				61	Stearman	NS-1		11/44	B/2. Land; primary trainer WAC R-790-8, 200 hp
N2C		7/10/29	12/20/30	54	Curtiss	N2C-1, -2	NRAB Squantum	5/38	B/2. Land; used mainly in reserve training; 1 WAC R-790-8, 200 hp; R-760-94, 240 hp
N2S		9/30/40	3/4/44	3,700	Stearman	N2S-1, -2, -3, -5	NAS Anacostia	6/50	B/2. Land trainer; the most prevalent trainer in WWII; CO R-670-4, 240 hp
N2T		4/16/42	10/11/42	262	Timm	N2T-1	NAS Pensacola	8/44	M/2. Land, primary trainer, plastic bonded plywood construction; CO R-670-4, 229 hp
N3N		10/26/36	1/23/42	998	NAF	N3N-1, -2, -3	NAS Pensacola	10/59	B/2. Land, converted; primary trainer; all fabric covered; WAC R-760-2, 235 hp
SNC				305	Curtiss	SNC-1		10/44	M/2. Land; primary trainer; WAC R-974, 420 hp, all metal retractable landing gear
SNJ		11/8/39	8/27/45	4,024	North American	SNJ-1 thru -6	NAS Pensacola	6/68	M/2. Land; basic trainer; first trainer with retractable landing gear and covered cockpits; 1 P&W R-1340, 550hp
SNV		8/5/41	2/28/44	2,000	Vultee	SNV-1, -2	NAS Corpus Christi	4/46	M/2. Land; basic trainer; retractable landing gear; P&W R-985, 450 hp
T-1 (*See* T2V)									
T-2 (*See* T2J)									
T-6		7/98		109	Raytheon	T-6A, 6B	NAS Pensacola, 11/02		M/2. All-purpose jet trainer. 1 Pratt & Whitney Canada PT-6A-68 turboprop engine, 1,100 hp
T-28		9/26/49‡	10/29/57	1,175	North American	T-28B, T-28C	NATC Patuxent River	4/82	M/2. Land; the first of the standardized trainers for USAF and Navy; WAC R-1820-86, 1425 hp
T-33 (*See* TO/TV)									
T-34		1948‡	6/18/84	423	Beech	T-34A, T-34B, T-34C	NAS Pensacola	10/93	M/2. Land; primary trainer, CON O-470-13, 225 hp
T-39 (*See* T3J)									

Training Aircraft									
Designation	First Contract	First Flight	Last Delivery	Number Accepted	Manufacturer	Models Accepted	Squadron Delivery	Last Report*	Description†
T-44				66	Beech	T-44A, 44B			M/2. Land; turboprop pilot training, two 550 shp P&W PT6A-34B engines
T-45		4/80		225	McDonnell Douglas/ Boeing	YT-45A, T-45A, T-45C			M/2. Land; jet trainer; RR F405-RR401 turbofan engine with 5,527 pounds thrust
TO/TV		1944‡	9/29/48	50	Lockheed	TO-1/TV-1	Undetermined	10/57	M/1. Land; advanced jet trainer; AL J33-A-20, 5,200#
TO/TV/T-33		3/22/48‡	1960	698	Lockheed	TO-2/ TV-2/T-33	Muroc	7/74	M/2. Land
TT		3/26/56‡	1957	14	Temco	TT-1	NAAS Saufley Field	10/60	M/2. Land; primary jet trainer; CON J69, 920#
T2J/T-2		2/10/58‡	12/18/74	519	North American	T2J-1; T-2A, -2B, -2C	NATC Patuxent River	6/94	M/2. Land; all-purpose jet trainer; 2 GE 085-GE-4, 2,950# each
T2V/T-1		12/26/57	2/14/58	150	Lockheed	T2V-1/T-1A	NAS Pensacola	7/72	M/2. Land; deck-landing, advanced jet trainer; AL J33-A-24, 6,100#
T3J/T-39				81	North American/ Boeing	T3J-1/T-39D, -39N; CT-39A, -39E, -39G	NAS Pensacola		M/2. Land; twin-jet radar trainer, two 3,000 lb P&W J60P-3

* The dates in this column refer to either a squadron or the Navy's aircraft inventory. If only a date is listed then it refers to the inventory unless a squadron is listed.

† M-monoplane, B-biplane

‡ Aircraft already developed and in operation by Army Air Corps/Air Forces or a commercial entity before being acquired by the Navy.

Chapter 4

Helicopters and Tiltrotor V/STOL Aircraft Procured

In basic organization and concept this table generally follows that on combat aircraft; the major difference is that this includes practically all helicopters with which the Navy was involved. Because of the helicopter's capability for tethered flight and low-altitude free flight, first flight data was not always available and was sometimes of uncertain meaning. Because of this, first acceptance was used as being somewhat analogous to first flight of a fixed-wing aircraft. Service history data is somewhat broader than for fixed-wing aircraft to accompany the wider scope of models covered, assignment to experimental squadrons (VX) is reported for models that were not later assigned to operational units. Marine Helicopter Experimental squadron (HMX) is considered to be an operational squadron. The descriptive data is generally self-explanatory. For explanation of engine nomenclature, *See* discussion of combat aircraft (Chapter 2).

Naval Helicopter Data									
Designation	**First Contract**	**First Acceptance**	**Final Acceptance**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
DSN	(Redesignated QH-50, *See* H-50)								
H-I	6/14/62	2/64		1,153	Bell	AH-1G,-1J, -1T, -1W, -1Z; TH-1E, -1L; UH-1E, -1L -1N, -1R, -1Y; HH-1K	3/64 VMO-1		Rotor 44' D & tail rotor; observation. One crew; 4 pass., LYT53, 1,150 hp
H-2 (Redesignation of HU2K)									
H-3 (Redesignation of HSS-2)									
H-12 (Hiller and Navy designation for HTE prototype)									
H-13 (Redesignation of HTL)									
H-I9 (Redesignation of HRS-3 and HO4S-3)									
H-23 (Army and Air Force designation and Navy redesignation for HTE)									
H-25 (Redesignation of HUP-2)									
H-34 (Redesignation of HUS and HSS-I)									
H-37 (Redesignation of HR2S)									
H-43 (Redesignation of HUK and HOK)									
H-46	9/29/61	5/62	1/31/77	624	Boeing	HRB-1/ CH-46A, -46D, -46F; UH-46A, -46D	6/64 HMM-265		Tandem rotors, 50' D; assault transport; 3 crew; 17 passenger, 2 GE T58, 1,250 hp
H-50	12/31/58	3/60	10/20/69	633 (1)	Gyrodyne	DSN-1, -3; QH-50C, -50D	1/23/63 *Buck* (DD 761)	1/31/71 QH-50C/D	Coaxial rotors, 20' D; ASW drone; BO T50, 300 hp in QH-50C
H-51				2	Lockheed	XH-51A			Prototype, tri-service evaluation, P&W PT6A turboshaft, 500 shp, rigid rotor 35' D, 2 crew
H-53	2/7/63	5/64		736	Sikorsky	CH-53A, -53D, -53E; HH-53B, -53C; RH-53D; MH-53E	11/2/66 HMH-463		Rotor 72' D and tail rotor; assault transport; 38 passenger or 4 ton; 2 GE T64, 2,850 hp

Naval Helicopter Data									
Designation	**First Contract**	**First Acceptance**	**Final Acceptance**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
H-57	1968	10/10/68		140	Bell	TH-57A, -57B, -57C	11/10/68 HT-8		Trainer, 5 place; rotor 33'4'' D and tail rotor 5'5''; -57C powered by 1 Allison 250-C-20J Gas turbine, 317 shp
H-58	From Army			14	Bell	OH-58A, -58C	Naval Test Pilot School		Rotor 35'4'', training, 2 crew, 1 Allison T63-A-700 turboshaft, 317 shp (236 kW)
H-60	2/78	3/31/80		1,222	Sikorsky	SH-60B, -60F, -60R; HH-60A, -60S, -60J, -60H; UH-60A, -60L; YCH-60; VH-60A, -60N; CH-60, -60S; MH-60S, -60R	9/28/83 HSL-41		LAMPS MK III, ASW, anti-surface warfare, surveillance, communications relay, combat search and rescue, naval gunfire support and logistics support, rotor 53'7'' D and tail rotor. 3 crew. 2 GE-401T700, 1,284 hp each
H-72	10/08	8/26/09		5	EADS North America	UH-72A	Naval Test Pilot School		Rotor 36.1' and tail rotor 6.4', light utility & training, 2 crew plus 8 passengers, 2 Turbomeca Arriel 1E2 tuboshaft engines providing 550kW of take-off power and 516kW continuous power
XHCH-1 (Prototype for ship-to-shore crane, Bureau Numbers 138654-138656 cancelled)									
HJD (Initial designation of HJH, *See* XHJH-1)									
XHJH-1	3/1946	3/25/49	3/25/49	1	McDonnell	XHJD-1			Prototype, twin rotor with 2 R-985s, use for research and development
HJP (XHJP-1 was prototype for HUP-1)									
HJS	11/1947			2	Sikorsky	XHJS-1			Prototype for utility-rescue, 3 crew, R-9 520 hp
HNS	2/20/43	10/43	12/44	68	Sikorsky	HNS-1	11/43 NAS New York	12/31/47 VX-3, HNS-1	Rotor 38' D plus tail rotor; 1st USN helo. WR R-550, 2,00 hp
HOE	11/11/53	6/23/55	6/23/55	3	Hiller	HOE-1	NATC R&D Pax River	4/1957 NATC R&D Pax River	Utility, rotor-tip ramjets, 2 crew
HOK (H-43[†])	6/26/50	4/53	12/57	83	Kaman	HOK-1	4/12/56 VMO-1	5/31/65 VMO-2, OH-43D	Side-by-side rotors, 47' D; utility, 2 place; CO R-975, 525 hp
HOS	3/20/43	9/44	1/46	3 102	Sikorsky Nash-Kelvinator	XHOS-1 HOS-1	10/44 NAS New York	1/31/48 VX-3, HOS-1	Rotor 38' D and tail rotor; utility, 2-place; FR 0-435, 235 hp
HO2S	6/22/43	12/45	12/45	44	Sikorsky	HO2S-1	2/46 NAS New York	5/31/46 CGAS Eliz. City, HO2S-1	Rotor 48' D and tail rotor; utility and rescue; 2 crew, 2 passenger; P&W R-985, 450 hp

Naval Helicopter Data									
Designation	**First Contract**	**First Acceptance**	**Final Acceptance**	**Number Accepted**	**Manufacturer**	**Models Accepted**	**Squadron Delivery**	**Last Report***	**Description**
HO3S	9/27/46	11/46	1/50	92	Sikorsky	HO3S-1	12/47 VU-7	11/30/54 HU-1, HO4S-3	Rotor 48' D and tail rotor; utility, 4-place; P&W R-985, 450 hp
HO4S-3 (H-19†)	4/28/50	8/50	1/58	129	Sikorsky	HO4S-1, -2, -3, -3G	12/27/50 HU-2	12/31/60 HU-4, HO4S-3	Rotor 53' D and tail rotor; ASW, observation and rescue; crew 2 or 3. P&W R-1340, 600 hp; WAC R-1300, 800 hp in -3
HO5S	6/30/50	2/52	2/53	79	Sikorsky	HO5S-1	7/1/52 VMO-1	6/30/57 VMO-1, H05S-1	Rotor 33' D and tail rotor; observation, liaison and utility; 5 place; ACM O-425, 245 hp
HRB (Initial designation for H-46, *See* H-46)									
HRH				0	McDonnell	XHRH-1 cancelled			Heavy assault, BuNo. 133736-133738 cancelled
HRP	2/1/44	6/47	12/50	82	Piasecki	XHRP-1; HRP-1	4/48 HU-2	2/28/53 HS-3, HRP-1	Tandem rotors 41' D; 1st tandem configuration; 2 crew, 8 passenger, P&W R-1340, 600 hp
HRS-3 (H-19†)	8/2/50	3/51	11/57	271	Sikorsky	HRS-1, -2, -3	4/7/51 HMR-161	2/28/69 HC-5, CH-19E	Rotor 53' D and tail rotor; assault transport; 2 crew, 10 passenger; P&W R-1340, 600 to 800 hp
HR2S (H-37†)	5/9/51	10/53	2/59	59	Sikorsky	HR2S-1, -1W	3/20/57 HMR(M) -461	3/31/66 HMH-462 CH-37C	Rotor 72' D and tail rotors; assault transport; 2 crew, 20 passenger; 2 P&W R-2800, 2,100 hp
HSL	6/28/50	10/53	10/56	51	Bell	XHSL-1, HSL-1		9/59	Tandem rotors, 51'6'' D: ASW search or attack; 2 or 3 crew; P&W R-2800, 1,900 hp
HSS-1 (H-34†)	6/30/52	2/54	4/66	385	Sikorsky	XHSS-1, HSS-1, SH-34J	8/55 HS-3	3/31/74 UH-34D	Rotor 56' D and tail rotor ASW; 2 to 4 crew; WAC R-1820, 1,525 hp
HSS-2 (H-3†)	12/24/57	3/59	11/26/75	396	Sikorsky	HSS-2/ SH-3A, SH-3D, HSS-2Z/ VH-3A, -3D; CH-3B, -3E	6/61	5/96	Rotor 59' D and tail rotor; all weather ASW, "seaworthy hull", 4 crew, 2 GE T58, 1,050 hp
HTE (H-12/ H-23†)	4/17/50	5/50	8/51	108	Hiller	UH-12A; HTE-1, -2	1/19/51 HTU-1	10/31/52 HTU-1, HTE-2	Rotor 35' D and tail rotor; training and utility, 3 place; FR O-335, 200 hp in HTE-2
HTK	9/5/50	11/51	10/53	29	Kaman	HTK-1	1/28/53 HU-2	11/31/55 HU-2, HTK	Side-by-side rotors, 40' D; trainer and general utility, 3 place; LYO-435, 255 hp
HTL (H-13†)	6/20/46	2/47	7/59	187	Bell	HTL-1, -2, -3, -4, -5, -6, -7	4/48 HU-2	6/30/73 UH-13P	Rotor 35' D and tail rotor; trainer and general utility; 2 or 3 place; ACM O-325, 178-200 hp, LY O-435, 240 hp in -7
HU (Redesignated H-1, *See* H-1)									

Naval Helicopter Data									
Designation	First Contract	First Acceptance	Final Acceptance	Number Accepted	Manufacturer	Models Accepted	Squadron Delivery	Last Report*	Description
HUK (H-43†)	12/27/56	5/58	12/58	24	Kaman	HUK-1	8/1/58 HU-2	4/30/65 VMO-2, UH-43C	Side by side rotors, 50' D; cargo and rescue; 2 crew, 3 passenger; P&W R-1340, 600 hp
HU2K (H-2†)	11/29/57	4/59	4/28/93	256	Kaman	HU2K-1/ UH-2A, -2B; SH-2F, -2B	12/18/62 HU-2	6/94	Rotor 44' D and tail rotor; 2 crew, 4 passenger; GE T58, 1,050 hp; tandem engines prototyped in a -2B
HUL	4/2/55	11/55	3/59	30	Bell	HUL-1, -1G	1/7/57 HU-2	6/30/73 UH-13P	Rotor 37' D and tail rotor; transport and utility; 1 crew, 3 passenger, LY O-435, 240 hp
HUP-2 (H-25†)	2/8/46	1/49	6/54	476	Piasecki	XHJP-1; HUP-1, -2,-2S, H-25A	1/11/51 HU-2	8/31/64 VU-1, HU-1, UH-25B	Tandem rotors, 35' D; ASW and utility; 3 crew, 4 passenger, CO R-975, 550 hp
HUS (H-34†)	10/15/54	1/57	12/30/68	549	Sikorsky	HUS-1/ UH-34D; HUS-1A, -1G, -1Z; CH-34A, -34C	2/5/57 HMR(L)-363	3/31/74 UH-34D	Rotor 56' D and tail rotor; cargo transport; 2 crew, 12 passenger or 2 ton of cargo; WAC R-1820, 1,525 hp
K-225	9/26/49	3/50	6/50	3	Kaman	K-225 (K-5)	6/20/50 NAS Patuxent River	5/55	Side by side rotors 40' D; LY O-435, 225 hp. K-5 was first turbine powered helo; BO-502 turbine, 175 hp
R-4 (HNS-1 obtained from Army, YR-4 and YR-4B; Sikorsky model VS-316A)									
R-5 (HO2S obtained from Army)									
R-6 (HOS-1 obtained from Army, R-7A and B)									

* Dates in this column through 1969 refer to squadrons. After 1969, these dates refer to inventory unless a squadron designation is listed.
† This is the new designation assigned the helicopter in 1962.

Tiltrotor Aircraft									
Designation	First Contract	First Acceptance	Final Acceptance	Number Accepted	Manufacturer	Models Accepted	Squadron Delivery	Last Report	Description
V-22	6/7/96*	5/24/99†		129	Bell-Boeing	MV-22B	2006, VMM-263		Rotor/Wingspan 84'8'', combat assault and assault transport, 3 crew and 24 troops, 2 Rolls-Royce Liberty AE1107C engines, each deliver 6,200 shp

* First Lot Contract for Fleet MV-22: 7 Jun 1996 (N00019-96-C-0054 [Basic])
† First Acceptance of Lot 1 First Fleet MV-22 Aircraft DD250 Date: 24 May 1999 (BuNo. 165433)

Chapter 5

Drones and Missiles Procured

Pilotless Aircraft/Drones/Targets			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
—	Bristol Siddeley Corp/LTV	Jindivik	Guided missile target drone
—	—	Glimps	ASW pilotless plane, released from blimps, never used
AQM-34B/KDA-1	Ryan	Firebee	Subsonic target drone
AQM-34C/KDA-4	Ryan	Firebee	Subsonic target drone
AQM-37A/KD2B-1	Beech	Challenger	Air-launched supersonic target missile
AQM-37C	Beech	Jayhawk	Supersonic missile target
AQM-38B/RP-78	Northrop Ventura	—	Army contract, missile target
AQM-81B	Teledyne Ryan	Firebolt	Navy modified AQM-81A target missile
AQM-127	LTV Corp.	SLAT	Supersonic low-altitude target
BQM-6C/KDU-1	Chance Vought	—	BuAer managed, target drone version of Regulus I
BQM-34E/KDA series	Ryan	Firebee II	Navy version of BQM-34A, supersonic target drone
BQM-34S	Ryan	Firebee II	Upgraded BQM-34E with integrated target control
BQM-34T	Ryan	Firebee II	BQM-34E modified with transponder set and autopilot
BQM-74C	Northrop	Chukar III	Recoverable, remotely controlled, gunnery target
BQM-74E	Northrop	—	Subscale, subsonic aerial target drone
BQM-126A	Beech	—	Variable-speed target missile
CQM-10A	NAVAIR	BOMARC	Converted Air Force weapon system to missile target
F.B./N-9	—	Flying Bomb	N-9 configured as a Flying Bomb
F.B.	Sperry-Curtiss	Flying Bomb	
F.B.	Witteman-Lewis	Flying Bomb	
KAQ	Fairchild Engine & A/c Co.	—	Pilotless aircraft
KAY	Consolidated Vultee A/c Co.	—	Ship-to-air pilotless aircraft
KDA-1 (BQM-34 series)	Ryan	Firebee I	Target aircraft
KDB (*See* MQM-39A)	Beech	—	
KDC-1	Curtiss-Wright Corp.	—	Mid-wing monoplane target, not procured
KDD-1 (*See* KDH-1)	McDonnell	Katydid	
KDG-1	Globe	Snipe	Mid-wing monoplane for gunnery practice
KDG-2	Globe	Snipe	Similar to KDG-1 except for 24-volt system
KDH-1/TD2D-1/KDD-1	McDonnell	Katydid	Remotely controlled aerial target
KDM-1	Martin	Plover	High-wing air launched, development of PTV-N-2
KDR-1/TD4D-1	Radioplane	Quail	Similar to TD3D-1, Army model OQ-17
KDR-2	Radioplane	Quail	Similar to KDR-1 except structural changes
KDT-1	Temco	—	Solid propellant rocket-powered drone
KDU-1	—	—	Target drone for guided missile evaluation firings
KD2C-1	Curtiss-Wright Corp.	Skeet	Pilotless aircraft target drone
KD2G-1	Globe	Firefly	Mid-wing, all metal, twin tail, monoplane target
KD2G-2	Globe	Firefly	Similar to KD2G-1
KD2N-1	NAMU	—	High mid-wing monoplane, canard design
KD2R-1	Radioplane	Quail	Wooden wings, metal monocoque fuselage target drone
KD2R-2	Radioplane	Quail	Similar to KD2R-1 except 28-volt radio and stabilized
KD2R-2E	Radioplane	Quail	KD2R-2 modified system for test at NAMTC
KD2R-3	Radioplane	Quail	Similar XKD2R-4 except engine and C-2A stabilization

Pilotless Aircraft/Drones/Targets			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
KD2U	Chance Vought Corp.	—	Regulus II conversion to supersonic drone
KD3G-1	Globe	Snipe	Same as KDG-1 except for engine
KD3G-2	Globe	Snipe	Same as KD3G-1 with radio control receiver 28-volt
KD4G-1	Globe	Quail	High all-metal wing gunnery trainer
KD4G-2	Globe	Quail	Similar to KD4G-1 except engine and higher speed
KD4R-1	Radioplane	—	Rocket propelled target drone
KD5G-1	Globe	—	High-wing and twin-tail aircraft target
KGN/KUN	NAMU	—	High-wing monoplane, canard design target drone
KGW/KUW	—	—	Pilotless aircraft
KSD/KUD	—	—	Pilotless aircraft
KU2N-1/KA2N-1	NAMU	—	High mid-wing monoplane, canard design, liquid rocket
KU3N-1/KA3N-1	NAMU	—	High mid-wing monoplane, conventional, liquid rocket
KU3N-2/KA3N-2	NAMU	—	Similar to KU3N-1
KUD-1/LBD-1/KSD-1/ BQM-6C	McDonnell	Regulus I	BuAer managed, target drone version of Regulus I
KUM	Glenn Martin Company	—	Pilotless aircraft for testing ramjet power plant
KUN-1/KGN-1	NAMU	—	High-wing monoplane, canard design target drone
LBE-1	Gould/Pratt-Read & Co.	Glomb	Expendable bomb-carrying guided assault glider
LBP	Pratt-Read & Co.	Glomb	Was scheduled for development
LBT-1	Taylorcraft	Glomb	Expendable bomb-carrying guided glider
LNS-1	Schweizer	Glomb	Glider test vehicle for Glomb
LNT-1	NAF	Glomb	Assault glider, television controlled
LRN-1	NAF	Glomb	Large explosive carrying glider
LRW-1	—	Glomb	Test vehicle for Glomb
MQM-8	Bendix Aerospace	Vandal/Vandal ER	Reconfigured Talos for simulating cruise missile
MQM-15A/KD2U-1	Chance Vought	Regulus II	BuAer program, Regulus II conversion to target drone
MQM-36A/KD2R-5	Northrop Ventura	—	Small propeller driven target drone
MQM-39A/KDB-1	Beech	—	
MQM-61A	Beech	—	
MQM-74C	Northrop	Chukar II	Turbojet, remotely controlled drone, target training
RP-78	Northrop Ventura	—	Army contract, missile target
TD2C-1	Culver	Turkey	Target drone for aircraft and antigunnery training
TD2D-1/XTD2D-1	McDonnell	—	Remotely controlled aerial target, resojet powered
TD2N-2/TD3N-1	NAF/NAMU	—	Target aircraft
TD2R	Interstate	—	Assault drone, program dropped
TD3C-1	Culver	—	Target drone for aircraft and antiaircraft training
TD3D-1	Frankfort Sailplane Co.	—	Target drone, similar to TDD-3, Army model OQ-16
TD3N-1	NAF	—	Target aircraft
TD3R-1	Interstate	—	Torpedo carrying remote-controlled assault drone
TD4D-1	Radioplane	—	Target drone, Army model OQ-17
TDC-2	Culver Air	—	Target drone
TDD-1/2/3	Radioplane/Globe	Denny	Remotely controlled aerial target, gunnery practice
TDD-4	Radioplane/Globe	Denny	Same as TDD-3 except for engine
TDN	NAF	—	WWII assault drone
TDR	Interstate	—	WWII assault drone
XBDR-1	Interstate	—	WWII jet-powered, television-directed assault drone
XBQ-3	Fairchild Corp.	—	Assault drone, Army Air Corps controllable bomb

Pilotless Aircraft/Drones/Targets			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
XKD3C-1	Curtiss	—	Similar to KD2C-2 with engine change, no rudder
XKD6G-1	Globe	—	Similar to KD2G-2, except for engine, new fuselage
XKD6G-2	Globe	—	Similar to KD6G-1, except for engine
XQM-40A/KD6G-2	Globe Corp.		
XUC-1K	Culver	—	XUC-1 aircraft converted to target drone
YAQM-128A	TBD	—	Air-launched, supersonic subscale aerial target
YBQM-126A	TBD/Beechcraft	—	Supersonic subscale target
ZBQM-90A	TBD	—	High-altitude, supersonic aerial target

Note: The above list does not include aircraft modified for use as drones or towed targets.

Unmanned Aerial Vehicles (UAV)/Unmanned Combat Aerial Vehicles (UCAV)/Remotely Piloted Vehicles (RPV)			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
Buster UAV	Mission Technologies Inc.	Buster	A small low-audible biplane UAV that carries an electro-optical sensor payload
BQM-145A	Teledyne Ryan	Peregrine	Reconnaissance drone
BQM-147A	RPV Industries	—	Remotely/automatically piloted vehicle
DSN/QH-50C	Gyrodyne	Dash	Remotely controlled ASW helicopter
MQ-4C/RQ-4B/BAMS UAS	Northrop Grumman	Global Hawk	Provides persistent maritime ISR
MQ-8A	Northrop Grumman	Fire Scout	RQ-8A evolution toward an increased, multi-functional role and will provide critical situational awareness, intelligence, surveillance, reconnaissance, and targeting data
MQ-9A	General Atomics	Reaper	Surveillance
RPV/RQ-2A	AAI Corp	Pioneer	Remotely piloted vehicle with television camera
RQ-4A/BAMS-D	Northrop Grumman	Global Hawk	Maritime and littoral intelligence, surveillance, and reconnaissance mission
RQ-8A	Northrop Grumman	Fire Scout	Surveillance
RQ-15A	DRS Technologies Inc.	Neptune	Surveillance and dropping of small payloads
STUAS	Insitu Inc.		Under development. Mission expectations are to provide intelligence coverage, surveillance, reconnaissance, and communications relay
X-47B/UCAS-D	Northrop Grumman		Unmanned combat aircraft/aerial vehicle. A tailless fighter-sized unmanned aircraft capable of providing persistent, penetrating surveillance, and penetrating strike capability in high-threat areas. Still undergoing testing

Aircraft Configured as Drones/Flying Bombs, Early Period to 1945	
Designation	**Comments**
BG-1	Pre-WWII aircraft configured as radio controlled drone
F4B	Configured as a drone
F4U	Configured as a drone
F6F	Configured as a drone
JH-1	Modified aircraft, Stearman Hammond
N-9 F.B.	Experiments to convert an N-9 training plane into a flying bomb, 1917
N2C	1937, first successful pilotless aircraft flight
NT	Modified training plane, New Standard Aircraft Corp
O2U	Configured as a drone
O3U	Configured as a drone
PB4Y	Project Anvil, radio & television controlled PB4Y loaded with torpex, flown out of England against a German target, one attack flown with limited success

Aircraft Configured as Drones/Flying Bombs, Early Period to 1945	
Designation	**Comments**
PBJ	Configured as a drone
SB2C	Configured as a drone
SBD	Configured as a drone
SBU	Configured as a drone
SF-1	Configured as a drone
SNB	Configured as a drone
SNV	Configured as a drone
SO3C	Matson Navigation Company converted the SO3C planes into target drones
Sperry-Curtiss F.B.	Flying Bomb developed from a Curtiss Company Speed Scout plane, WWI
TBM	Configured as a drone
TG-2	NAF converted a TG-2 into a radio-controlled plane capable of carrying a torpedo; experiments conducted by VU-3
VE-7H	1924 experiment with radio-controlled VE-7
Witteman-Lewis F.B.	BuOrd contract with company to design a flying bomb more successful than Sperry-Curtiss F.B., airframe similar to Speed Scout, tests conducted 1919–1921

Air-to-Ground/Air-to-Surface Missiles			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
—	BuOrd/BuAer/Zenith/G.E.	Pelican/Dryden Bomb	Glide bomb, terminated late 1944
2.75-inch Rocket	NOTS/NWC China Lake	Mighty Mouse/FFAR	Folding-fin aircraft rocket (FFAR), numerous Mks and Mods for this series
5-inch Rocket	—	HVAR/Holy Moses	Aircraft rocket, developed during WWII, numerous Mks and Mods for this series
30.5-inch Rocket	NOTS/NWC China Lake	BOAR	Bombardment Aircraft Rocket, a stand-off weapon
AGM-12A/ASM-N-7	Martin/Maxson	Bullpup	Tactical air-to-surface short-range radio-controlled
AGM-12B/ASM-N-7A	Martin/Maxson	Bullpup	Upgraded AGM-12A, radio-link command guidance
AGM-12C/ASM-N-7B	Martin	Bullpup	Upgraded AGM-12B
AGM-45A/ASM-N-10	Texas Instruments/Sperry Farragut	Shrike	Tactical missile used to destroy radar targets, developed by NOTS
AGM-45B	Texas Instruments/Sperry Farragut	Shrike	Upgraded AGM-45A
AGM-53A/ASM-N-11	North American/Rockwell/NWC	Condor	Long-range, electro-optical guided missile, cancelled
AGM-53B	North American/Rockwell/NWC	Condor	Upgraded AGM-53A with EMI capability, not completed
AGM-65E/F/G	Hughes	Maverick	Navy version of AGM-65; TV-, laser- or IR-guidance
AGM-78A/B/C/D	General Dynamics	Standard ARM	Tactical, antiradiation missile, upgrades listed
AGM-83A	NWC	Bulldog	Used parts of AGM-12A, laser guided
AGM-84A/C/D	McDonnell Douglas/Boeing	Harpoon	Air-to-surface missile designed to destroy ships, upgrades listed
AGM-84E SLAM	McDonnell Douglas	Harpoon/SLAM	Standoff land-attack missile variant of Harpoon
AGM-84K	Boeing	SLAM-ER	Standoff land-attack missile variant of the AGM-84A/C/C/E
AGM-86B	—	ALCM	Air-launched cruise missile, *See* AGM-109L Tomahawk
AGM-87A	NWC/G.E.	FOCUS I/FOCUS II	Sidewinder AIM-9B modified for air-to-surface use
AGM-88A/B/C	NWC/Texas Instruments/Ford Aero	HARM	Antiradiation missile used against surface radar, upgrades listed
AGM-88E	Alliant Techsystems	AARGM	HARM (AGM-88A/B/C) was the predecessor. Air-to-ground missile employed for destruction of enemy air defenses
AGM-109C	General Dynamics	MRASM	Medium-range missile, never completed development

Air-to-Ground/Air-to-Surface Missiles			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
AGM-109L	General Dynamics	Tomahawk	Medium-range, air-launched, land/sea attack missile
AGM-114B	Rockwell	Hellfire	Helicopter missile, with various capabilities
AGM-114E	U.S. Army Missile Command	Hellfire	AGM-114B modified with digital autopilot
AGM-114K	Lockheed Martin	Hellfire	Variant of AGM-114B
AGM-114M	Lockheed Martin	Hellfire	Variant of AGM-114B, for military operations in urban terrain (MOUT) targets
AGM-114N	Lockheed Martin	Hellfire	Variant of AGM-114B, for use against MOUT targets
AGM-114P	Lockheed Martin	Hellfire	Variant of AGM-114B, for high-altitude launch trajectories
AGM-114Q	Lockheed Martin	Hellfire	Variant of AGM-114B, training version
AGM-114R	Lockheed Martin	Hellfire II	Variant of AGM-114B
AGM-119B	Norsk Forsvarsteknologi	Penguin Mk-2	AGM-119A, with modified warhead, fuze, rocket motor
AGM-122	NWC China Lake/Motorola	Sidearm	Sidewinder antiradiation missile, built from AIM-9C and designed to attack radar-directed air defense systems, variations of AGM-122 developed
AGM-123A	NWC	Skipper	Modified laser-guided bomb, with Shrike rocket motor
AGM-136A	Northrop Corp.	Tacit Rainbow ARM	Antiradiation missile, long range, terminated
AGM-154A	Raytheon	JSOW	Joint Standoff Weapon, air-to-surface for use against fixed and relocateable soft targets
AGM-154B	Raytheon	JSOW	Effective against mobile area targets
AGM-154C	Raytheon	JSOW	Blast/fragmentation/penetrator effective against fixed-point and hardened tactical targets
AQM-41A/AUM-N-2	Fairchild	Petrel/Kingfisher C	Air-to-underwater/surface tactical guided missile
ASM-2/ASM-N-2	Nat'l Bureau of Standards	Bat-0	Glider operational missile
ASM-N-2A	Nat'l Bureau of Standards	Bat-1	Similar to ASM-N-2
JDAM	Boeing	JDAM	Joint Direct Attack Munition, guided air-to-surface weapon
SLAM-ER	Boeing	SLAM-ER	Long-range, air-launched precision land- and sea-attack cruise missile
XASM-N-4/XASM-4	Eastman/BuOrd	Dove	Stand-off delivery missile, never operational
XASM-N-5	NADC	Gorgon V	Glide offensive missile
XASM-N-8/XASM-8/ XM-17	Temco Aircraft Corp.	Corvus	Air-to-surface attack missile, never operational
XAUM-2	Bureau of Standards	Petrel/Kingfisher C	
XAUM-N-4/XAUM-4	Bureau of Standards	Diver/Kingfisher D	
XAUM-N-6/XAUM-6	Bureau of Standards	Puffin/Kingfisher F	
XSUM-N-2	National Bureau of Standards (NBS)	Grebe/Kingfisher E	Member of the Kingfisher missile projects
YAGM-114B	Rockwell	Hellfire	Navy version of AGM-114A, antiarmor missile

Note: The above list does not include training missiles, i.e. ATMs, CATMs, or DATMs.

Surface-to-Surface/Surface-to-Ship Missiles and Special Category Rockets			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
—	—	Albatross	Ship-to-ship missile
—	Aerojet-General Corp.	Aerobee-Hi	Similar to Aerobee, a vertical sounding rocket
—	Applied Physics Lab	Triton	Program cancelled in 1957
—	BuAer/BuOrd/NBS/NAOTS	Regal	Experimental program, air-launched Regulus
—	Consolidated-Vultee	Old Rippy	Automatic FM homing, pulse-jet, ship-to-ship

Surface-to-Surface/Surface-to-Ship Missiles and Special Category Rockets			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
RGM-6A/SSM-8/SSM-N-8	Chance Vought	Regulus I	BuAer managed program
RGM-6B/SSM-N-8A	Chance Vought	Regulus I	BuAer managed program
RGM-15A/SSM-N-9	Chance Vought/LTV Aerospace	Regulus II	Surface-to-surface missile developed by BuAer
RIM-7	BuWps/Raytheon	Seaspar/Sea Sparrow	Sparrow III used in a surface-to-surface or SAM mode
RTV-N-8/RTV-8/XASR-1	BuOrd/Douglas Aircraft Co.	Aerobee	A liquid-fueled rocket for upper atmosphere research
RTV-N-15	NADC	Pollux	Also known as Gorgon IIC, *See* CTV-N-2, test vehicle
XSSM-N-6/XSSM-6/PA-VII	Grumman	Rigel	Missile fired from surface ship against land targets
XSSM-N-9	Applied Physics Lab	Lacrosse	

Note: Surface-to-surface missiles designed primarily for ship-based operations, such as the Taurus, Talos, Tartar, Terrier, and Standard Missile have not been included in the above list.

Surface-to-Air and Special Launch Test Missiles or Rockets			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
—	—	Arrow Shell	*See* Zeus (XSAM-N-8)
—	NADS	Gorgon IIB	High mid-wing monoplane, canard design, turbojet
—	NAMU	Gorgon IIIB	Conventional airframe with turbo jet, eliminated
CTV-2/CTV-N-2/KGN-1/ KUN-1	NADC	Gorgon IIC	Monoplane canard design, pulse jet, ship-to-shore
CTV-4/CTV-N-4/KA2N-1	NADC	Gorgon IIA	Monoplane, canard design with rocket, also KU2N-1
CTV-8/RTV-6/XPM	Navy/Applied Physics Lab	Bumblebee	Program led to development of Tartar, Terrier, Talos, and Typhon. Typhon was cancelled
CTV-N-6/KA3N-1/KU3N-1	NADC	Gorgon IIIA	High mid-wing monoplane, conventional design, rocket
CTV-N-9/KAQ-1/XSAM-2	Fairchild	Lark	Ship-to-air guided missile, used wing flaps
CTV-N-9a/b/c	Fairchild	Lark	Ship-to-air guided missile, test vehicle
CTV-N-10/KAY-1/XSAM-4	Consolidated Vultee Aircraft	Lark	Ship-to-air, variable incidence wings (test vehicle)
KAN-1	NAMU	Little Joe	Ship-launched, use against aircraft suicide attacks
KAN-2	NAMU	Little Joe	Similar to KAN-1, never operational
KUD-1/RTV-2 (*See* RTV-N-2)	—	Gargoyle	
KUW-1 (*See* NTV-N-2)	USAF procurement	Loon	Test vehicle
LTV-N-2/LTV-2/KGW-1	Willys-Overland/AAF	Loon	Similar to German V-1, Launching Test Vehicle
PTV-N-2/PTV-2/KUM-1	Martin	Gorgon IV	Vehicle for testing subsonic ramjet engine
RTV-N-2/LBD-1/KSD-1	McDonnell	Gargoyle	Low-wing monoplane V-tail, aerial bomb
RTV-N-4/KA3N-2/KU3N-2	NADC	Gorgon III-C	Similar to CTV-6, dual rockets, conventional design
TD2N/KDN-1	NAMU	Gorgon	Monoplane, conventional design, turbo jet
TD3N-1/KD2N-1	NADS	Gorgon	Canard, resojet power plant, similar to Gorgon IIC
XSAM-6 (*See* XSAM-N-6)	—	Bumblebee	
XSAM-N-6	Navy/Applied Physics Lab	Triton/Bumblebee II	Program cancelled
XSAM-N-8	NOL	Zeus	

Air-to-Air Missiles			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
—	—	Lady Bug	Short-range adaption of German X-4
—	NELC/Hughes Aircraft	Brazo/Pave ARM	Antiradiation missile
AAM-N-3	Douglas	Sparrow II	Production version of YAAM-N-3
ADM-141A	Brunswick Defense Corp.		Air-launched decoy to create a false radar image
ADM-141B	Brunswick Defense Corp.		Air-launched decoy that dispenses chaff
AEM-54A	Hughes	Phoenix	AIM-54A with telemetry evaluation kit
AEM-54B	Hughes	Phoenix	AIM-54A, telemetry equipment, missile flight evaluations
AIM-7A/AAM-N-2/KAS-1	Sperry	Sparrow I	Short range beam-rider missile
AIM-7B/AAM-N-3	Douglas	Sparrow II	Cancelled
AIM-7C/AAM-N-6	Raytheon	Sparrow III	Semi-active radar homing, CW seeker radar homing, mid range
AIM-7D/E/F/M/AAM-N-6A/B	Raytheon	Sea Sparrow/ Sparrow III	Supersonic launch version, upgrades listed
AIM-7P	Raytheon		Upgraded AIM-7
AIM-9A/AAM-N-7	Philco	Sidewinder I	
AIM-9B/AAM-N-7	Philco/General Electric	Sidewinder 1A	1A supersonic, homing weapon, passive infrared
AIM-9C/AAM-N-7	Motorola	Sidewinder 1C-SARAH	Semi-active radar guided
AIM-9D/AAM-N-7	Philco/Raytheon	Sidewinder 1C-IRAH	IR upgraded AIM-9B, infrared homing radar guiding
AIM-9G	Raytheon	Sidewinder	Upgraded AIM-9D
AIM-9H	Raytheon (GCG only)	Sidewinder	Upgraded AIM-9G with solid-state guidance control
AIM-9J	Philco	Sidewinder	Upgraded AIM-9E
AIM-9L/M/N/P/S	Raytheon	Sidewinder	Upgrades listed
AIM-9R	NWC	Sidewinder	Cancelled
AIM-9X	Raytheon	Sidewinder	Upgrade
AIM-54A/AAM-N-11/AIM-54C	Hughes	Phoenix	Long-range, tactical, air-to-air missile, upgrades listed
AIM-120A	Raytheon	AMRAAM	Advanced medium-range, beyond visual range combat
AIM-120C	Raytheon	AMRAAM	Improved AIM-120A
AIM-120D	Raytheon	AMRAAM	Improved AIM-120C
XAIM-95A	NWC China Lake	Agile	Short-range, for aerial combat, cancelled

Note: The above list does not include training versions or electronic monitoring designations, i.e. ATMs, CAEMs, and DATMs.

Experimental or Prototype Air-to-Air Missiles			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
RAAM-N-2A	Sperry	Sparrow I	Converted AAM-N-2 Sparrow I, R&D test missile
RAAM-N-2B	Sperry	Sparrow IA	Converted AAM-N-2, R&D test missile
XAAM-N-4/RV-N-16	Martin	Oriole	Long-range antiaircraft, active radar seeker
XAAM-N-5	MIT/BuOrd	Meteor	
XAAM-N-10	Bendix Aviation Corp.	Eagle/Missileer	Long-range air-to-air high-performance missile
XAIM-54C	Hughes	Phoenix	Experimental AIM-54C with digital technology
YAAM-N-3	Douglas	Sparrow II	Preproduction version of XAAM-N-3
YAIM-7F	Raytheon	Sparrow	Improved version of AIM-7E
YAIM-7G	Raytheon	Sparrow	Similar to YAIM-7F, with modifications

Experimental or Prototype Air-to-Air Missiles			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
YAIM-54C	Hughes	Phoenix	Prototype AIM-54C
YAIM-120A	Hughes		Prototype AIM-120A
ZAIM-9K	Raytheon	Sidewinder	Upgraded AIM-9H

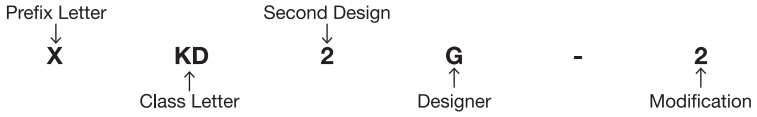
Guided Weapons, Air-to-Ground			
New and Old Model Designation	**Manufacturer**	**Popular Name**	**Description**
2-inch FFAR	NOTS	Gimlet	Air-launched rocket development
5-inch FFAR	NOTS China Lake	Zuni	Aircraft rocket, replaced the HVAR/Holy Moses
AGM-62A	NWC/Martin Marietta	Walleye I Mk 1	An electro-optical glide weapon, passive homing
—	NWC/Martin Marietta	Walleye I Mk 22	Similar to Walleye I, with RF data link
—	NWC/Martin Marietta	Walleye II Mk 5/ Fat Albert	Similar to Walleye I, with larger warhead
—	NWC/Martin Marietta	Walleye II Mk 13	Similar to Walleye II, with RF data link
—	NWC	Paveway II	Laser-guided bomb

How to Read Missile Designations Missile Designations (Pre-1962). Alphabetical Symbols Used in Missile Designations				
Pilotless Aircraft/Target Drones (Type K)	**Test Vehicles (Type TV)**		**Tactical Weapons–Guided Missiles (Type M)**	
KD	CTV	Control	AAM	Air-to-Air
	LTV	Launch	ASM	Air-to-Surface
	PTV	Propulsion	AVM	Air-to-Underwater
	RTV	Reasearch	SAM	Surface-to-Air
			SSM	Surfacce-to-Surface

Test Vehicles

Tactical Weapon–Guided Missile

Pilotless Aircraft/Target Drone Designation

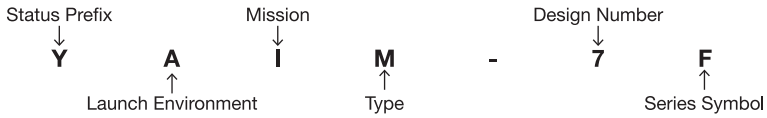


Note: Prior to 1962, normal man-carrying aircraft configured as a drone used the original aircraft designation with a K at the end of the designation; i.e. F6F-5K.

Missile Designations (Post-1962) Alphabetical Symbols Used in Missile Designations and Descriptions		
Status Prefix		
C	Captive	Vehicle designed for carry on a launch platform, but incapable of being fired
D	Dummy	Non-flyable vehicle used for training
J	Special Test (Temporary)	Vehicle in special test programs by authorized organizations, on bailment contract with a special test configuration, or with installed property temporarily removed to accommodate tests
N	Special Test (Permanent)	Vehicle in special test programs by authorized activities or on bailment contract whose configuration changes so drastically that returning to its original operational configuration is beyond practical or economical limits
X	Experimental	Vehicle in a development or experimental stage
Y	Prototype	Vehicle suitable for evaluation of design, performance, and production potential
Z	Planning	Vehicle in the planning or predevelopment stage
Launch Environment		
A	Air	Vehicle launched in the air by another vehicle
B	Multiple	Vehicle capable of being launched from more than one environment
C	Coffin	Vehicle stored horizontally or at less than a 45-degree angle in a protective enclosure (regardless of structural strength) and launched from the ground level
F	Individual	Vehicle hand-carried and launched by combat personnel
G	Surface	Vehicle launched from a runway or the ground
H	Silo Stored	Vehicle vertically stored—but not launched from—below ground level
L	Silo Launched	Vehicle launched vertically from below ground level
M	Mobile	Vehicle launched from a ground vehicle or movable platform
P	Soft Pad	Vehicle partially protected or unprotected in storage and launched from ground level
R	Ship	Vehicle launched from a surface vessel (ship or barge)
S	Space	Vehicle launched from an aerospace vehicle that operated outside the earth's atmosphere
U	Underwater	Vehicle launched from a submarine or other underwater device
Basic Mission		
C	Transport	Vehicle designed to carry personnel; cargo; command, control, and communications equipment; or weapons systems
D	Decoy	Vehicle designed or modified to confuse, deceive, or divert enemy defenses by simulating an attack vehicle
E	Electronic/ Communications	Vehicle designed or modified with electronic equipment for communications, countermeasures, electronic-radiation sounding, or other electronic recording or relay missions
G	Surface Attack	Vehicle designed to destroy enemy land or sea targets
I	Aerial/Space Intercept	Vehicle designed to intercept aerial/space targets in defensive or offensive roles
L	Launch Detection/ Surveillance	Vehicle designed for the systematic observation of aerospace for the purpose of detecting, tracking, and characterizing objects, events, and phenomena associated with satellites and in-flight missiles, including intrusion detection
M	Scientific/Calibration	Vehicle designed for the collection, evaluation, analysis, and interpretation of scientific and technical information
N	Navigation	Vehicle designed to provide data for navigation purposes
Q	Drone	Aerospace vehicle remotely or automatically controlled
S	Space Support	Vehicle designed to ensure maintainability of space control and support of terrestrial forces. Includes activities such as launching and deploying space vehicles, maintaining and sustaining space vehicles while in orbit, and recovering space vehicles if required
T	Training	Vehicle designed or permanently modified for training purposes
U	Underwater Attack	Vehicle designed to detonate underwater and to destroy submarines or other underwater targets
W	Weather	Vehicle designed to observe, record, or relay meteorological data
Vehicle Type		
B	Booster	A primary or auxiliary propulsion system used as a source of thrust for a satellite, missile, or aerospace vehicle. A booster system may consist of one or more units

K	Pilotless Aircraft	An unmanned vehicle under remote controlled flight
M	Guided Missile	An unmanned vehicle that flies in and above the atmosphere and an external or internal guidance system controls its flight path trajectory
N	Probe	Non-orbital, instrumented vehicle designed to penetrate the aerospace environment. Commonly used for collection of meteorological data
R	Rocket	Vehicle propelled by an engine that derives its thrust from ejection of hot gases generated by liquid or solid propellants carried in the vehicle. A rocket has no guidance (internal or external) after launch
S	Satellite	Vehicle placed in various orbits to collect, transmit various types of data for multiple purposes

Missile Designation



Note: After 1962, normal man-carrying aircraft configured as a drone would use the original design preceded by the letter Q, i.e. QF-86D.

CHAPTER 6

Aircraft on Hand

1911–1918					
1 July	Total HTA inventory	Seaplanes*	Flying boats	Landplanes	LTA Airships
1911	1†	1			
1912	3	3			
1913	6	4	2		
1914	12	6	6		
1915	15	9	6		
1916	17	14	3		
6 Apr 1917	54	45	6	3	1
11 Nov 1918	2,107	695	1,170	242	1

* Pontoon type, referred to as hydroaeoplanes through 1916.

† The Curtiss Triad which made its first flight in the hands of a naval officer on 1 July; the plane was formally accepted on 9 August.

1920–1965 Navy and Marine Corps Combined. Including those assigned to the Air Reserve and In Storage									
	HTA Types*							LTA Types†	
1 July	HTA Inventory	Combat	Transport and Utility‡	Observation§	Training	Miscellaneous∅	Helicopter#	Rigid	Blimp
1920		1,205							16
1921		1,134							16
1922	1,234	780			454				10
1924	700	530			170			1	1
1925	860	491	134		188	47		2	1
1926	888	600			282	6		1	1
1927	886	599			284	3		1	1
1928	851	605			217	29		1	2
1929	1,038	664	7		205	162		1	2
1930	1,081	734	12		303	32		1	3
1931	1,204	776	14		300	114		1	3
1932	1,234	909	17		246	62		2	4
1933	1,380	863	38		176	303		2	3
1934	1,347	950	43		157	197		2	2
1935	1,456	1,041	67		170	178		1	2
1936	1,655	1,100	90		166	319		1	4
1937	1,637	972	113		161	393		1	4
1938	2,050	1,284	125		268	373		1	5
1939	2,098	1,316	150		262	370		1	8
1940	1,741	1,194	152		363	32			6
1941	3,432	1,774	183		1,444	31			7
1942	7,058	3,191	461		3,378	28			16
1943	16,691	8,696	878		7,021	96			78
1944	34,077	22,116	1,939		9,652	364	6		146
1945	40,939	29,125	2,897		8,370	520	27		139
1946	24,269	14,637	2,864		5,725	1,006	37		93
1947	17,629	11,181	1,288	413	3,941	779	27		66

1920–1965 Navy and Marine Corps Combined. Including those assigned to the Air Reserve and In Storage									
	HTA Types*							LTA Types†	
1 July	HTA Inventory	Combat	Transport and Utility‡	Observation§	Training	Miscellaneous∅	Helicopter#	Rigid	Blimp
1948	15,198	9,899	1,295	299	3,109	545	51		56
1949	14,159	9,372	1,272	144	3,118	150	103		59
1950	14,149	9,422	1,193	126	3,092	203	113		58
1951	13,636	8,713	775	101	3,527	357	163		58
1952	14,163	8,742	971	136	3,567	371	376		59
1953	15,327	8,818	1,250	194	3,700	704	661		50
1954	16,209	8,829	1,276	237	3,762	1,381	724		47
1955	17,116	8,884	1,299	217	3,679	2,361	676		61
1956	16,458	7,961	1,239	233	3,519	2,752	754		51
1957	14,725	7,591	1,287	164	3,341	1,521	821		54
1958	13,464	7,408	1,307	160	3,008	648	933		42
1959	13,007	7,030	1,355	150	3,027	468	977		37
1960	12,253	6,074	1,320	135	2,925	800	999		18
1961	12,667	6,305	1,285	129	2,769	1,147	1,032		14
1962	13,041	6,420	1,600		2,561	1,210	1,250		13
1963	12,438	6,265	1,639		2,290	970	1,274		
1964	11,851	5,420	1,727		2,149	1,290	1,265		
1965	11,386	5,127	1,681	20	2,305	968	1,285		

* As determined by model designation.

† Includes *Los Angeles* under Rigids while in non–flying status 1932–39, and the metal clad ZMC-2 under blimps, 1930–38.

‡ Includes assault transport helicopters after 1961.

§ Included under combat through 1946; thereafter VO and HO.

∅ Has different meanings at different times, but generally includes experimental and obsolete aircraft, those awaiting disposition, on loan, and other categories officially considered "nonprogram" aircraft.

Total on hand; also counted in pertinent columns under HTA types.

1966–2010								
30 June	Total Aircraft Inventory*	Total Operating Inventory†	Combat	Transport/ Utility	Observation	Training	Miscellaneous 1966–98, Tilt Rotor 1999ff *	Rotary-Wing
1966	9,509	6,485	3,163	489		1,678	3,110	1,069
1967	9,399	6,591	3,160	543	14	1,679	2,884	1,119
1968	9,326	6,962	3,362	561	36	1,876	2,300	1,191
1969	9,192	6,984	2,964	614	111	2,180	2,110	1,213
1970	8,646	6,528	3,043	549	91	1,741	1,979	1,243
1971	7,974	6,059	2,793	353	80	1,465	2,007	1,276
1972	7,836	5,658	2,663	445	63	1,369	2,223	1,073
1973	7,444	5,590	2,697	416	78	1,286	1,909	1,058
1974	7,509	5,279	2,817	402	71	1,314	1,776	1,129
1975	7,526	4,915	2,747	377	52	1,204	2,012	1,134
1976	6,836	4,931	2,344	323	63	1,067	1,952	1,087
30 Sep								
1977	6,593	4,698	2,346	268	61	879	1,943	1,096
1978	6,359	4,512	2,219	249	53	907	1,895	1,036
1979	6,390	4,463	2,207	213	55	916	1,975	1,024
1980	6,300	4,436	2,164	219	74	884	1,913	1,046
1981	6,225	4,474	2,156	221	79	908	1,803	1,058

1966–2010								
30 June	Total Aircraft Inventory*	Total Operating Inventory†	Combat	Transport/ Utility	Observation	Training	Miscellaneous 1966–98, Tilt Rotor 1999ff *	Rotary-Wing
1982	6,130	4,534	2,223	199	79	908	1,645	1,076
1983	6,178	4,469	2,418	219	78	1,004	1,230	1,229
1984	6,230	4,437	2,348	214	80	1,028	1,339	1,221
1985	5,396	4,462	2,067	183	73	845	1,004	1,224
1986	5,389	4,474	2,112	137	81	849	993	1,217
1987	5,433	4,421	2,093	131	77	816	1,106	1,210
1988	5,424	4,174	1,945	188	68	740	1,253	1,230
1989	5,972	4,572	2,588	217	72	931	774	1,390
1990	5,895	4,766	2,550	212	57	915	722	1,439
1991	4,629	4,578	2,146	204	36	866		1,377
1992	4,684	4,403	2,235	211	43	797		1,398
1993	4,704	4,134	2,276	220	36	772		1,400
1994‡	4,514	3,868				617		
1995‡	4,406	3,811				632		
1996‡	4,228	3,574				626		
1997‡	4,124	3,523				619		
1998‡	4,084	3,421				640		
1999‡	4,047	3,392				656	1	
2000‡	4,055	3,434				662	8	
2001‡	4,089	3,566				671	7	
2002‡	4,079	3,461				686	7	
2003‡	4,048	3,454				680	7	
2004‡	3,837	3,346				664	11	
2005‡	3,727	3,022				647	28	
2006‡	3,698	3,037				644	42	
2007‡	3,729	3,045				657	54	
2008‡	3,745	3,025				646	67	
2009‡	3,784	3,049				658	85	
2010‡	3,860	3,111				673	104	

Note: Category changes from Miscellaneous to Tilt Rotor in 1999.

* Figures include aircraft in the pipeline, inactive aircraft, and non-program aircraft but do not include the inactive aircraft inventory. Figures drawn from NavSo P-3523 generated by the Office of the Navy Comptroller, Financial & Statistical Reports Branch.

† Total operating inventory accounts for only operational aircraft in the reporting and physical custody of the operating unit to which assigned. Figures drawn from the Naval Aviation Summary reports (OpNav Notice C3100) and beginning in 1994 from the Aircraft Inventory & Readiness Reporting System (AIRRS) database.

‡ Extracted from Aircraft Inventory & Readiness Reporting System (AIRRS) data using Active Aircraft Status Codes as of 30 September of each year. The Total Aircraft Inventory does not include the inactive aircraft inventory numbers. Note: Combat numbers include antisubmarine, attack, fighter, patrol, and warning aircraft. Transport/Utility numbers include in-flight refueling, utility, and transport aircraft.

Chapter 7

Naval Aircraft Bureau (Serial) Numbers

Serial number and bureau number are synonymous terms for the identifying number assigned to individual naval aircraft. The earliest system was a letter-number combination, which segregated the aircraft by manufacturer (or designer) and general type. As this scheme developed, the letter "A" was used with Curtiss hydroaeroplanes, "B" for Wright-type hydroaeroplanes, "C" for Curtiss flying boats, "D" for Burgess flying boats, and "E" for Curtiss amphibian flying boats. Sequential numbers beginning with 1 were assigned to each set of aircraft.

That scheme was replaced by AH numbers which were assigned aircraft in service. A system of construction numbers was then initiated to identify aircraft on order. The two coexisted for some 15 months when the service numbers were abandoned (*See* 27 Mar 1914, 10 Feb 1916, and 19 May 1917, Vol. I chronology entries).

Construction numbers began with A-51 and, as serial numbers or bureau numbers, ran through A-9206 after which the letter "A" was dropped although sequential numbering continued through 9999. A second series of four-digit numbers began with 0001 and ran through 7303. The last number in this series was assigned in December 1940. Beginning in 1941 a series of five-digit numbers, beginning with 00001 was adopted and numbers were assigned through 99999, with 99991–100000 cancelled. A six-digit numbering system was then added beginning with 100001 and is still in use.

To summarize, the five major numbering systems are as follows:

1. A-51 to A-9206
2. 9207 to 9999 (the A prefix was dropped)
3. 0001 to 7303
4. 00001 to 100000 (99991–100000 were cancelled)
5. 100001 to present (still in use but with many modifications)

There are several major exceptions to the assignment of numbers in the six-digit numbering system. In the 1960s a block of six-digit numbers, beginning with 00, were assigned to the DASH vehicle (Drone Antisubmarine Helicopter). The original designation for the unmanned helicopter was DSN. Production models of the DSN were designated QH-50C and QH-50D. All of these had six-digit bureau numbers that began with 00. The double zeros were part of the bureau number. These numbers obviously do not fit into the regular six-digit numbering system that began with 100001. Documentation has not been found that explains why the normal numbering system was not employed for these aircraft.

The other major exception to the normal sequential assignment of bureau numbers in the six-digit system involves numbers beginning with 198003 and ranging up to 999794. This group is not sequentially assigned. Almost all of the aircraft in this group were acquired by the Navy from the Army, Air Force, or other organizations, not directly from the manufacturer. There appears to be no logical sequence or reasoning for the assignment of these numbers. It is believed that some numbers may have been derived by modifying the Air Force aircraft numbering system. However, this is only conjecture since there is no verification documentation.

Aside from the very sizable overlap stemming from the numbering schemes, the same number was never used on more than one aircraft. During the planning and contracting processes, however, numbers were often assigned to aircraft that were never obtained. Sometimes, but by no means always, these cancelled numbers were reassigned to other aircraft.

The basic sources used in compiling the following list include a master "Serial List of Designating Numbers for Naval Aircraft" prepared by the aircraft records office in the Bureau of Aeronautics. It was typed on twelve 17 1/2-inch by 21 1/2-inch pages and numbered consecutively 0 through 11. It was probably put in that form in 1935 when the first significant handwritten changes appeared. Page 0 covered the pre-1916 schemes and pages 1 through 11 began with A-51 and ran through all four-digit serials. For later aircraft, primarily those in the six-digit system, the bureau number listing was compiled by using the "List of Serial Numbers Assigned Navy Aircraft" developed by the Aviation Statistics Office of DCNO (Air) and by reviewing the Aircraft History Card microfilm collection.

The compilations have been cross-checked against that in William T. Larkins, *U.S. Navy Aircraft 1921–41*; a compilation made by William H. Plant, Librarian, Naval Air Systems Command; and a more comprehensive listing

compiled by Jack Collins, a historian and specialist in bureau numbers. Monthly and quarterly reports on the status of aircraft production, Aircraft History Cards, and the Aircraft Strike Listing were used in reconciling discrepancies.

One problem is that interpretations do not show in the final list. In addition, the compiler makes no claim to infallibility in transcribing long lists of numbers and, as a result, may have unwittingly introduced errors not in the original compilations.

The Early Designation Systems are as follows:

The First System from 1911–1914

A-1	Curtiss hydroaeroplane (originally an amphibian)
A-2	Curtiss landplane, rebuilt as hydroaeroplane. It was again rebuilt as a short-hulled flying boat variously described as OWL for over-water-land or as a Bat boat, and was fitted with wheels for use as an amphibian. This was recorded in the aircraft log for 25 November 1913: "title by order of Captain Chambers [was] changed [to] E-l."
A-3	Curtiss hydroaeroplane, received summer of 1912
A-4	Curtiss (or Curtiss-type) hydroaeroplane
B-1	Wright landplane, converted to hydroaeroplane
B-2	Wright-type hydroaeroplane, built from spares, October 1912
B-3	Wright-type hydroaeroplane, built from spares, October 1913
C-1	Curtiss flying boat
C-2	Curtiss flying boat
C-3	Curtiss flying boat
C-4	Curtiss flying boat
C-5	Curtiss flying boat
D-1	Burgess Co. & Curtis flying boat
D-2	Burgess Co. & Curtis flying boat
E-1	OWL or short hulled amphibious flying boat (*See* A-2)

The Second Designation System, 1914–1916

AH designations

General Order No. 88 of 27 March 1914 listed the corresponding designations between the above designations and the new system: "The aeroplanes now in the service are hereby designated as follows:

New Designation	**Old**
AH-1	A-1
AH-2	A-2
AH-3	A-3
AH-4	B-1
AH-5	B-2
AH-6	B-3
AB-1	C-1
AB-2	C-2
AB-3	C-3
AB-4	C-4
AB-5	C-5
AB-6	D-1

New Designation	Old
AB-7	D-2
AX-1	E-1"

Despite the phrase, "now in the service," the A-1, B-1, B-2, and probably the D-1 had ceased to exist before the order was issued. Other records show AH-2 as redesignation for A-4.

The designation of follow-on aircraft was as follows:

AH-7 Burgess-Dunne hydroaeroplane
AH-8 Curtiss hydroaeroplane
AH-9 Curtiss hydroaeroplane
AH-10 Burgess-Dunne hydroaeroplane
AH-11 Curtiss hydroaeroplane
AH-12 Curtiss hydroaeroplane
AH-13 Curtiss hydroaeroplane
AH-14 Curtiss hydroaeroplane
AH-15 Curtiss hydroaeroplane
AH-16 Curtiss hydroaeroplane
AH-17 Curtiss hydroaeroplane
AH-18 Curtiss hydroaeroplane

The following listings are the five major post-1916 aircraft numbering systems:

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-51	Seaplane	Wright	
A-52	Seaplane	Paul Schmitt	Paris
A-53	Seaplane	DWF, German	
A-54–56	Hydro-pusher	Burgess Co.	
A-57–58	Seaplane	Thomas Bros.	AH-20, AH-21
A-59	Seaplane	Gallaudet	D-1 (AH-61)
A-60–65	Hydroaeroplane	Curtiss	
A-66–67	R-3	Curtiss	AH-65, AH-62
A-68–69	Seaplane	Martin	AH-19, AH-22
A-70–75	Tractor Seaplane	Burgess	AH-25 to -31
A-76–81	Seaplane	Sturtevant	A-76 was AH-24
A-82	Richardson	Wash. Navy Yard	Seaplane
A-83–84	Hydroaeroplane	Pensacola	Curtiss type from spares
A-85–90	Seaplane	Curtiss	
A-91	Seaplane	Standard	
A-92	Seaplane	Standard	Twin engine, Cancelled
A-93	JN Twin Tractor	Curtiss	Seaplane
A-94–95	BC-2, BC-3	Goodyear	Kite Balloon
A-96–125	N-9	Curtiss	
A-126–127	Seaplane	Farman	A-127 Cancelled
A-128–133	Seaplane	Sturtevant	
A-134–136	SH-4	Thomas-Morse	Seaplane

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-137–139	H-4-H	Standard	
A-140–141	Seaplane	Thomas Bros.	Twin tractor, Cancelled
A-142–144	Seaplane	Aeromarine	
A-145–146	Flying Boat	Curtiss	Cancelled
A-147–148	Seaplane	Pacific Aero.	Boeing
A-149–150	Speed Scout	Curtiss	Seaplane
A-151	BC-4	Goodyear	Kite Balloon
A-152	H-12	Curtiss	Flying Boat
A-153–154	Seaplane, experimental	NAS Pensacola	A-154 Cancelled
A-155–156	HT-2 Seaplane	Burgess	Speed Scout
A-157–159	JN-4B	Curtiss	
A-160–161	Kite Balloon	Goodyear	
A-162–197	R-6	Curtiss	
A-198	JN, Twin Engine	Curtiss	
A-199–200	Speed Scout	Burgess	Cancelled
A-201–234	N-9	Curtiss	
A-235–243	B Class Airship	Goodyear	
A-244–248	B Class Airship	Goodrich	
A-249–250	B Class Airship	Connecticut Acft	
A-251	Free Balloon	Connecticut Acft	
A-252–275	Unknown	Unknown	Cancelled
A-276–287	Kite Balloon	Goodyear	
A-288–290	Seaplane	Wright-Martin	
A-291–293	L-2, Triplane	Curtiss	
A-294–295	Unknown	Unknown	Cancelled
A-296–297	Seaplane	General/Verville	Cancelled
A-298–299	Unknown	Unknown	Cancelled
A-300–301	Seaplane	Gallaudet	Cancelled
A-302–341	R-6	Curtiss	
A-342–371	N-9	Curtiss	
A-372–373	Kite Balloon	Goodyear	
A-374–379	HT-2	Burgess	Speed Scout
A-380–385	U-2 Seaplane	Burgess	
A-386–387	F-Boat	Curtiss	
A-388–389	JN-4	Curtiss	
A-390–393	F-Boat	Curtiss	
A-394	Sopwith	British	Seaplane
A-395–406	SH-4 Seaplane	Thomas-Morse	
A-407	Sopwith	British Admiralty	Seaplane
A-408	F-Boat	Curtiss	
A-409–438	N-9	Burgess	
A-439–441	Seaplane	Aeromarine	
A-442–444	Seaplane	Loening	Lawrance two-cylinder engine
A-445–449	GS-2 Gnome	Curtiss	Gnome Speed Scout
A-450–649	39 A and B	Aeromarine	Seaplanes

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-650–699	Type C	Boeing	Seaplane
A-700	Kite Balloon	Goodyear	
A-701	Kite Balloon	Goodrich	
A-702–726	Kite Balloon	Goodyear	
A-727–751	Kite Balloon	Goodrich	
A-752–756	F Boat	L. S. Thompson	
A-757–762	S-5	Thomas-Morse	
A-763–764	Caquot M	British Gov't	Kite Balloon
A-765–783	H-12	Curtiss	
A-784–799	H-16	Curtiss	
A-800–815	HS-1	Curtiss	A-815 Cancelled
A-816–817	Caquot P	French Gov't	Kite Balloon
A-818–867	H-16	Curtiss	
A-868	GS-1, Gnome	Curtiss	Speed Scout
A-869–872	Sopwith Baby	British Gov't	Seaplane
A-873–891	R-9	Curtiss	
A-892–893	R-6	Curtiss	
A-894	R-9	Curtiss	
A-895	R-6	Curtiss	
A-896–909	R-9	Curtiss	
A-910	R-6	Curtiss	
A-911–918	R-9	Curtiss	
A-919–920	R-6	Curtiss	
A-921–924	R-9	Curtiss	
A-925	R-6	Curtiss	
A-926–955	R-9	Curtiss	
A-956	R-6	Curtiss	
A-957	R-9	Curtiss	
A-958–959	R-6	Curtiss	
A-960–962	R-9	Curtiss	
A-963–966	R-6	Curtiss	
A-967–969	R-9	Curtiss	
A-970	R-6	Curtiss	
A-971–975	R-9	Curtiss	
A-976	R-6	Curtiss	
A-977–990	R-9	Curtiss	
A-991	R-6	Curtiss	
A-992–993	R-9	Curtiss	
A-994	R-6	Curtiss	
A-995–997	JN-4	Curtiss	
A-998	Kite Balloon	Goodrich	
A-999–1028	N-9	Burgess	
A-1029–1030	O-SS Dirigible	British	
A-1031–1048	H-16	Curtiss	
A-1049–1098	H-16	NAF	
A-1099–1398	HS-1, -1L, -2L	LWF	50 Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-1399–1548	HS-1, -2L	Standard	Last 70 Cancelled
A-1549–2207	HS-1, -1L, -2L	Curtiss	
A-2208–2214	Free Balloon	Goodyear	
A-2215–2216	Free Balloon	Connecticut Acft	
A-2217–2276	HS-2L	Gallaudet	
A-2277	Flying Boat	Curtiss	
A-2278	Dunkirk Fighter	Curtiss	
A-2279–2280	F Boat	Wrigley	
A-2281	F Boat	Mitchell	
A-2282–2283	Davis Gun capable	NAF	
A-2284	Unknown	Unknown	Cancelled
A-2285–2290	N-9	Curtiss	
A-2291–2294	NC-1 to NC-4	Curtiss	
A-2295–2344	F Boat	Curtiss	
A-2345–2350	MF Boat	Curtiss	
A-2351–2650	N-9	Burgess	
A-2651–2652	F Boat	Alexandria Acft	Briggs
A-2653–2654	D-4	Gallaudet	Light bomber
A-2655–2664	Type R	Goodyear	Caquot Kite Ballons, 2659–2664 to British Admiralty
A-2665–2929	Type R and M	Goodyear	Caquot Kite Balloons, 180 R and 10 M, 2845–2929 Cancelled
A-2930–3204	Type R and M	Goodrich	Caquot Kite Balloons, 81 R and 10 M, 3021–3204 Cancelled
A-3205–3234	JN-4H		From Army
A-3235–3244	Gnome, Speed Scout	Thomas-Morse	From Army
A-3245–3324	DH-4	Dayton-Wright	From Army
A-3325–3326	Kirkham Fighter	Curtiss	
A-3327	F Boat	Alexandria/Briggs	
A-3328–3332	F Boat	Am. Trans-Oceanic Co. Curtiss	
A-3333–3382	F-5	Canadian Aeroplanes Ltd.	3363–3382 Cancelled
A-3383	Balloon	Goodrich	Gastite Kite
A-3384–3458	DH-4	From Army	Dayton-Wright
A-3459–3558	H-16	NAF	
A-3559–4035	F-5	NAF	137 accepted; 343 cancelled: 3616–3658, 3684–3782, 3801–3858, 3881, 3883–3935, 3941–4008, 4014–4035
A-4036–4037	F-6	NAF	
A-4038	F-5	NAF	
A-4039–4078	H-16	Curtiss	
A-4079–4108	F Boat	Curtiss	
A-4109	E-1 Dirigible	Goodyear	
A-4110–4111	Dunkirk Fighter	Curtiss	(HA)
A-4112–4117	JN-4B	Curtiss Exhibition Co.	
A-4118	C Class	Goodyear	Dirigible
A-4119	C Class	Goodrich	Dirigible

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-4120	C Class	Goodyear	Dirigible
A-4121	C Class	Goodrich	Dirigible
A-4122–4123	C Class	Goodyear	Dirigible
A-4124–4125	C Class	Goodrich	Dirigible
A-4126–4127	C Class	Goodyear	Dirigible
A-4128–4217	JN-4HG	From Army	Hispano-Suiza engine
A-4218–4227	E-1 (M Defense)	Standard	From Army
A-4228–4229	HS-2	Loughead	
A-4230	Tellier	French Gov't	Flying Boat
A-4231–4255	HS-2L	Boeing	
A-4256–4280	Unknown	Boeing	Cancelled
A-4281–4340	F-5	Curtiss	
A-4341–4342	N-1	NAF	
A-4343	F Boat	Carolina Acft Co.	Experimental, rejected
A-4344–4346	Unknown	Carolina Acft Co.	Cancelled
A-4347	C-1F	Boeing	
A-4348	F-1 Dirigible	Goodyear	
A-4349–4402	F Boat	Curtiss	
A-4403–4449	MF Boat	Curtiss	
A-4450	D-1	Goodyear	Airship
A-4451	D-2	Goodrich	Airship
A-4452–4453	D-3, D-4	Goodyear	Airship
A-4454	D-5	Goodrich	Airship
A-4455–4469	D Class	Goodrich	Airship, 5 cancelled
		Goodyear	Airship, 10 cancelled
A-4470–4819	F-5L	Curtiss	Cancelled
A-4820–5019	N-9	Burgess	Cancelled
A-5020–5021	R type, reduced	Goodyear	Caquot Kite Balloon
A-5022–5023	R type, reduced	Goodrich	Caquot Kite Balloon
A-5024	F Boat	Alexandria	
A-5025–5028	P type	Goodyear	Caquot Kite Balloon
A-5029	Kite Balloon	Goodyear	Experimental
A-5030–5039	N-1	NAF	Cancelled
A-5040–5089	Model 40 F Boat	Aeromarine	
A-5090–5239	Unknown	Aeromarine	Cancelled
A-5240	M type	British Admiralty	Caquot Kite Balloon
A-5241–5242	Avorio Prassone	Italian Gov't	Kite Balloon
A-5243	Night Bomber	Sperry	
A-5244–5246	Unknown	Sperry	Cancelled
A-5247–5256	Model 10 F Boat	Alexandria Acft	
A-5257	B-20 Airship	Goodyear	
A-5258	F Boat	Curtiss	
A-5259–5458	F-5L	NAF	Cancelled
A-5459–5462	HS-3	Curtiss	
A-5463	Kite Balloon	Goodyear	
A-5464–5465	B-17, B-18	Goodyear	Airship cars rebuilt

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-5466	Airship car	Goodyear	
A-5467	B-19 Airship car	Goodyear	
A-5468	Airship	Goodyear	
A-5469	M-3 Cat	Loening	Seaplane
A-5470–5471	JN-6HG-1	From Army	
A-5472	Astra-Torres	French Gov't	Airship
A-5473–5482	Kite Balloon	British Gov't	
A-5483–5562	MF Boat	NAF	
A-5563	SS-Z-23	British Admiralty	Airship, former O-SS A-1030
A-5564–5569	HS-2	NAS Miami	From spares
A-5570–5571	SA-1	NAF	For "Ship's Airplanes"
A-5572–5573	SA-2	NAF	
A-5574–5575	Macchi	Italian Gov't	
A-5576–5579	TF Boat	NAF	Tandem-engine fighting patrol plane
A-5580	NS-1	British Gov't	North Sea dirigible
A-5581–5586	JN-6HG-1	From Army	
A-5587	O-1 Dirigible	Italian Gov't	
A-5588–5589	SE-5	From Army	
A-5590–5591	HS-3	NAF	
A-5592–5593	Vedette-Zodiac	French Gov't	Dirigible
A-5594–5605	Free Balloon	Connecticut Acft	
A-5606	LS Seaplane	Loening	
A-5607–5608	LS Seaplane	Loening	Cancelled
A-5609–5611	LB Flying Boat	Loening	
A-5612–5614	AS Seaplane	Aeromarine	
A-5615–5619	HS-2	NAS	Hampton Roads, from spares, one cancelled, apparently 5619
A-5620–5629	Hanriot	French Gov't	
A-5630	HS-2	LWF	Formerly A-1171 rebuilt
A-5631	M-8 Airplane	Loening	
A-5632–5635	NC-5 to -8	NAF	
A-5636	Seaplane	Paul Schmitt	Paris
A-5637–5646	M-80 Airplane	Loening	
A-5647–5649	Tellier	From Abroad	5649 Cancelled
A-5650–5651	Le Pen Seaplane	From Abroad	
A-5652–5653	Donne Denhaut	From Abroad	
A-5654	Caproni	From Abroad	
A-5655–5656	Pup	From Abroad	Sopwith
A-5657	Le Pen Seaplane	From Abroad	
A-5658–5659	Camel (F-1)	From Abroad	Sopwith
A-5660	1 1/2 Strutter	From Abroad	1A2 Sopwith
A-5661–5680	VE-7	Lewis & Vought	
A-5681–5700	VE-7G, -7GF	NAF	
A-5701–5710	M-81	NAF	Loening design
A-5711–5712	MBT	Martin	
A-5713–5720	MT	Martin	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-5721–5724	Camel (F-1)	From Army	Sopwith
A-5725–5728	1 1/2 Strutter	From Army	1A2 Sopwith
A-5729–5730	Camel	From Army	Sopwith
A-5731–5733	Unknown	Unknown	Cancelled
A-5734–5750	1 1/2 Strutter	From Army	Sopwith
A-5751–5752	Panther	G. Parnall & Son	UK
A-5753–5755	AP Type	Connecticut Acft	Kite Balloon
A-5756–5757	D-11 Seaplane	Gallaudet	Cancelled
A-5758–5760	D-9 Seaplane	Gallaudet	Cancelled
A-5761–5786	M-81 Airplane	NAF	
A-5787	HS-2L	NAS Key West	From spares
A-5788–5793	M-81-S	Loening	
A-5794–5805	Nieuport 28	From Army	
A-5806–5807	K Type Boat	Austrian Gov't	
A-5808	HS-2L	NAS Anacostia	From spares
A-5809–5814	DH-4B	From Army	
A-5815–5829	Caproni	Caproni	Cancelled
A-5830–5833	JN-6H	From Army	
A-5834–5839	DH-4B	From Army	
A-5840–5842	K-4	J. V. Martin	Gallaudet, subcontractor
A-5843–5854	D-7	Fokker	5849–5854 Cancelled
A-5855–5858	S-4C Scout	Thomas-Morse	From Army
A-5859	JN-6H	War Department	
A-5860–5866	Free Balloon	Goodyear	
A-5867–5869	JL-6	Junkers-Larsen	
A-5870–5884	DH-4B	From Army	
A-5885–5886	NC-9, -10	NAF	
A-5887–5889	C-1	Fokker	Netherlands
A-5890–5898	CT Seaplane	Curtiss	5891-5898 Cancelled
A-5899–5901	ST Airplane	Stout	Rejected
A-5902–5904	ST Airplane	Stout	Cancelled
A-5905–5911	EM-2 Seaplane	G. Elias & Bros.	
A-5912–5941	VE-7-SF	Lewis & Vought	
A-5942–5955	VE-7-SF	NAF	
A-5956–5971	VE-7	NAF	
A-5972	D-6 Airship	Goodyear	
A-5973	H-1 Airship	Goodyear	Towing Airship (T-1)
A-5974–5975	USXB-1	Dayton Wright	From Army
A-5976–5981	Morane Saulnier	Morane Saulnier	
A-5982–6001	DH-4B	From Army	
A-6002–6004	Exp. Ship plane	Curtiss	Cancelled
A-6005–6007	Macchi M-16	S.A.N.M., Italy	
A-6008–6010	Fokker FT	Netherlands Acft Co.	
A-6011–6020	VE-7SF	NAF	
A-6021–6030	VE-7SF	Lewis & Vought	
A-6031–6033	DT Seaplanes	Davis-Douglas Co.	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-6034–6048	PT	NAF	
A-6049–6054	Seaplane	Austrian Gov't	
A-6055	Dornier CS-2	Van Berkel	
A-6056–6057	Swift	Blackburn Aeroplane Co.	
A-6058	Dornier D-1	Swiss Agent	
A-6059	Giant Boat	NAF	Cancelled
A-6060–6070	MB-3	Thomas-Morse	From Army
A-6071	MB-7	Thomas-Morse	From Army
A-6072	SV Airplane	Stout	
A-6073	Viking IV	Vickers	Amphibian Boat
A-6074–6076	Free Balloon	Connecticut Acft	
A-6077–6079	Unassigned		
A-6080–6081	CR Racer	Curtiss	
A-6082	WA Amphibian	Dayton-Wright	
A-6083	WS Seaplane	Dayton-Wright	
A-6084	WD Seaplane	Dayton-Wright	Cancelled
A-6085–6095	DT-2	Dayton-Wright	Reassigned from WA-WS-WD
A-6096–6102	WA-WS-WD		Cancelled
A-6103–6110	F Type	Goodyear	Kite Balloon
A-6111–6112	J Class Airship	Goodyear	
A-6113–6192	DH-4B	From Army	
A-6193–6246	JN-4H	From Army	
A-6247	JN-4H	Parris Island Marine Base	From spares
A-6248–6270	TS Airplane	Curtiss	
A-6271–6288	JN-4H	From Army	
A-6289–6290	BS-1 Boat	NAF	Cancelled
A-6291–6292	BS-2 Boat	NAF	Cancelled
A-6293–6294	BS-3 Boat	NAF	Cancelled
A-6295–6299	BS	NAF	Cancelled
A-6300–6304	TS-1	NAF	
A-6305–6315	TS-1	Curtiss	
A-6316–6325	JN-4	NAF	Cancelled
A-6326–6343	PT-2	NAF	
A-6344–6346	TG-1	NAF	
A-6347–6348	TG-2	NAF	
A-6349–6351	HN-1	Huff-Daland	
A-6352–6401	DH-4	From Army	
A-6402–6404	HPS-1	Handley Page	Cancelled
A-6405–6422	DT-2	Davis-Douglas Co.	
A-6423–6428	DT-2	NAF	
A-6429–6430	BR-1	Bee Line Acft Co.	
A-6431–6433	NO-1	NAF	
A-6434–6435	Heinkel seaplane submarine type	Caspar-Werke	Germany
A-6436–6444	VE-7H	NAF	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-6445	Racing Balloon	NAF	
A-6446–6447	TS-2	NAF	
A-6448–6449	TS-3	NAF	
A-6450–6451	NM-1	NAF	6451 Cancelled
A-6452–6454	M2O-1	Martin	
A-6455–6460	MO-1	Martin	
A-6461–6464	VE-9H	Vought	
A-6465–6481	VE-9	Vought	
A-6482–6499	UO-1	Vought	
A-6500–6505	CS-1	Curtiss	
A-6506	HS-2L	NAS Coco Solo	From spares
A-6507–6513	HS-2L	NAF	From spares
A-6514	DH-4B	NAF	From spares
A-6515–6520	XS-1	Cox-Klemin	
A-6521–6526	MS-1	Martin	
A-6527	Free Balloon	NAF	
A-6528–6542	N-9	NAS Pensacola	From spares
A-6543–6544	NW-1, -2	Wright	
A-6545	JN-4H	Port-au-Prince	From spares
A-6546–6551	UO-1	Vought	
A-6552	Libelle	Dornier	Cancelled
A-6553–6556	HS-2L	NAS San Diego	From spares
A-6557–6559	F-5L	NAS Hampton Roads	From spares
A-6560–6562	HO-1	Huff-Daland	
A-6563–6582	DT-2	Douglas	
A-6583–6602	DT-2	LWF	
A-6603–6615	UO-1	Vought	
A-6616–6617	PN-7	NAF	
A-6618–6632	N-9	NAS Pensacola	From spares
A-6633–6662	MO-1	Martin	
A-6663–6688	NO-1	LWF	6684–6688 Cancelled
A-6689–6690	F4C-1	Curtiss	
A-6691–6692	R2C-1	Curtiss	
A-6693–6695	N2N-1	NAF	
A-6696	JL-6 Junkers	Larson	
A-6697	F-5L	NAS San Diego	From spares
A-6698–6700	Free Balloon	Goodyear	
A-6701–6703	HN-2	Huff-Daland	
A-6704–6705	VE-9W	Vought	Cancelled
A-6706–6729	UO-1	Vought	
A-6730	TW-3	Wright	
A-6731–6732	CS-2	Curtiss	
A-6733–6742	N-9	NAS Pensacola	From spares
A-6743–6744	F2W-1	Wright	
A-6745–6747	L-3	Longren	
A-6748	WP-1	Wright	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-6749–6798	NB-1, NB-2	Boeing	
A-6799	PN-8	NAF	
A-6800	N2M-1	Martin	
A-6801–6835	SC-1	Martin	
A-6836–6857	NB-1	Boeing	
A-6858–6877	UO-1	Vought	
A-6878	PN-8	NAF	
A-6879–6880	OL-1	Loening	
A-6881	PB-1	Boeing	
A-6882–6883	OB-1	Boeing	Cancelled
A-6884–6897	FB-1, 2, 3	Boeing	From Army
A-6898–6927	O2B-1	Boeing	From Army
A-6928–6967	SC-2	Martin	
A-6968–6976	F6C-1	Curtiss	
A-6977	LePere	From Army	
A-6978–6979	R3C-1	Curtiss	
A-6980–6983	OL-2	Loening	
A-6984–7023	UO-1	Vought	
A-7024–7026	TB-1	Boeing	
A-7027	TN-1	NAF	
A-7028–7029	PN-10	NAF	
A-7030	OL-2	Loening	
A-7031–7050	UO-1	Vought	
A-7051–7053	T2D-1	Douglas	
A-7054	R3C-1	Curtiss	
A-7055–7058	OL-3	Loening	
A-7059–7064	OL-4	Loening	
A-7065–7088	T3M-1	Martin	
A-7089–7090	FB-3	Boeing	
A-7091–7100	N-9	NAS Pensacola	Reconstructed
A-7101–7127	FB-5	Boeing	
A-7128–7162	F6C-3	Curtiss	
A-7163–7202	NY-1	Consolidated	
A-7203–7204	OD-1	From Army	
A-7205–7220	NY-1	Consolidated	
A-7221–7222	O2U-1	Vought	
A-7223	F3W-1	Wright	
A-7224–7323	T3M-2	Martin	
A-7324–7334	OL-6	Loening	
A-7335	OL-7	Loening	
A-7336–7350	OL-6	Loening	
A-7351–7360	NY-1	Consolidated	
A-7361–7380	FU-1	Vought	
A-7381	R Type	From Army	Kite Balloon
A-7382	J-3 Airship	Goodyear	TC Type, from Army
A-7383	PN-10	NAF	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-7384	PN-12	NAF	
A-7385	F2B-1	Boeing	
A-7386–7389	Free Balloon	Goodyear	
A-7390–7392	Kite Balloon	Goodyear	
A-7393–7423	F6C-4	Curtiss	
A-7424–7455	F2B-1	Boeing	
A-7456–7525	NY-2	Consolidated	
A-7526	XJR-1	Ford	
A-7527	PN-11	NAF	
A-7528–7560	O2U-1	Vought	
A-7561–7563	TA-1	Atlantic Fokker	
A-7564	DH-60 Moth	DeHavilland	
A-7565	RO-1	Italian Gov't	Romeo Fokker
A-7566	XT4M-1	Martin	
A-7567–7586	O2U-1	Vought	
A-7587–7595	T2D-1	Douglas	
A-7596–7649	T4M-1	Martin	
A-7650–7652	XN2C-1	Curtiss	
A-7653	XF7C-1	Curtiss	
A-7654–7670	F7C-1	Curtiss	
A-7671–7672	F8C-1	Curtiss	
A-7673	XF8C-2	Curtiss	
A-7674–7691	F3B-1	Boeing	
A-7692	XF2U-1	Vought	
A-7693–7707	NY-2	Consolidated	
A-7708–7763	F3B-1	Boeing	
A-7764–7795	NY-2	Consolidated	
A-7796–7831	O2U-1	Vought	
A-7832–7851	OL-8	Loening	
A-7852–7899	T4M-1	Martin	
A-7900–7940	O2U-1	Vought	
A-7941–7943	XNK-1	Keystone	
A-7944	XFG-1	Eberhart	
A-7945–7948	F8C-1	Curtiss	
A-7949–7962	F8C-3	Curtiss	
A-7963–7969	OC-2	Curtiss	
A-7970–7977	NY-2	Consolidated	
A-7978	XJQ-1	Fairchild	
A-7979–8003	PD-1	Douglas	
A-8004	XPH-1	Hall	
A-8005	XPS-1	Sikorsky	
A-8006	PN-11	NAF	
A-8007–8008	TA-2	Atlantic	
A-8009	XFH-1	Hall	
A-8010	XN2B-1	Boeing	
A-8011	XPY-1	Consolidated	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-8012	XJA-1	Atlantic	Cancelled
A-8013–8017	NY-2	Consolidated	
A-8018	TA-2	Atlantic	
A-8019	XN2Y-1	Consolidated	
A-8020–8050	N2C-1	Curtiss	
A-8051	XT5M-1	Martin	
A-8052	XT2N-1	NAF	
A-8053–8068	NK-1	Keystone	
A-8069–8088	OL-8	Loening	
A-8089–8090	XPS-2	Sikorsky	
A-8091–8127	O2U-2	Vought	
A-8128–8156	F4B-1	Boeing	
A-8157	TA-2	Atlantic	Cancelled
A-8158–8172	NY-2	Consolidated	
A-8173–8182	NY-1	Consolidated	
A-8183–8192	NY-2	Consolidated	
A-8193–8272	O2U-3	Vought	
A-8273–8274	JR-2	Ford	
A-8275–8276	XHL-1	Loening	
A-8277–8281	Free Balloon	Meadowcraft	
A-8282	ZMC-2 Airship	Acft Dev. Corp.	
A-8283	XN3Y-1	Consolidated	
A-8284–8287	PS-3	Sikorsky	
A-8288	XFJ-1	Berliner-Joyce	
A-8289–8313	PM-1	Martin	
A-8314	XF8C-4	Curtiss	
A-8315–8356	O2U-4	Vought	
A-8357	XOK-1	Keystone	Cancelled
A-8358	XP2M-1	Martin	
A-8359	XOJ-1	Berliner-Joyce	
A-8360–8400	NY-1	Consolidated	
A-8401–8410	NY-2	Consolidated	
A-8411	XT6M-1	Martin	
A-8412–8420	P3M-1	Martin	
A-8421–8447	F8C-4	Curtiss	
A-8448–8450	F8C-5	Curtiss	
A-8451–8456	O2C-1	Curtiss	
A-8457	JR-3	Ford	
A-8458–8475	TG-1	Great Lakes	
A-8476	Free Balloon	Goodyear	
A-8477–8481	PM-1	Martin	
A-8482	XP4N-1	NAF	
A-8483–8484	XP4N-2	NAF	
A-8485	Bulldog	Bristol	
A-8486	XJQ-2	Fairchild	
A-8487–8506	NY-3	Consolidated	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-8507–8524	PK-1	Keystone	
A-8525	XO2L-1	Loening	
A-8526–8545	N2C-2	Curtiss	
A-8546	Glider	Am. Motorless Av. Co.	
A-8547–8582	O3U-1	Vought	
A-8583–8588	NT-1	New Standard	
A-8589–8597	O2C-1	Curtiss	
A-8598–8599	JR-3	Ford	
A-8600–8605	N2Y-1	Fleet Acft Corp	
A-8606	XO2L-1	Loening	
A-8607	Bulldog	Bristol	
A-8608–8609	C-3	Goodyear	Kite Balloon
A-8610–8612	Free Balloon	Goodyear	
A-8613–8639	F4B-2	Boeing	
A-8640	XF5B-1	Boeing	
A-8641	XO4U-1	Vought	
A-8642	XP2S-1	Sikorsky	
A-8643	XBN-1	NAF	Cancelled
A-8644–8661	P2D-1	Douglas	
A-8662–8686	PM-2	Martin	
A-8687–8695	PH-1	Hall	
A-8696	XSL-1	Loening	
A-8697–8728	TG-2	Detroit/Great Lakes	
A-8729	XP2H-1	Hall	
A-8730	XT3D-1	Douglas	
A-8731	XF9C-1	Curtiss	
A-8732	XFA-1	Fokker	
A-8733–8747	OL-9	Keystone	
A-8748–8790	F8C-5/O2C-1	Curtiss	Redesignated O2C-1
A-8791–8809	F4B-2	Boeing	
A-8810–8839	O3U-1	Vought	
A-8840	RR-4	Ford	
A-8841	RA-4	Fokker	Cancelled
A-8842–8844	RS-1	Sikorsky	
A-8845	XF8C-7	Curtiss	
A-8846	RC-1	Curtiss	
A-8847–8849	O2C-2	Curtiss	
A-8850	XOP-1	Pitcairn	Autogiro
A-8851–8871	O3U-1	Vought	
A-8872–8875	O3U-2/SU-1	Vought	Redesignated SU-1
A-8876	XRD-1	Douglas	
A-8877	DH-80	DeHavilland	Called Puss Moth
A-8878	XFF-1	Grumman	
A-8879–8890	BM-1	Martin	
A-8891–8911	F4B-3	Boeing	
A-8912–8920	F4B-4	Boeing	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
A-8921	XBY-1	Consolidated	
A-8922–8923	RS-3	Sikorsky	
A-8924–8927	Free Balloon	Goodyear	
A-8928–8937	O3U-2	Vought	
A-8938	XRE-1	Bellanca	
A-8939	XP2Y-1	Consolidated	
A-8940	XSF-1	Grumman	
A-8941–8970	O2C-1	Curtiss	
A-8971	XS2L-1	Loening	
A-8972	XSS-2	Sikorsky	
A-8973	XF2J-1	Berliner-Joyce	
A-8974	XSG-1	Great Lakes	
A-8975	XF6B-1	Boeing	
A-8976–8977	XOP-1	Pitcairn	Autogiro
A-8978	XFN-1	NAF	Cancelled
A-8979–8985	OL-9	Keystone	
A-8986–9007	P2Y-1	Consolidated	
A-9008	XP2Y-2	Consolidated	
A-9009–9053	F4B-4	Boeing	
A-9054	XRO-1	Detroit/Lockheed	
A-9055	RS-3	Sikorsky	
A-9056–9061	F9C-2	Curtiss	
A-9062–9076	O3U-2	Vought	
A-9077–9121	SU-2	Vought	
A-9122–9141	SU-3	Vought	
A-9142–9169	O3U-3	Vought	
A-9170–9185	BM-2	Martin	
A-9186	XSE-2	Bellanca	Cancelled
A-9187–9204	OJ-2	Berliner-Joyce	
A-9205–9206	RR-5	Ford	

A-prefix dropped

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
9207	XRE-2	Bellanca	
9208–9211	OL-9	Keystone	
9212	XBM-1	Martin	
9213	XF11C-2	Curtiss	
9214–9217	BM-1	Martin	
9218	XJF-1	Grumman	
9219	XF11C-1	Curtiss	
9220	XBG-1	Great Lakes	
9221	XB2Y-1	Consolidated	
9222	XF3U-1/XSBU-1	Vought	
9223	XFD-1	Douglas	
9224	XF3J-1	Berliner-Joyce	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
9225*	XSBC-3	Curtiss	
9226–9263	F4B-4	Boeing	
9264	XF9C-2	Curtiss	
9265–9268	F11C-2	Curtiss	
9269	XF11C-3	Curtiss	
9270–9282	F11C-2	Curtiss	
9283–9329	O3U-3	Vought	
9330	XO3U-6	Vought	
9331–9340	F11C-2	Curtiss	
9341	RE-3	Bellanca	
9342	XF2F-1	Grumman	
9343	XF13C-1	Curtiss	
9344–9345	Kite Balloon	Air Cruisers, Inc	
9346	XFL-1	Grover Loening Inc	Cancelled
9347–9349	RD-2	Douglas	
9350–9376	FF-1	Grumman	
9377	XS2C-1	Curtiss	
9378	XF7B-1	Boeing	
9379–9398	SU-4	Vought	Cancelled
9399	XO5U-1	Vought	
9400	XFT-2	Northrop	
9401–9402	Glider	Franklin	
9403–9411	OJ-2	Berliner-Joyce	
9412	XO2D-1	Douglas	
9413	XO3C-1	Curtiss	
9414–9433	SU-4	Vought	
9434–9455	JF-1	Grumman	
9456–9458	XN4Y-1	Consolidated	From Army
9459	XP3Y-1	Consolidated	
9460–9492	SF-1	Grumman	
9493	XSF-2	Grumman	
9494–9520	BG-1	Great Lakes	
9521–9522	XJW-1	Waco	
9523–9527	JF-1	Grumman	
9528–9533	RD-3	Douglas	
9534–9550	BG-1	Great Lakes	
9551–9571	P2Y-3	Consolidated	
9572–9583	OJ-2	Berliner-Joyce	
9584–9585	R4C-1	Curtiss	
9586–9612	BF2C-1	Curtiss	
9613	XP3D-1	Douglas	
9614–9617	PS-2	Franklin	Glider
9618–9619	P2Y-3	Consolidated	
9620–9622	R2D-1	Douglas	
9623–9676	F2F-1	Grumman	
9677–9717	NS-1	Stearman	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
9718	XR3Q-1	Stinson	
9719	F4B-4	Quantico	From spares
9720	XTBD-1	Douglas	
9721	XPTBH-2	Hall	
9722	XB2G-1	Great Lakes	
9723	XTBG-1	Great Lakes	
9724	XSOK-1	Kreider-Reisner	
9725	XSB2U-1	Vought	
9726	XSBA-1	Brewster	
9727	XF3F-1	Grumman	
9728	XSOE-1	Bellanca	
9729–9744	O3U-6	Vought	
9745	XBT-1	Northrop	
9746†	XF3U-1	Vought	
9747–9749	XRK-3	Kinner	
9750–9833	SBU-1	Vought	
9834	XSB3U-1	Vought	
9835–9839	JF-3	Grumman	
9840–9855	BG-1	Great Lakes	
9856–9990	SOC-1	Curtiss	
9991	XN3N-1	NAF	
9992	Free Balloon	Air Cruisers Inc	
9993–9994	R2D-1	Douglas	
9995	XPBS-1	Sikorsky	
9996	XSBF-1	Grumman	
9997	F2F-1	Grumman	
9998	XR2K-1	Fairchild	For NACA
9999	G-1 Airship	Goodyear	

The beginning of the second series of four-digit numbers

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
0001–0016	O3U-6	Vought	
0017–0101	N3N-1	NAF	
0102–0161	PBY-1	Consolidated	
0162–0190	J2F-1	Grumman	
0191–0210	NS-1	Stearman	
0211–0264	F3F-1	Grumman	
0265	XN3N-2	NAF	
0266	JF-2	Grumman	From Coast Guard
0267	XR2O-1	Lockheed	
0268–0381	TBD-1	Douglas	
0382	PM-2	NAS Norfolk	From spares
0383	XF4F-3	Grumman	
0384	PM-2	FAB Coco Solo	From spares and hull of 8480
0385	XOSN-1	NAF	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
0386–0425	SOC-2	Curtiss	
0426–0450	N3N-1	NAF	Cancelled
0451	XF2A-1	Brewster	
0452	XF3F-2	Grumman	
0453	XPB2Y-1	Consolidated	
0454–0503	PBY-2	Consolidated	
0504–0506	JRS-1	Sikorsky	
0507–0589	SBC-3	Curtiss	0582 modified to XSBC-4
0590–0626	BT-1	Northrop	
0627	XBT-2	Northrop	
0628–0643	BT-1	Northrop	
0644–0723	N3N-1	NAF	
0724	ME-108b	Bayerische Flugzeugwerke	
0725	C-620 Le Simoun	Caudron	
0726–0778	SB2U-1	Vought	
0779	XSB2U-3	Vought	
0780–0794	J2F-2	Grumman	
0795	JE-1	Bellanca	
0796	XPBM-1	Martin	
0797–0799	Free Balloons	Air Cruisers	
0800	JK-1	Fairchild	
0801	JB-1	Beech	
0802–0841	SBU-2	Vought	
0842–0907	PBY-3	Consolidated	
0908–0909	JH-1	Stearman-Hammond	
0910–0949	NJ-1	North American	From Army
0950	XSO2C-1	Curtiss	
0951	XOS2U-1	Vought	
0952–0966	N3N-1	NAF	
0967–1047	F3F-2	Grumman	
1048–1051	JO-2	Lockheed	
1052	XOSS-1	Stearman	
1053	JO-1	Lockheed	
1054–1063	JRS-1	Sikorsky	
1064–1146	SOC-3	Curtiss	
1147–1190	SON-1	NAF	
1191–1194	JRS-1	Sikorsky	
1195–1209	J2F-2	Grumman	
1210	L-1 Airship	Goodyear	
1211	K-2 Airship	Goodyear	
1212	S-2	S.A.I., Italy	
1213–1244	PBY-4	Consolidated	
1245	XPBY-5A	Consolidated	
1246	PBM-1	Martin	
1247	XPBM-2	Martin	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
1248–1266	PBM-1	Martin	
1267	XJO-3	Lockheed	
1268–1325	SBC-4	Curtiss	
1326–1383	SB2U-2	Vought	
1384	XJ3F-1	Grumman	
1385	XSO3C-1	Curtiss	
1386–1396	F2A-1	Brewster	
1397–1439	F2A-2	Brewster	
1440	XSO2U-1	Vought	
1441	XR4O-1	Lockheed	
1442	XF5F-1	Grumman	
1443	XF4U-1	Vought	
1444–1470	F3F-3	Grumman	
1471–1473	Free Balloon	Goodyear	
1474–1504	SBC-4	Curtiss	
1505–1519	TBD-1	Douglas	
1520	XPB2M-1R	Martin	
1521	XN5N-1	NAF	
1522–1551	SBN-1	NAF	
1552–1567	SNJ-1	North American	
1568–1587	J2F-3	Grumman	
1588	XFL-1	Bell	
1589–1595	GB-1	Beech	From Army
1596–1631	SBD-1	Douglas	
1632	XSB2A-1	Brewster	
1633–1637	PB2Y-2	Consolidated	
1638	XPB2Y-3	Consolidated	
1639–1670	J2F-4	Grumman	
1671–1673	JRF-1A	Grumman	
1674–1677	JRF-1	Grumman	
1678–1679	JRF-1A	Grumman	
1680	JRF-1	Grumman	
1681–1734	OS2U-1	Vought	
1735–1755	SBD-1	Douglas	
1756–1757	XNR-1	Maxson	Radio controlled
1758	XSB2C-1	Curtiss	
1759–1808	N3N-3	NAF	
1809–1843	SBC-4	Curtiss	
1844–1845	F4F-3	Grumman	
1846–1847	XF4F-5	Grumman	
1848–1896	F4F-3	Grumman	
1897	XF4F-4	Grumman	
1898–1900	GB-1	Beech	
1901–1903	R3D-1	Douglas	1901 Cancelled
1904–1907	R3D-2	Douglas	
1908–2007	N3N-3	NAF	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
2008–2043	SNJ-2	North American	
2044–2100	SB2U-3	Vought	
2101	XR5O-1	Lockheed	
2102–2188	SBD-2	Douglas	
2189–2288	OS2U-2	Vought	
2289–2455	PBY-5	Consolidated	
2456–2488	PBY-5A	Consolidated	
2489–2511	F4B-4A	Boeing	From Army
2512–2538	F4F-3	Grumman	
2539–2540	XTBF-1	Grumman	2539 crashed prior to acceptance
2541	JO-2	Lockheed	
2542	XTBU-1	Vought	
2543–2547	JRB-1	Beech	
2548–2572	SNJ-2	North American	
2573–3072	N3N-3	NAF	
3073–3130	OS2U-2	Vought	
3131–3143	R4D-1	Douglas	From Army
3144	XPBB-1	Boeing	
3145–3394	N2S-1	Stearman	
3395–3519	N2S-3	Stearman	
3520–3644	N2S-2	Stearman	
3645–3845	NP-1	Spartan	
3846–3855	JRF-4	Grumman	
3856–3874	F4F-3	Grumman	
3875–3969	F4F-3A	Grumman	3875-3904 Cancelled
3970–4057	F4F-3	Grumman	
4058–4098	F4F-4	Grumman	
4099–4198	NR-1	Ryan	From Army
4199–4248	SBC-4	Curtiss	
4249–4250	R5O-1	Lockheed	
4251	BD-1	Douglas	From Army
4252–4351	N2S-3	Stearman	
4352–4517	N3N-3	NAF	
4518–4691	SBD-3	Douglas	
4692–4706	R4D-1	Douglas	From Army
4707–4708	R4D-2	Douglas	From Army
4709–4710	JRB-1	Beech	From Army
4711–4725	JRB-2	Beech	From Army
4726–4729	JRB-1	Beech	From Army
4730–4879	SO3C	Curtiss	
4880–5029	SO3C-2	Curtiss	
5030–5262	F4F-3	Grumman	
5263–5283	F4F-7	Grumman	
5284–5289	OS2U-3	Vought	
5990–6289	OS2U-3	Vought	Cancelled
6290–6439	SNC-1	Curtiss	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
6440–6454	JRF-5	Grumman	
6455–6754‡	PBM-3	Martin	
6755–7024	SNJ-3	North American	From Army
7025–7028	K Type Airship	Goodyear	
7029–7030	L Type Airship	Goodyear	
7031	XF4F-6	Grumman	
7032–7034	GK-1	Fairchild	
7035–7042	BD-2	Douglas	
7043–7242	PB2Y-3,-3R	Consolidated	
7243–7302	PBY-5A	Consolidated	
7303	R5O-2	Lockheed	
7304–9999	Unassigned		

The beginning of the five-digit series

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
00001–00004	SB2C-1	Curtiss	
00005	XSB2C-2	Curtiss	
00006–00200	SB2C-1	Curtiss	
00201–00370	SB2C-1C	Curtiss	
00371–00372	JF-2	Grumman	
00373–00392	TBF-1	Grumman	
00393	XTBF-2	Grumman	
00394–00658	TBF-1	Grumman	
00659–00802	J2F-5	Grumman	
00803–00882	SB2A-2	Brewster	
00883–01004	SB2A-3	Brewster	00943–01004 Cancelled
01005	XSB2A-1	Brewster	
01006–01007	R5O-3	Lockheed	
01008–01215	SB2C-1C	Curtiss	01209–01215 Cancelled
01209–01212	XFO-1	Lockheed	P-38
01213–01215	XF15C-1	Curtiss	
01216–01515	OS2N-1	NAF	
01516–01623	F2A-3	Brewster	
01624–01646	GB-2	Beech	
01647	JF-2	Grumman	
01648–01649	R4D-1	Douglas	
01650–01673	PBM-3C	Martin	
01674–01728	PBM-3S	Martin	
01729–01730	ZNP-K-7, -8	Goodyear	K Class Airship
01731–01770	TBF-1	Grumman	
01771–01976	SNJ-3	North American	
01977–01990	R4D-1	Douglas	
01991–02152	F4F-4	Grumman	
02153–02156	F4U-1	Vought	
02157	XF4U-3	Vought	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
02158–02736	F4U-1	Vought	
02737–02746	PB2Y-3R	Consolidated	
02747–02790	OY-1	Consolidated	02789–02790 Cancelled
02789–02790	XP4M-1	Martin	
02791–02946	PBN-1	NAF	02802 Cancelled
02947	R3O-2	Lockheed	
02948–02977	PBY-5A	Consolidated	
02978	V-173	Vought	
02979–02980	LNS-1	Schweizer	
02981	XF6F-4	Grumman	
02982	XF6F-3	Grumman	
02983–03182	SNV-1	Vultee	
03183	XF14C-2	Curtiss	
03184	XF14C-1	Curtiss	Cancelled
03185–03384	SBD-3	Douglas	
03385–03544	F4F-4	Grumman	
03545–03548	Free Balloon	Lakehurst	
03549–03550	XF7F-1	Grumman	
03551–03552	XSB2D-1	Douglas	
03553–03742	SNB-2	Beech	03563–03742 Cancelled
03563–03742	PBM-4E	Martin	Cancelled
03563–03712	PBV-1A	Vickers	Cancelled
03713–03742	JRF-5	Grumman	Cancelled
03743–03744	XSB3C-1	Curtiss	Cancelled
03745–03801	PBB-1	Boeing	Cancelled
03802–03841	F4U-1	Vought	
03842–03861	PBO-1	Lockheed	
03862–04148	SB2C-2	Curtiss	Cancelled
03862–04025	OY-1	Consolidated	04021–04025 Cancelled
04149–04198	SO3C-2	Curtiss	
04199–04348	SO3C-3	Curtiss	04290–04348 Cancelled
04349–04358	JRF-5	Grumman	
04359–04379	ZNPK	Goodyear	
04380–04389	LNS-1	Schweizer	
04390–04395	GH-1	Howard	
04396–04398	JR2S-1	Sikorsky	Cancelled
04399–04420	PBY-5A	Consolidated	
04421–04424	Free Balloon	Lakehurst	
04425–04514	PBY-5	Consolidated	
04515–04774	F3A-1	Brewster	
04775–04958	F6F-3	Grumman	
04959–04961	BTD-1	Douglas	
04962	XBTD-2	Douglas	
04963	BTD-1	Douglas	
04964	XBTD-2	Douglas	
04965–04971	BTD-1	Douglas	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
04972–05045	PBY-5A	Consolidated	
05046–05050	R5O-4	Lockheed	
05051–05072	R4D-1	Douglas	
05073–05084	R4D-3	Douglas	
05085–05234	SNC-1	Curtiss	
05235–05434	N2S-3	Stearman	Boeing
05435–05526	SNJ-3	North American	
05527–05674	SNJ-4	North American	
05675–05874	SNV-1	Vultee	
05875–05876	N2T-1	Timm	
05877–06491	TBF-1	Grumman	
06492–06701	SBD-3	Douglas	
06702–06991	SBD-4	Douglas	
06992–06999	R4D-3	Douglas	
07000–07003	R4D-4	Douglas	
07004	JRF-1	Grumman	
07005–08004	N2S-3	Stearman	Boeing
08005	R3D-3	Douglas	
08006–08028	GH-1	Howard	
08029	GH-2	Howard	
08030–08123	PBY-5A	Consolidated	
08124–08549	PBY-5	Consolidated	
08550–08797	F3A-1	Brewster	
08798–09047	F6F-3	Grumman	
09048–09392	BTD-1	Douglas	09063–09392 Cancelled
09063	SNJ-4	North American	
09064	P-51H	North American	From USAF
09085–09095	XBT2D-1	Douglas	XAD-1
09096	XBT2D-1P	Douglas	
09097	XBT2D-1	Douglas	
09098–09099	XBT2D-1N	Douglas	
09100–09106	XBT2D-1	Douglas	
09107	XBT2D-1W	Douglas	XAD-1W
09108	XAD-2	Douglas	
09109	XBT2D-1Q	Douglas	
09110–09351	AD-1	Douglas	
09352–09392	AD-1Q	Douglas	09387–09392 Cancelled
09393–09692	OS2U-3	Vought	
09693–09752	SBD-5A	Douglas	
09753–09764	Free Balloon	Lakehurst	
09765	GB-2	Beech	Misc. acquisition
09766	GB-1	Beech	Misc. acquisition
09767	JRF-4	Grumman	Misc. acquisition
09768	GB-1	Beech	Misc. acquisition
09769–09770	GH-1	Howard	Misc. acquisition
09771	JRB-2	Beech	Misc. acquisition

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
09772	GB-1	Beech	Misc. acquisition
09773–09774	GB-2	Beech	Misc. acquisition
09775	GH-1	Howard	Misc. acquisition
09776–09778	GB-1	Beech	Misc. acquisition
09779	GH-1	Howard	Misc. acquisition
09780	GB-1	Beech	Misc. acquisition
09781	GH-1	Howard	Misc. acquisition
09782	JRF-1	Grumman	Misc. acquisition
09783	YKS-6	Waco	Misc. acquisition
09784	YKS-7	Waco	Misc. acquisition
09785	CH400	Bellanca	Misc. acquisition
09786	Stinson	Stinson	Misc. acquisition
09787–09788	GK-1	Fairchild	Misc. acquisition
09789	J4F-2	Grumman	Misc. acquisition
09790–09797	GK-1	Fairchild	Misc. acquisition
09798–09799	GQ-1	Stinson	Misc. acquisition
09800	GB-1	Beech	Misc. acquisition
09801–09802	ZNN-L	Goodyear	L Class Airships
09803	R2Y-1	Consolidated	
09804	A-30	Martin	From UK
09805–09816	J4F-2	Grumman	
09817–10316	SNJ-4	North American	
10317–10806	SBD-4	Douglas	
10807–11066	SBD-5	Douglas	
11067–11646	F3A-1	Brewster	11294–11646 Cancelled
11294–11646	AT-19	Stinson	Reverse Lend-Lease
11647–11648	XLRA-1	Allied Aviation	
11649–11650	XLRH-1	Snead	Cancelled
11651–11654	XLRQ-1	Bristol	11653–11654 Cancelled
11655–12227	F4F-4	Grumman	
12228–12229	XF4F-8	Grumman	
12230–12329	F4F-3	Grumman	
12330–12353	GB-2	Beech	
12354–12389	SNB-2	Beech	
12390–12392	JR2S-2	Sikorsky	
12393–12404	R4D-1	Douglas	
12405–12446	R4D-5	Douglas	
12447–12453	R5O-4	Lockheed	
12454–12491	R5O-5	Lockheed	
12492–12991	SNV-1	Vultee	
12992	XF2G-1	Goodyear	
12993–13470	FG-1D	Goodyear	
13471–13472	XF2G-1	Goodyear	
13473–14690	FG-1D	Goodyear	
14691–14695	XF2G-1	Goodyear	
14696–14991	FG-1D	Goodyear	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
14992–15951	FM-1	Eastern	
15952–16791	FM-2	Eastern	
16792–17091	TBM-1C	Eastern	
17092–17248	R4D-5	Douglas	
17249–17291	R4D-6	Douglas	
17292–17391	TDN-1	NAF	
17392–17455	F4U-1	Vought	
17456–17515	F4U-1A	Vought	
17516	XF4U-3	Vought	
17517–18121	F4U-1A	Vought	
18122–18191	F4U-1	Vought	
18192–18307	SB2C-1C	Curtiss	
18308	XSB2C-5	Curtiss	
18309–18598	SB2C-1C	Curtiss	
18599–18619	SB2C-3/3E	Curtiss	
18620–18621	XSB2C-6	Curtiss	
18622–19710	SB2C-3	Curtiss	
19711–21191	SB2C-4/4E	Curtiss	
21192–21231	SBW-1	C. C. & F.	
21232	SBW-5	C. C. & F.	Cancelled
21232	PBY-5A	Consolidated	
21233–21645	SBW-3	C. C. & F.	
21646–21741	SBW-4E	C. C. & F.	
21742–22006	BT2D-1/1Q	Douglas	Cancelled
22007–22856	SO3C-3/4	Curtiss	22057–22856 Cancelled
22257–22295	AM-1	Martin	
22296	AM-1Q	Martin	
22297–22345	AM-1	Martin	
22346–22355	AM-1Q	Martin	
22356–22856	AM-1	Martin	Cancelled
22453–22458	HTL-1	Bell	There was no 22455
22857–23656	TBM-3/3E	Eastern	
23657–23756	GB-2	Beech	
23757–23856	SNB-2C	Beech	
23857–24140	TBF-1	Grumman	
24141	XTBF-3	Grumman	
24142–24340	TBF-1	Grumman	
24341	XTBF-3	Grumman	
24342–24520	TBF-1	Grumman	
24521–25070	BM-1	Eastern	
25071–25174	TBM-1C	Eastern	
25175	XTBM-3	Eastern	
25176–25520	TBM-1C	Eastern	
25521	XTBM-3	Eastern	
25522–25699	TBM-1C	Eastern	
25700	XTBM-3	Eastern	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
25701–25720	TBM-1C	Eastern	
25721–26195	F6F-3/3N	Grumman	
26196–26425	NE-1	Piper	
26426	LNS-1	Schweizer	Cancelled
26427–27851	SNJ-4	North American	
27852	XP4Y-1	Consolidated	
27853–27856	XTDN-1	NAF	
27857–27858	XTDR-1	Interstate	
27859–27958	TDR-1	Interstate	
27959	R5O-3	Lockheed	
27960–28058	N2S-4	Stearman	
28059–28829	SBD-5	Douglas	
28830	XSBD-6	Douglas	
28831–29213	SBD-5	Douglas	
29214–29375	SB2A-4	Brewster	
29376–29550	NH-1	Howard	
29551–29668	SNB-2C	Beech	29665–29668 Cancelled
29665–29666	XTD3C-1	Culver	
29667–29668	P-80A	Lockheed	From Army
29669–29698	NE-2	Piper	29689–29698 Cancelled
29689	P-80A	Lockheed	From Army
29690	P-80B	Lockheed	From Army
29691–29722	Unknown	Unknown	Cancelled
29723–29922	PV-1	Lockheed	
29923–30146	N2S-4	Stearman	Boeing
30147	R4D-1	Douglas	
30148–30150	R5O-5	Lockheed	
30151	J4F-2	Grumman	
30152–30196	ZNP-K	Goodyear	K Class Airship, K-30 to K-74
30197–30296	AE-1	Piper	HE-1
30297–30298	XF14C-3	Curtiss	Cancelled
30299–31398	TBY-2	Consolidated	30368–30370, 30481–31398 Cancelled
30368	XHJS-1	Sikorsky	
30369	TBY-2	Consolidated	
30370	XHJS-1	Sikorsky	
30481–30542	AT-19	Stinson	From UK
30543–31398	Unknown	Unknown	
31399	XBTC-1	Curtiss	Cancelled
31400	XBTC-2	Curtiss	Cancelled
31399–31400	XJL-1	Columbia	
31401–31402	XBTC-2	Curtiss	
31403–31502	LRA-1	Allied	Cancelled
31503–31504	XLR2A-1	Allied	
31505–31506	XLNE-1	Pratt, Read & Co.	
31507–31585	LNE-1	Pratt, Read & Co.	
31586–31635	LRH-1	Snead	Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
31636–31685	SBF-1	Fairchild	
31686–31835	SBF-3	Fairchild	
31836–31935	SBF-4E	Fairchild	
31936–32085	PB4Y-1	Consolidated	
32086	XPB4Y-2	Consolidated	
32087–32094	PB4Y-1	Consolidated	
32095–32096	XPB4Y-2	Consolidated	
32097–32335	PB4Y-1	Consolidated	
32336–32385	GH-2	Howard	
32386	XPB3Y-1	Consolidated	Cancelled
32386	XTDC-2	Culver	
32387–32636	N2T-1	Timm	
32637–32786	J2F-6	Grumman	
32787–32936	GH-2	Howard	32867–32936 Cancelled
32867–32936	GB-2	Beech	32916–32936 Cancelled, from UK
32937–32986	J4F-2	Grumman	
32987–32991	SNC-1	Curtiss	
32992–33066	GB-2	Beech	
33067–33466	PV-1	Lockheed	From Army
33467–33514	ZNP-K	Goodyear	Cancelled
33515–33614	TDR-1	Interstate	33532–33614 Cancelled
33532–33534	XF6U-1	Vought	
33535–33614	J2F-6	Grumman	
33615–33714	AM-1/1Q	Martin	Cancelled
33615–33621	R4D-4R	Douglas	
33622–33714	TDR-1	Interstate	
33715–33814	LRQ-1	Bristol	33715–33814 Cancelled
33815–33820	R4D-4	Douglas	
33821–33870	AM-1/1Q	Martin	33821–33870 Cancelled
33821–33870	TO-1	Lockheed	TV-1/P-80C
33871–33920	TD3R-1	Interstate	33881–33920 Cancelled
33921	XTD3R-1	Interstate	
33922	XTD2R-1	Interstate	
33923–33924	XTD3R-1	Interstate	
33925–33951	PV-3	Lockheed	
33952–33957	J4F-2	Grumman	
33958–33959	XF5U-1	Vought	33959 Cancelled
33960–34059	PBY-5A	Consolidated	
34060–34094	JRF-5	Grumman	
34095–34096	XSC-1	Curtiss	
34097–34101	N2S-4	Stearman	Boeing
34102–34105	TBM-1C	Eastern	
34106	PB-1W	Boeing	From Army, B-17G
34107–34111	N2S-4	Stearman	Boeing
34112–34113	JK-1	Fairchild	
34114	PB-1W	Boeing	From Army, B-17G

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
34115–34134	LNE-1	Pratt, Read & Co.	
34135–34584	SNV-1	Vultee	
34585	J4F-2	Grumman	Misc. acquisition
34586–34997	PV-1	Lockheed	
34998–35047	PBJ-1C	North American	
35048–35096	PBJ-1D	North American	
35097	PBJ-1G	North American	
35098–35193	PBJ-1D	North American	
35194–35195	PBJ-1J	North American	
35196–35202	PBJ-1D	North American	
35203–35249	PBJ-1J	North American	
35250–35297	PBJ-1H	North American	
35298–35300	XSC-1	Curtiss	
35301	SC-1	Curtiss	
35302	XSC-1A	Curtiss	
35303–35797	SC-1	Curtiss	
35798–35921	PBN-1	NAF	Cancelled
35798–35920	PBJ-1J	North American	
35921	JRF-4	Grumman	
35922–35949	SBD-5	Douglas	
35950	SBD-6	Douglas	
35951–36421	SBD-5	Douglas	
36422–36424	XLNR-1	Aeronca	
36425–36427	XLNP-1	Piper	
36428–36430	XLNT-1	Taylorcraft	
36431–36432	XLRN-1	NAF	Cancelled
36433–36932	SBD-5	Douglas	
36933–36934	XTB2D-1	Douglas	
36935–37034	J2F-6	Grumman	
37035–37064	PV-2C	Lockheed	
37065–37534	PV-2	Lockheed	
37535–37623	PV-2D	Lockheed	37551–37623 Cancelled
37551	HRP-1	Piasecki	
37624–37634	PV-2D	Lockheed	
37635–37636	XTDR-1	Interstate	Cancelled
37637–37638	AT-19	Stinson	Cancelled
37639–37648	LRW-1	Waco	
37649	VKS-7	Stinson	
37650–37659	Unknown	Unknown	Cancelled
37660–37710	R4D-1	Douglas	37681–37710 Cancelled
37711–37770	J4F-2	Grumman	
37771–37831	JRF-5	Grumman	
37832–37851	Unknown	Unknown	Cancelled
37852–37853	RS-5	Sikorsky	From Pan Am
37854–37855	RS-4	Sikorsky	From Pan Am
37856–37967	N2S-4	Stearman	Boeing

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
37968–37969	XHRP-1	Piasecki	37968 Cancelled
37970–37972	D-558-1	Douglas	
37973–37975	D-558-2	Douglas	
37976–37977	XHJP-1	Piasecki	
37978–37987	N2S-4	Stearman	Boeing
37988–38437	N2S-3	Stearman	Boeing
38438–38732	N2S-5	Stearman	38611–38732 Cancelled Boeing
38733–38979	PB4Y-1	Consolidated	
38980–39012	PBJ-1J	North American	
39013–39032	RY-2	Consolidated	39018–39032 Cancelled
39033–39055	HNS-1	Sikorsky	39053–39055 Cancelled, from Army
39053–39055	XFJ-1	North American	
39056	XNL-1	Langley Aviation	
39057–39095	R4D-5	Douglas	
39096–39098	R4D-6	Douglas	
39099	R4D-7	Douglas	
39100	R4D-6	Douglas	
39101–39108	R4D-7	Douglas	
39109	R4D-6	Douglas	
39110–39136	R4D-5	Douglas	39112–39136 Cancelled
39112–39128	R5D-4	Douglas	
39137–39181	R5D-1	Douglas	
39182–39191	N2T-1	Timm	
39192–39291	SNB-2	Beech	
39292–39491	RB-1	Budd	39309–39491 Cancelled
39318–39468	P2V-2	Lockheed	39369–39468 Cancelled
39469–39491	Unknown	Unknown	Most likely not used
39492–39611	R5C-1	Curtiss	
39612–39646	R5O-6	Lockheed	
39647–39712	FR-1	Ryan	
39713–39714	XF2R-2	Ryan	Cancelled
39715–39746	FR-1	Ryan	Cancelled
39747–39748	JRF-5	Grumman	
39749–39998	SNB-1	Beech	
39999–43137	F6F-3/3N/3E	Grumman	
43138–43637	N2S-5	Stearman	Boeing
43638–44037	SNJ-5	North American	
44038–44187	SNV-2	Vultee	
44188–44227	PB2B-1	Boeing	Canada
44228–44312	PB2B-2R	Boeing	Canada 44295–44312 Cancelled
44313–44314	XBTK-1	Kaiser	
44315	JRB-4	Beech	
44316–44317	XOSE-1	Edo	
44318	XHJD-1	McDonnell	
44319	LRW-1	Waco	From Army
44320–44354	LBT-1	Taylorcraft	Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
44355–44554	TDC-2	Culver	
44555–44704	JRB-4	Beech	44685–44704 Cancelled
44705–44904	P4Y-1	Consolidated	Cancelled
44905–44920	NH-1	Howard	
44921–44922	GH-3	Howard	
44923–44934	NH-1	Howard	
44935–44937	GH-3	Howard	
44938	NH-1	Howard	
44939	GH-3	Howard	
44940	NH-1	Howard	
44941–45204	GH-3	Howard	45050–45204 Cancelled
45205–45274	PBM-3D	Martin	
45275–45276	XPBM-5	Martin	
45277–45404	PBM-3D	Martin	
45405–45444	PBM-5	Martin	
45445–45644	TBM-1C	Eastern	
45645	XTBM-3	Eastern	
45646–46444	TBM-1C	Eastern	
46445	HNS-1	Sikorsky	
46446–46448	XHOS-1	Sikorsky	
46449	TDC-1	Culver	
46450–46638	PBY-5A	Consolidated	
46639–46698	PBY-6A	Consolidated	
46699–46723	HNS-1	Sikorsky	46701–46723 Cancelled
46724	PBY-6A	Consolidated	
46725–46737	PB4Y-1	Consolidated	
46738–46837	FM-1	Eastern	
46838–47437	FM-2	Eastern	
47438–47637	TBF-1	Grumman	
47638–48123	TBF-1C	Grumman	
48124	PBM-3D	Martin	
48125–48163	PBM-3S	Martin	
48164–48223	PBM-3D	Martin	
48224–48228	B-314	Boeing	From Pan Am
48229	JRF-5	Grumman	
48230–48231	M-130	Martin	From Pan Am
48232–48234	XFR-1	Ryan	
48235–48236	XFD-1	McDonnell	
48237–48238	XP2V-1	Lockheed	
48239–48242	ZNP-M	Goodyear	M Class Airship, M-1 to M-4
48243–48245	SOC-3A	Curtiss	
48246–48251	JRB-4	Beech	
48252–48451	PBY-5A	Consolidated	
48452–48651	Unknown	Unknown	Cancelled
48452–48453	Free Balloon	Lakehurst	
48652–48939	PV-1	Lockheed	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
48940–49359	F3A-1	Brewster	Cancelled
49360–49659	PV-1	Lockheed	
49660–49762	F4U-1	Vought	
49763	XF4U-4	Vought	
49764–50300	F4U-1	Vought	
50301	XF4U-4	Vought	
50302–50359	F4U-1	Vought	
50360–50659	F4U-1D	Vought	
50660–50689	JRF-5	Grumman	Cancelled
50690–50739	R5C-1	Curtiss	50730–50739 Cancelled
50740–50839	R4D-6	Douglas	
50840–50849	R5D-1	Douglas	
50850–50868	R5D-2	Douglas	
50869–50888	R5D-3	Douglas	50879–50888 Cancelled
50879–50888	XBT2C-1	Curtiss	50888 Cancelled
50889	R5D-2	Douglas	Cancelled
50889–51022	J4F-2	Grumman	Cancelled
51023–51094	SNB-1	Beech	
51095–51199	SNB-2C	Beech	
51200–51293	SNB-2	Beech	
51294–51349	SNB-2C	Beech	
51350–51676	SNJ-4	North American	
51677–52049	SNJ-5	North American	
52050–52549	SNV-2	Vultee	
52550–53049	N2S-5	Stearman	52627–53049 Cancelled Boeing
52750–52761	F2T-1N	Northrop	P-61B from Army
53050–53949	TBM-3E	Eastern	
53950–54049	JRB-4	Beech	Cancelled
54050–54599	SBD-5	Douglas	
54600–55049	SBD-6	Douglas	
55050–55649	FM-2	Eastern	
55650–55771	N2S-4	Stearman	Boeing
55772–55783	JRC-1	Cessna	
55784–56483	F4U-1	Vought	
56484–56683	NH-1	Howard	Cancelled
56484–56663	R5D-3	Douglas	56550–56663 Cancelled
56684–57083	FM-2	Eastern	
57084–57656	F4U-1D	Vought	
57657–57659	F4U-1C	Vought	
57660–57776	F4U-1D	Vought	
57777–57791	F4U-1C	Vought	
57792–57965	F4U-1D	Vought	
57966–57983	F4U-1C	Vought	
57984–57986	XF8B-1	Boeing	
57987–57999	Unknown	Unknown	Cancelled
57987	P-51	North American	From Army

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
57988–57989	R5D-1	Douglas	
57990–57991	JD-1	Douglas	
57992–57994	JA-1	Noorduyn	From Army
57995–57998	HO3S-1	Sikorsky	
57999	JA-1	Noorduyn	
58000–58999	F6F-5/5N	Grumman	
59000–59348	PBM-5/5E	Martin	
59349	XPBM-5A	Martin	
59350–59924	PB4Y-2	Consolidated	59554 Cancelled
59925	PB4Y-2B	Consolidated	
59926	PB4Y-2	Consolidated	
59927	PB4Y-2S	Consolidated	
59928	PB4Y-2M	Consolidated	
59929–59937	PB4Y-2	Consolidated	
59938	PB4Y-2M	Consolidated	
59939–59944	PB4Y-2	Consolidated	
59945	PB4Y-2M	Consolidated	
59946–59948	PB4Y-2	Consolidated	
59949	PB4Y-2M	Consolidated	
59950–59954	PB4Y-2	Consolidated	
59955–59969	PB4Y-2M	Consolidated	
59970–60009	PB4Y-2	Consolidated	
60010–60035	SBW-1B	C. C. & F.	
60036–60209	SBW-4E	C. C. & F.	
60210–60459	SBW-5	C. C. & F.	60210, 60296–60459 Cancelled
60460-60507	OY-1	Consolidated	
60508–60581	Unknown	Unknown	Cancelled
60582–62314	N2S-5	Stearman	60582–61036, 61905–62314 Cancelled
62315–62914	Unknown	Unknown	Cancelled
62915–62929	F4U-4B	Vought	
62930	F4U-4P	Vought	
62931–62949	F4U-4B	Vought	
62950	F4U-4P	Vought	
62951–62969	F4U-4B	Vought	
62970	F4U-4P	Vought	
62971–62989	F4U-4B	Vought	
62990	F4U-4P	Vought	
62991–63009	F4U-4B	Vought	
63010	F4U-4P	Vought	
63011–63029	F4U-4B	Vought	
63030	F4U-4P	Vought	
63031–63049	F4U-4B	Vought	
63050	F4U-4P	Vought	
63051–63069	F4U-4B	Vought	
63070	F4U-4P	Vought	
63071–63914	F4U-4B/P	Vought	63072–63914 Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
63915–63991	PB4Y-1	Consolidated	63960–63991 Cancelled
63960–63961	YP-59A	Bell	From Army
63992	PBY-5	Consolidated	
63993–64441	PBY-6A	Consolidated	64100, 64108–64441 Cancelled
64100	P-59B	Bell	From Army
64108–64109	P-59B	Bell	From Army
64442–64496	JRC-1	Cessna	
64497–65396	TDR-1	Interstate	64569–65396 Cancelled
64569–64576	XOSE-1	Edo	Cancelled
64577–64896	SB2C-5	Curtiss	Cancelled
64943–64992	PBJ-1J	North American	
64993–65285	SB2C-4/4E	Curtiss	
65286	XSB2C-5	Curtiss	
65287–65396	SB2C-4	Curtiss	Cancelled
65287–65396	PB4Y-1	Consolidated	
65397–65732	SB2C-5	Curtiss	Cancelled
65733–65889	Unknown	Unknown	Cancelled
65890–66244	F6F-3	Grumman	
66245–66394	PB4Y-2	Consolidated	66325–66394 Cancelled
66325–66361	JRF-6B	Grumman	
66395–66594	JRB-4	Beech	66472–66594 Cancelled
66595–66794	JM-1	Martin	
66795–67054	PB4Y-2	Consolidated	Cancelled
67055–67254	FG-1D	Goodyear	67100–67254 Cancelled
67255–67754	FG-4	Goodyear	Cancelled
67100–67383	SNB-2	Beech	67130–67154 Cancelled
67755–67796	Unknown	Unknown	Cancelled
67797–67799	RY-1	Consolidated	
67800–67806	XLNT-1	Taylorcraft	
67807–67831	J4F-2	Grumman	Cancelled
67832–68061	PBV-1A	Vickers	Canso A, PBY-5A type
68062–69538	TBM-3	Eastern	
69539–69739	TD2C-1	Culver	
69740–69989	F7F-3	Grumman	Cancelled
69990–69991	LRW-1	Waco	
69992–70187	F6F-5	Grumman	
70188	XF6F-6	Grumman	
70189–70912	F6F-5/5N/5P	Grumman	
70913	XF6F-6	Grumman	
70914–72991	F6F-5/5N/5P	Grumman	
72992–73116	PB2B-1	Boeing	
73117–73498	TBM-1C	Eastern	
73499–75158	FM-2	Eastern	
75159–75182	OY-1	Consolidated	
75183–75207	JM-1	Martin	
75208–75209	XOSE-2	Edo	Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
75210–75213	XOSE-1	Edo	
75214–75215	XOSE-2	Edo	
75216–75217	XTE-1	Edo	
75218–75588	SB2C-1A	Curtiss	
75589–75688	HOS-1	Sikorsky	75625–75688 Cancelled
75625–75628	OSE-2	Edo	
75629–75632	TE-2	Edo	
75689–75724	HO2S-1	Sikorsky	75691–75724 Cancelled
75725–75726	XNQ-1	Fairchild	
75727–75728	HNS-1	Sikorsky	
75729–75730	HOS-1	Sikorsky	
75731–75738	HO2S-1	Sikorsky	Cancelled
75739–76138	TD2C-1	Culver	
76139–76148	FG-1	Goodyear	
76149–76449	FG-1D	Goodyear	
76450	FG-3	Goodyear	
76451–76739	FG-1	Goodyear	
76740–76759	JRB-3	Beech	
76760–76779	JRB-4	Beech	
76780–76818	SB2C-1A	Curtiss	
76819–76823	JRM-1	Martin	
76824	JRM-2	Martin	
76825–76838	JRM-1	Martin	Cancelled
76839–77138	PB4Y-2	Consolidated	Cancelled
77137–77138	PB-1W	Boeing	From Army
77139–77224	JD-1	Douglas	
77225–77244	PB-1W	Boeing	From Army
77245–77257	PB-1G	Boeing	From Army
77258	PB-1W	Boeing	From Army
77259–80258	F6F-5/5N/5P	Grumman	
80259–80260	F7F-1N	Grumman	
80261	XF7F-2N	Grumman	
80262–80293	F7F-1N	Grumman	
80294–80358	F7F-2N	Grumman	
80359–80547	F7F-3	Grumman	
80548	F7F-4N	Grumman	
80549–80608	F7F-3N	Grumman	
80609–80620	F7F-4N	Grumman	
80621–80758	F7F	Grumman	Cancelled
80621–80622	JD-1	Douglas	From UK
80759–80763	XF4U-4	Vought	
80764–82177	F4U-4	Vought	
82178–82189	F4U-1C	Vought	
82190–82259	F4U-1D	Vought	
82260–82289	F4U-1C	Vought	
82290–82369	F4U-1D	Vought	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
82370–82394	F4U-1C	Vought	
82395–82434	F4U-1D	Vought	
82435–82459	F4U-1C	Vought	
82460–82539	F4U-1D	Vought	
82540–82582	F4U-1C	Vought	
82583–82632	F4U-1D	Vought	
82633–82639	F4U-1C	Vought	
82640–82739	F4U-1D	Vought	
82740–82761	F4U-1C	Vought	
82762–82854	F4U-1D	Vought	82853–82854 Cancelled
82853–82854	XJR2F-1	Grumman	
82855–82857	XF2M-1	Goodyear	Cancelled
82855–82857	PB-1G	Boeing	From Army
82858–83126	SB2C-4/4E	Curtiss	
83127	XSB2C-5	Curtiss	
83128–83751	SB2C-5	Curtiss	
83752–83991	TD2C-1	Culver	
83992–84054	Unknown	Unknown	Cancelled
83992–84027	PB-1W	Boeing	83999–84027 Cancelled From Army
84028–84029	P2B-1S	Boeing B-29	From Army
84030–84031	P2B-2S	Boeing B-29	From Army
84032	JRB-3	Beech	
84055–84056	XTSF-1/XTB2F-1	Grumman	Cancelled
84057–84589	PV-2D	Lockheed	84065–84589 Cancelled
84590–84789	PBM-5	Martin	
84790–84818	JRF-5	Grumman	
84819–85093	SNJ-5	North American	
85094–85095	XLR2W-1	Waco	
85096–85135	JRB-4	Beech	
85136–85160	PBM-5	Martin	
85161–85162	XBTM-1	Martin	
85163–85164	XR6O-1	Lockheed	
85165–85264	LBP-1	Piper	Cancelled
85265–85289	LBT-1	Taylorcraft	
85290–85292	XLBE-1	Pratt, Read & Co.	
85293–85389	LBE-1	Pratt, Read & Co.	Cancelled
85390	XHRP-1	Piasecki	Cancelled
85391–85458	GB-2	Beech	Cancelled
85459–86296	TBM-3E	Eastern	86293–86296 Cancelled
86293	JRB-4	Beech	
86294	JRB-3	Beech	
86295–86296	JRB-4	Beech	
86297–87719	FM-2/2P	Eastern	86974–87719 Cancelled
87720–87762	JRF-5	Grumman	87752–87762 Cancelled
87752	JRB-3	Beech	
87753	RB-4	Beech	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
87754–87759	R5D-3	Douglas	
87763–87787	LNT-1	Taylorcraft	
87788–88453	FG-1D	Goodyear	
88454–88458	F2G-1	Goodyear	
88459–88871	F2G-2	Goodyear	88464–88871 Cancelled
88872–89071	PBJ-1H	North American	
89072–89081	JD-1	Douglas	
89082–89085	P2V-1	Lockheed	
89086	XP2V-2	Lockheed	
89087–89096	P2V-1	Lockheed	
89097–89119	XTB2D-1	Douglas	Cancelled
89120–90019	SB2C-5	Curtiss	89466–90019 Cancelled
89466–89492	JRB-5	Beech	
89493	JRB-1	Beech	
89494	JRB-5	Beech	
90020–90131	RY-3	Consolidated	90060–90131 Cancelled
90060–90061	XF2L-1	Bell P-63	Cancelled
90132–90384	R2Y-1	Consolidated	Cancelled
90132–90271	PB4Y-1	Consolidated	
90385–90395	R5D-2	Douglas	
90396–90415	R5D-4	Douglas	
90416–90436	Unknown	Unknown	Cancelled
90437–90459	F8F-1	Grumman	
90460–90461	XF8F-1	Grumman	
90462–90483	PB4Y-1	Consolidated	
90484–90503	XBTK-1	Kaiser	90487–90503 Cancelled
90504–90506	XTB3F-1	Grumman	
90507–90531	JM-2	Martin	90522–90531 Cancelled
90522–90523	JRB-2	Beech	
90532–90581	JRB-4	Beech	
90582–91106	SNJ-5	North American	91102–91106 Cancelled
91102–91103	F2L-1K	Bell	
91104	R4D-1	Douglas	
91105	R5D-1	Douglas	
91106	Mosquito	De Havilland	From UK
91107–92006	TBM-3E	Eastern	91753–92006 Cancelled
91962–91993	JM-2	Martin	
91994–92006	R5D-3	Douglas	92004–92006 Cancelled
92007–93301	FG-1D	Goodyear	92702–93301 Cancelled
93302–93651	SC-1	Curtiss	93368–93651 Cancelled
93652–94751	F6F-5	Grumman	94522–94751 Cancelled
94752–95048	F8F-1	Grumman	
95049	XF8F-2	Grumman	
95050–95329	F8F-1	Grumman	
95330	XF8F-2	Grumman	
95331–96751	F8F-1	Grumman	95499–96751 Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
96752–97295	F4U-4	Vought	
97296	XF4U-5	Vought	
97297–97363	F4U-4	Vought	
97364	XF4U-5	Vought	
97365–97414	F4U-4	Vought	
97415	XF4U-5	Vought	
97416–97531	F4U-4	Vought	
97532–97672	TBM-3	Eastern	Cancelled
97673–97675	XTBM-4	Eastern	
97676–98601	TBM-4	Eastern	Cancelled
98602–98605	PBM-5E	Martin	
98606	PBM-5N	Martin	
98607–98615	PBM-5E	Martin	
98616	XP5M-1	Martin	
98617–99073	PBM-5	Martin	Cancelled
99074–99077	J4F-2	Grumman	Misc. acquisition
99078	JRF-4/G-21A	Grumman	Misc. acquisition
99079	GK-1	Fairchild	Misc. acquisition
99080	PBY-4	Consolidated	American Export
99081–99084	B-314	Boeing	From Pan Am
99085–99088	AT-19	Stinson	From Pan Am
99089	Waco	Waco	From Pan Am
99090–99092	Electra	Lockheed	From Pan Am
99093–99095	Lodestar	Lockheed	From Pan Am
99096–99097	Speedster	Rearwin	From Pan Am
99098	Pilgrim	Pilgrim	From Pan Am
99099	DC-3A	Douglas	From Pan Am
99100–99823	Unknown	Unknown	Cancelled
99824–99857	R4D-7	Douglas	
99858–99860	XF2H-1	McDonnell	
99861–99990	R4D-6	Douglas	Cancelled
99991–100000	Unknown	Unknown	Cancelled

The beginning of the six-digit series

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
000001	A-1	Navy and IAS	Replica, Navy's 1st acft
001009–001023	DSN-3/QH-50C	Gyrodyne	DSN-3 redesig. QH-50C
001024–001027	QH-50C	Gyrodyne	
001029–001041	QH-50C	Gyrodyne	
001043–001049	QH-50C	Gyrodyne	
001051	QH-50C	Gyrodyne	
001053–001192	QH-50C	Gyrodyne	
001193–001196	QH-50D	Gyrodyne	
001197–001293	QH-50C	Gyrodyne	
001295–001307	QH-50C	Gyrodyne	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
001309–001314	QH-50C	Gyrodyne	
001316–001327	QH-50C	Gyrodyne	
001329–001340	QH-50C	Gyrodyne	
001342–001347	QH-50C	Gyrodyne	
001349–001358	QH-50C	Gyrodyne	
001360–001362	QH-50C	Gyrodyne	
001365	QH-50C	Gyrodyne	
001367–001375	QH-50C	Gyrodyne	
001377–001381	QH-50C	Gyrodyne	
001382	QH-50D	Gyrodyne	
001383–001385	QH-50C	Gyrodyne	
001386–001493	QH-50D	Gyrodyne	
001495–001571	QH-50D	Gyrodyne	
001572	QH-50C	Gyrodyne	
001573–001613	QH-50D	Gyrodyne	
001615–001758	QH-50D	Gyrodyne	
002743–002744	X-25A	Bensen	
100001–102000	F8F-1	Grumman	Cancelled
102001–102275	PV-2D	Lockheed	Cancelled
102276–102575	PBM-5	Martin	Cancelled
102576–104575	TBM-4	Martin	Cancelled
104576–105175	FR-2	Ryan	Cancelled
105176–106875	F4U-4	Vought	Cancelled
106876–107875	FG-4	Goodyear	Cancelled
107876–108225	SB2C-5	Curtiss	Cancelled
108226–109272	F6F-5N	Grumman	Cancelled
109273–111148	F3M-1	Eastern	Cancelled
111149–111348	PBY-6A	Consolidated	Cancelled
111349–111748	F6F-5	Grumman	Cancelled
111749–111848	FD-1	McDonnell	111809–111848 Cancelled
111809–111828	HRP-1	Piasecki	
111829–111833	HRP-2	Piasecki	
111834–111848	HRP-1	Piasecki	Cancelled
111849–111948	SC-1	Curtiss	Cancelled
111949–112528	SNJ-6	North American	112360–112528 Cancelled
112529–114528	F8F-1	Grumman	Cancelled
114529–115728	F4U-4	Vought	Cancelled
115729–116728	FG-4	Vought	Cancelled
116729–117728	F7F-3	Grumman	Cancelled
117729–118928	TBM-4	Eastern	Cancelled
118929–119528	TBY-3/4	Consolidated	Cancelled
119529–119778	SC-2	Curtiss	119539–119778 Cancelled
119779–119978	PBY-6A	Consolidated	Cancelled
119979–120338	TD2C-1	Culver	
120339–120341	XFJ-1	North American	Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
120339–120340	XTD4C-1/XUC-1K	Culver	
120342–120441	FJ-1	North American	120372–120441 Cancelled
120442–120474	OY-1	Consolidated	
120475–121414	PBY-6A	Consolidated	Cancelled
121415–121438	OY-1	Consolidated	Cancelled
121439–121440	Unknown	Unknown	Cancelled
121441–121444	Me 262	Messerschmitt	
121445–121446	Ar 234	Arado	
121447	Do 335	Dornier	
121448	Me 262 S	Messerschmitt	
121449–121450	XSN2J-1	North American	
121451–121454	P4M-1	Martin	
121455–121456	XP5Y-1	Consolidated	
121457–121459	XF3D-1	Douglas	
121460–121462	XAJ-1	North American	
121463–121522	F8F-1	Grumman	
121523–121792	F8F-2	Grumman	
121793–121803	F4U-5	Vought	
121804	F4U-5P	Vought	
121805–121815	F4U-5	Vought	
121816	F4U-5N	Vought	
121817–121831	F4U-5	Vought	
121832–121833	F4U-5N	Vought	
121834–121851	F4U-5	Vought	
121852–121853	F4U-5N	Vought	
121854–121871	F4U-5	Vought	
121872–121874	F4U-5N	Vought	
121875–121890	F4U-5	Vought	
121891–121893	F4U-5N	Vought	
121894–121911	F4U-5	Vought	
121912–121915	F4U-5N	Vought	
121916–121931	F4U-5	Vought	
121932–121935	F4U-5N	Vought	
121936	F4U-5P	Vought	
121937–121951	F4U-5	Vought	
121952–121955	F4U-5N	Vought	
121956–121957	F4U-5P	Vought	
121958–121972	F4U-5	Vought	
121973–121976	F4U-5N	Vought	
121977–121978	F4U-5P	Vought	
121979–121994	F4U-5	Vought	
121995–121998	F4U-5N	Vought	
121999–122002	F4U-5P	Vought	
122003–122014	F4U-5	Vought	
122015–122018	F4U-5N	Vought	
122019–122022	F4U-5P	Vought	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
122023–122036	F4U-5	Vought	
122037–122040	F4U-5N	Vought	
122041–122044	F4U-5	Vought	
122045–122048	F4U-5P	Vought	
122049–122057	F4U-5	Vought	
122058–122061	F4U-5N	Vought	
122062–122065	F4U-5P	Vought	
122066	F4U-5	Vought	
122067–122086	PBM-5A	Martin	
122087–122152	F8F-1B	Grumman	
122153–122166	F4U-5	Vought	
122167–122206	F4U-5P	Vought	
122207–122209	P4M-1	Martin	
122210–122365	AD-2	Douglas	
122366–122372	AD-2Q	Douglas	
122373	AD-2QU	Douglas	
122374–122387	AD-2Q	Douglas	
122388–122393	AM-1Q	Martin	
122394–122437	AM-1	Martin	
122438–122467	P2V-2	Lockheed	When some of these were stricken, the bureau numbers were reissued
122447–122451	F2L-2	Bell	Cancelled
122452–122461	HTL-1	Bell	These numbers had been used by P2V-2s and when they were stricken were reissued
122468–122471	PBM-5A	Martin	
122472–122474	XF7U-1	Vought	
122475	XF9F-2	Grumman	
122476	XF9F-3	Grumman	
122477	XF9F-2	Grumman	
122478–122507	F6U-1	Vought	
122508–122529	HO3S-1	Sikorsky	
122530–122559	F2H-1	McDonnell	
122560–122589	F9F-2	Grumman	
122590–122601	AJ-1	North American	
122602–122613	PBM-5A	Martin	
122614–122708	F8F-2	Grumman	
122709–122728	HO3S-1	Sikorsky	
122729–122852	AD-3	Douglas	
122853	AD-4	Douglas	
122854–122876	AD-3Q	Douglas	
122877–122905	AD-3W	Douglas	
122906–122907	AD-3E	Douglas	
122908–122909	AD-3N	Douglas	
122910–122911	AD-3S	Douglas	
122912–122922	AD-3N	Douglas	
122923–122951	P2V-3	Lockheed	
122952–122963	HTL-2	Bell	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
122964–122987	P2V-3	Lockheed	
122988–122989	XA2D-1	Douglas	
122990–123015	F2H-1	McDonnell	
123016–123083	F9F-3	Grumman	
123084	XF9F-4	Grumman	
123085	XF9F-5	Grumman	
123086–123087	F9F-3	Grumman	123087 Cancelled
123088–123116	AF-2S	Grumman	Even BuNos
123089–123117	AF-2W	Grumman	Odd BuNos
123118–123143	HO3S-1	Sikorsky	
123144–123203	F4U-5N/5NL	Vought	
123204–123299	F2H-2	McDonnell	
123300–123313	F2H-2N	McDonnell	
123314–123396	F2H-2	McDonnell	123383–123396 Cancelled
123397–123740	F9F-2	Grumman	123714–123740 Cancelled
123741–123770	F3D-1	Douglas	123769–123770 Cancelled
123771–124005	AD-4	Douglas	
124006	XAD-5	Douglas	
124007–124036	AD-4	Douglas	Cancelled
124037–124075	AD-4Q	Douglas	
124076–124127	AD-4W	Douglas	
124128–124156	AD-4N	Douglas	
124157–124186	AJ-1	North American	124185–124186 Cancelled
124187–124209	AF-2W	Grumman	Odd BuNos
124188–124210	AF-2S	Grumman	Even BuNos
124211–124267	P2V-4	Lockheed	
124268–124291	P2V-3W	Lockheed	
124292–124323	PF-1	Grumman	Cancelled
124324–124333	R4Q-1	Fairchild	124332–124333 Cancelled
124334–124353	HO3S-1	Sikorsky	
124354–124361	P2V-3W	Lockheed	124360–124361 Cancelled
124362–124373	P4M-1	Martin	
124374–124379	UF-1	Grumman	
124380–124414	F6U-1	Vought	Cancelled
124415–124434	F7U-1	Vought	124429–124434 Cancelled
124435–124436	XF10F-1	Grumman	
124437–124438	PO-1W	Lockheed	
124439–124440	XA2J-1	North American	
124441–124503	F4U-5N	Vought	
124504–124522	F4U-5NL	Vought	
124523	F4U-5N	Vought	
124524–124560	F4U-5NL	Vought	
124561–124569	HTL-3	Bell	
124570–124585	TO-2	Lockheed	
124586–124587	XF4D-1	Douglas	
124588–124594	HUP-1	Piasecki	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
124595–124664	F3D-2	Douglas	
124665	XAU-1	Vought	
124666–124709	F4U-5NL	Vought	
124710–124724	F4U-5N	Vought	
124725–124760	AD-4NL	Douglas	
124761–124777	AD-4W	Douglas	
124778–124848	AF-2S	Grumman	Even BuNos
124779–124849	AF-2W	Grumman	Odd BuNos
124850–124864	AJ-1	North American	
124865–124909	P2V-4	Lockheed	
124910–124914	P5M-1	Martin	124914 never received by Navy
124915–124929	HUP-1	Piasecki	
124930–124939	TO-2	Lockheed	
124940–125071	F2H-2	McDonnell	
125072–125079	F2H-2P	McDonnell	
125080–125152	F9F-5	Grumman	
125153–125225	F9F-4	Grumman	
125226–125313	F9F-5	Grumman	
125314–125321	F9F-5P	Grumman	
125322–125409	F7U-2	Vought	Cancelled
125410–125411	F7U-3	Vought	Cancelled
125412–125413	XA3D-1	Douglas	
125414–125443	F9F-5	Grumman	
125444–125445	XF3H-1	McDonnell	
125446	K-225	Kaman	
125447–125476	F9F-5	Grumman	
125477–125478	K-225	Kaman	
125479–125488	A2D-1	Douglas	125485–125488 Cancelled
125489–125499	F9F-5	Grumman	
125500–125505	F2H-2	McDonnell	
125506–125515	HO4S-1	Sikorsky	
125516–125527	HO5S-1	Sikorsky	
125528–125531	HOK-1	Kaman	
125532	UH-12/HTE-1	Hiller	
125533–125648	F9F-5	Grumman	
125649–125679	F2H-2	McDonnell	
125680–125706	F2H-2P	McDonnell	
125707–125741	AD-4N	Douglas	
125742–125764	AD-4NA	Douglas	
125765–125782	AD-4W	Douglas	
125783–125882	F3D-2	Douglas	
125883–125892	F3D-3	Douglas	Cancelled
125893–126256	F9F-5	Grumman	
126257–126264	F9F-6	Grumman	
126265–126290	F9F-5P	Grumman	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
126291–126350	F2H-3	McDonnell	126294–126295, 126306, 126310, 126313, 126327, 126330, 126331, 126333–126335, 126337, 126339, 126343, 126346–126347 to Canada
126351–126353	F2H-4	McDonnell	
126354–126489	F2H-3	McDonnell	126361, 126381–126382, 126390, 126392, 126400, 126402–126403, 126414–126415, 126422, 126428–126429, 126434, 126443–126444, 126446, 126449, 126454, 126464, 126,469, 126488 to Canada
126490–126511	P5M-1	Martin	
126512–126513	WV-2	Lockheed	
126514–126573	P2V-6	Lockheed	126548–126573 Cancelled
126574–126582	R4Q-1	Fairchild	
126583–126626	TV-2/TO-2	Lockheed	
126627–126669	F9F-5	Grumman	
126670–126672	XF9F-6	Grumman	
126673–126695	F2H-2P	McDonnell	
126696–126705	HO5S-1	Sikorsky	
126706–126715	HUP-1	Piasecki	
126716–126719	ZP2N-1	Goodyear	126717–126719 Cancelled
126720–126737	AF-2S	Grumman	
126738–126755	AF-2W	Grumman	
126756–126821	AF-2S	Grumman	
126822–126835	AF-2W	Grumman	
126836–126875	AD-4W	Douglas	
126876–126902	AD-4N	Douglas	
126903–126925	AD-4NA	Douglas	
126926–126946	AD-4N	Douglas	
126947–126969	AD-4NA	Douglas	
126970–126987	AD-4N	Douglas	
126988–127010	AD-4NA	Douglas	
127011–127018	AD-4N	Douglas	
127019–127085	F3D-2	Douglas	
127086–127215	F9F-2	Grumman	
127216–127470	F9F-6	Grumman	
127471–127472	F9F-5P	Grumman	
127473–127492	F9F-6P	Grumman	
127493–127546	F2H-3	McDonnell	
127547–127693	F2H-4	McDonnell	
127694–127695	F2H-3P	McDonnell	Cancelled
127696–127719	P5M-1	Martin	
127720–127782	P2V-5	Lockheed	
127783–127843	HRS-1	Sikorsky	127843 Cancelled
127844–127853	AD-4	Douglas	
127854–127860	AD-4B	Douglas	
127861–127865	AD-4	Douglas	
127866–127872	AD-4B	Douglas	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
127873–127879	AD-4	Douglas	
127880–127920	AD-4N	Douglas	
127921–127961	AD-4W	Douglas	
127962–128042	A2D-1	Douglas	Cancelled
128043–128054	AJ-2P	North American	
128055–128294	F9F-6	Grumman	
128295–128310	F9F-6P	Grumman	
128311–128322	F10F-1	Grumman	128312–128322 Cancelled
128323–128326	WV-2	Lockheed	
128327–128422	P2V-5	Lockheed	
128423–128432	R6D-1	Douglas	
128433	R6D-1Z	Douglas	
128434–128444	R7V-1	Lockheed	
128445–128449	R3Y-1	Consolidated	
128450	R3Y-2	Consolidated	
128451–128478	F7U-3	Vought	
128479–128600	HUP-2	Piasecki	
128601–128620	HO5S-1	Sikorsky	
128621–128636	HTL-4	Bell	
128637–128652	HTE-1	Hiller	
128653–128660	HTK-1	Kaman	
128661–128722	TV-2/TO-2	Lockheed	
128723–128744	R4Q-1	Fairchild	
128745–128856	F2H-3	McDonnell	Cancelled
128857–128886	F2H-2	McDonnell	
128887–128916	HTL-4	Bell	
128917–128936	AD-4	Douglas	
128937–128943	AD-4B	Douglas	
128944–128970	AD-4	Douglas	
128971–128978	AD-4B	Douglas	
128979–129016	AD-4	Douglas	
129017–129049	HRS-2	Sikorsky	
129050–129132	F2H-3/3P	McDonnell	Cancelled
129133–129136	XHSL-1	Bell	
129137–129138	XS2F-1	Grumman	
129139–129153	YS2F-1	Grumman	
129154–129168	HSL-1	Bell	
129169–129184	HTE-1	Hiller	
129185–129195	AJ-2P	North American	
129196–129242	AF-2S	Grumman	
129243–129257	AF-3S	Grumman	
129258–129299	AF-2W	Grumman	
129300–129317	HTK-1	Kaman	
129318–129417	AU-1	Vought	
129418–129544	FJ-2	North American	Cancelled
129418–129522	HUP-2	Piasecki	Numbers reused, then cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
129545–129676	F7U-3	Vought	
129677	F7U-3M	Vought	
129678–129697	F7U-3	Vought	
129698–129744	F7U-3M	Vought	
129745–129756	F7U-3P	Vought	
129757–129791	HTE-2	Hiller	
129792–129799	Unknown	Unknown	Cancelled
129800–129842	HOK-1	Kaman	
129843–129941	HSL-1	Bell	129878–129941 Cancelled
129942–129977	HTL-5	Bell	
129978–130100	HUP-2	Piasecki	130086–130100 Cancelled
130101–130137	HO5S-1	Sikorsky	
130138–130205	HRS-2	Sikorsky	
130206–130264	HRS-3	Sikorsky	
130265–130351	P5M-1	Martin	130307–130351 never accepted
130352	YA3D-1	Douglas	
130353–130363	A3D-1	Douglas	
130364–130388	AF-3S	Grumman	
130389–130404	AF-2W	Grumman	
130405–130421	AJ-2	North American	
130422–130425	AJ-2P	North American	
130426–130462	F3D-2	Douglas	Cancelled
130463–130739	F3D-3	Douglas	Cancelled
130740–130751	F4D-1	Douglas	
130752–130919	F9F-7	Grumman	
130920–131062	F9F-6	Grumman	
131063–131251	F9F-8	Grumman	
131252–131255	F9F-6P	Grumman	
131256–131378	F10F-1	Grumman	Cancelled
131379–131386	F10F-1P	Grumman	Cancelled
131387–131389	WV-2	Lockheed	
131390–131392	WV-2Q	Lockheed	
131393–131399	WV-2	Lockheed	Cancelled
131400–131543	P2V-5	Lockheed	
131544–131550	P2V-6	Lockheed	
131551–131566	P2V-6M	Lockheed	
131567–131620	R6D-1/C-118B	Douglas	From Air Force
131621–131629	R7V-1	Lockheed	
131630–131631	R7V-2	Lockheed	
131632–131659	R7V-1	Lockheed	
131660–131661	R7V-2	Lockheed	
131662–131719	R4Q-2	Fairchild	
131720–131724	R3Y-2	Consolidated	
131725–131888	TV-2/TO-2	Lockheed	131878 From Air Force
131889–131918	UF-1/1T	Grumman	
131919–131926	ZP4K-1	Goodyear	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
131927–132226	FJ-2	North American	132127–132226 Cancelled
132227–132391	AD-4B	Douglas	
132392–132476	AD-5	Douglas	
132477	AD-5N	Douglas	
132478	AD-5	Douglas	
132479	AD-5S	Douglas	
132480–132636	AD-5N	Douglas	
132637–132728	AD-5	Douglas	132687–132728 Cancelled
132729–132792	AD-5W	Douglas	132731–132792 Cancelled
132793–133042	A2D-1	Douglas	Cancelled
133043–133328	S2F-1	Grumman	133043–133044 Cancelled
133043–133044	WF-1	Grumman	Numbers reused, then cancelled
133329–133388	S2F-2	Grumman	
133389–133488	F3H-1	McDonnell	Cancelled
133489–133544	F3H-1N	McDonnell	
133545–133568	F3H-2N	McDonnell	
133569	F3H-2M	McDonnell	
133570–133622	F3H-2N	McDonnell	
133623–133638	F3H-2M	McDonnell	
133639	XZP4K	Goodyear	
133640–133651	P2V-5	Lockheed	Australia
133652–133731	F4U-7	Vought	France
133732–133735	XHR2S-1	Sikorsky	
133736–133738	XHRH-1	McDonnell	Cancelled
133739–133753	HO4S-3	Sikorsky	UK
133754–133755	XFJ-2	North American	
133756	XFJ-2B	North American	
133757–133776	AD-5W	Douglas	
133777–133779	HO4S-3	Sikorsky	Netherlands
133780–133781	XS2U-1W/XWU-1	Vought	Cancelled
133782–133816	OE-1	Cessna	L-19A, from Air Force
133817–133818	HUM-1	McCulloch	MC-4
133819–133832	F4U-7	Vought	France
133833–133843	AU-1	Vought	
133844–133853	HO4S-3	Sikorsky	Cancelled
133854–134004	AD-5	Douglas	133930–134004 Cancelled
134004	JRB-4	Beech	
134005–134018	AD-4B	Douglas	Cancelled
134019–134034	ZSG-4	Goodyear	134025–134034 Cancelled
134035–134072	AJ-2	North American	
134073–134075	AJ-2P	North American	
134076–134233	AD-5	Douglas	Cancelled
134234–134244	F9F-8	Grumman	
134245–134433	F9F-6	Grumman	Cancelled
134434–134437	HUP-2	Piasecki	
134438–134445	A2D-1	Douglas	Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
134446–134465	F9F-6P	Grumman	
134466–134637	AD-6	Douglas	
134638–134663	P2V-6	Lockheed	France
134664–134676	P2V-5	Lockheed	134664–134670 Cancelled Netherlands
134668–134670	XHSS-1	Sikorsky	
134677–134691	HUP-2	Piasecki	Cancelled
134692–134717	SNB-5	Beech	134692–134697 to Netherlands, 134698–134717 to France
134718–134723	P2V-5	Lockheed	Netherlands
134724–134743	HTE-2	Hiller	UK
134744–134973	F4D-1	Douglas	
134974–135053	AD-5N	Douglas	
135054	AD-5Q	Douglas	
135055–135138	AD-5N	Douglas	Cancelled
135139–135222	AD-5W	Douglas	
135223–135406	AD-6	Douglas	
135407–135444	A3D-1	Douglas	
135445–135448	ZP2N-1	Goodyear	
135449–135476	P5M-1	Martin	135449–135451 Cancelled
135477–135543	P5M-2	Martin	
135544–135621	P2V-7	Lockheed	135565, and odd BuNos 135571–135577 and 135581–135617 to Canada
135622–135717	HSL-1	Bell	Cancelled
135718–135745	HUP-2	Piasecki	Cancelled
135746–135761	WV-2	Lockheed	
135762–135773	YF2Y-1	Consolidated	135766–135773 Cancelled
135774–136162	FJ-3	North American	
136163–136392	F4D-1	Douglas	Cancelled
136393–136747	S2F-1	Grumman	
136748–136782	TF-1	Grumman	
136783	TF-1Q	Grumman	
136784	TF-1	Grumman	
136785	TF-1Q	Grumman	
136786	TF-1	Grumman	
136787–136788	TF-1Q	Grumman	
136789–136792	TF-1	Grumman	
136793–136886	TV-2	Lockheed	
136887–136911	OE-1	Cessna	
136912–136963	F7U-3	Vought	Cancelled
136964–136965	F7U-3P	Vought	Cancelled
136966–137032	F3H-2N	McDonnell	
137033–137095	F3H-2M	McDonnell	
137096–137131	F3H-1	McDonnell	Cancelled
137132–137155	F3H-2P	McDonnell	Cancelled
137156–137215	F3H-1	McDonnell	
137216–137245	F10F-1	Grumman	Cancelled
137246–137485	SNJ-8	North American	Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
137486–137491	ZS2G-1	Goodyear	
137492–137632	AD-6	Douglas	
137633	Not assigned	Not assigned	
137634–137635	XF2Y-1	Consolidated	137635 Cancelled
137636–137637	T-28A	North American	
137638–137810	T-28B	North American	
137811	XZS2G-1	Goodyear	
137812	XA4D-1	Douglas	
137813–137831	A4D-1	Douglas	
137832	ZPG-2W	Goodyear	
137833–137835	HTK-1	Kaman	
137836–137845	HRS-3	Sikorsky	
137846–137848	P5M-2	Martin	
137849–137858	HSS-1	Sikorsky	
137859–137886	F3H-1	McDonnell	Cancelled
137887–137890	WV-2	Lockheed	
137891–137898	WV-3	Lockheed	
137899–137933	UF-1	Grumman	
137934–138097	TV-2	Lockheed	
138098–138102	HOK-1	Kaman	
138103–138367	T-28B	North American	
138368–138417	A2U-1	Vought	Cancelled
138418–138431	HR2S-1	Sikorsky	138425–138431 Cancelled
138432–138459	HO4S-3	Sikorsky	Cancelled
138460–138493	HSS-1	Sikorsky	
138494–138529	HO4S-3	Sikorsky	
138530–138534	F2Y-1	Consolidated	Cancelled
138535–138568	AD-5W	Douglas	Cancelled
138569–138576	HSL-1	Bell	Cancelled
138577–138601	HO4S-3	Sikorsky	
138602	HTK-1K	Kaman	
138603–138645	F11F-1	Grumman	
138646–138647	F11F-1F	Grumman	
138648–138650	XFY-1	Consolidated	
138651–138653	HOE-1	Hiller	
138654–138656	XHCH-1	McDonnell	Cancelled
138657–138658	XFV-1	Lockheed	
138659	XR4D-8	Douglas	
138660–138819	F3H-1	McDonnell	Cancelled
138820	R4D-8	Douglas	
138821–138822	XP6M-1	Martin	
138823–138898	F9F-8	Grumman	
138899–138901	XF8U-1	Vought	138901 Cancelled
138902–138976	A3D-2	Douglas	
138977–139016	TV-2	Lockheed	
139017–139029	HSS-1	Sikorsky	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
139030–139207	F4D-1	Douglas	
139208–139209	F5D-1	Douglas	
139210–139278	FJ-3	North American	
139279–139280	XFJ-4	North American	
139281–139323	FJ-4	North American	
139324–139423	FJ-3	North American	Cancelled
139424–139530	FJ-4	North American	
139531–139555	FJ-4B	North American	
139556–139605	AD-5W	Douglas	
139606–139821	AD-6	Douglas	
139822–139867	A2U-1	Vought	Cancelled
139868–139917	F7U-3M	Vought	
139918	ZPG-2W	Goodyear	
139919–139970	A4D-1	Douglas	
139971–140001	HOK-1	Kaman	
140002–140052	T-28B	North American	
140053–140077	T-28C	North American	
140078–140102	OE-2	Cessna	
140103–140120	S2F-2	Grumman	140103 Cancelled
140121–140139	HSS-1	Sikorsky	
140140–140150	P5M-2	Martin	
140151–140160	P2V-7	Lockheed	
140161–140310	A2U-1	Vought	Cancelled
140311–140313	R7V-1	Lockheed	
140314–140325	HR2S-1	Sikorsky	
140326–140377	JD-1	Douglas	From Air Force
140378	R4Y-1Z	Consolidated	
140379–140413	F11F-1P/F9F-9P	Grumman	Cancelled
140414–140429	HSL-1	Bell	Cancelled
140430–140443	P2V-7	Lockheed	
140444–140446	F8U-1	Vought	
140447–140448	XF8U-2	Vought	
140449–140666	T-28C	North American	
140667–140956	T-34B	Beech	
140957	KH-15	Kellett	For ONR, test vehicle
140958–140961	HRS-3	Sikorsky	Spain
140962–140986	P2V-7	Lockheed	140968, 140970 to Japan
140987–140992	SNB-5	Beech	From Army
140993–141028	R4Y-1	Consolidated	
141029	HRS-3	Sikorsky	
141030–141229	F9F-8	Grumman	
141230	HRS-3	Sikorsky	
141231–141251	P2V-7	Lockheed	141244, 141245 to Japan
141252–141260	P5M-2	Martin	141259–141260 Cancelled
141261–141288	UF-1	Grumman	
141289–141333	WV-2	Lockheed	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
141334–141335	ZPG-2W	Goodyear	
141336–141362	F8U-1	Vought	
141363	F8U-1P	Vought	
141364–141443	FJ-3M	North American	
141444–141489	FJ-4B	North American	
141490–141558	TV-2	Lockheed	
141559–141563	ZPG-2	Goodyear	
141564–141570	ZS2G-1	Goodyear	
141571–141602	HSS-1	Sikorsky	
141603–141645	HR2S-1	Sikorsky	141618–141645 Cancelled
141646–141647	HR2S-1W	Sikorsky	
141648–141666	F9F-8	Grumman	
141667	YF9F-8T	Grumman	
141668–141727	F9F-8P	Grumman	
141728–141980	F11F-1	Grumman	141885–141980 Cancelled
141981–142009	F11F-1P	Grumman	Cancelled
142010	XAD-7	Douglas	
142011–142081	AD-7	Douglas	
142082–142141	A4D-2	Douglas	
142142–142235	A4D-1	Douglas	
142236–142255	A3D-2	Douglas	
142256	YA3D-2P	Douglas	
142257	A3D-2Q	Douglas	
142258	A3D-2W	Douglas	Cancelled
142259–142260	F4H-1	McDonnell	
142261–142268	T2V-1	Lockheed	
142269–142348	F-84 (drone)	Republic	From Air Force
142349–142357	F5D-1	Douglas	142351–142357 Cancelled
142358–142363	UF-1	Grumman	142363 Cancelled
142364–142372	HUL-1	Bell	
142373–142396	HTL-6	Bell	
142397–142399	T2V-1	Lockheed	
142400–142407	A3D-2	Douglas	
142408–142415	F8U-1	Vought	
142416–142423	A4D-2	Douglas	
142424–142427	UC-1	DeHavilland	
142428	UF-1L	Grumman	
142429	UF-1G	Grumman	
142430–142436	HRS-3	Sikorsky	Spain
142437–142532	F9F-8T	Grumman	
142533–142541	T2V-1	Lockheed	
142542–142545	P2V-7	Lockheed	
142546–142629	AD-7	Douglas	Cancelled
142630–142665	A3D-2	Douglas	
142666–142669	A3D-2P	Douglas	
142670–142673	A3D-2Q	Douglas	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
142674–142953	A4D-2	Douglas	
142954–143013	F9F-8T	Grumman	
143014–143049	TV-2	Lockheed	
143050–143133	AD-7	Douglas	Cancelled
143134–143147	HUL-1	Bell	
143148–143171	HTL-6	Bell	
143172–143183	P2V-7	Lockheed	
143184–143230	WV-2	Lockheed	
143231	Not issued	Not issued	
143232–143366	F11F-1	Grumman	Cancelled
143367–143387	F11F-1P	Grumman	Cancelled
143388–143392	F4H-1F	McDonnell	
143393–143400	F5D-1	Douglas	Cancelled
143401–143402	XF12F-1	Grumman	Cancelled
143403–143492	F3H-2	McDonnell	
143493–143676	FJ-4B	North American	143644–143676 Cancelled
143677–143821	F8U-1	Vought	
143822–143827	P6M-1	Martin	
143828–143863	HR2S-1	Sikorsky	Cancelled
143864–143960	HSS-1	Sikorsky	
143961–143983	HUS-1	Sikorsky	
143984–144116	T-34B	Beech	
144117–144216	T2V-1	Lockheed	
144217–144218	XT2J-1	North American	
144219–144222	T2J-1	North American	
144223–144236	TT-1	Temco	
144237–144238	ZPG-2	Goodyear	Cancelled
144239–144241	ZS2G-1	Goodyear	
144242–144243	ZPG-3W	Goodyear	
144244–144258	HRS-3	Sikorsky	
144259–144261	UC-1	DeHavilland	
144262–144267	P2V-7	Lockheed	Cancelled
144268–144270	HRS-3	Sikorsky	Spain
144271–144376	F9F-8	Grumman	
144377–144426	F9F-8P	Grumman	
144427–144606	F8U-1	Vought	144462–144606 Cancelled
144607–144625	F8U-1P	Vought	
144626–144629	A3D-2	Douglas	
144630–144654	HUS-1	Sikorsky	
144655–144662	HUS-1A	Sikorsky	
144663–144665	OE-1	Cessna	144665 Cancelled
144666–144668	HRS-3	Sikorsky	Spain
144669–144674	UC-1	DeHavilland	
144675–144692	P2V-7	Lockheed	144685–144692 to France, 144675–144680 to Japan
144693–144695	HTL-3	Bell	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
144696–144731	S2F-1	Grumman	
144732–144734	P2V-7	Lockheed	144733–144734 Cancelled
144735–144824	T2V-1	Lockheed	144765–144824 Cancelled
144825–144847	A3D-2P	Douglas	
144848–144855	A3D-2Q	Douglas	
144856–144867	A3D-2T	Douglas	
144868–145061	A4D-2	Douglas	
145062–145146	A4D-2N	Douglas	
145147–145156	A4D-3	Douglas	Cancelled
145157–145158	YA3J-1	North American	
145159–145201	F5D-1	Douglas	Cancelled
145202–145306	F3H-2	McDonnell	
145307–145317	F4H-1F	McDonnell	
145318–145415	F8U-1	Vought	
145416–145545	F8U-1E	Vought	
145546–145603	F8U-2	Vought	
145604–145647	F8U-1P	Vought	
145648–145659	F8U-1T	Vought	Cancelled
145660–145669	HSS-1	Sikorsky	
145670–145712	HSS-1N	Sikorsky	
145713–145836	HUS-1	Sikorsky	145813–145836 Cancelled
145837–145854	HTL-7	Bell	
145855–145875	HR2S-1	Sikorsky	
145876–145899	P6M-2	Martin	145880–145899 Cancelled
145900–145923	P2V-7	Lockheed	
145924–145956	WV-2	Lockheed	145942–145956 Cancelled
145957–145961	WF-2	Grumman	
145962–145963	R4Y-2	Consolidated	
145964–145976	R4Y-2/2T	Consolidated	Cancelled
145977–145990	R4Y-2S	Consolidated	Cancelled
145991–145995	R4Y-2Q	Consolidated	Cancelled
145996	T2J-1	North American	
145997	XT2J-2	North American	
145998–146015	T2J-1	North American	
146016–146057	TF-1	Grumman	
146058–146237	T2V-1	Lockheed	Cancelled
146238–146293	T-28C	North American	
146294–146295	ZS2G-1	Goodyear	
146296–146297	ZPG-3W	Goodyear	
146298–146302	HRS-3	Sikorsky	
146303	WF-2	Grumman	
146304–146327	HUK-1	Kaman	
146328–146339	F3H-2	McDonnell	
146340–146341	F8U-3	Vought	
146342–146425	F9F-8T	Grumman	
146426–146430	UF-2	Grumman	Germany

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
146431–146438	P2V-7	Lockheed	Japan/France
146439	HRS-3	Sikorsky	Spain
146440–146445	P5M-2	Martin	France
146446–146447	A3D-2P	Douglas	
146448–146459	A3D-2Q	Douglas	
146460–146693	A4D-2N	Douglas	Cancelled
146694–146708	A3J-1	North American	146703–146708 Cancelled
146709–146816	F3H-2	McDonnell	146741–146816 Cancelled
146817–146821	F4H-1F	McDonnell	
146822–146905	F8U-1P	Vought	146902–146905 Cancelled
146906–147034	F8U-2	Vought	
147035–147077	F8U-2N	Vought	147073–147077 Cancelled
147078–147084	F8U-1P	Vought	Cancelled
147085–147100	F8U-3	Vought	147088–147100 Cancelled
147101–147136	HR2S-1	Sikorsky	Cancelled
147137–147146	HSS-2	Sikorsky	
147147–147201	HUS-1	Sikorsky	
147202–147205	HU2K-1	Kaman	
147206–147207	XP6Y-1	Consolidated	Cancelled
147208–147262	WF-2	Grumman	147242–147262 Cancelled
147263–147265	W2F-1	Grumman	
147266–147269	OF-1	Grumman	Cancelled
147270–147429	F9F-8T	Grumman	
147430–147530	T2J-1	North American	
147531–147538	S2F-3	Grumman	147538 Cancelled
147539–147542	P5M-2	Martin	France
147543–147547	T-34B	Beech	For MAP
147548	E-18S	Beech	For MAP
147549–147561	S2F-1	Grumman	
147562–147571	P2V-7	Lockheed	France
147572–147573	GV-1	Lockheed	
147574	UC-1	DeHavilland	UK
147575–147576	P5M-2	Martin	
147577	S2F-1	Grumman	
147578–147581	HUL-1	Bell	
147582–147630	HUP-3	Vertol	For MAP
147631–147635	HSS-1N	Sikorsky	
147636–147647	S2F-1	Grumman	147646–147647 Cancelled
147648–147668	A3D-2	Douglas	
147669–147849	A4D-2N	Douglas	
147850–147863	A3J-1	North American	
147864–147867	A2F-1	Grumman	
147868–147895	S2F-3	Grumman	
147896–147925	F8U-2N	Vought	
147926–147945	P5M-2	Martin	147938–147945 Cancelled
147946–147971	P2V-7	Lockheed	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
147972–147983	HU2K-1	Kaman	
147984–148032	HSS-1N	Sikorsky	
148033–148052	HSS-2	Sikorsky	
148053–148122	HUS-1	Sikorsky	
148123–148146	WF-2	Grumman	
148147–148149	W2F-1	Grumman	
148150–148239	T2J-1	North American	
148240–148245	UF-2	Grumman	
148246–148249	GV-1	Lockheed	
148250–148251	OE-1	Cessna	L-19E, for MAP
148252–148275	F4H-1F	McDonnell	
148276	YP3V-1	Lockheed	
148277	HUL-1	Bell	47G-2, for MAP
148278–148303	S2F-1	Grumman	
148304–148317	A4D-2N	Douglas	
148318–148321	UV-1L/C-130BL	Lockheed	
148322–148323	L-20	DeHavilland	Philippines
148324–148329	UF-2	Grumman	Japan
148330–148336	P2V-7	Lockheed	
148337–148362	P2V-7S	Lockheed	
148363–148434	F4H-1	McDonnell	
148435–148614	A4D-2N	Douglas	148613–148614 Cancelled
148615–148626	A2F-1	Grumman	148619–148626 Cancelled
148627–148710	F8U-2N	Vought	
148711–148716	W2F-1	Grumman	
148717–148752	S2F-3	Grumman	
148753–148802	HUS-1	Sikorsky	
148803–148805	HUS-1Z	Sikorsky	
148806–148822	HUS-1	Sikorsky	
148823–148882	T2J-1	North American	Cancelled
148883–148889	P3V-1	Lockheed	
148890–148899	GV-1	Lockheed	
148900–148923	WF-2	Grumman	
148924–148933	A3J-1	North American	
148934–148963	HSS-1N	Sikorsky	
148964–149012	HSS-2	Sikorsky	
149013–149036	HU2K-1	Kaman	
149037–149049	S2F-1	Grumman	FMS
149050–149069	UO-1	Piper	
149070–149081	P2V-7	Lockheed	Australia
149082–149087	HSS-1N	Sikorsky	Italy
149088	HUP-3	Piasecki	
149089–149130	P2V-7	Kawasaki/Lockheed	Japan
149131–149133	HSS-1N	Sikorsky	Netherlands
149134–149227	F8U-2NE	Vought	
149228–149256	S2F-3	Grumman	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
149257–149275	S2F-3S	Grumman	
149276–149299	A3J-1	North American	
149300–149305	A3J-2	North American	
149306–143317	A3J-3P	North American	
149318–149402	HUS-1	Sikorsky	
149403–149474	F4H-1	McDonnell	
149475–149486	A2F-1	Grumman	
149487–149646	A4D-2N	Douglas	
149647–149666	A4D-5	Douglas	
149667–149678	P3V-1	Lockheed	
149679–149738	HSS-2	Sikorsky	
149739–149786	HU2K-1	Kaman	
149787	GV-1U	Lockheed	
149788–149789	GV-1	Lockheed	
149790	GV-1U	Lockheed	
149791–149792	GV-1	Lockheed	
149793–149794	GV-1U	Lockheed	
149795–149796	GV-1	Lockheed	
149797	GV-1U	Lockheed	
149798–149800	GV-1	Lockheed	
149801	GV-1U	Lockheed	
149802–149804	GV-1	Lockheed	
149805	GV-1U	Lockheed	
149806–149816	GV-1	Lockheed	
149817–149819	W2F-1	Grumman	
149820–149821	UV-1	Lockheed	Cancelled
149822–149824	UF-1	Grumman	FMS
149825–149835	P5M-2	Martin	
149836–149837	UF-1	Grumman	
149838–149839	HUL-1M	Bell	
149840	HSS-1N	Sikorsky	Chile
149841–149842	HSS-1N	Sikorsky	Netherlands
149843–149844	S2F-1	Grumman	
149845–149892	S2F-3	Grumman	
149893–149934	HSS-2	Sikorsky	
149935–149958	A2F-1	Grumman	
149959–150138	A4D-5	Douglas	
150139–150186	HU2K-1	Kaman	
150187–150190	R4D-6	Douglas	
150191–150192	L-20A	DeHavilland	
150193–150194	HO4S-3	Sikorsky	
150195–150264	HUS-1	Sikorsky	
150265–150278	HRB-1	Vertol	
150279–150283	P2V-7S	Lockheed	
150284–150355	F8U-2NE	Vought	
150356–150405	T-28A	North American	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
150406–150493	F4H-1	McDonnell	
150494–150529	P3V-1	Lockheed	
150530–150541	W2F-1	Grumman	
150542–150551	T3J-1	North American	
150552–150580	HUS-1	Sikorsky	
150581–150600	A4D-2N	Douglas	
150601–150603	S2F-3	Grumman	
150604–150609	P3V-1	Lockheed	
150610–150617	HSS-2Z	Sikorsky	
150618–150620	HSS-2	Sikorsky	
150621–150623	HU2K-1U	Kaman	
150624–150653	F4H-1	McDonnell	
150654–150683	F8U-2NE	Vought	
150684–150690	GV-1	Lockheed	
150691	HUS-1Z	Sikorsky	Indonesia
150692–150716	T-28A	North American	S. Vietnam
150717–150729	HUS-1	Sikorsky	
150730–150732	HSS-1N	Sikorsky	Chile
150733–150807	CH-34	Sikorsky	Germany
150808–150819	HSS-1N	Sikorsky	Germany
150820	HUS-1	Sikorsky	Cancelled
150821–150822	HSS-1N	Sikorsky	
150823–150842	A3J-3P	North American	
150843–150932	F8U-2NE	Vought	
150933–150968	HRB-1	Vertol	
150969–150992	T3J-1	North American	
150993–151021	F4H-1	McDonnell	
151022–151261	A4D-5	Douglas	151198–151261 Cancelled
151262–151263	XH-51A	Lockheed	
151264–151265	UF-2	Grumman	SA-16B, Thailand
151266–151299	UH-1E	Bell	
151300–151335	HU2K-1U	Kaman	
151336–151347	T3J-1	North American	151344–151347 Cancelled
151348	L-20A	DeHavilland	
151349–151396	P3V-1	Lockheed	
151397–151519	F4H-1	McDonnell	
151520–151521	X-22A	Bell	
151522–151557	HSS-2	Sikorsky	
151558–151594	A2F-1	Grumman	
151595–151612	A2F-1Q	Grumman	151601–151612 Cancelled
151613–151614	CH-53A	Sikorsky	
151615–151634	RA-5C	North American	
151635–151637	SH-3A	Sikorsky	Cancelled
151638–151685	S-2E	Grumman	
151686–151701	CH-53A	Sikorsky	
151702–151725	E-2A	Grumman	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
151726–151728	RA-5C	North American	
151729–151731	SH-34J	Sikorsky	Germany
151732–151775	F-8E(FN)	Vought	151774–151775 Cancelled, France
151776–151779	O-1C	Cessna	L-19E, S. Korea
151780–151827	A-6A	Grumman	
151828–151839	EA-6A	Grumman	Cancelled
151840–151887	UH-1E	Bell	
151888–151891	C-130G	Lockheed	
151892–151901	T-41A	Grumman	TC-4B Cancelled
151902–151905	UH-46A	Vertol	
151906–151961	CH-46A	Vertol	
151962–151969	RA-5C	North American	Cancelled
151970–151974	F-111B	Grumman	
151975–151983	RF-4B	McDonnell	
151984–152100	A-4E	Douglas	
152101	A-4F	Douglas	
152102–152103	TA-4E	Douglas	
152104–152138	SH-3A	Sikorsky	
152139	YSH-3D	Sikorsky	
152140–152187	P-3A	Lockheed	
152188	SH-34G	Sikorsky	Germany
152189–152206	UH-2B	Kaman	
152207–152331	F-4B	McDonnell	
152332–152379	S-2E	Grumman	
152380–152381	SH-34J	Sikorsky	Germany
152382–152391	T-2B	North American	
152392–152415	CH-53A	Sikorsky	
152416–152439	UH-1E	Bell	
152440–152475	T-2B	North American	
152476–152489	E-2A	Grumman	
152490–152495	UH-46A	Vertol	
152496–152553	CH-46A	Vertol	
152554–152579	CH-46D	Vertol	
152580–152582	YA-7A	Vought	
152583–152646	A-6A	Grumman	
152647–152685	A-7A	Vought	
152686	UH-34D	Sikorsky	FMS
152687–152689	C-118B	Douglas	
152690–152713	SH-3D	Sikorsky	
152714–152717	F-111B	Grumman	
152718–152765	P-3B	Lockheed	
152766–152785	E-2A	Grumman	Cancelled
152786–152797	C-2A	Grumman	
152798–152845	S-2E	Grumman	
152846–152878	TA-4F	Douglas	
152879–152885	YOV-1OA	North American	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
152886–152890	P-3B	Lockheed	New Zealand
152891–152964	A-6A	Grumman	152955–152964 Cancelled
152965–153070	F-4B	McDonnell	
153071–153088	F-4J	McDonnell	
153089–153115	RF-4B	McDonnell	
153116–153133	UH-34D	Sikorsky	
153134–153273	A-7A	Vought	
153274–153313	CH-53A	Sikorsky	
153314–153403	CH-46D	Vertol	
153404–153413	UH-46D	Vertol	
153414–153442	P-3B	Lockheed	
153443	YP-3C	Lockheed	
153444–153458	P-3B	Lockheed	
153459–153531	TA-4F	Douglas	
153532–153537	SH-3D	Sikorsky	Spain
153538–153555	T-2B	North American	
153556–153558	UH-34D	Sikorsky	
153559–153608	S-2E	Grumman	Australia, 153583–153594 Cancelled
153609–153610	H-23G	Hiller	
153611–153616	P-2H	Kawasaki/Lockheed	Japan
153617–153622	SH-34J	Sikorsky	Italy
153623–153642	F-111B	Grumman	Cancelled
153643–153659	T-28B	North American	
153660–153690	TA-4F	Douglas	
153691–153694	C-118B	Douglas	
153695–153704	UH-34D	Sikorsky	FMS
153705–153739	CH-53A	Sikorsky	
153740–153767	UH-1E	Bell	
153768–153911	F-4J	McDonnell	
153912–153950	F-4B	McDonnell	153916–153950 Cancelled
153951–154044	CH-46D	Vertol	
154045	UH-34D	Sikorsky	FMS
154046–154099	A-6B	Grumman	Cancelled
154100–154123	SH-3D	Sikorsky	
154124–154171	A-6A	Grumman	
154172–154286	A-4F	Douglas	154218–154286 Cancelled
154287–154343	TA-4F	Douglas	
154344–154360	A-7A	Vought	
154361–154573	A-7B	Vought	154557–154573 Cancelled
154574–154613	P-3B	Lockheed	154606–154613 Cancelled
154614–154657	TA-4F	Douglas	
154658–154729	T-28C	North American	
154730–154749	TH-1E	Bell	
154750–154780	UH-1E	Bell	
154781–154788	F-4J	McDonnell	
154789–154844	CH-46D	Vertol	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
154845–154862	CH-46F	Vertol	
154863–154884	CH-53A	Sikorsky	
154885–154886	CH-53G	Sikorsky	
154887–154888	CH-53A	Sikorsky	
154889–154902	UH-34D	Sikorsky	FMS
154903–154910	A-4G	Douglas	Australia
154911–154912	TA-4G	Douglas	Australia
154913–154929	A-7A	Vought	Cancelled
154930–154942	EA-6B	Grumman	Cancelled
154943–154969	UH-1E	Bell	
154970–155069	A-4F	Douglas	
155070–155119	TA-4J	Douglas	
155120–155136	C-2A	Grumman	155125–155136 Cancelled
155137–155190	A-6A	Grumman	Cancelled
155191–155238	T-2B	North American	155191–155205 Cancelled
155239–155241	T-2C	North American	
155242–155289	A-4H	Douglas	Israel
155290	H-34G	Sikorsky	FMS
155291–155300	P-3B	Lockheed	Australia
155301–155336	CH-46F	Vertol	155319–155336 Cancelled
155337–155367	UH-1E	Bell	
155368–155389	CH-53A	Sikorsky	Cancelled
155390–155503	OV-1OA	North American	
155504–155580	F-4J	McDonnell	
155581–155721	A-6A	Grumman	
155722–155730	TC-4C	Grumman	
155731–155916	F-4J	McDonnell	155904–155916 Cancelled
155917	LC-13OR	Lockheed	
155918–156169	QT-33A	Lockheed	From Air Force
156170–156177	EC-130Q	Lockheed	
156178–156417	A-7B	Vought	Cancelled
156418–156477	CH-46F	Vertol	
156478–156482	EA-6B	Grumman	
156483–156506	SH-3D	Sikorsky	
156507–156546	P-3C	Lockheed	156531–156546 Cancelled
156547–156591	Unknown	Unknown	Cancelled
156592–156598	UH-34D	Sikorsky	FMS
156599–156603	P-3B	Lockheed	Norway
156604–156607	EA-6B	Grumman	Cancelled
156608–156653	RA-5C	North American	
156654–156677	CH-53D	Sikorsky	
156678–156685	O-1G	Cessna	FMS
156686–156733	T-2C	North American	
156734–156800	A-7C	Vought	
156801–156890	A-7E	Vought	
156891–156950	TA-4J	Douglas	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
156951–156970	CH-53D	Sikorsky	
156971–156978	F-111B	Grumman	Cancelled
156979–156993	EA-6A	Grumman	
156994–157029	A-6A	Grumman	
157030–157101	T-2C	North American	157066–157101 Cancelled
157102–157126	OV-12A	Fairchild-Hiller	Cancelled
157127–157176	CH-53D	Sikorsky	
157177–157203	HH-1K	Bell	
157204–157241	AH-1G	Bell	
157242–157309	F-4J	McDonnell	
157310–157341	P-3C	Lockheed	157333–157341 Cancelled
157342–157351	RF-4B	McDonnell	
157352–157354	CT-39E	North American	
157355–157394	TH-57A	Bell	
157395–157428	A-4H	Douglas	Israel
157429–157434	TA-4H	Douglas	Israel
157435–157648	A-7E	Vought	157595–157648 Cancelled
157649–157726	CH-46F	Vertol	
157727–157756	CH-53D	Sikorsky	
157757–157805	AH-1J	Bell	
157806–157850	TH-1L	Bell	
157851–157858	UH-1L	Bell	
157859–157903	TH-1L	Bell	Cancelled
157904–157913	A-4K	Douglas	New Zealand
157914–157917	TA-4K	Douglas	New Zealand
157918–157925	A-4H	Douglas	Israel
157926–157929	TA-4H	Douglas	Israel
157930–157931	CH-53D	Sikorsky	
157932–157933	X-26A	Schweizer	
157934	P-3C	Lockheed	Cancelled
157935–157976	UH-1E	Bell	Cancelled
157977–157979	EA-6B	Grumman	Cancelled
157980–157985	F-14A	Grumman	
157986	F-14B	Grumman	
157987–157991	F-14A	Grumman	
157992–157999	S-3A	Lockheed	
158000–158001	C-130	Lockheed	Cancelled
158002–158028	A-7E	Vought	
158029–158040	EA-6B	Grumman	
158041–158052	A-6E	Grumman	
158053–158072	KA-6D	Grumman	Cancelled
158073–158147	TA-4J	Douglas	
158148–158196	A-4M	Douglas	
158197–158201	T-38A	Northrop	
158202–158203	VC-3A	Martin	
158204–158226	P-3C	Lockheed	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
158227	RP-3D	Lockheed	
158228–158229	DC-130A	Lockheed	From Air Force
158230–158291	UH-1N	Bell	
158292–158309	OV-1OB	North American	Germany
158310–158333	T-2C	North American	
158334–158345	CH-46F	Vertol	
158346–158379	F-4J	McDonnell	
158380–158383	CT-39G	North American	
158384–158395	AV-8A	Hawker-Siddeley	
158396–158411	OV-10C	North American	Thailand
158412–158435	A-4M	Douglas	
158436–158437	F-86H	North American	
158438–158452	UH-1N	Bell	Cancelled
158453–158527	TA-4J	Douglas	
158528–158539	A-6E	Grumman	
158540–158547	EA-6B	Grumman	
158548–158550	UH-1N	Bell	
158551–158554	VH-1N	Bell	
158555	UH-1N	Bell	
158556–158557	VH-1N	Bell	
158558–158562	UH-1N	Bell	
158563–158574	P-3C	Lockheed	
158575–158610	T-2C	North American	
158611	X-25A	Bensen	
158612–158637	F-14A	Grumman	
158638–158648	E-2C	Grumman	
158649–158651	EA-6B	Grumman	
158652–158681	A-7E	Vought	
158682–158693	RH-53D	Sikorsky	
158694–158711	AV-8A	Hawker-Siddeley	
158712–158723	TA-4J	Douglas	
158724–158725	SH-3D	Sikorsky	Spain
158726–158743	A-4N	Douglas	Israel
158744–158761	RH-53D	Sikorsky	
158762–158785	UH-1N	Bell	
158786	X-28A	Osprey	
158787–158798	A-6E	Grumman	
158799–158817	EA-6B	Grumman	
158818	X-26A	Schweizer	
158819–158842	A-7E	Vought	
158843–158844	CT-39G	North American	
158845–158846	E-2C	Grumman	
158847–158858	HH-3F	Sikorsky	USCG
158859–158873	S-3A	Lockheed	158859–158860 Cancelled
158874–158875	SH-3D	Sikorsky	Spain
158876–158911	T-2C	North American	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
158912–158947	P-3C	Lockheed	158936–158947 Cancelled
158948–158977	AV-8A	Hawker-Siddeley	
158978–159025	F-14A	Grumman	
159026–159029	SH-3D	Sikorsky	
159030–159034	C-9B	Douglas	Cancelled
159035–159052	A-4N	Douglas	Israel
159053–159056	SH-3D	Sikorsky	
159057–159072	OV-10E	North American	Venezuela
159073–159074	U-3A	Cessna	
159075–159098	A-4N	Douglas	Israel
159099–159104	TA-4J	Douglas	
159105–159112	E-2C	Grumman	
159113–159120	C-9B	Douglas	
159121–159122	YCH-53E	Sikorsky	
159123–159128	VH-53F	Sikorsky	Cancelled
159129–159133	LC-130R	Lockheed	159132–159133 Cancelled
159134–159149	OV-10C	North American	Thailand
159150–159173	T-2C	North American	
159174–159185	A-6E	Grumman	
159186–159209	UH-1N	Bell	
159210–159229	AH-1J	Bell	
159230–159259	AV-8A	Hawker-Siddeley	
159260	X-26A	Schweizer	
159261–159308	A-7E	Vought	
159309–159317	A-6E	Grumman	
159318–159329	P-3C	Lockheed	
159330–159341	T-2D	North American	Venezuela
159342–159347	P-3F	Lockheed	Iran
159348	EC-130Q	Lockheed	
159349	Unassigned	Unassigned	
159350–159360	VH-3A	Sikorsky	
159361–159365	CT-39G	North American	
159366–159377	AV-8A	Hawker-Siddeley	
159378–159385	TAV-8A	Hawker-Siddeley	
159386–159420	S-3A	Lockheed	
159421–159468	F-14A	Grumman	
159469	EC-130Q	Lockheed	
159470–159493	A-4M	Douglas	
159494–159502	E-2C	Grumman	
159503–159514	P-3C	Lockheed	
159515–159545	A-4N	Douglas	Israel
159546–159556	TA-4J	Douglas	
159557–159562	AV-8A	Hawker-Siddeley	Spain
159563–159564	TAV-8A	Hawker-Siddeley	Spain
159565	UH-1N	Bell	
159566	Unassigned	Unassigned	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
159567–159581	A-6E	Grumman	
159582–159587	EA-6B	Grumman	
159588–159637	F-14A	Grumman	
159638–159661	A-7E	Vought	
159662–159667	A-7H	Vought	Greece
159668–159679	A-7E	Vought	
159680–159703	UH-1N	Bell	
159704–159727	T-2C	North American	
159728–159772	S-3A	Lockheed	
159773	WP-3D	Lockheed	
159774–159777	UH-1N	Bell	
159778–159794	A-4M	Douglas	
159795–159798	TA-4J	Douglas	
159799–159824	A-4N	Douglas	Israel
159825–159874	F-14A	Grumman	
159875	WP-3D	Lockheed	
159876–159877	CH-53E	Sikorsky	
159878–159882	F-5E	Northrop	
159883–159894	P-3C	Lockheed	
159895–159906	A-6E	Grumman	
159907–159912	EA-6B	Grumman	
159913–159966	A-7H	Vought	Greece
159967–160006	A-7E	Vought	
160007–160012	E-2C	Grumman	
160013–160021	KC-130R	Lockheed	
160022–160045	A-4M	Douglas	
160046–160052	C-9B	Douglas	160052 Cancelled
160053–160058	CT-39G	North American	
160059–160098	T-2E	North American	Greece
160099–160104	RH-53D	Sikorsky	
160105–160119	AH-1J	Bell	
160120–160164	S-3A	Lockheed	
160165–160179	UH-1N	Bell	
160180–160209	A-4KU	Douglas	Kuwait
160210–160215	TA-4KU	Douglas	Kuwait
160216–160227	OV-10F	North American	Indonesia
160228–160239	T-2D	North American	Morocco
160240	KC-130R	Lockheed	
160241–160264	A-4M	Douglas	
160265–160282	T-34C	Beech	
160283–160294	P-3C	Lockheed	
160295–160298	OV-10F	North American	Indonesia
160299–160378	F-14A	Grumman	Iran
160379–160414	F-14A	Grumman	
160415–160420	E-2C	Grumman	
160421–160431	A-6E	Grumman	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
160432–160437	EA-6B	Grumman	
160438–160461	UH-1N	Bell	
160462–160536	T-34C	Beech	
160537–160566	A-7E	Vought	
160567–160607	S-3A	Lockheed	
160608	EC-130Q	Lockheed	
160609	EA-6B	Grumman	
160610–160612	P-3C	Lockheed	
160613–160618	A-7E	Vought	
160619–160624	UH-1N	Bell	
160625–160628	KC-130R	Lockheed	
160629–160651	T-34C	Beech	
160652–160696	F-14A	Grumman	
160697–160703	E-2C	Grumman	
160704–160709	EA-6B	Grumman	
160710–160739	A-7E	Vought	
160740–160741	LC-130R	Lockheed	
160742–160748	AH-1T	Bell	
160749–160750	C-9K	Douglas	Kuwait
160751–160770	P-3C	Lockheed	
160771–160774	E-2C	Grumman	Israel
160775–160785	F/A-18A	McDonnell Douglas	
160786–160791	EA-6B	Grumman	
160792–160796	F-5E	Northrop	From Air Force
160797–160826	AH-1T	Bell	
160827–160838	UH-1N	Bell	
160839–160856	T-44A	Beech	
160857–160886	A-7E	Vought	160881–160886 Cancelled
160887–160930	F-14A	Grumman	
160931–160963	T-34C	Beech	
160964–160966	F-5F	Northrop	
160967–160986	T-44A	Beech	
160987–160992	E-2C	Grumman	
160993–160998	A-6E	Grumman	
160999–161014	P-3C	Lockheed	
161015–161022	AH-1T	Bell	
161023–161056	T-34C	Beech	
161057–161079	T-44A	Beech	
161080–161081	XFV-12A	Rockwell	
161082–161093	A-6E	Grumman	
161094–161099	E-2C	Grumman	
161100–161114	A-6E	Grumman	161112–161114 Cancelled
161115–161120	EA-6B	Grumman	
161121–161132	P-3C	Lockheed	
161133–161168	F-14A	Grumman	
161169–161173	YSH-60B	Sikorsky	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
161174–161178	EAV-8A	Hawker-Siddeley	Spain
161179–161184	CH-53E	Sikorsky	
161185–161206	UC-12B	Beech	
161207–161212	SH-3D	Sikorsky	Spain
161213–161217	F/A-18A	McDonnell Douglas	
161218–161222	TA-7H	Vought	Greece
161223	EC-130Q	Lockheed	
161224–161229	E-2C	Grumman	
161230–161241	A-6E	Grumman	161236–161241 Cancelled
161242–161247	EA-6B	Grumman	
161248–161251	F/A-18A	McDonnell Douglas	
161252–161265	CH-53E	Sikorsky	
161266	C-9B	McDonnell Douglas	
161267–161269	P-3C	Lockheed	Japan
161270–161305	F-14A	Grumman	161300–161305 Cancelled
161306–161327	UC-12B	Beech	
161328	EC-130Q	Lockheed	Cancelled
161329–161340	P-3C	Lockheed	
161341–161346	E-2C	Grumman	
161347–161352	EA-6B	Grumman	
161353–161367	F/A-18A	McDonnell Douglas	
161368–161380	P-3C	Lockheed	
161381–161395	CH-53E	Sikorsky	
161396–161399	AV-8B	McDonnell Douglas	
161400–161403	E-2C	Grumman	Cancelled
161404–161415	P-3C	Lockheed	161410 Cancelled
161416–161445	F-14A	Grumman	161420, 161423, 161431, 161436, 161439 Cancelled
161446–161493	F/A-18A	McDonnell Douglas	Cancelled
161494–161496	EC-130Q	Lockheed	
161497–161518	UC-12B	Beech	
161519–161528	F/A-18A	McDonnell Douglas	161522 Cancelled
161529–161530	C-9B	McDonnell Douglas	DC-9
161531	EC-130Q	Lockheed	
161532–161545	CH-53E	Sikorsky	161544–161545 Cancelled
161546	UC-8A	DeHavilland	DHC-5
161547–161552	E-2C	Grumman	
161553–161570	SH-60B	Sikorsky	
161571	X-26A	Schweizer	Cancelled
161572	UC-880	Convair	
161573–161584	AV-8B	McDonnell Douglas	161582 Cancelled
161585–161596	P-3C	Lockheed	
161597–161626	F-14A	Grumman	161602, 161613–161614, 161625 Cancelled
161627	U-8F	Beech	
161628	UC-27A	Fairchild	
161629–161640	F/A-18A	McDonnell Douglas	Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
161641–161652	SH-2F	Kaman	161646, 161648, 161649, 161651 Cancelled
161653	YSH-2G	Kaman	
161654–161658	SH-2F	Kaman	161654, 161655 Cancelled
161659–161694	A-6E	Grumman	161673, 161684, 161685, 161691–161694 Cancelled
161695–161701	TH-57B	Bell	
161702–161703	F/A-18A	McDonnell Douglas	
161704	F/A-18B	McDonnell Douglas	
161705–161706	F/A-18A	McDonnell Douglas	
161707	F/A-18B	McDonnell Douglas	
161708–161710	F/A-18A	McDonnell Douglas	
161711	F/A-18B	McDonnell Douglas	
161712–161713	F/A-18A	McDonnell Douglas	
161714	F/A-18B	McDonnell Douglas	
161715–161718	F/A-18A	McDonnell Douglas	
161719	F/A-18B	McDonnell Douglas	
161720–161722	F/A-18A	McDonnell Douglas	
161723	F/A-18B	McDonnell Douglas	
161724–161739	F/A-18A	McDonnell Douglas	161733 appears as F/A-18A and F/A-18B, 161727 Cancelled
161740	F/A-18B	McDonnell Douglas	
161741–161745	F/A-18A	McDonnell Douglas	161741 Cancelled
161746	F/A-18B	McDonnell Douglas	
161747–161761	F/A-18A	McDonnell Douglas	161754 Cancelled
161762–161773	P-3C	Lockheed	161768–161773 Cancelled
161774–161779	EA-6B	Grumman	161777–161778 Cancelled
161780–161785	E-2C	Grumman	
161786–161789	E-2C	Grumman	Japan
161790–161849	T-34C	Beech	
161850–161879	F-14A	Grumman	161854, 161972, 161874–161879 Cancelled
161880–161885	EA-6B	Grumman	
161886–161897	A-6E	Grumman	Cancelled
161898–161915	SH-2F	Kaman	161902, 161903, 161910, 161915 Cancelled
161916–161923	HXM		Cancelled
161924	F/A-18B	McDonnell Douglas	
161925–161931	F/A-18A	McDonnell Douglas	
161932	F/A-18B	McDonnell Douglas	
161933–161937	F/A-18A	McDonnell Douglas	161933 Cancelled
161938	F/A-18B	McDonnell Douglas	
161939–161942	F/A-18A	McDonnell Douglas	
161943	F/A-18B	McDonnell Douglas	
161944–161946	F/A-18A	McDonnell Douglas	
161947	F/A-18B	McDonnell Douglas	
161948–161987	F/A-18A	McDonnell Douglas	161966, 161971, 161980, 161987 Cancelled
161988–162012	CH-53E	Sikorsky	161999–162000, 162008 Cancelled
162013–162067	TH-57C	Bell	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
162068–162091	AV-8B	McDonnell Douglas	161071, 161073, 161079, 162089–162091 Cancelled
162092–162139	SH-60B	Sikorsky	162092, 162097, 162110, 162113 Cancelled
162140–162178	C-2A	Grumman	
162179–162222	A-6E	Grumman	162181, 162203–162222 Cancelled
162223–162246	EA-6B	Grumman	162223, 162226, 162231–162246 Cancelled
162247–162306	T-34C	Beech	
162307	F-5E	Northrop	
162308–162311	KC-130T	Lockheed	
162312–162313	EC-130Q	Lockheed	
162314–162325	P-3C	Lockheed	162319–162325 Cancelled
162326–162389	SH-60B	Sikorsky	162350–162389 Cancelled
162390–162393	C-9B	McDonnell Douglas	DC-9
162394–162401	F/A-18A	McDonnell Douglas	162397, 162399 Cancelled
162402	F/A-18B	McDonnell Douglas	
162403–162407	F/A-18A	McDonnell Douglas	162404, 162405 Cancelled
162408	F/A-18B	McDonnell Douglas	
162409–162418	F/A-18A	McDonnell Douglas	162413 Cancelled
162419	F/A-18B	McDonnell Douglas	
162420–162426	F/A-18A	McDonnell Douglas	
162427	F/A-18B	McDonnell Douglas	
162428–162477	F/A-18A	McDonnell Douglas	162447, 162450, 162476, 162477 Cancelled
162478–162602	CH-53E	Sikorsky	162497, 162498 Cancelled
162503–162526	MH-53E	Sikorsky	
162527–162531	CH-53E	Sikorsky	Cancelled
162532–162575	AH-1W	Bell	162540 Cancelled
162576–162587	SH-2F	Kaman	162579 Cancelled
162588–162611	F-14A	Grumman	162593, 162596, 162605, 162609 Cancelled
162612–162613	YT-45A	McDonnell Douglas	
162614–162619	E-2C	Grumman	
162620–162649	T-34C	Beech	
162650–162655	SH-2F	Kaman	Cancelled
162656–162665	P-3	Lockheed	FMS
162666–162686	TH-57C	Bell	
162687	CH-53E	Sikorsky	Cancelled
162688–162717	F-14A	Grumman	162706, 162712–162717 Cancelled
162718–162720	CH-53E	Sikorsky	Cancelled
162721–162746	AV-8B	McDonnell Douglas	162724, 162745, 162746 Cancelled
162747	TAV-8B	McDonnell Douglas	
162748–162752	AV-8B	McDonnell Douglas	Cancelled
162753–162754	C-9	McDonnell Douglas	DC-9
162755	U-8F	Beech	Cancelled
162755–162769	T-47A	Cessna	Cancelled
162770–162781	P-3C	Lockheed	162779–162781 Cancelled
162782–162784	E-6A	Boeing	
162785–162786	KC-130T	Lockheed	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
162787–162790	T-45A	McDonnell Douglas	162789, 162790 Cancelled
162791–162792	E-2C	Grumman	Egypt
162793–162796	E-2C	Grumman	Singapore
162797–162802	E-2C	Grumman	
162803–162810	TH-57B	Bell	
162811–162823	TH-57C	Bell	162824, 162825 Cancelled
162824–162825	E-2C	Grumman	Cancelled
162826–162835	F/A-18A	McDonnell Douglas	
162836	F/A-18B	McDonnell Douglas	
162837–162841	F/A-18A	McDonnell Douglas	
162842	F/A-18B	McDonnell Douglas	
162843–162849	F/A-18A	McDonnell Douglas	162847 Cancelled
162850	F/A-18B	McDonnell Douglas	
162851–162856	F/A-18A	McDonnell Douglas	162855 Cancelled
162857	F/A-18B	McDonnell Douglas	
162858–162863	F/A-18A	McDonnell Douglas	
162864	F/A-18B	McDonnell Douglas	
162865–162869	F/A-18A	McDonnell Douglas	
162870	F/A-18B	McDonnell Douglas	
162871–162875	F/A-18A	McDonnell Douglas	
162976	F/A-18B	McDonnell Douglas	
162977–162884	F/A-18A	McDonnell Douglas	
162885	F/A-18B	McDonnell Douglas	
162886–162909	F/A-18A	McDonnell Douglas	162908 Cancelled
162910–162933	F-14A+	Grumman	162928–162933 Cancelled
162934–162941	EA-6B	Grumman	162940, 162941 Cancelled
162942–162973	AV-8B	McDonnell Douglas	162952, 162961, 162971 Cancelled
162974–162997	SH-60B	Sikorsky	162978, 162992–162997 Cancelled
162998–163009	P-3C	Lockheed	163007–163009 Cancelled
163010–163021	EAV-8B	McDonnell Douglas	Spain
163022–163023	KC-130T	Lockheed	
163024–163029	E-2C	Grumman	
163030–163035	EA-6B	Grumman	
163036–163037	C-9B	McDonnell Douglas	DC-9
163038–163043	SH-60B	Sikorsky	Cancelled
163044–163049	EA-6B	Grumman	163044 Cancelled
163050	EC-24A	Douglas	DC-8
163051–163089	CH-53E	Sikorsky	163051, 163053–163058, 163065–163071, 163088, 163089 Cancelled
163090–163091	XKB-2	Northrop	Cancelled
163092–163103	F/A-18A/B	McDonnell Douglas	
163104	F/A-18B	McDonnell Douglas	
163105–163109	F/A-18A	McDonnell Douglas	163109 Cancelled
163110	F/A-18B	McDonnell Douglas	
163111–163114	F/A-18A	McDonnell Douglas	163112 Cancelled
163115	F/A-18B	McDonnell Douglas	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
163116–163122	F/A-18A	McDonnell Douglas	
163123	F/A-18B	McDonnell Douglas	
163124–163175	F/A-18A	McDonnell Douglas	163136 Cancelled
163176–163207	AV-8B	McDonnell Douglas	163180, 163182, 163185, 163186, 163191, 163196, 163202, 163207 Cancelled
163208	C-9B	McDonnell Douglas	DC-9
163209–163214	SH-2F	Kaman	
163215–163232	F-14A+	Grumman	163230–163232 Cancelled
163233–163256	SH-60B	Sikorsky	163236, 163250–163256 Cancelled
163257–163258	UH-60A	Sikorsky	Cancelled
163259–163267	VH-60A	Sikorsky	
163268–163277	F-16N	General Dynamics	
163278–163281	TF-16N	General Dynamics	
163282–163288	SH-60F	Sikorsky	
163289–163297	P-3C	Lockheed	163296, 163297 Cancelled
163298–163309	F-21A	IAI	Cancelled
163310–163311	KC-130T	Lockheed	
163312–163347	TH-57B	Bell	
163348–163394	AV-8B	McDonnell Douglas	Cancelled
163395–163406	EA-6B	Grumman	
163407–163411	F-14A+	Grumman	
163412–163418	F-14D	Grumman	
163419–163426	AV-8B	McDonnell Douglas	
163427–163510	F/A-18D	McDonnell Douglas	163427–163433, 163435, 163437–163440, 163442–163444, 163446, 163448–163451, 163453, 163455, 163456, 163458, 163459, 163461–163463, 163465–163467, 163469–163471, 163473, 163475–163478, 163480, 163481, 163483–163485, 163487, 163489–163491, 163493–163496, 163498, 163499, 163502–163406, 163508, 163509 Cancelled
163511–163513	C-9	McDonnell Douglas	DC-9
163514–163519	AV-8B	McDonnell Douglas	
163520–163531	EA-6B	Grumman	
163532–163534	E-6A	Boeing	Cancelled
163535–163540	E-2C	Grumman	
163541–163546	SH-2G	Kaman	
163547–163552	SH-2F	Kaman	Cancelled
163553–163564	UC-12F	Beech	163563, 163564 Cancelled
163565	E-2C	Grumman	Cancelled
163566–163577	F-16N	General Dynamics	
163578–163590	P-3C	Lockheed	163578–163590 Cancelled
163591–163592	KC-130T	Lockheed	
163593–163598	SH-60B	Sikorsky	
163599–163658	T-45A	McDonnell Douglas	
163659–163690	AV-8B	McDonnell Douglas	
163691–163692	C-20D	Gulfstream	
163693–163698	E-2C	Grumman	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
163699–163782	F/A-18D	McDonnell Douglas	163699, 163701–163706, 163708–163719, 163721–163733, 163735–163748, 163750–163762, 163764–163770, 163772–163777, 163779–163782 Cancelled
163783–163800	HH-60H	Sikorsky	
163801–163835	HH-60J	Sikorsky	USCG, 163833–163835 Cancelled
163836–163847	UC-12M	Beech	163846, 163847 Cancelled
163848–163851	E-2C	Grumman	
163852–163855	AV-8B	McDonnell Douglas	
163856–163861	TAV-8B	McDonnell Douglas	
163862–163883	AV-8B	McDonnell Douglas	
163884–163892	EA-6B	Grumman	
163893–163904	F-14D	Grumman	
163905–163919	SH-60B	Sikorsky	163911–163919 Cancelled
163911–163916	YV-22A	Bell	
163917	C-28A	Cessna	
163918–163920	E-6A	Boeing	
163921–163954	AH-1W	Bell	163921–163923, 163925, 163928 Cancelled
163955–163984	A-6F	Grumman	Cancelled
163985–164068	F/A-18D	McDonnell Douglas	163985, 163987, 163988, 163990, 163992, 163993, 163995, 163996, 163998–164000, 164002–164004, 164006–164008, 164010, 164012, 164013, 164015, 164016, 164018, 164020, 164021, 164023, 164025, 164027, 164029–164031, 164033, 164034, 164036, 164037, 164039, 164041, 164042, 164044, 164045, 164047, 164048, 164050, 164052, 164054, 164055, 164057, 164059, 164060, 164062, 164063, 164065–164067 Cancelled
164069–164104	SH-60F	Sikorsky	
164105–164106	KC-130T	Lockheed	
164107–164112	E-2C	Grumman	
164113–164114	TAV-8B	McDonnell Douglas	
164115–164121	AV-8B	McDonnell Douglas	
164122	TAV-8B	McDonnell Douglas	
164123–164154	AV-8B	McDonnell Douglas	164136–164138 Cancelled
164155–164173	T-34C	Beech	
164174–164179	SH-60B	Sikorsky	
164180–164181	KC-130T	Lockheed	
164182–164193	EA-6B	Grumman	Cancelled
164194–164195	KC-130T	Lockheed	Cancelled
164196–164339	F/A-18D	McDonnell Douglas	164197, 164199–164202, 164204–164206, 164208–164210, 164212–164215, 164217, 164218, 164220–164223, 164225–164227, 164229–164232, 164234–164236, 164238–164240, 164242–164244, 164247, 164248, 164250–164253, 164255–164258, 164260, 164261, 164264–164266, 164269–164271, 164273–164278, 164280–164339 Cancelled
164340–164351	F-14D	Grumman	
164352–164357	E-2C	Grumman	164356, 164357 Cancelled
164358–164367	CH-53E	Sikorsky	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
164368–164375	MH-53E	Sikorsky	164368–164375 Cancelled
164376–164385	A-6E	Grumman	
164386–164388	E-6A	Boeing	
164389–164400	V-22	Bell	Cancelled
164401–164403	EA-6B	Grumman	
164404–164410	E-6A	Boeing	
164411–164422	F/A-18C	McDonnell Douglas	Cancelled
164423–164440	SH-60F	Sikorsky	Cancelled
164441–164442	KC-130T	Lockheed	
164443–164460	SH-60F	Sikorsky	
164461–164466	SH-60B	Sikorsky	
164467–164469	P-3C	Lockheed	
164470–164482	CH-53E	Sikorsky	Cancelled
164483–164518	E-2C	Grumman	164489–164491, 164498–164518 Cancelled
164519–164523	A-12	McDonnell Douglas and General Dynamics	Cancelled
164524–164525	U-6A	DeHavilland	L-20A, from USDA
164526–164535	A-12	McDonnell Douglas and General Dynamics	Cancelled
164536–164539	CH-53E	Sikorsky	
164540–164542	TAV-8B	McDonnell Douglas	
164543–164571	AV-8B	McDonnell Douglas	164563 Cancelled
164572–164578	AH-1W	Bell	
164579–164583	T-44B	Beech	
164584–164585	X-31A	Grumman	
164586–164596	AH-1W	Bell	
164597–164598	KC-130T	Lockheed	
164599–164604	F-14D	Grumman	
164605–164608	C-9	McDonnell Douglas	DC-9
164609–164620	SH-60F	Sikorsky	164616 Cancelled
164621–164626	E-2C	Grumman	Cancelled
164627–164648	F/A-18C	McDonnell Douglas	164627, 164629–164648 Cancelled
164649–164746	F/A-18D	McDonnell Douglas	164654, 164655, 164657, 164658, 165660, 164661, 164663, 164664, 164666, 164668, 164669, 164671, 164673, 164675, 164676, 164678, 164680–164682, 164684, 164686, 164687, 164689, 164691, 164693, 164695–164698, 164700, 164701, 164703, 164704, 164706–164710, 164712, 164713, 164715, 164716, 164718–164722, 164724, 164725, 164727, 164728, 164730–164734, 164736, 164737, 164739–164746 Cancelled
164747–164758	F/A-18D	McDonnell Douglas	Cancelled
164759–164760	KC-130T	Lockheed	Cancelled
164761	C-28A	Cessna	
164762–164763	C-130T	Lockheed	
164764–164775	MH-53E	Sikorsky	164774, 164775 Cancelled
164776–164791	CH-53E	Sikorsky	
164792–164795	MH-53E	Sikorsky	164794, 164795 Cancelled
164796–164807	SH-60F	Sikorsky	164805–164807 Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
164808–164819	SH-60B	Sikorsky	
164820–164830	HH-60J	Sikorsky	
164831–164846	HH-60H	Sikorsky	164831–164839 Cancelled
164847–164858	SH-60B	Sikorsky	
164859–164860	CH-53E	Sikorsky	
164861–164864	MH-53E	Sikorsky	
164865–164875	F/A-18C	McDonnell Douglas	164868, 164870, 164872, 164974 Cancelled
164876	F/A-18D	McDonnell Douglas	
164877–164883	F/A-18C	McDonnell Douglas	164878, 164880 Cancelled
164884	F/A-18D	McDonnell Douglas	
164885	F/A-18C	McDonnell Douglas	
164886	F/A-18D	McDonnell Douglas	
164887	F/A-18C	McDonnell Douglas	
164888	F/A-18D	McDonnell Douglas	
164889–164897	F/A-18C	McDonnell Douglas	
164898	F/A-18D	McDonnell Douglas	
164899–164900	F/A-18C	McDonnell Douglas	
164901	F/A-18D	McDonnell Douglas	
164902–164912	F/A-18C	McDonnell Douglas	
164913–164938	AH-1W	Bell	Cancelled
164939–164944	MV-22B	Bell-Boeing	164943, 164944 Cancelled
164945	F/A-18D	McDonnell Douglas	
164946	F/A-18C	McDonnell Douglas	
164947	F/A-18D	McDonnell Douglas	
164948	F/A-18C	McDonnell Douglas	
164949	F/A-18D	McDonnell Douglas	
164950	F/A-18C	McDonnell Douglas	
164951	F/A-18D	McDonnell Douglas	
164952	F/A-18C	McDonnell Douglas	
164953	F/A-18D	McDonnell Douglas	
164954	F/A-18C	McDonnell Douglas	
164955	F/A-18D	McDonnell Douglas	
164956	F/A-18C	McDonnell Douglas	
164957	F/A-18D	McDonnell Douglas	
164958	F/A-18C	McDonnell Douglas	
164959	F/A-18D	McDonnell Douglas	
164960	F/A-18C	McDonnell Douglas	
164961	F/A-18D	McDonnell Douglas	
164962	F/A-18C	McDonnell Douglas	
164963	F/A-18D	McDonnell Douglas	
164964	F/A-18C	McDonnell Douglas	
164965	F/A-18D	McDonnell Douglas	
164966	F/A-18C	McDonnell Douglas	
164967	F/A-18D	McDonnell Douglas	
164968–164980	F/A-18C	McDonnell Douglas	
164981–164992	F/A-18D	McDonnell Douglas	Cancelled

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
164993–164998	C-130T	Lockheed	
164999–165000	KC-130T	Lockheed	
165001–165006	AV-8B	McDonnell Douglas	
165007–165027	AV-8B	McDonnell Douglas	For Italy
165028–165035	AV-8B	McDonnell Douglas	For Spain
165036	TAV-8B	McDonnell Douglas	For Spain
165037–165056	AH-1W	Bell	165037–165041 Cancelled
165057–165079	T-45A	McDonnell Douglas	
165080–165092	T-45C	Boeing	
165093–165094	C-20G	Gulfstream	
165095	SH-60B	Sikorsky	
165096	HH-60J	Sikorsky	
165097	AH-1W	Bell	
165098–165105	P-3C	Lockheed	165098–165105 Cancelled
165106–165112	SH-60B	Sikorsky	
165113–165123	HH-60H	Sikorsky	
165124–165127	HH-60J	Sikorsky	
165128–165134	SH-60B	Sikorsky	Cancelled
165135–165141	SH-60F	Sikorsky	Cancelled
165142–165145	HH-60H	Sikorsky	Cancelled
165146–165150	HH-60J	Sikorsky	
165151–165153	C-20G	Gulfstream	
165154	HH-60H	Sikorsky	
165155–165157	SH-60F	Sikorsky	Cancelled
165158–165161	C-130T	Lockheed	
165162–165163	KC-130T	Lockheed	
165164–165165	F/A-18E	McDonnell Douglas	
165166	F/A-18F	McDonnell Douglas	
165167–165169	F/A-18E	McDonnell Douglas	
165170	F/A-18F	McDonnell Douglas	
165171–165230	F/A-18C	McDonnell Douglas	
165231–165242	F/A-18D	McDonnell Douglas	Cancelled
165243–165254	CH-53E	Sikorsky	
165255–165267	HH-60H	Sikorsky	165260–165267 Cancelled
165268–165270	SH-60F	Sikorsky	Cancelled
165271–165292	AH-1W	Bell	
165293–165304	E-2C	Grumman	
165305–165312	AV-8B	McDonnell Douglas	
165313–165314	C-130T	Lockheed	
165315–165316	KC-130T	Lockheed	
165317–165341	AH-1W	Bell	165334–165341 Cancelled
165342–165343	E-6A	Boeing	Cancelled
165344–165347	CH-53E	Sikorsky	
165348–165351	C-130T	Lockheed	
165352–165353	KC-130T	Lockheed	
165354–165357	AV-8B	McDonnell Douglas	Remanufactured

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
165358–165377	AH-1W	Bell	165370–165377 Cancelled
165378–165379	C-130T	Lockheed	
165380–165391	AV-8B	McDonnell Douglas	Remanufactured
165392–165396	AH-1W	Bell	
165397–165398	AV-8B	McDonnell Douglas	Remanufactured
165399–165408	F/A-18C	McDonnell Douglas	
165409–165416	F/A-18D	McDonnell Douglas	
165417–165432	AV-8B	McDonnell Douglas/ Boeing	165431, 165432 Cancelled, not accepted
165433–165444	MV-22B	Bell/Boeing	
165445–165450	AH-1W	Bell	
165451–165454	AV-8B	McDonnell Douglas	Cancelled
165455–165456	E-2C	Northrop Grumman	
165457–165498	T-45C	Boeing	
165499–165502	T-45C	Boeing	Cancelled
165503–165504	CH-53E	Sikorsky	
165505–165506	T-45A	McDonnell Douglas/ British Aerospace	Cancelled
165507–165508	E-2C	Grumman	
165509–165525	T-39N	Boeing North American	
165526	F/A-18C	McDonnell Douglas/ Boeing	
165527–165532	F/A-18D	Boeing	
165533–165540	F/A-18E	Boeing	
165541–165544	F/A-18F	Boeing	
165545–165565	AH-1W	Bell	Cancelled
165566–165597	AV-8B	McDonnell Douglas/ Boeing	165568–165579 Remanufactured
165598–165646	T-45C	Boeing	
165647–165650	E-2C	Northrop Grumman	
165651	CH-53E	Sikorsky	
165652–165659	AV-8B	Boeing	Cancelled
165660–165667	F/A-18E	Boeing	
165668–165679	F/A-18F	Boeing	
165680–165687	F/A-18D	Boeing	
165688–165734	RQ-2A	AAI/IAI	Operated by the Marines and never treated like an aircraft and not entered into AIRRS database
165735–165739	KC-130J	Lockheed Martin	
165740–165741	UC-35C	Cessna	
165742–165751	CH-60S	Sikorsky	
165752–165778	MH-60S	Sikorsky	
165779–165792	F/A-18E	Boeing	
165793–165808	F/A-18F	Boeing	
165809–165810	KC-130J	Lockheed Martin	
165811–165828	E-2C	Northrop Grumman	
165829–165836	C-40A	Boeing	
165837–165853	MV-22B	Bell/Boeing	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
165854–165859	SH-60B	Sikorsky	Spain
165860–165874	F/A-18E	Boeing	
165875–165895	F/A-18F	Boeing	
165896–165909	F/A-18E	Boeing	
165910–165937	F/A-18F	Boeing	165935–165937 not used or issued to aircraft
165938–165939	UC-35D	Cessna	
165940–165948	MV-22B	Bell/Boeing	
165949–165955	MV-22B	Bell/Boeing	Cancelled
165956	MV-22B	Bell/Boeing	
165957	KC-130J	Lockheed	
165958–166009	T-6A	Raytheon/Beech	165958, 166007–166009 not used or issued to aircraft
166010–166285	T-6B	Raytheon/Beech	166071–166285 not used or issued to aircraft or still to be delivered
166286	TC-18F	Boeing	To be used as trainer for E-6 but struck and never used
166287–166288	AV-8B	Boeing	
166289–166373	MH-60S	Sikorsky	166371–166373 Cancelled
166374	UC-35D	Cessna	
166375	C-37A	Gulfstream	
166376–166379	C-37B	Gulfstream	Issued in a block of 4 but 166379 never used
166380–166382	KC-130J	Lockheed Martin	
166383–166399	MV-22B	Bell/Boeing	Issued in a block of 17 but 166392–166399 never used
166400–166401	RQ-8A	Northrop Grumman	Most likely the pattern for the RQ-2As and not treated like an aircraft or entered into AIRRS database
166402–166408	MH-60R	Sikorsky	166402, 166403 Remanufactured
166409–166410	SH-60R	Sikorsky	Issued in a block of 7 for SH-60R (166404–166410) but 166409 and 166410 never used
166411–166413	AV-8B	Boeing	Issued in a block of 3, possibly for Spain
166414–166416	RQ-8A	Northrop Grumman	Issued in a block of 3 but never used or transferred to Navy
166417–166419	E-2C	Northrop Grumman	166418–166419 Cancelled
166420–166448	F/A-18E	Boeing	
166449–166467	F/A-18F	Boeing	
166468–166471	MH-60S	Sikorsky	166468–166471 Cancelled
166472–166473	KC-130J	Lockheed Martin	
166474	UC-35D	Cessna	
166475–166476	UH-1Y	Bell	
166477–166479	AH-1Z	Bell	
166480–166499	MV-22B	Bell/Boeing	
166500	UC-35D	Cessna	
166501–166503	TE-2C	Northrop Grumman	
166504	E-2C	Northrop Grumman	
166505–166507	TE-2C	Northrop Grumman	
166508	E-2C	Northrop Grumman	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
166509–166510	RQ-4A	Northrop Grumman	Global Hawk UA was GHMD RDT&E, now in inventory and deployed but most likely never assigned bureau numbers because they are not listed in AIRRS database
166511–166514	KC-130J	Lockheed Martin	
166515–166597	MH-60R	Sikorsky	
166598–166609	F/A-18E	Boeing	
166610–166642	F/A-18F	Boeing	
166643–166657	F/A-18E	Boeing	
166658–166684	F/A-18F	Boeing	
166685–166692	MV-22B	Bell/Boeing	
166693–166711	C-40A	Boeing	166695–166711 not yet delivered, delivery sometime in 2011 or 2012
166712–166715	UC-35D	Cessna	
166716–166717	C-40A	Boeing	For future procurement
166718–166730	MV-22B	Bell/Boeing	166727–166730 not used or issued to aircraft
166731–166752	MV-22B	Bell/Boeing	166748–166752 not used for issued to aircraft
166753–166758	UH-1Y	Bell	
166759–166761	AH-1Z	Bell	
166762–166765	KC-130J	Lockheed Martin	
166766–166767	UC-35D	Cessna	
166768–166771	UH-1Y	Bell	
166772–166774	AH-1Z	Bell	
166775–166789	F/A-18E	Boeing	
166790–166816	F/A-18F	Boeing	
166817–166841	F/A-18E	Boeing	
166842–166854	F/A-18F	Boeing	
166855–166858	EA-18G	Boeing	
166859–166872	F/A-18E	Boeing	
166873–166892	F/A-18F	Boeing	
166893–166900	EA-18G	Boeing	
166901–166914	F/A-18E	Boeing	
166915–166927	F/A-18F	Boeing	
166928–166946	EA-18G	Boeing	
166947–166960	F/A-18E	Boeing	166953–166960 not yet delivered
166961–166984	F/A-18F	Boeing	166966–166984 not yet delivered
166985–166992	VH-71	Lockheed Martin/Bell	Program cancelled
166993–167011	MH-60R	Sikorsky	167000–167011 not yet delivered
167012–167072	MH-60R	Sikorsky	167012–167072 not yet delivered
167073–167106	T-45C	Boeing	
167107	Not Assigned		Not used
167108–167112	KC-130J	Lockheed Martin	
167113–167778	Not Assigned		Not used
167779–167781	MH-60R	Sikorsky	Not yet delivered
167782–167783	O-2A	Cessna	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
167784–167792	MQ-8B	Northrop Grumman/ Schweizer Aircraft	Not delivered or not used
167793–167808	UH-1Y	Bell	
167809–167810	AH-1Z	Bell	
167811	MZ-3A	American Blimp	
167812–167879	MH-60S	Sikorsky	
167880–167901	MH-60S	Sikorsky	Not yet delivered
167902–167922	MV-22B	Bell/Boeing	
167923–167927	KC-130J	Lockheed Martin	
167928	VH-71	Lockheed Martin/Bell	Program cancelled
167929–167931	E-2D	Northrop Grumman	
167932–167950	F/A-18F/EA-18G	Boeing	Cancelled
167951–167956	P-8A	Boeing	167952, 167955, 167956 not yet accepted
167957–167980	F/A-18F	Boeing	Not yet delivered
167981–167985	KC-130J	Lockheed Martin	
167986–167988	MQ-8B	Northrop Grumman/ Schweizer Aircraft	167987, 167988 not yet delivered
167989–167999	UH-1Y	Bell	
168000–168003	AH-1Z	Bell	
168004–168033	MV-22B	Bell/Boeing	Not yet all delivered
168034–168035	MH-60S	Sikorsky	Not yet delivered
168036–168048	UH-1Y	Bell	Not yet delivered
168049–168055	AH-1Z	Bell	168050–168064 not yet delivered
168056	A-29B	Embraer Defense	Was on loan for tests but returned
168057–168062	F-35B	Lockheed Martin	Not yet delivered
168063–168064	X-47B	Northrop Grumman	NUCAS-D, not yet delivered
168065–168075	KC-130J	Lockheed Martin	168069–168073 not yet delivered
168076–168077	E-2D	Northrop Grumman	Not yet delivered
168078–168203	MH-60R	Sikorsky	Not yet delivered
168204–168209	UC-12W	Hawker Beechcraft	168208, 168209 not yet delivered
168210–168213	MQ-8B	Northrop Grumman/ Schweizer Aircraft	Not yet delivered
168214–168244	MV-22B	Bell/Boeing	Not yet delivered
168245–168249	UH-72A	EADS North America	
168250–168259	EA-18G	Boeing	
198003	QF-86F	North American	
201569–201570	YF-17	Northrop	From Air Force
201970	UH-1B	Bell	From Army
210904	C-45H	Beech	
212515	UH-1B	Bell	From Army
212518	UH-1B	Bell	From Army
212522	UH-1B	Bell	From Army
212541–212543	UH-1B	Bell	From Army
212546	UH-1B	Bell	From Army
212549	UH-1B	Bell	From Army
212574–212575	CH-3B/SH-3H	Sikorsky	From Air Force

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
221252–221253	OH-58A	Bell	
302801	U-6A/L-20A	DeHavilland	
312908	UH-1B	Bell	From Army
312922–312923	UH-1B	Bell	From Army
312929–312931	UH-1B	Bell	From Army
312944	UH-1B	Bell	From Army
313119	OV-1A	Grumman	From Army
313128	OV-1A	Grumman	From Army
313134	OV-1A	Grumman	From Army
313988	UH-1B	Bell	From Army
349218	JC-47D	Douglas	From Army
364651	US-2E	Grumman	
413540	UH-1H	Bell	From Army
413584	UH-1D	Bell	From Army
413632	UH-1D	Bell	From Army
413646	UH-1D	Bell	From Army
413675	UH-1D	Bell	From Army
413691	UH-1H	Bell	From Army
413758	UH-1H	Bell	From Army
413765	UH-1D	Bell	From Army
413827	UH-1D	Bell	From Army
413869	UH-1D	Bell	From Army
413872	UH-1D	Bell	From Army
413901	UH-1H	Bell	
413903	UH-1B	Bell	From Army
413911	UH-1B	Bell	From Army
413919	UH-1B	Bell	From Army
413924	UH-1B	Bell	From Army
413939	UH-1B	Bell	From Army
413940	UH-1B	Bell	From Army
413942	UH-1B	Bell	From Army
413943	UH-1B	Bell	From Army
413948–413949	UH-1B	Bell	From Army
413952	UH-1B	Bell	From Army
413956	UH-1B	Bell	From Army
413958	UH-1B	Bell	From Army
413969	UH-1B	Bell	From Army
413975	UH-1B	Bell	From Army
413980	UH-1B	Bell	From Army
413982	UH-1B	Bell	From Army
413985	UH-1B	Bell	From Army
413989–413990	UH-1B	Bell	From Army
414001	UH-1B	Bell	From Army
414003	UH-1B	Bell	From Army
414007	UH-1B	Bell	From Army
414013	UH-1B	Bell	From Army

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
414020	UH-1B	Bell	From Army
414022	UH-1B	Bell	From Army
414031	UH-1B	Bell	From Army
414033	UH-1B	Bell	From Army
414036	UH-1B	Bell	From Army
414040	UH-1B	Bell	From Army
414070	UH-1B	Bell	From Army
414076	UH-1B	Bell	From Army
414081	UH-1B	Bell	From Army
414083–414084	UH-1B	Bell	From Army
414087	UH-1B	Bell	From Army
414090–414091	UH-1B	Bell	From Army
414117	UH-1M	Bell	From Army
414145	UH-1C	Bell	From Army
414235	CH-3E	Sikorsky	From Army
414243	OV-1B	Grumman	From Army
414262	OV-1B	Grumman	From Army
459186	NUH-57A	Bell	
510052	UH-1H	Bell	From Army
510054	UH-1D	Bell	From Army
510072	UH-1D	Bell	From Army
510077	UH-1D	Bell	From Army
510085	UH-1D	Bell	From Army
510104	UH-1H	Bell	From Army
510129	UH-1H	Bell	From Army
510327	T-38A	Northrop	From Army
511230	O-1A	Cessna	From Army
511696	O-1A	Cessna	From Army
512686	T-42A	Beech	
512694	T-42A	Beech	
512776	UH-1D	Bell	From Army
512868	UH-1D	Bell	From Army
512873	UH-1H	Bell	From Army
512876	UH-1D	Bell	From Army
512887	UH-1D	Bell	From Army
513278	QF-86F	North American	
513786	YAT-28E	North American	From Army
513788	YAT-28E	North American	From Army
513802	T-29B	Convair	From Army
514651	O-1A	Cessna	Not accepted
515117	T-29B	Convair	From Army
515124	T-29B	Convair	From Army
515129	T-29B	Convair	From Army
515145	T-29B	Convair	From Army
515165–515166	T-29B	Convair	From Army
517895	T-29B	Convair	From Army

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
517906	T-29B	Convair	From Army
517908	T-29B	Convair	From Army
521118–521119	T-29C	Convair	From Air Force
521160	T-29C	Convair	From Air Force
521162	T-29C	Convair	From Air Force
521167	T-29C	Convair	From Air Force
521175	T-29C	Convair	From Air Force
522090–522091	F-86H/QF-86H	North American	
522094	QF-86H	North American	
522097–522099	F-86H/QF-86H	North American	From Air Force
522116	QF-86H	North American	
522122	QF-86H	North American	
523732	F-86H	North American	
523744	F-86H	North American	
524100	EB-47E	Boeing	
524120	EB-47E	Boeing	
524450	QF-86F	North American	
524647	QF-86F	North American	
525123	U-6A (L-20A)	DeHavilland	
525732	QF-86H	North American	
525736	QF-86H	North American	
525744	QF-86H	North American	
525746	QF-86H	North American	
525747	F-86H	North American	From Air Force
526123	U-6A (L-20A)	DeHavilland	
528176	U-3A	Cessna	
531279	F-86H	North American	
531294	QF-86H	North American	From Air Force
531314	QF-86H	North American	From Air Force
531322	F-86H	North American	From Air Force
531328	QF-86H/F-86H	North American	
531331	F-86H	North American	
531335	QF-86H	North American	
531351	QQF-86H	North American	
531373	F-86H	North American	From Air Force
531381	QF-86H	North American	
531383	QF-86H	North American	
531402	F-86H	North American	
531403	QF-86H	North American	
531406	F-86H	North American	
531408–531409	QF-86H	North American	
531413	QF-86H	North American	
531514	QF-86H	North American	
531521	QF-86H	North American	
531527	F-86H	North American	
532104	NB-47E	Boeing	From Air Force

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
532104	YOV-1	Grumman	Duplicate number, from Air Force
533227–533228	C-118B	Douglas	
533257	C-118B	Douglas	
533279	C-118B	Douglas	
533291	C-118B	Douglas	
533461	T-29C	Convair	From Air Force
533477	T-29C	Convair	From Air Force
540172	U-6A (L-20A)	DeHavilland	From Army
541720	U-6A (L-20A)	DeHavilland	
542815	C-131H	Convair	From Air Force
542817	C-131H	Convair	From Air Force
550229	C-131H	Convair	From Air Force
552112	QF-86F	North American	
552792	QF-86F	North American	
553134	NKC-135A	Boeing	
553465	U-8G	Beech	From Army
553822–553823	QF-86F	North American	
553829	QF-86F	North American	
553838	QF-86F	North American	
553846	QF-86F	North American	From Air Force
553863–553865	QF-86F	North American	
553868	QF-86F	North American	
553875	QF-86F	North American	
553878	QF-86F	North American	
553881–553883	QF-86F	North American	
553895	QF-86F	North American	
553898	QF-86F	North American	
553900	QF-86F	North American	
553902–553903	QF-86F	North American	
553905–553906	QF-86F	North American	
553912–553913	QF-86F	North American	
553915	QF-86F	North American	
553919	QF-86F	North American	
553926	QF-86F	North American	
553932	QF-86F	North American	
553935–553936	QF-86F	North American	
553939	QF-86F	North American	From Air Force
553942	QF-86F	North American	
553945	QF-86F	North American	
553948	QF-86F	North American	
555017	QF-86F	North American	
555048	QF-86F	North American	
555052–555053	QF-86F	North American	
555057	QF-86F	North American	
555069	QF-86F	North American	
555072–555073	QF-86F	North American	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
555078	QF-86F	North American	
555082	QF-86F	North American	
555087	QF-86F	North American	
555091	QF-86F	North American	
555095	QF-86F	North American	
555097–555099	QF-86F	North American	
555101–555102	QF-86F	North American	
555105	QF-86F	North American	
555110	QF-86F	North American	
555111–555112	QF-86F	North American	From Air Force
555114	QF-86F	North American	
555890	QF-86F	North American	
556412	QF-86F	North American	
559118	C-9B	McDonnell Douglas	
560514	DC-130A	Lockheed	
560527	DC-130A	Lockheed	
562782–562784	QF-86F	North American	
562786–562787	QF-86F	North American	
562795	QF-86F	North American	
562797	QF-86F	North American	
562801	QF-86F	North American	
562804	QF-86F	North American	
562807	QF-86F	North American	
562811	QF-86F	North American	
562813–562815	QF-86F	North American	
562818–562819	QF-86F	North American	
562823	QF-86F	North American	
562825–562827	QF-86F	North American	
562829–562831	QF-86F	North American	
562836–562838	QF-86F	North American	562836 from Air Force
562840	QF-86F	North American	
562842	QF-86F	North American	
562845–562846	QF-86F	North American	
562848–562849	QF-86F	North American	
562852	QF-86F	North American	
562855	QF-86F	North American	
562858	QF-86F	North American	
562865	QF-86F	North American	
562874–562875	QF-86F	North American	
562884	QF-86F	North American	
562896	QF-86F	North American	
563596	NKC-135A	Boeing	
564039	U-8G	Beech	From Army
564044	U-8G	Beech	From Army
565103	QF-86F	North American	
566781	QF-86F	North American	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
570461	DC-130A	Lockheed	
570496–570497	DC-130A	Lockheed	
570564	QT-33A	Lockheed	
570738	T-33	Lockheed	Cancelled
570758	T-33	Lockheed	Cancelled
573092	U-8G	Beech	From Army
575736	F-86H	North American	
575849	U-3A	Cessna	From Army
575891	U-3A	Cessna	From Air Force
575916	U-3A	Cessna	
576085	U-8G	Beech	From Army
576089	U-8G	Beech	From Army
576183–576184	U-9D	Aero Commander	From Army
576346	QF-86F	North American	
576352	QF-86F	North American	From Army
576363	QF-86F	North American	
576384	QF-86F	North American	
576388	QF-86F	North American	
576404	QF-86F	North American	
576414	QF-86F	North American	
576420	QF-86F	North American	
576422	QF-86F	North American	
576424–576425	QF-86F	North American	
576435–576436	QF-86F	North American	
576438	QF-86F	North American	
576440	QF-86F	North American	
576442	QF-86F	North American	
576444–576445	QF-86F	North American	
576447	QF-86F	North American	
576449–576450	QF-86F	North American	
576459	QF-86F	North American	
576538	OV-1A	Grumman	From Army
576539	YOV-1A	Grumman	From Army
577380	QT-33A	Lockheed	From Air Force
577580	QT-33A	Lockheed	From Air Force
580659	T-33	Lockheed	Cancelled
581194–581195	QT-38A	Lockheed	From Air Force
581339	U-8G	Beech	
581357	U-8G	Beech	From Army
581360	U-8G	Beech	From Army
581363	U-8G	Beech	From Army
582111	U-3A	Cessna	From Air Force
582123	U-3A	Cessna	From Air Force
582131	U-3A	Cessna	From Army
582176	U-3A	Cessna	From Air Force
583055	U-8G	Beech	From Army

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
583057	U-8G	Beech	From Army
583062	U-8G	Beech	From Army
583091	U-8D	Beech	From Army
586580	QT-33A	Lockheed	From Air Force
586750	QT-33A	Lockheed	From Air Force
591594–591597	QT-38A	Lockheed	
591598	QF-86F	North American	
591600	QT-38A	Lockheed	
591603–591604	T-38A	Lockheed	
592536–592538	U-8G	Beech	From Army
592625	OV-1B	Grumman	
592637	OV-1B	Grumman	
594971	NOH-13K	Bell	From Army
594990	U-8G	Beech	From Army
600540	UH-1C	Bell	From Army
600546	UH-1M	Bell	From Army
600582	T-38A	Lockheed	From Air Force
600610	UH-1C	Bell	From Army
603560	UH-1B	Bell	From Army
603594	UH-1B	Bell	From Army
603741	OV-1A	Grumman	From Army
603747	OV-1C	Grumman	From Army
606047	U-3B	Cessna	From Army
606068	U-3B	Cessna	From Army
610541	CT-39A	N. A. Rockwell	
610654	CT-39A	N. A. Rockwell	From Air Force
610760	UH-1B	Bell	From Army
610851	T-38A	Lockheed	From Air Force
610855	T-38A	Lockheed	From Air Force
610882	T-38A	Lockheed	From Air Force
610889	T-38A	Lockheed	
610904	T-38B	Lockheed	
610913	T-38A	Lockheed	From Air Force
610918	T-38A	Lockheed	From Air Force
610929	T-38A	Lockheed	From Air Force
613291	CH-3E	Sikorsky	From Air Force
613296	CH-3E	Sikorsky	From Air Force
613552	OV-10A	North American	From Army
615017	UH-1M	Bell	From Army
615076–615077	UH-1M	Bell	From Army
615111	UH-1M	Bell	From Army
615200	UH-1M	Bell	From Army
615217	UH-1M	Bell	From Army
615236	UH-1M	Bell	From Army
616912	UH-1H	Bell	
621881–621882	UH-1B	Bell	From Army

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
621912	UH-1B	Bell	From Army
621918	UH-1B	Bell	From Army
621935–621936	UH-1B	Bell	From Army
621957	UH-1B	Bell	From Army
621970	UH-1B	Bell	From Army
621984–621985	UH-1B	Bell	From Army
622007	UH-1B	Bell	From Army
622025	UH-1B	Bell	From Army
622029	UH-1B	Bell	From Army
622031	UH-1B	Bell	From Army
622034	UH-1B	Bell	From Army
622038	UH-1B	Bell	From Army
622040	UH-1B	Bell	From Army
622043	UH-1B	Bell	From Army
622048	UH-1B	Bell	From Army
622057–622058	UH-1B	Bell	From Army
622060	UH-1B	Bell	From Army
622075	UH-1B	Bell	From Army
622590	UH-1B	Bell	From Army
622602	UH-1B	Bell	From Army
624216	YOH-6A	Hughes	From Army
624567	UH-1B	Bell	From Army
624571–624572	UH-1B	Bell	From Army
624578–624579	UH-1B	Bell	From Army
624581–624584	UH-1B	Bell	From Army
624590	UH-1B	Bell	From Army
624594	UH-1B	Bell	From Army
624597	UH-1B	Bell	From Army
624602	UH-1B	Bell	From Army
624604	UH-1B	Bell	From Army
624897	UH-1B	Bell	From Army
625866	OV-1B	Grumman	From Air Force
625896	OV-1B	Grumman	
627469–627470	QF-86F	North American	From Air Force
627479	QF-86F	North American	
628712	UH-1B	Bell	From Army
628738	UH-1B	Bell	From Army
631034	UH-1B	Bell	From Army
638200	T-38A	Lockheed	
638501	UH-1B	Bell	From Army
638507	UH-1B	Bell	From Army
638521	UH-1B	Bell	From Army
638524	UH-1B	Bell	From Army
638540	UH-1B	Bell	From Army
638544–638545	UH-1B	Bell	From Army
638547	UH-1B	Bell	From Army

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
638553–638554	UH-1B	Bell	From Army
638561–638562	UH-1B	Bell	From Army
638568	UH-1B	Bell	From Army
638572	UH-1B	Bell	From Army
638587	UH-1B	Bell	From Army
638589	UN-1B	Bell	From Army
638602–638603	UH-1B	Bell	From Army
638607	UH-1B	Bell	From Army
638610	UH-1B	Bell	From Army
638614	UH-1B	Bell	From Army
638643	UH-1B	Bell	From Army
638646	UH-1B	Bell	From Army
638650	UH-1B	Bell	From Army
638664	UH-1B	Bell	From Army
638666	UH-1B	Bell	From Army
638672	UH-1B	Bell	From Army
638678–638680	UH-1B	Bell	From Army
638682–638683	UH-1B	Bell	From Army
638685	UH-1B	Bell	From Army
638687	UH-1B	Bell	From Army
638694	UH-1B	Bell	From Army
638711	UH-1B	Bell	From Army
638715	UH-1B	Bell	From Army
638727	UH-1B	Bell	From Army
638738	UH-1B	Bell	From Army
643816	UH-1D	Bell	From Army
650644	F-4D	McDonnell Douglas	From Army
650979	NC-130H	Lockheed Martin	
652000	HH-65A	Aerospatiale	
652500	HH-65A	Aerospatiale	
652707	T-42A	Beech	
652728	T-42A	Beech	
652800	HH-65A	Aerospatiale	
652967	OH-6B	Hughes	
653300	HH-65A	Aerospatiale	
654500	HH-65A	Aerospatiale	
655698	CH-3E	Sikorsky	
659423	UH-1M	Bell	From Army
659476	UH-1C	Bell	From Army
659548	UH-1M	Bell	From Army
659572	UH-1D	Bell	
659598	UH-1D	Bell	From Army
659609	UH-1H	Bell	
659613–659614	UH-1D	Bell	From Army
659621	UH-1D	Bell	From Army
659632	UH-1D	Bell	From Army

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
659644	UH-1D	Bell	From Army
659646	UH-1H	Bell	
659662	UH-1D	Bell	From Army
659671	UH-1D	Bell	From Army
659685	UH-1D	Bell	From Army
659715	UH-1D	Bell	From Army
659735–659736	UH-1D	Bell	From Army
659739–659740	UH-1D	Bell	From Army
659777	UH-1D	Bell	From Army
659820	UH-1D	Bell	From Army
659823	UH-1D	Bell	From Army
659834	UH-1D	Bell	From Army
659853	UH-1D	Bell	From Army
659856	UH-1D	Bell	From Army
659859	UH-1D	Bell	From Army
659902	UH-1H	Bell	From Army
659945	UH-1D	Bell	From Army
659947	UH-1D	Bell	From Army
659977	UH-1D	Bell	From Army
660000	U-21A	Beech	
661012	UH-1D	Bell	From Army
661250	TH-1F	Bell	From Air Force
661534	AH-1S	Bell	From Army
664307	T-42A	Beech	
666535	UH-1M	Bell	From Army
666599	UH-1M	Bell	From Army
666655	UH-1M	Bell	From Army
666691	UH-1M	Bell	
668004	U-21A	Beech	
674623	OV-10A	North American	
674626	OV-10A	North American	
674652	OV-10A	North American	
676427	OH-6A	Hughes	
676649	OH-6A	Hughes	
678096	U-21A	Beech	
683796	OV-10A	North American	
683799	OV-10A	North American	
683809	OV-10A	North American	
686958	OH-58C	Bell	From other military service
687333	OH-6B	Hughes	
691643	AH-1S	Bell	From Army
696040–696041	OH-6B	Hughes	From Army
696044	OH-6B	Hughes	
696061	OH-6B	Hughes	From Army
696160	OH-58C	Bell	From other military service
696189	OH-58C	Bell	From other military service

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
701523	OH-58A	Bell	From Army
701553	OH-58A	Bell	From Army
710376	OH-58C	Bell	From other military service
710388	OH-58A	Bell	
710554	OH-58A	Bell	
710799	OH-58A	Bell	
712098	AH-1S	Bell	From Army
712103	AH-1S	Bell	From Army
714584	YA-7D	LTV	From Air Force
714704	CH-3E	Sikorsky	
714707	CH-3E	Sikorsky	
715106	T-41B	Grumman	From Army
715123	T-41B	Grumman	From Army
715132	T-41B	Grumman	From Army
715184	T-41B	Grumman	From Army
715218–715219	T-41B	Grumman	
715225	T-41B	Grumman	From Army
715345–715346	X-26B	Schweizer	Modified by Lockheed, from Army
715850	AH-1G	Bell	From Army
721193	OH-58A	Bell	
721300	O-2A	Cessna	From Air Force
721310	O-2A	Cessna	
721318	O-2A	Cessna	From Air Force
721349	O-2A	Cessna	From Air Force
721365	O-2A	Cessna	From Air Force
721387	F-5E	Northrop	
721404	O-2A	Cessna	From Air Force
721414	O-2A	Cessna	From Air Force
722716	UH-60A	Sikorsky	
722725	UH-60A	Sikorsky	
722791–722792	AH-1S	Bell	From Army
727709	QF-86F	North American	
727711	QF-86F	North American	
730855	F-5E	Northrop	
730865	F-5E	Northrop	
730879	F-5E	Northrop	
730881	F-5E	Northrop	
730885	F-5E	Northrop	
731635	F-5E	Northrop	
741519	F-5E	Northrop	
741528–741531	F-5E	Northrop	
741536–741537	F-5E	Northrop	
741539–741541	F-5E	Northrop	
741544–741545	F-5E	Northrop	
741547	F-5E	Northrop	
741554	F-5E	Northrop	

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
741556	F-5E	Northrop	
741558	F-5E	Northrop	
741563–741564	F-5E	Northrop	
741568	F-5E	Northrop	
741570	F-5E	Northrop	
741572	F-5E	Northrop	
741635	F-5E	Northrop	
760086	X-26A	Schweizer	
761551	F-5N	Northrop	
761589	F-5N	Northrop	
762256	UV-18A	De Havilland	From Air National Guard
815037–815039	AH-1G	Bell	From Army
815045–815046	AH-1G	Bell	From Army
815072–815073	AH-1G	Bell	From Army
815074–815078	AH-1G	Bell	Not accepted
815079–815080	AH-1G	Bell	From Army
815081–815084	AH-1G	Bell	Not accepted
815085	AH-1G	Bell	From Army
815086–815103	AH-1G	Bell	Not accepted
815104–815105	AH-1G	Bell	From Army
815106–815111	AH-1G	Bell	Not accepted
815112–815113	AH-1G	Bell	From Army
815134	AH-1G	Bell	From Army
815140	AH-1G	Bell	From Army
815165	AH-1G	Bell	From Army
815170	AH-1G	Bell	From Army
815176	AH-1G	Bell	From Army
815190	AH-1G	Bell	From Army
815194	AH-1G	Bell	From Army
815198	AH-1G	Bell	From Army
815213	AH-1G	Bell	From Army
816695	OH-58A	Bell	From Army
816797	OH-58A	Bell	From Army
817023	AH-1G	Bell	From Army
817027	AH-1G	Bell	From Army
817041	AH-1G	Bell	From Army
817045	AH-1G	Bell	From Army
817049	AH-1G	Bell	From Army
817062	AH-1G	Bell	From Army
817066	AH-1G	Bell	From Army
817070	AH-1G	Bell	From Army
817082	AH-1G	Bell	From Army
817086	AH-1G	Bell	From Army
817090	AH-1G	Bell	From Army
817101	AH-1G	Bell	From Army
817105	AH-1G	Bell	From Army

Bureau Number	Aircraft Type	Manufacturer	Miscellaneous Notes
817108	AH-1G	Bell	From Army
823507	UH-60A	Sikorsky	From Army
827806	QF-86F	North American	
827837	QF-86F	North American	From Air Force
827852	QF-86F	North American	
840456	F-5F	Northrop	
842402	UH-60L	Sikorsky	
870157	NC-130H	Lockheed	
872466–872467	UH-60L	Sikorsky	
891038	TH-57C	Bell	
900528	C-26B	Fairchild	From other military service
900530–900531	C-26B	Fairchild	From other military service
900942–900943	F-16A	General Dynamics	
910502	C-26B	Fairchild	From other military service
910512	C-26B	Fairchild	From other military service
910514	C-26B	Fairchild	From other military service
920378	C-26B	Fairchild	From other military service
966673	UH-60L/YCH-60	Sikorsky	From Army
999703	F-21A	IAI	From Israel
999705	F-21A	IAI	From Israel
999708–999710	F-21A	IAI	From Israel
999716	F-21A	IAI	From Israel
999724–999728	F-21A	IAI	From Israel
999731–999732	F-21A	IAI	From Israel
999734–999735	F-21A	IAI	From Israel
999739	F-21A	IAI	From Israel
999742	F-21A	IAI	From Israel
999747	F-21A	IAI	From Israel
999749–999750	F-21A	IAI	From Israel
999764	F-21A	IAI	From Israel
999786–999787	F-21A	IAI	From Israel
999791	F-21A	IAI	From Israel
999794	F-21A	IAI	From Israel

* Originally XF12C-1, was redesignated XS4C-1 and then XSBC-1. XSBC-1 crashed during contractor's trials and was replaced by XSBC-2, which was converted to XSBC-3.

† Serial 9222 was replaced by new air frame as XSBU-1, 9222. Old 9222 was acquired as 9746.

‡ Variously modified to PBM-3C, -3R and -3S; 6456 reported as XPBM-3 or PBM-3R; 6656 as PBM-3D modified from PBM-3C; and 6693 as experimental PBM-3S although designated PBM-3C.

Chapter 8

History of the Naval Aviator and Designations and Numbers

The evolution of the programs and policies regarding the designation of naval aviators and naval aviation pilots is one of confusion, ambiguities, inadequate centralized administration of recordkeeping, and inconsistencies in the implementation of a new and young aviation organization into the Navy. During the early period, divergent views on aviation within the Navy and the onset of WWI brought a great influx of new people, programs, policies, aircraft, and air stations into the fledgling naval aviation community. When the United States entered WWI, naval aviation consisted of one operating air station, 48 aviators and student aviators, and 54 aircraft on hand. It was ill-equipped to handle the huge growth precipitated by the United States' entry into the war.

Background on the Evolution of Naval Aviators

The Navy's aviation program had an aviator before it acquired its first aircraft. Lt. Theodore G. Ellyson was ordered to training in December 1910 at the Glenn Curtiss aviation camp in San Diego, Calif. The Navy received its first aircraft from the Curtiss Company the following July. Flight instruction at that time was informal and remained so during the next couple of years.

Ellyson, a student pilot, became a pilot when Glenn H. Curtiss agreed he could fly airplanes. Subsequently, Ellyson taught John H. Towers, another student pilot, to fly. In addition to flying, however, students also had to become totally familiar with the mechanics of their machines and to be able to repair and rebuild aircraft. Formality arrived when Capt. Washington I. Chambers, the Navy's first Director of Naval Aeronautics, declared that the requirements for becoming a Navy pilot were to follow the same rules employed by the Aero Club of America (the American chapter of the Fédération Aéronautique Internationale). Prior to the Navy establishing these standards, some Navy flyers held pilot certificates from the Aero Club.

The Naval Appropriations Act for fiscal year 1914 formally recognized officers assigned to the "aviation element" of the Navy and who qualified as pilots for their duty as flyers on 4 March 1913. The act provided an increase of 35 percent in pay and allowances for officers detailed to duty as flyers of heavier-than-air craft. On 10 April 1913 Secretary of the Navy Josephus Daniels approved performance standards for qualification and the issuance of a certificate as a "Navy Air Pilot" to qualified officers.

Capt. Chambers had requested the certificate in a letter to the Chief of Bureau of Navigation (BuNav) on 4 April 1913, which stated, "The requirements for a Navy Air Pilot are different from those of the land pilot and are purposely made more exacting than those of the 'license' issued by the International Aeronautical Federation." To receive a Navy Air Pilot certificate officers had to pass an advanced training course and become highly skilled as flyers or pass an examination by a board of qualified officers. The Bureau of Navigation was responsible for issuing the certificates, however, because of administrative problems the issuance was subject to a delay of almost two years from the date that Secretary Daniels approved issuing a Navy Air Pilot certificate.

Although performance standards for qualification as Navy Air Pilots were established in April 1913, it was not until a year later (22 April 1914) that the Bureau of Navigation, which was responsible for all Navy training, approved a course of instruction for student flyers and aviation mechanics, because of delays by the bureau in establishing aviation programs and policies. On 9 January 1915 Rear Adm. Bradley A. Fiske, Aide for Operations and a member of the Joint Board, pointed out to the Bureau of Navigation that unless they recognized some officers as qualified and awarded them certificates, no board of experts could be appointed to examine the qualifications of new applicants. He recommended that Navy Air Pilot certificates be issued to Theodore G. Ellyson, John H. Towers, Henry C. Mustin, Patrick N. L. Bellinger, Victor D. Herbster, Bernard L. Smith, and Godfrey de C. Chevalier, and that they be numbered 1 through 7 and dated sequentially, one per month, from 1 January 1914 for Ellyson to 1 July 1914 for Chevalier.

The Bureau of Navigation followed up on Rear Adm. Fiske's recommendation and, in accordance with what the Secretary of the Navy had approved almost two years before, sent out letters on 21 January 1915 forwarding Navy Air Pilot Certificates to these seven officers, numbering and dating them as the admiral had recommended. The Bureau of Navigation and NAS Pensacola, Fla., however, continued to follow the procedure of identifying those students

completing the elementary flight course at Pensacola as "Naval Aviators" to differentiate them from pilots who had completed the advanced course of requirements and qualified as Navy Air Pilots.

Before the Bureau of Navigation could continue its follow up work and issue more Navy Air Pilot Certificates, Congress revised the law on flight pay, and, in a new bill approved 3 March 1915, used the term "Naval Aviator" in specifying those eligible for flight pay. This bill, the Naval Appropriations Act of fiscal year 1916, added enlisted men and student aviators to those eligible for increased pay and allowances while on duty involving flying. It also increased the amount previously provided for qualified aviators. The language of the act provided "flight pay" only for "Naval Aviators," those fliers completing the elementary flight course at Pensacola. It did not cover those who had qualified as the best pilots and received a Navy Air Pilot certificate. Hence, on 22 March 1915, in order to include those pilots designated Navy Air Pilots, a change was made to the Secretary of the Navy's performance standards certificate whereby the designation "Navy Air Pilot" was changed to "Naval Aviator." This was the beginning of the primary emphasis being placed on the designation of Naval Aviator. However, the Navy continued to make references to Navy Air Pilots. In March and April 1915, qualified aviation boards, appointed to give exams at Pensacola, recommended designation of five men as follows: Richard C. Saufley for a Naval Aviator Certificate dated 6 March, William M. McIlvain for a Navy Air Pilot Certificate dated 10 March, Clarence K. Bronson for orders dated 6 April with the designation Navy Air Pilot, Kenneth Whiting and Holden C. Richardson for Naval Aviator Certificates dated 10 and 12 April. The reason for the different use of Naval Aviator and Navy Air Pilot terminology is not known, but the recommendations were approved with a modification as reported by the Bureau of Navigation on 25 May 1915, that all five men had been issued Navy Air Pilot Certificates, numbers 8 through 12. The use of the Navy Air Pilot Certificate and designation continued even after the Secretary of the Navy issued his order to change the designation to Naval Aviator.

Confusion over the issue of Naval Aviator or Navy Air Pilot designations continued within Navy organizations. On 5 May 1915 the Secretary of the Navy informed Whiting: "You are hereby designated as a Naval Aviator for duty involving flying in aircraft, including balloons, dirigibles and airplanes, in accordance with an Act of Congress approved March 3, 1915." The conflict or confusion seems to be in terminology. It was the opinion at that time that an official statement from the Bureau of Navigation was legally necessary for an individual on flying duty (necessary only in the sense of receiving extra pay while assigned to a job involving actual flying in an aircraft) and that the "Certificates" were only evidence of qualification as an aviator. Thus, on 21 May 1915, the Secretary of the Navy signed a circular letter directing that commanding officers "issue orders detailing officers of the Navy and Marine Corps to Duty as Naval Aviators or Student Naval Aviators when they are required to actually fly or operate these machines." Therefore, regardless of the title on the "Certificates," these orders used the title associated with the Naval Appropriations Act, fiscal year 1916.

In January 1916 the Bureau of Navigation issued its "Course of Instructions and Required Qualifications of Personnel for the Air Service of the Navy." This syllabus mentions 11 classifications for personnel assigned to aeronautic duty. For officers they include: Student Naval Aviator; Naval Aviator; Navy Air Pilot, aeroplane; Navy Air Pilot, dirigible; and Military Aviator. The remaining groups were for enlisted personnel classifications. One of the major reasons for the confusion regarding designations was the existence of several different organizations within the Navy that were making policy decisions on naval aviation without adequately coordinating terminology or standardizing applications. Terminology was used for different purposes, such as identifying an individual qualified to pilot an aircraft and, for pay purposes, identifying an individual involved in flight but not necessarily as the pilot.

On 1 May 1917 a new course of instruction was presented as a revision without specifying what it revised, although it must have taken the place of the course dated January 1916. The new course stated that officers detailed to aeronautic duty would be classed as Student Naval Aviator, Naval Aviator, and Navy Air Pilot, either for seaplanes or dirigibles. Completion of the course of instruction for Student Naval Aviator (seaplane) qualified the student for advancement to elementary and solo flying. Upon completion of that stage the student took the exam for Naval Aviator (seaplane) and was then eligible for what appears to be the advanced course. For this course the instruction stated: "Upon successful completion of the examination the Naval Aviator (seaplane) will be designated Navy Air Pilot (seaplane) and issued a certificate numbered according to his standing in the class with which he qualified as a Navy Air Pilot (seaplane)." A revision to the May 1917 course of instruction was issued 1 January 1918, and the term Navy Air Pilot was not mentioned. In this revision, officers and men detailed for pilot duty were classed as student Naval Aviators and Naval Aviators, seaplane or dirigible. By this time the United States was fully engaged in WWI, the naval aviation training program had expanded, and the question of title finally seemed to be settled. It took almost three years, from 22 March 1915, when the SecNav order was issued to change Navy Air Pilot to Naval Aviator, to January 1918, before the terminology Navy Air Pilot was dropped from instructions issued by the Navy.

Designation List of Naval Aviators

Confusion in the designation list of naval aviators seems to have been tied with the precedence for the designation date of a naval aviator and its connection with the adoption of the gold wings insignia (naval aviator wings). A 13 November 1917 Bureau of Navigation letter states, "The Bureau is now compiling a list of all officers and men who are qualified as Naval Aviators, in order that new pins may be delivered as shortly after they are received from the manufacturers as possible." This is followed by a Bureau of Navigation report to Pensacola, Fla., stating, "The new Naval Aviator's pins have been delivered to the Bureau of Navigation and they will be sent out as soon as they can be engraved to show the Aviator's number, his name and branch of service." (See Chapter 9 for an explanation of the design and evolution of Naval Aviator Wings.)

There is some question as to whether BUNAV produced a list of naval aviators at this time. However, the CNO's Aviation Office had a listing of 282 numbers that was forwarded to BUNAV under a letter dated 19 January 1918 with the following:

1. Enclosure (a) is a list of qualified Naval Aviators given in numerical sequence.
2. This list was compiled after careful examination of all the records of this office and numbers assigned according to the date of qualification as Naval Aviator in all cases where such date is shown by the records; but due to the fact that those officers of the regular service who were the first to enter aviation were not required to take a Naval Aviator's test but were merely designated 'Naval Aviator' or 'Navy Air Pilot' because of their recognized qualification as such, the numbers assigned in such cases were determined by the date upon which they were ordered to aviation duty and the length of such duty, full consideration being given each and every individual case so affected.
3. Additions to the attached list will be forwarded to the Bureau from time to time and as rapidly as the students now under instruction pass the necessary test for qualification as Naval Aviators.

The following list, except for the omission of fractional numbers and the differences in two names, is accepted as the precedence list of early naval aviators.

Naval Aviator Number (Navy Air Pilot Number)	Name	Service
1 (1)	Ellyson, Theodore G.	USN
2	Rodgers, John	USN
3 (2)	Towers, John H.	USN
4 (5)	Herbster, Victor D.	USN
5 (14)	Cunningham, Alfred A.	USMC
6 (6)	Smith, Bernard L.	USMC
7 (7)	Chevalier, Godfrey de C.	USN
8 (4)	Bellinger, Patrick N. L.	USN
9	Billingsley, William D.	USN
10	Murray, James M.	USN
11 (3)	Mustin, Henry C.	USN
12 (9)	McIlvain, William M.	USMC
13 (12)	Richardson, Holden C.	USN
14 (8)	Saufley, Richard C.	USN
15 (10)	Bronson, Clarence K.	USN
16 (11)	Whiting, Kenneth	USN
17 (13)	Maxfield, Louis H.	USN
18	McDonnell, Edward O.	USN
19	Capehart, Wadleigh	USN
20	Spencer, Earl W., Jr.	USN
21	Bartlett, Harold T.	USN

Naval Aviator Number	Name	Service
22	Murray, George D.	USN
23	Corry, William M.	USN
24	Read, Albert C.	USN
25	Johnson, Earle F.	USN
26	Evans, Francis T.	USMC
27	Paunack, Robert R.	USN
28	Scofield, Harold W.	USN
29	Child, Warren G.	USN
30	Dichman, Grattan C.	USN
31	Young, Robert T.	USN
32	Gillespie, George S.	USN
33	Mitscher, Marc A.	USN
34	Strickland, Glenn B.	USN
35	Monfort, James C.	USN
36	Cabaniss, Robert W.	USN
37	Chase, Nathan B.	USN
38	Stone, Elmer F.	USCG
39	McKitterick, Edward H.	USN
40	Leighton, Bruce G.	USN
41	Griffin, Virgil C.	USN
42	Cecil, Henry B.	USN
43	Sugden, Charles E.	USCG
44	Bressman, Augustus A.	USN
45	Ramsey, DeWitt C.	USN
46	Hull, Carl T.	USN
47	Peyton, Paul J.	USN
48	Kirkpatrick, Robert D.	USN
49	Geiger, Roy S.	USMC
50	Bonner, Walter D.	USN
51	Murphy, Thomas H.	USN
52	Mason, Charles P.	USN
52 ½	Salsman, James	USN
53	Simpson, Frank, Jr.	National Naval Volunteer (NNV)
54	Donahue, Robert	USCG
55	Brewster, David L. S.	USMC
55 ½	Sunderman, John T.	USN
56	Barin, Louis T.	NNV
57	Parker, Stanley V.	USCG
58	Masek, William	USN
59	Coffin, Eugene A.	USCG
60	Eaton, Phillip B.	USCG
61	Enos, George	USN
62	Varini, Giochino	USN
63	Hawkins, Clarence A.	USN
64	Ruttan, Charles E.	USN
65	Gates, Artemus L.	U.S. Naval Reserve Force (USNRF)

Naval Aviator Number	Name	Service
65 ½	Laud-Brown, Wellesley	USNRF
66	Lovett, Robert A.	USNRF
67	Ames, Allan W.	USNRF
68	Gould, Erl C. B.	USNRF
69	Walker, Guy A.	USN
70	Kilmer, Oliver P.	USN
71	Talbot, Peter	USN
72	Davison, Henry P.	USNRF
73	Vorys, John M.	USNRF
74	MacLeish, Kenneth A.	USNRF
75	Beach, Charles F.	USNRF
76	Farwell, John D.	USNRF
77	Sturtevant, Albert D.	USNRF
78	Read, Russell B.	USNRF
79	Brush, Graham M.	USNRF
80	James, Oliver B.	USNRF
81	Rockefeller, William	USNRF
82	McIlwaine, Archibald G.	USNRF
83	Read, Curtis S.	USNRF
83 ½	Gartz, Richard C.	USNRF
84	Ireland, Robert L.	USNRF
85	Ingalls, David S.	USNRF
86	Walker, Samuel S.	USNRF
87	Smith, Kenneth R.	USNRF
88	Lynch, Francis R. V.	USNRF
89	Lawrence, George F.	USNRF
89 ½	Merrill, Norman E.	NNV
90	McLaughlin, Guy	USN
91	McCrary, Frank R.	USN
92	Coombe, Reginald G.	USNRF
93	Landon, Henry H., Jr.	USNRF
94	Culbert, Frederic P.	USN
95	Feher, Anthony	USN
95a	Fitzsimon, Ricardo	Argentine Navy
95b	Pouchan, Ceferino M.	Argentine Navy
95c	Zar, Marcos A.	Argentine Navy
96	Coil, Emory W.	USN
96 ½	Chamberlain, Edmund G.	USMC
97	Strader, Ralph M.	USNRF
98	Talbot, Andrew B.	USNRF
99	Whitehouse, William P.	USNRF
100	Crompton, George	USNRF
100 ½	Pennoyer, Ralph G.	USN
100 ¾	Presley, Russell A.	USMC
101	Hamlen, Warner	USNRF
102	Little, Charles G.	USNRF

Naval Aviator Number	Name	Service
103	Brewer, Arthur D.	USNRF
104	Delano, Merrill P.	USNRF
104 ½	Kiely, Ralph	USN
105	Lansdowne, Zachary	USN
105 ½	Douglas, Gilbert W.	USNRF
106	Bell, Colley W.	USNRF
107	Chadwick, Noel	USNRF
108	Ditman, Albert J.	USNRF
109	Donnelly, Thorne	NNV
110	Carter, R. C.	USNRF
110 ½	Allen, Charles L.	USN
111	Stone, George W.	USN
111 ½	Bradford, Doyle	USNRF
112	Atwater, William B.	USNRF
112 ½	Webster, Clifford L.	USNRF
113	Fallon, Nugent	USNRF
114	Williams, Arthur S.	USNRF
115	Dietrich, Arthur F.	USN
116	Palmer, Carlton D.	USN
117	Murray, Cecil D.	USNRF
118	Taylor, Moseley	USNRF
119	Townsend, Richard S.	USNRF
120	Walton, Mark W.	USNRF
121	Depew, Ganson G.	USNRF
122	Goodyear, Frank	USNRF
123	McCormick, Alexander A.	USNRF
124	Schieffelin, John J.	USNRF
125	Rodman, Thomas C.	USNRF
126	Smith, Edward T.	USNRF
127	Otis, James S.	USNRF
128	Hawkins, Ashton W.	USNRF
129	Lufkin, Chauncey F.	USNRF
130	Potter, Stephen	USNRF
131	Fuller, Percival S.	USNRF
132	Decernea, Edward	USNRF
133	Ott, George A.	USN
134	Geary, John W.	USNRF
134 ½	Wetherald, Royal W.	USNRF
135	Hinton, Walter	USN
136	Willcox, Westmore	USNRF
137	Lee, Benjamin, II	USNRF
138	Stone, Emory A.	USNRF
139	Fuller, Charles F.	USNRF
140	Hutchins, Hurd	USNRF
141	Stocker, Robert M.	USNRF
142	Foster, John C.	USNRF

Naval Aviator Number	Name	Service
143	Allen, Frederic S.	USNRF
144	Amory, Francis I.	USNRF
145	Read, Duncan H.	USNRF
146	Goldthwaite, Duval R.	USNRF
147	McCann, Richard H.	USNRF
148	Wright, Arthur H.	USNRF
149	Swift, Henry	USNRF
150	Butler, Stuart M.	USNRF
151	Gordon, Harry B.	USNRF
152	Zunino, Frank A.	USNRF
153	Shea, Edward L.	USNRF
154	Forrestal, James V.	USNRF
155	Brackenridge, Gavin	USNRF
156	Gibson, Harold F.	USNRF
157	Mudge, William F.	USNRF
158	Clarkson, William F.	USNRF
159	McCoid, Paul H.	USNRF
160	Halstead, Jacob S.	USNRF
161	Randolph, Robert D.	USNRF
162	Matter, Robert	USNRF
163	Warburton, William J.	USNRF
163 ½	Peterson, Herman A.	NNV
164	Rutherford, John	NNV
165	Laughlin, George M., III	NNV
166	Evans, George B.	NNV
167	Johnson, Albert R.	NNV
168	McCulloch, David H.	USNRF
169	Peirce, Thomas J. H.	NNV
170	Page, Phillips W.	USNRF
171	Shaw, George W.	USNRF
172	Peck, Lyman S.	USNRF
173	Humphreys, William Y., Jr.	NNV
174	Berger, Frederick, G. B.	NNV
175	Boyd, Theodore P.	NNV
175 ½	Alexander, William H.	USN
176	White, Lawrence G.	NNV
177	Coddington, Dave H.	NNV
178	Kerr, Robert H.	USN
179	Whitted, James A.	USN
180	Haskell, Armory L.	USNRF
181	Hyde, Russell N.	USNRF
182	Keyes, Kenneth B.	USNRF
183	Warren, Alfred K.	USNRF
184	Eaton, Joseph A.	USNRF
185	Peterson, William L.	USNRF
186	Stanley, Henry T.	USNRF

Naval Aviator Number	Name	Service
187	Remey, John T.	USNRF
188	Palmedo, Roland	USNRF
189	Forbes, Duncan P.	USNRF
190	Allen, Francis G.	USNRF
191	Baker, Charles S.	USNRF
192	Greenough, Charles W.	USNRF
193	Ames, Charles B.	USNRF
194	Hofer, Myron A.	USNRF
195	Ives, Paul F.	USNRF
196	Clark, Robert F.	USNRF
197	Brewer, Edward S.	USNRF
198	Dumas, Gardner D.	USNRF
199	McNamara, John F.	USNRF
200	Rowen, Harold J.	USNRF
201	Compo, George L.	USNRF
202	Perrin, John	USNRF
203	Hutchinson, Lester B.	USNRF
204	MacCaulay, Donald M.	USNRF
205	Lochman, Dean E.	USNRF
206	Moore, Lloyd Ray	USN
207	Thomas, Reginald de Noyes	USNRF
208	Clements, James R.	USNRF
209	Schermerhorn, Horace	USNRF
210	Murphy, Dudley B.	USNRF
210 ½	Grosvenor, Theodore P.	USNRF
211	Roe, George T.	USNRF
212	Teulon, Arthur P.	USNRF
213	Marriner, Walter T.	USN
214	Pumpelly, Harold A.	USNRF
215	Biggers, Robert L.	USNRF
216	Farmer, Charles R.	USNRF
217	Rumill, George E.	USNRF
218	Greenfield, Edwin R.	USNRF
219	Weld, Lothrop M.	USNRF
220	Phelan, James	USNRF
220 ½	West, Winfield M.	USNRF
221	Lancto, Joseph W.	USNRF
222	Wilcox, Harold M.	USNRF
223	Hawkins, Rees	USNRF
224	Wenz, Edward A.	USNRF
225	Alvord, Donald B.	USNRF
226	Baum, James E., Jr.	USNRF
227	Smith, Frank S.	USNRF
228	Hawkins, Samuel S.	USNRF
229	Clapp, Kenneth H.	USNRF
230	Dowell, Benjamin B.	USNRF

Naval Aviator Number	Name	Service
231	Ostridge, Charles L.	USNRF
232	Bergin, Thomas M.	USNRF
233	Gadsden, Philip H.	USNRF
234	Graves, Justin D.	USNRF
235	Connolly, Leo W.	USNRF
236	McAdoo, William G., Jr.	USNRF
237	Wheeler, Oscar G.	USNRF
238	Benjamin, Henry R.	USNRF
239	Souther, Arthur F.	USNRF
240	Roberts, Charles H.	USNRF
241	Harris, Frederick M.	USNRF
242	Naylor, Henry R.	USNRF
243	Voorhees, Dudley A.	USNRF
244	Maxwell, Howard W., Jr.	USNRF
245	King, Frederick E.	USNRF
246	Lamar, Lamartine E.	USNRF
247	Bancroft, Frederick W., Jr.	USNRF
248	Griswold, Rettig A.	USNRF
249	Chapman, Thomas H.	USNRF
250	Frothingham, Philip B.	USNRF

The confusion regarding precedence and the assignment of numbers resulted in some qualified individuals being left off the list of naval aviator numbers. During WWI qualified civilian aviators joined the naval service and served as naval aviators. They were qualified pilots who flew as a Navy pilot or naval aviator but did not receive a naval aviator number or were overlooked in the assignment of a number because of administrative problems during the huge war build-up.

The Bureau of Navigation (redesignated Bureau of Naval Personnel in 1942) continued to issue naval aviator numbers and was the sole source until 31 July 1942. In a SECNAV letter dated 31 July 1942, the old method of designating naval aviators through the assignment of numbers was discontinued. The following system was put in place:

- Commandant, Naval Air Station, Pensacola, Fla., is directed to commence a series of numbers for the foregoing designations as Naval Aviator (HTA) Number P1, P2, P3, etc.
- Commandant, Naval Air Station, Jacksonville, Fla., is directed to commence a similar series as Naval Aviator (HTA) Number J1, J2, J3, etc.
- Commandant, Naval Air Station Corpus Christi, Tex., is directed to commence a similar series as Naval Aviator (HTA) Number C1, C2, C3, etc.
- Commanding Officer, Naval Air Station, Miami, Fla., is directed to commence a similar series, as Naval Aviator (HTA) Number M1, M2, M3, etc.
- Commanding Officer, Naval Air Station, Norfolk, Va., is directed to commence a similar series, as Naval Aviator (HTA) Number N1, N2, N3, etc.
- Commanding Officer, Naval Air Station, Alameda, Calif., is directed to commence a similar series as Naval Aviator (HTA) Number A1, A2, A3, etc.
- Commanding Officer, Naval Air Station, Lakehurst, N.J., is directed to commence a similar series as Naval Aviator Number L1, L2, L3, etc.
- Commanding Officer, Naval Air Station, Moffett Field, Calif., is directed to commence a similar series as Naval Aviator (LTA) Number S1, S2, S3, etc.

This letter also stated: "The original letter of designation will be delivered directly to the individual without prior reference to the Navy Department for approval." Copies of the letter of designation were to be forwarded to

the Bureau of Personnel; Bureau of Aeronautics; Commandant, U.S. Marine Corps; and Bureau of Medicine and Surgery (in the case of flight surgeons). Because of the decentralization of this numbering system, a complete listing of naval aviators and their designation numbers has not been found for the WWII period even though the Bureau of Personnel was to receive a copy of all the letters of designation.

On 28 November 1942, a Secretary of Navy letter issued a modification to the commands designating Naval Aviators. Changes in this letter were as follows:

- The Commandant, Naval Air Training Center, Pensacola, Fla., assumed the duties of designating Naval Aviators vice the Commandant, Naval Air Station, Pensacola. There is no indication the use of the numbering series P1, P2, P3, etc., was changed.
- The Commandant, Naval Air Training Center, Corpus Christi, Tex., assumed the duties of designating Naval Aviators vice the Commandant, Naval Air Station, Corpus Christi. There is no indication the use of the numbering series C1, C2, C3, etc., was changed.
- The Commandant, Naval Air Center, Hampton Roads, Va., was directed to assume the duties of designating Naval Aviators vice the Commanding Officer, Naval Air Station, Norfolk, Va. There is no indication the use of the numbering series N1, N2, N3, etc., was changed.

This system remained in effect until 1949. A Secretary of the Navy letter of 29 March 1949 cancelled its previous letters regarding designation of Naval Aviators (letters of 31 July 1942, 28 November 1942, and 9 January 1943) and authorized the Commander, Naval Air Training; Commander, Naval Air Advanced Training; and the Chief of Naval Airship Training and Experimentation to designate Naval Aviators (and assign numbers). By the time this letter was issued the other training commands had already been disestablished or consolidated under the control of these three commands. In step with the previous decentralized system, the following system was established:

- Chief of Naval Air Training was directed to commence a series of numbers for the foregoing designations as Naval Aviators, (HTA), Number T-1, T-2, T-3, etc.
- Chief of Naval Air Advanced Training is directed to commence a series of numbers for the foregoing designations of Naval Aviators (HTA), Number V-1, V-2, V-3, etc.
- Chief of Naval Airship Training and Experimentation is directed to commence a similar series as Naval Aviators (LTA) using the L series, carrying on from the last number used in this series by the Commanding Officer, Naval Air Station, Lakehurst, N.J.

The Chief of Naval Air Training quit issuing Naval Aviator Numbers sometime in the 1970s. Documentation has not been located that gives the date or provides reasons why the assignment of Naval Aviator numbers was discontinued. To date, no complete listing of all Naval Aviator numbers, including the letter-number designations, has been found. Moreover, it is highly unlikely a complete list exists because of the decentralization of the system during WWII. Bits and pieces of the listing for Naval Aviator numbers is held by the Naval Aviation History Office. However, the WWII and post-war period list is not organized in any alphabetical or chronological order, consequently, it is extremely difficult to find any individual's number.

Background on the Evolution of Naval Aviation Pilots

The evolution of the Naval Aviation Pilot designation for enlisted men is more complicated because of the lack of a clear Navy policy regarding enlisted pilots during naval aviation's first decade and the misconceptions surrounding the terminology regarding designations used for enlisted pilots. By setting the standards for qualification and certification of officers as Naval Aviators in the early phase of naval aviation, a stable policy was put into effect. The failure to establish a clear-cut policy regarding programs for training enlisted pilots caused considerable confusion that affected the enlisted pilot program during its entire existence.

The confusion begins with terminology and how it was applied to those people "involved in actual flight." Enlisted men had been undergoing aeronautic training from the time the aeronautic station was established at Pensacola, Fla., in January 1914. Training for enlisted men can even be traced back to the first aeronautic station at Greenbury Point, Md. However, more publicity for enlisted aeronautic training and its resultant positions developed in March 1915, when a law was passed by Congress that extended increased pay and allowances to enlisted men and student aviators, as well as qualified pilots, while on duty involving flight. Prior to the passage of this law, Congress had authorized special pay only for officers detailed to duty as flyers. The allure of flight, more pay and the continued

development of the small aviation section of the Navy brought about a greater interest by enlisted personnel in the naval aeronautic field. It was only natural that some enlisted men, aside from their regular duties of maintaining the craft and flying as crewmembers, developed an interest in piloting aircraft.

There is some confusion surrounding the first training of enlisted men as pilots. References are made to the beginning of pilot training at NAS Pensacola, Fla., for the first group of enlisted men on 6 January 1916.

In a letter to Lt. Cmdr. Henry C. Mustin, Commandant, NAS Pensacola, Fla., dated 4 January 1916, Capt. Mark L. Bristol, Director of Naval Aeronautics, states,

> In an order issued the other day, we organized a class of men for training as aviators, specifying men of the seamen's branch. It may happen that the machinists at the present time are best fitted for this training, but we can not establish such a precedent. It would lead to all kinds of future complications, so start square on this subject.

In his 10 January 1916 response to Bristol's letter, Mustin wrote,

> As regards the distinction between Naval Aviator and Navy Air Pilot, I think that the term Naval Aviator, in view of the term Military Aviator used in the Army, is not altogether suitable for our enlisted men; also in view of the present wording of the law there may be some complications. However, I think we have the sense of what you desire in this line of work regardless of titles and that is a matter that can be straightened out later. In the meantime, we are going ahead with the first class of enlisted men and they are taking hold of the flying part of it very well.

From these two letters we can be fairly certain the first pilot training class for enlisted men began in January 1916 at NAS Pensacola, Fla. The question regarding the designation of an enlisted pilot appears to have been left up in the air. Mustin does make a reference to using the old title "Navy Air Pilot" that had been used for officers prior to March 1913. However, Bristol left his position as Director of Naval Aeronautics in March 1916 before a decision was made on the subject.

The Bureau of Navigation's January 1916 "Course of Instruction . . ." mentioned above, identifies enlisted categories of Student Airman; Airman; Quartermaster, aeroplane; Quartermaster, dirigible; and Machinist, aeronautic. Just like the designations involving Naval Aviator, the Navy had two organizations (the Bureau of Navigation and the CNO's Director of Naval Aeronautics) that were dealing with aviation training and issuing directives that sometimes had conflicting uses for designations. The Bureau of Navigation's January 1916 "Course of Instructions and Required Qualifications of Personnel for the Air Service of the Navy" also set up a "Certificate of Qualification for Airman."

Thus, in 1916, NAS Pensacola, Fla., began issuing "Certificates of Qualification as Airman" to enlisted personnel meeting the requirements set up by the Bureau of Navigation. From a handwritten logbook maintained at Pensacola, the certificates were numbered, beginning with 1 and ending at 358. The Number 1 Certificate of Qualification as Airman was issued to CMM Harry E. Adams on 15 December 1916, with a course completion date of 27 November 1916. This airman certificate should not be confused with the enlisted qualifications for a pilot; there is no connection between the two designations. A note in the logbook indicates the issuance of a Certificate of Qualification from the Aeronautic School at Pensacola for Airman was discontinued on 1 October 1917. It is believed Pensacola discontinued the enlisted certificate program because of the changes in the "Course of Instructions," the addition of other training stations, and the influx of a large number of enlisted men during WWI. However, the name Airman continued to be applied to enlisted personnel in the aviation field. Needless to say, there were other qualified enlisted men in naval aeronautics who preceded the establishment of this list of designated "Airman."

The forgoing discussion about "Airman" is provided here to clarify the fact that "Airmen" were not being defined as enlisted pilots. However, some enlisted men who received "Certificates" as Airman did become qualified pilots, and this is where the confusion begins. The first official class of enlisted men to undergo pilot training in January 1916 included:

P. J. Dunleavy, CBM	F. Grompe, CMAA	A. A. Bressman, CTC
L. A. Welty, CTC	A. Hayes, CTC	A. P. Bauer, GM1c
J. Makolin, 1stSgt, USMC	W. E. McCaughtry, GunSgt, USMC	A. F. Dietrich, BM2c.

The last man to join this class was Walter D. Bonner, BM2c, and he appears on the 1 March 1916 Flying School's list of Enlisted Personnel undergoing Flying Instruction.

Capt. Mark Bristol, Director of Naval Aeronautics, sent a memo to the Secretary of the Navy on 4 March 1916, which stated, "On the 1st of January, 1916, a class of 10 enlisted men was formed and placed under instruction in flying. These men were selected from the bluejackets and marines already on duty at the station or on board *North Carolina*. These men are making excellent progress. There will be a class of them ordered every three months hereafter." Records do not indicate any succeeding classes of enlisted pilot training groups every three months as indicated by Bristol's letter. The next reference to a class of enlisted men undergoing flight training at NAS Pensacola is 15 May 1916, in a "Semi-Monthly Report of Aviators (Enlisted Personnel)." This lists the following personnel undergoing training as aviators:

A. A. Bressman	L. A. Welty	A. Hayes
A. F. Dietrich	W. D. Bonner	J. Makolin
W. E. McCaughtry	C. L. Allen	J. Sunderman
W. Diercks	J. Salsman	A. Ward
T. H. Murphy	G. Verini	

In the fall of 1917 several changes were implemented in the pilot training program that affected enlisted personnel. In a CNO letter to the Commandant, Pensacola Aeronautic Station, Fla., dated 8 August 1917, paragraph 2 states "It is desired to train no more enlisted personnel as pilots. Excellent Officer material in enlisted personnel will be treated in accordance with reference (c)." Reference (c) was the Bureau of Navigation's circular letter #9879-495, of 2 August 1917. In a letter from the Commandant, NAS Pensacola, Fla., dated 30 November 1917, to the Bureau of Navigation, clarification was requested regarding aviation designations for 10 enlisted personnel who had qualified and were given orders as Quartermaster Seaplane. This designation identified these personnel as qualified enlisted pilots.

The letter goes on to ask whether new orders should be issued to these men designating them as Naval Aviators. The ten men were:

CBM A. F. Dietrick	CQM J. T. Sunderman	CGM G. Enos
QM2c(A) John H. Bunt	QM2c(A) James A. Whitted	CTC A. Feher
CE Carlton D. Palmer	QM2c George W. Stone	CBM Robert H. Kerr
QM2c(A) C. A. Suber		

The Bureau of Navigation's response, dated 8 December 1917, states, "Men mentioned in this enclosure (the enclosure was a copy of NAS Pensacola's 30 November 1917 letter listing the 10 men) will have their designations changed to Naval Aviators, but no new orders are necessary." The second paragraph of this letter indicated a new policy was being issued with regard to enlisted pilots, it stated, "In separate correspondence, instructions are being issued concerning future designations as Naval Aviators for enlisted men who qualify for pilot duty, and new blanks (Navigation Form N. Nav. 442, October 1917) are being sent out on which reports should be made in the future."

It appears the Bureau of Navigation, in its Aviation Circular dated 1 January 1913, set up the policy that identified the course of flight training instruction and the passing of flight tests for officers, and later on applied it to enlisted men who could qualify for pilot duty. However, it also appears that the Bureau of Navigation did not make any modifications in its circulars to reflect the changes that occurred in pilot designations between 1913 and 1915, such as Navy Air Pilot and Naval Aviator and the appropriate references to enlisted men who became pilots. All ten enlisted men referenced in NAS Pensacola's 30 November 1917 letter were eventually commissioned. However, several of them maintained their enlisted pilot status for more than a year before receiving their commission.

In the latter part of 1917, as a result of the great need to increase the number of aviation personnel, the Navy instituted a policy of taking enlisted men for pilot training and then qualifying them for a commission and designation as a Naval Aviator. Many of the regular enlisted men who could qualify for the pilot training program would be discharged from the regular Navy and enrolled in the Naval Reserve for training and commission in the Naval Reserve Flying Corps. The majority of the personnel entering naval aviation service during the war came from the civilian community and joined the Naval Reserve for duty with the Naval Reserve Flying Corps. Needless to say, there were exceptions to these policies during WWI. This was particularly true for enlisted personnel who received pilot training in Europe.

On 5 June 1917, the Navy's First Aeronautic Detachment, and the first U.S. military unit sent to Europe in WWI, arrived at Pauillac, France. The second section of the detachment arrived on 8 June at St. Nazaire, France. The First Aeronautic Detachment was commanded by Lt. Kenneth Whiting and consisted of 7 officers and 122 enlisted men. Only four of the officers were pilots, two were supply officers, and one a doctor. The majority of the enlisted personnel were students in the aviation field. After a meeting between American and French officers, the French agreed to train the detachment's personnel. Approximately 50 enlisted men were to be trained as seaplane pilots at Tours while another 50 would be trained as "mechanicians" at St. Raphael.

On 22 June 1917, preliminary flight training for the enlisted men began in Caudron aircraft under French instructors at the École d'Aviation Militaire at Tours. One of the French procedures for flight training was to teach their pilots land flying first, hence, Lt. Whiting had to deal with the French Army, as well as with the Navy. Changes were made to the flight training plans and 14 of the enlisted men were redirected to fill the requirement for observer training. Under French training, an observer was a prototype of aircrewmen whose duties involved observing, acting as bombardier, and handling such armament as existed on the plane. On 7 July 1917, Lt. Whiting reported that 50 persons were undergoing pilot instruction at Tours, with 38 taking machinist and 14 observer training at St. Raphael.

The French required a ratio of 10 enlisted men for each pilot under its aviation program. Consequently, the American Navy representative in France, along with Lt. Whiting, requested an increase in personnel for aviation training in France. The Navy Department again found itself divided, some wanted to continue sending men to France for aviation training, while others wanted to conduct the training in the United States and have some final, on-site training conducted in France. By the early summer months of 1918 many of the problems of training, organization, and movement of aviation personnel abroad had begun to be solved. However, all aviation training matters were not smoothed out prior to the signing of the Armistice.

The policy regarding the enlisted pilots that were trained in Europe, either in France, Britain, or Italy, generally followed the same procedures adhered to in the United States at the end of 1917. Many of the enlisted pilots would receive commissions once they had completed flight training and been certified as pilots. They did not, however, always receive their commissions immediately after pilot qualification. Some flew many patrol missions before the administrative system authorized their commissioning in the Naval Reserve Flying Corps. When the Armistice was signed, the total strength of the U.S. Naval Aviation Force, Foreign Service (those serving overseas) was 1,147 officers and 18,308 enlisted men. The majority of them were assigned to air stations in France, followed by those in England, Ireland, and Italy.

With the end of WWI, naval aviation, along with other elements of the Navy, underwent a major demobilization that drastically reduced its size. Some of the officers and enlisted men on active duty in the Naval Reserve were offered a chance to convert to a regular status in the Navy. In some cases, enlisted men who had received their commissions following their completion of pilot training reverted to an enlisted status. This, of course, presented a problem for the Navy since they no longer had a program for enlisted personnel with pilot designations.

Following the massive demobilization, naval aviation again experienced the problems of maintaining an adequate supply of qualified aviation personnel, both enlisted men and officers. In 1919, various aviation issues were discussed by the Navy's General Board; the Commander in Chief Atlantic Fleet, Admiral H. T. Mayo; and various offices of the Chief of Naval Operations and the bureaus. On 23 June 1919, the General Board forwarded its final recommendations on aviation policy to the Secretary of the Navy, via the Chief of Naval Operations. One of those recommendations was "as many enlisted men as possible should be trained and used as pilots." Capt. Thomas T. Craven, the Director of Naval Aviation, submitted his comments on the General Board's recommendations on 17 July 1919. He stated, "It is believed that a limited number of enlisted men should be trained as pilots." On 24 July 1919, the Secretary of the Navy added his endorsement on the board's recommendations. However, his comments on personnel were very brief, stating, "Study will be made with regard to Aviation personnel." While these developments were important, they were eventually superseded by other events that occurred in 1919 between NAS Pensacola, Fla., other naval aviation organizations in the fleet, the CNO, and the Bureau of Navigation. These events set in motion the eventual establishment of the designation Naval Aviation Pilot (enlisted pilots).

During 1919, significant correspondence took place between the Commandant, NAS Pensacola, Fla., and various upper echelon commands regarding flight training and designations for aviation personnel. In a 12 February 1919 letter from the Commandant to the Supervisor Naval Reserve Flying Corps (a CNO office), a request was made to continue flight training and give Naval Aviator designations to four enlisted men. These four—CBM(A) Edwin Nirmaier, CQM(A) George R. Groh, CMM(GE) Lamont C. Fisher, and CQM(A) Percy M. Fuller—all had had foreign duty and had either qualified as pilots on active service or were undergoing pilot training when the war ended. None wanted to be discharged from the regular Navy and reenrolled with a commission in the Reserves.

The Bureau of Navigation returned the request on 31 March 1919 recommending reconsideration and further recommendation for the four enlisted men.

A 17 April 1919 letter from CNO (Aviation) to a wide range of commands, reconsidered the position on training of enlisted personnel and stated,

> 1. It has been decided to consider the flight training, or continuance of the interrupted flight training, of enlisted ratings of the regular service who, in addition to being unquestionable officer material, can successfully meet the following requirements: (a) That had been regularly enlisted in the Navy, and obtained the rating of second class petty officer prior to April 6, 1917, or that enlisted for Aviation duty only, in accordance with Enclosure (a).

However, the letter also indicated that these men would be commissioned in the Naval Reserve Force and retained on active duty until the issue of transferring Naval Reserve officers to the regular Navy had been definitely decided.

A Bureau of Navigation letter of 18 June 1919 modified BuNav's Circular Letter No. 57-19 and authorized the enlisted pilot training policy as stated in the CNO's letter of 17 April 1919. This BuNav circular letter was instrumental in setting in motion the third class of enlisted men authorized for pilot training at NAS Pensacola, Fla. A 20 August 1919 letter from the Bureau of Navigation to the Commandants of All Naval Districts, All Naval Air Stations and Aviation Detachments, set forth the requirements for training of enlisted pilots. The letter indicated that enlisted men would be designated Naval Aviators upon successfully completing the course. However, it made no references to a requirement for commissioning in the Naval Reserves.

This omission resulted in a letter from the Commanding Officer of NAS Pensacola, Fla., dated 15 September 1919, requesting Naval Aviator Appointments for warrant officers. The letter made a reference to Bureau of Navigation's 20 August letter, stating, "1. Reference (b) specifies that enlisted men are to be trained as Naval Aviators and, without commissioning, are to be given Naval Aviator Appointments and Insignia." In the Bureau's letter of 22 September 1919, it disapproved designating warrant officers as Naval Aviators, instead they were to be commissioned and then designated. However, this letter made no mention of commissioning enlisted pilots as officers. It did not take long for NAS Pensacola to send another letter, dated 3 October 1919, questioning the Bureau of Navigation's policy on Naval Aviator Appointments for Warrant Officers. In a 14 October 1919 letter from the Bureau of Navigation, the policy for training of enlisted and warrant officer Aviation Pilots was set forth. This letter cancelled the Bureau of Navigation letter dated 20 August 1919. It stated,

> 1. In the future it will be the policy of the Bureau to select a certain number of warrant officers and enlisted men for flight training and duty as pilots of large heavier-than-air craft and directional pilots of dirigibles. . . . 3. Warrant officers and men who are selected in accordance with this letter will be given the complete course of instruction for qualification as pilot. Upon successfully completing the course, they will be issued certificates of qualification as 'Naval Aviation Pilots' by the Navy Department. Such certificates will entitle the pilots to wear the aviation insignia authorized for Naval Aviators. Warrant Officers and men who hold certificates as Naval Aviation Pilots will, while detailed for duty involving actual flying be entitled to fifty percent additional pay.

This is the first official reference to the designation "Naval Aviation Pilot" and it set in motion the beginning of the enlisted pilot program. Thus, the initial program for Naval Aviation Pilots was done without authorization from Congress. The Congressional program involving enlisted pilots was not developed until the mid-1920s.

In the October and November 1919 letters from the Bureau of Navigation, the bureau notified appropriate commands of its intention to detail classes of approximately 25 enlisted men to begin flight training in heavier-than-air and lighter-than-air. The CNO Daily Aviation News Bulletin for 10 December 1919 stated "A class of twenty-five enlisted men has been ordered to Pensacola, Fla., to take the course preliminary to appointment as Naval Aviation Pilots." An NAS Pensacola letter of 9 December 1919 to the Bureau of Navigation stated, "This Station can start the Heavier-than-Air Course of Training for a class of twenty-five (25) enlisted men on February 1st, 1920." This was the third class of enlisted men to undergo flight training at Pensacola, Fla., but the first class whereby the graduates were identified as Naval Aviation Pilots and retained their enlisted status.

A 5 February 1920 NAS Pensacola memorandum listed classes undergoing instruction in aviation. Enlisted Class No. 1 (Heavier-than-Air) has the following personnel listed:

CMM(A) Floyd Bennett	CMM(A) Chas P. Brenner	CMM(A) Kenneth D. Franklin
CMM(A) Anthony Iannucci	CMM(A) Leo C. Sullivan	CMM George N. Tibbetts
CMM(A) Jacob W. Utley	CMM(A) Thomas P. Wilkinson	CMM(A) Francis C. Barb
CMM(G) John W. Green	CMM(A) Clarence I. Kessler	CMM(A) R. B. Lawrence
CMM(A) Francis E. Ormsbee	CMM(A) Eugene T. Rhoads	CMM(A) Bert Strand
CMM(A) Harry A. Rossier	CMM(A) N. Wayne L. Carleto	CCM(A) Chas. I. Elliott
CGM(A) Ralph A. Jury	CCM(A) Herbert L. Hoobler	CE(G) William B. Livingston
CQM(A) Owen J. O'Connor	CGM George N. Strode	CEL(A) Clyde O. Switzer
BTSN(A) Lamont C. Fisher	CCM(A) Cecil H. Gurley	CEL(R) Claude G. Alexander
CGM(A) Henry Brenner	CQM(A) William August Clutne	CQM Owen J. Darling
CCM(A) Garrett H. Gibson	BM2c Harvey A. Griesy	CEL(R) Arthur E. LaPorte
CGM(A) Cyrus L. Sylvester	GM1c(A) W. T. Sweeny	CBM Stephen J. Williamson.

The list for students (Lighter-than-Air) included the following enlisted men:

BTSN William L. Buckley	MACH William L. Coleman	Gunner Ralph T. Bundy
Gunner Willfred H. Smart	CMM(A) L. E. Crowl	CQM(D) Horace M. Finch
CBM S. R. Soulby	CQM(A) G. K. Wilkinson.	

A second class of enlisted men began undergoing heavier-than-air pilot training on 1 August 1920 at NAS Pensacola, Fla., and consisted of 33 enlisted men. A third class of enlisted pilot training was scheduled to begin on 1 March 1921.

Designation List of Early Naval Aviation Pilots (NAPS)

The program for Naval Aviation Pilot designation numbers produced the same type of situation and confusion that surrounded the numbering of Naval Aviators. The Navy Department, once a policy was decided upon in late 1919 to designate enlisted men as Naval Aviation Pilots, started issuing certificates of qualification as Naval Aviation Pilots to some enlisted personnel who had qualified as pilots during WWI. Hence, the precedence list for Naval Aviation Pilots includes personnel not part of the enlisted class that began training in February 1920. It appears a number of these enlisted personnel were instructors at NAS Pensacola, Fla., in late 1919 and early 1920. CQM(A) Harold H. Karr received a letter, dated 9 March 1920, from the Bureau of Navigation that certified him as a qualified pilot and designated a Naval Aviation Pilot. Naval Aviation Pilot designation numbers were placed on a handwritten ledger maintained at NAS Pensacola, Fla. Karr is listed with Naval Aviation Pilot number 1 with the date of issue as 22 January 1920. It is believed the difference between the 22 January date and the 9 March 1920 date is the time difference between the reporting from NAS Pensacola, Fla., to the Bureau of Navigation and its response to Karr.

The enlisted men who were part of the first two classes to receive training as aviators in 1916 may be considered the forerunners of the enlisted men who were designated Naval Aviation Pilots. However, because the program and designation for Naval Aviation Pilots was not established at the time of their training or because most of them received commissions and designations as Naval Aviators, they are not included in this list of early Naval Aviation Pilots. Discrepancies in the sources listing Naval Aviation Pilots made it impossible to resolve all the numbering problems. For this reason, only the first 69 Naval Aviation Pilots are listed.

Naval Aviation Pilot Designations			
Pilot No.	**Name**	**Rate**	**Date Designated**
1	Karr, Harold H.	CQM(A)	1/22/20
2	Lee, Robert E.	NM1C(A)	1/22/20
3	Niramaier, Edwin	CBM(A)	4/14/20
4	Lovejoy, Francis E.	CQM(A)	11/22/20
5	Seiler, Walter L.	CQM(A)	1/22/20
6	Woods, Clarence	CQM(A)	1/22/20
7	Alexander, Claud G.	CE(R)	10/7/20
8	Barb, Francis C.	CMM(A)	10/8/20
9	Bennett, Floyd	CMM(A)	10/7/20
10	Byrne, Patrick J.	CMM(A)	10/8/20
11	Carleton, Wayne L.	CBM(A)	10/8/20
12	Cluthe, William A.	CQM(A)	10/8/20
13	Darling, Owen M.	CQM(A)	10/8/20
14	Elliott, Charles I.	CCM(A)	10/7/20
15	Fisher, Lawrence C.	CMM(A)	10/7/20
16	Franklin, Kenneth D.	CMM(A)	10/7/20
17	Graham, Paul E.	CMM(A)	10/8/20
18	Griesy, Harvey A.	BM2C	10/8/20
19	Hoobler, Herbert L.	CCM(A)	10/8/20
20	Insley, Cecil H.	CCM(A)	10/7/20
21	Kesler, C. I.	CMM(A)	10/8/20
22	LaPorte, Arthur E.	CE(R)	10/7/20
23	Lawrence, K. B.	CMM(A)	10/7/20
24	O'Conner, Owen J.	CQM(A)	10/7/20
25	Ormsbee, Frank E.	CMM(A)	10/8/20
26	Peterson, Allen K.	Ch.Ptr.(A)	10/8/20
27	Rhoads, Eugene S.	CMM(A)	10/8/20
28	Rossier, Harry A.	CMM(A)	10/8/20
29	Stinson, John H.	CMM(A)	10/7/20
30	Sullivan, Leo C.	CMM(A)	10/7/20
31	Tibbetts, George N.	CMM(A)	10/7/20
32	Utley, Jacob W.	CMbl(A)	10/7/20
33	Wilkinson, Thomas P.	CMM(A)	10/7/20
34	Williamson, S. J.	CBM(A)	10/8/20
35	Demshock, John J.	CE(G)A	3/8/21
36	Baker, H. T.	CMM(A)	3/8/21
37	Buckley, James W.	CMM	3/8/21
38	Elmore, William L.	CGM	3/8/21
39	Griggs, Herbert B.	CE(G)	3/8/21
40	Grobe, C. H.	MM1C	3/8/21
41	Gustafson, R. F.	MM1C(A)	3/8/21
42	Hill, William F.	CMM(A)	3/8/21
43	Jackson, Willard B.	CMM(A)	3/8/21
44	Kirkeby, C. D.	MM1C(A)	3/8/21
45	Linder, Frank M.	CE	3/8/21

Naval Aviation Pilot Designations			
Pilot No.	**Name**	**Rate**	**Date Designated**
46	McPeak, N. B.	MM1C	3/8/21
47	Markham, E. L.	MM2C	3/8/21
48	Merritt, R. J.	GM1C	3/8/21
49	Miller, Joseph H.	CMM	3/8/21
50	McLean, M. C.	CMM	3/8/21
51	McIntosh, Enoch B.	QM1C	3/8/21
52	O'Brien, John J.	CMM	3/8/2l
53	Preeg, Felix F.	CY	3/8/21
54	Raney, Charles B.	CY	3/8/21
55	Rawlings, John E.	CMM	3/8/21
56	Stultz, W. L.	MM1C	3/8/21
57	Steelman, Charlie	CQM(D)*	3/23/21
58	Tobin, Frederick J.	CMM(A)*	3/23/21
59	Andrews, Walter J.	ACMM	8/15/21
60	Dunn, Stephen	AMM1C	8/15/21
61	Frank, Edwin George	ACMM	8/15/21
62	Flynn, Elliott J.	AMM1C	8/15/21
63	Heinz, Edward A.	AMM1C	8/15/21
64	Holdredge, Herman J.	ACMM	8/15/21
65	Krueger, Charley E.	ACMM	8/15/21
66	Muller, Leo G.	AMM1C	8/15/21
67	Smith, Sidney N.	ACMM	8/15/21
68	Sylvester, Cyrus L.	CGM	8/15/21
69	Harrigan, John J.	ACR	8/15/21

* Airship

Enlisted to Warrant Naval Aviator and NFO Program

The CNO issued NavAdmin 031/06 on 19 January 2006 to establish the Active Duty Flying Chief Warrant Officer Pilot and Naval Flight Officer Program. The Navy designed the program to take highly qualified and "hard-charging" enlisted sailors in paygrades E-5 through E-7 and commission them as chief warrant officers. When they completed training as naval aviators or naval flight officers they would be "winged" and designated naval aviators or naval flight officers.

The targeted communities for Warrant Naval Aviator and Naval Flight Officers included HSC, HSL, VP, and VQ squadrons, from whom the service sought an initial 30 applicants. Vice Admiral John C. Harvey Jr., Chief of Naval Personnel, noted that "The CWO program is intended to create flying specialists unencumbered by the traditional career paths of the unrestricted line community." The first group of Aviator Chief Warrant Officers commissioned on 1 December 2006, and included ten pilots and four naval flight officers, four of whom possessed civilian pilot's licenses, and seven already served as naval aircrew.

The first group that completed flight training and "winged" as naval aviators were:

Adams, Michael S., Jr.
Chandler, Matthew P.
Clements, Joshua A.
Ditamore, Stephen J.
Haller, Daniel R.
Holland, Kevin R.
Jacobson, Brandon R.
Kleparek, Anton K.
Miltner, Keith P.
Reyes, Robert

The first group that completed flight training and "winged" as naval flight officers were:

Courtney, Jerry D., Jr.	Greteman, Bernard G.	Langschied, Jason R.
Rittierodt, Joseph A.		

In addition, the July 2007 board selected the remaining 10 pilots and six naval flight officers. Three enlisted sailors—AW1 Robert Antonucci and AD1 John Fuller assigned to HSL-43, and AW2 John Barile of HSL-45—commissioned on 1 December 2007, at NAS North Island, Calif. On the 20th of that month, CWO2s Dale Courtney and Adam Rittierodt of VP-30 received their wings as naval flight officers as two of the initial applicants, at NAS Jacksonville, Fla. Two German officers, Lts. 2nd Grade Christian Hegemann and Patrick Leisner, also received naval flight officer wings.

General Background on Training

The story of naval aviator training is complex, and involved many changes in the various programs and where students received their training. Training of naval aviators first began with the assignment of Lt. Theodore G. Ellyson to the Glenn Curtiss camp at San Diego, Calif., (North Island) in December 1910. He arrived there in January 1911. This established the Navy policy of using the facilities of private aircraft manufacturers to train its aviators, which was tied to contracts that purchased aircraft for the Navy Department. The first aircraft contracts were with Curtiss Aeroplane Company and the Wright Company. So the early naval aviators were trained at San Diego, Calif., and Hammondsport, N.Y., used by the Curtiss company; Dayton, Ohio, used by the Wrights; and Marblehead, Mass., used by the Burgess Company for training in Wright Company aircraft.

With the acquisition of aircraft and the training of several naval aviators, the Navy was able to terminate its dependence on private manufacturers for training. In August 1911 the Navy set up an Engineering Experiment Station and aviation school at Greenbury Point, Annapolis, Md. During the winter of 1912–1913, the aviation camp moved to Guantánamo Bay, Cuba, for its first exercises with the Fleet. Capt. Washington I. Chambers' report to the Chief of the Bureau of Navigation in 1913 identified the following naval aviators:

Theodore G. Ellyson	John Rodgers	John H. Towers
Victor C. Herbster	Patrick N. L. Bellinger	Bernard L. Smith
Godfrey de C. Chevalier	Alfred A. Cunningham	William D. Billingsley
Laurance N. McNair	Holden C. Richardson	Isaac F. Dortch
Henry C. Mustin	J. D. Burray	

The last seven in this list of naval aviators were Navy-trained.

In accordance with the recommendations from the Board on Naval Aeronautic Service, the aviation school at Greenbury Point, Md., was moved to Pensacola, Fla. On 20 January 1914 the Greenbury Point aviation unit arrived at Pensacola to set up a flying school. It consisted of nine officers, 23 men, seven aircraft, portable hangars, and other equipment.

The training of naval aviators at Pensacola was conducted using the same informal methods that had been used at Greenbury Point. Students were taught how to fly, and instructed in the rudiments of the construction and maintenance of their planes. Every man was given as much time as necessary to master his ground and flight instruction. No one washed out.

The Bureau of Navigation issued a formal training syllabus in June 1914, BUNAV Bulletin No. 532. This syllabus established a one-year course for pilots. Revised in January 1916, the new syllabus, "Courses of Instruction and Required Qualification of Personnel of the Air Service of the Navy," outlined courses for Naval Aviation Pilots, Naval Aviators, Student Airmen, Quartermasters (Aviation), Quartermasters (Deck), and Machinists Mates (Aviation). During summer 1916, a syllabus was also established for the training of lighter-than-air pilots (dirigible and balloon). Flight instruction procedures were altered by a constant stream of suggestions from the pioneers at Pensacola.

In 1916 the Naval Appropriation Act provided for the establishment of a Naval Flying Corps. It also provided for the establishment of a Naval Reserve Force of six classes, including a Naval Reserve Flying Corps. One of the first groups to organize under the corps was the First Yale Group/Unit. Most of the men in this organization received their training independently of the Navy and were later qualified as Naval Aviators. Training for many of the corps personnel fell on the shoulders of Pensacola until a training system evolved and was established during WWI.

With the U.S. entry into WWI, numerous changes occurred in the training of naval pilots. Besides the training in England, France, and Italy, a group of 24 Americans reported at the University of Toronto on 9 July 1917 to begin flight instruction under the Canadian Royal Flying Corps. In the United States, training expanded from the site at NAS Pensacola, Fla., to include preliminary flight training at Squantum, Mass.; Bay Shore (Long Island), N.Y.; Miami, Fla.; Key West, Fla.; and San Diego, Calif. By late January 1918, the following air stations were conducting aviation training: Chatham, Mass.; Montauk, N.Y.; Bay Shore, N.Y.; Rockaway, N.Y.; Cape May, N.J.; Hampton Roads, Va.; Miami, Fla.; Key West, Fla.; Pensacola, Fla.; and San Diego, Calif. There were also naval aviation detachments scattered around the country that were involved in aviation training. These included MIT at Cambridge, Mass.; Great Lakes Training Station, Ill.; Goodyear at Akron, Ohio; Curtiss Aeroplane at Buffalo, N.Y.; Aeromarine Company at Keyport, Mass.; the Naval Aircraft Factory at Philadelphia, Pa.; Packard Motor Car Company in Detroit, Mich.; Delco Ignition Laboratories in Dayton, Ohio; Lincoln Motor Company in Detroit, Mich.; and Savage Arms Corporation in Utica, N.Y. With the end of WWI, most of these stations ended their aviation training programs and NAS Pensacola, Fla., again became the primary training location.

With the beginning of WWII the training of Naval Aviators again became decentralized and expanded across the country, just as it had done during WWI. Following the end of WWII, the different phases of training for Naval Aviators continued to be conducted at several different air stations. That situation continues to exist today.

Number of Naval Aviators Designated (Trained)

Obviously, the variances in the naval aviator training program and its decentralization as described above make it very difficult to provide an infallible number for the output of naval aviators since 1911. Personnel trained by the Navy are designated naval aviators, whether they serve in the U.S. Navy, Marine Corps, or Coast Guard. The list below also includes foreign personnel trained by the U.S. Navy Department as naval aviators, as well as a few U.S. military and civilian personnel from other federal agencies. In some cases these special groups were included in the number count, but in other cases they were not. It is extremely difficult to identify the years in which special groups were included and the years in which they were not. Hence, the following list identifying the number of naval aviators trained (and officially designated as naval aviators) is the best available. The numbers for the more recent years are by fiscal year. In 1976 the government changed its fiscal year from 1 July–30 June to 1 October–30 September. Consequently, there is an additional entry for 1976 covering the 1 July to 30 September time frame.

Year	Number Trained (Designated)
1911 to 1919	2,834
1920	82
1921	72
1922	106
1923	25
1924	32
1925	35
1926	35
1927	123
1928	140
1929	66
1930	348
1931	321
1932	168
1933	138
1934	35
1935	100
1936	212
1937	527
1938	543

Year	Number Trained (Designated)
1939	450
1940	708
1941	3,112
1942	10,869
1943	20,842
1944	21,067
1945	8,880
1946	2,635
1947	1,646
1948	446
1949	688
1950	1,691
1951	1,288
1952	932
1953	1,701
1954	2,338
1955	2,851
1956	2,571
1957	2,951
1958	2,513

Year	Number Trained (Designated)
1959	1,785
1960	1,602
1961	1,478
1962	1,413
1963	1,701
1964	1,701
1965	1,715
1966	1,907
1967	2,046
1968	2,334
1969	2,559
1970	2,450
1971	1,809
1972	1,853
1973	1,650
1974	1,447
1975	1,337
1976	1,375
Jul-Sep 1976	314
1977	1,196
1978	934
1979	871
1980	1,471
1981	1,482
1982	1,515
1983	1,424
1984	1,366

Year	Number Trained (Designated)
1985	1,343
1986	1,439
1987	1,482
1988	1,454
1989	1,528
1990	1,483
1991	1,342
1992	1,216
1993	865
1994	874
1995	1,155
1996	983
1997	978
1998	1,156
1999	1,183
2000	1,218
2001	1,109
2002	1,237
2003	1,243
2004	1,170
2005	1,271
2006	1,251
2007	1,231
2008	1,187
2009	1,209
2010	1,191
Total	**170,654**

Chapter 9

Evolution of Naval Wings (Breast Insignia)

Naval Aviator Wings

The origin of a distinctive device for naval aviators is somewhat obscure, but the idea was undoubtedly influenced by outside forces. It appears that the need for a distinguishing mark was voiced by the aviators themselves, particularly after Army aviators began wearing "badges" in 1913. Other influence outside the naval service also appears to have provided some of the initial impetus.

A review of the records indicates a lack of coordination within the Navy during the process to develop a naval aviation device. The dated correspondence of the Bureau of Navigation (BuNav) and the Chief of Naval Operations (CNO) Aviation Section relating to the "wings" does not coincide with the dated changes to the uniform regulations. The change to the uniform regulations that first identified the new "wings" was issued before the CNO's Aviation Section and BuNav had agreed upon a final design. Several separate evolutions occurred in 1917.

A 29 June 1917 letter from the G. F. Hemsley Co., stating that the sender "takes the liberty" of forwarding a design for an aviation cap and collar ornament, may well have started official action. The first official correspondence on the subject appears to have been a CNO letter to BuNav dated 19 July 1917. This letter, which forwarded the suggestion from the G. F. Hemsley Co., rejected the ornaments but went on to say that since foreign countries and the U.S. Army had adopted an aviation device, naval aviators also should be given "some form of mark or badge to indicate their qualification, in order that they have standing with other aviation services." The letter, prepared in the Aviation Section of CNO, enclosed a representative design for wings. From that date, the subject was kept alive by the exchange of correspondence concerning the design and production of the insignia by interested firms.

Lt. Cmdr. John H. Towers, assigned to the aviation desk under CNO, requested the assistance of Lt. Henry Reuterdahl in designing the naval aviator wings. Reuterdahl played an important part in the design development. He was later assigned as an artist to record the first transatlantic flight in May 1919, which was planned to be made by four NC aircraft. In a 28 September 1917 letter to Bailey, Banks, and Biddle Company, he recommended simplifying the wings by bolder chasing (engraving) and a reduction in the number of feathers, noting that "most naval ornaments are too fine and not broad enough in character." He also recommended changes in the anchor and rope and the introduction of a slight curve to conform to the shape of the body. He summarized his remarks by saying, "My idea has been to reduce all corners so that there will be no points which might catch in the clothing."

Several different designs were proposed and submitted for approval. The sample pins passed through a number of changes. Bronze, the first metal suggested, was quickly rejected in favor of a gold and silver combination. This, in turn, was changed to all silver and finally, in October 1917, all gold was selected. The size changed from more than three inches to the final of 2 3/4 inches. The "U.S." was dropped from the design and stars on the shield were proposed and rejected as violating the laws of heraldry.

By October 1917 the Bailey, Banks, and Biddle Company took the lead over its competitors and on 24 October submitted its first sample pin. In early November it submitted other samples and was ready to make "prompt delivery of such number of devices as you may desire." It is believed these various sample pins added to the confusion regarding the existence of official naval aviator wings. On the final decision to place an order, the record is obscure but it may have been a BuNav letter to the supply officer at NAS Pensacola, Fla., dated 21 November 1917, selecting "the higher priced pin" ($1.15 each). The company was not named, but it seems fairly certain that it was Bailey, Banks, and Biddle. Its letter to BuNav dated 19 December 1917 confirms a telegram stating: "balance aviator insignia shipped tomorrow."

The first wings, made by Bailey, Banks, and Biddle of Philadelphia, Pa., were received by the Navy in December 1917 and issued early in the following year. The fact that the first pins were delivered in this month is also confirmed in a 26 December letter from BuNav to NAS Pensacola reporting that the new pins had been received and "will be sent out as soon as they can be engraved to show the Aviator's number, his name and branch of service." The bureau asked the jeweler not to sell the wings to individuals.

The requirement to engrave the aviator's number posed a problem concerning the precedence list of trained naval aviators. This was solved by the preparation of an aviators' precedence list, covering numbers 1 through 282, by the CNO Aviation Section. Thus, the development of wings was responsible for the first precedence list and, in addition, was a factor in the later assignment of fractional numbers to many aviators omitted from this first compilation.

When forwarded to BuNav on 19 January 1918, distribution of the first wings could begin. After almost eight years of naval aviation and nine months of war, naval aviators had wings—a badge of qualification that would set them apart. It seems likely that Cmdr. Towers, senior naval aviator in Washington at the time, was an early—if not the first—recipient. The engraving of the individual's name, naval aviator number, and branch of service was discontinued sometime during WWI.

The official approval for naval aviator wings was announced before a final design had been agreed upon. On 7 September 1917, the Secretary of the Navy approved Change 12 to the 1913 uniform regulations. The pertinent portion stated: "A Naval Aviator's device, a winged foul anchor with the letters 'U.S.', is hereby adopted to be worn by qualified Naval Aviators. This device will be issued by the Bureau of Navigation (BuNav) to officers and men of the Navy and Marine Corps who qualify as Naval Aviators, and will be worn on the left breast."

However, before any such wings were issued, the design was modified by Change 14, approved 12 October 1917 and issued in BuNav Circular Letter 40-17 of 20 November 1917: "The device for Naval Aviators will be a winged foul anchor, but the letters 'U.S.' given in Change in Uniform Regulations No. 12, have been omitted." Several other changes to the 1913 uniform regulations occurred regarding the wings before the design was finalized. Uniform Regulations, Change Number 18 of 1 April 1918, states "Naval Aviator's Device—Device for naval aviators will be a winged foul anchor, to be worn by qualified naval aviators. This device will be issued . . . and worn on the left breast." Change number 20 (undated) has the following pertinent information:

> Chapter 10 and changes 11, 12, 14, 16, and 18 of Uniform Regulations, 1913, are annulled and in lieu thereof this chapter is substituted: NAVAL AVIATOR'S DEVICE—Device for naval aviators will be a winged foul anchor, to be worn by qualified naval aviators. This device will be issued by the Bureau of Navigation to officers and men of the Navy and Marine Corps who qualify as naval aviators, and will be worn on the left breast.

Another modification to the 1913 uniform regulation was made by Change 29, dated 13 May 1920. In Article 262, under "Naval Aviator's Device" the title of the paragraph was changed to read "Naval Aviation Insignia" and the first sentence read: "Insignia to be worn by qualified naval aviators and by warrant officers and enlisted men holding certificate of qualification as naval aviation pilots, is a winged foul anchor."

The 1922 uniform regulations, approved on 20 September 1922, described the wing design in more detail: "A gold embroidered or bronze gold-plated metal pin, winged, foul anchor surcharged with a shield 1/2 inch in height, 2 3/4 inches from tip to tip of wings; length of foul anchor 1 inch." Except for a reduction in the length of the foul anchor from 1 to 7/8 inch, made by Change 1 to the above regulations, and an elaboration of the description in 1951 which added dimensions for the shield (7/16 inch high and at its widest point) and for the width of the anchor (11/16 inch at the flukes and 7/16 at the stock), the original design has changed very little since 1922.

The design pictured below was published by the *Air Service Journal* on 27 September 1917. A short article in the journal identified it as a "Naval Aviator's Device" of gold and silver metal as described by a change in Uniform Regulations No. 10. It is believed the article may have been referring to Change 12 in the uniform regulations, which was issued on 7 September 1917. This published design, most likely an artist's rendition, also failed to take into account the shield.

The following artist's rendition is most likely the design referenced in Change 12 of Uniform Regulations, 1913, and issued on 7 September 1917:

The photograph below is of the original design authorized by Change 14 of the 1913 uniform regulations, approved 12 October 1917, and quoted in BuNav Circular Letter 40-17 of 20 November 1917. This is the officially approved design made by Bailey, Banks, and Biddle and issued to naval aviators in early 1918.

The following photographs trace the evolution of the wings during the 1920s, 30s, and early 40s:

During World War II, the wings began showing a series of dots, or circles in the upper part of the design where the wings break. The original design shows these as small feathers, not dots or circles.

On most Naval Aviator wings there is a small dot or circle on one of the anchor flukes. That design is part of the normal structure of an anchor called a becket, which is an eye with a line attached used for securing the anchor to the side of the ship to keep it from moving when the ship is underway.

This wing design in gold or a gold finish has been the standard design since the 1950s.

Aircrew (Air Crew)/Combat Aircrew Wing Insignia

During WWII a new aviation breast insignia was designed in response to numerous recommendations from the fleet to recognize the job done by enlisted aircrew personnel flying in combat. In a Navy Department press release of 18 May 1943, the new Air Crew insignia was described as follows: "The Air Crew insignia consists of silver wings with a center disk surcharged with fouled anchor. Below the disk is a scroll with the legend 'Air Crew,' and above it is a bar on which gold stars can be placed."

The Bureau of Naval Personnel (BuPers) Circular Letter Number 90-43 of 29 May 1943 announced the approval of an air crew insignia, recognizing the air-fighting ability of flight crews. It was intended primarily for enlisted ratings in the flight crews of naval aircraft. However, any commissioned or warrant officer, other than pilots or designated naval aviation observers, who met the qualification requirements, were eligible to wear the insignia. The initial requirements were:

> a. Having served, subsequent to 7 December 1941, for a total of three months as a regularly assigned member of the Air Crew of a combatant craft.
>
> 1. "Combat aircraft" shall be considered as all operating aircraft of the Fleet or Frontier Forces, and excepts utility aircraft, which are neither designed nor fitted out for offensive (or defensive) operations.
> 2. The term "regularly assigned member of the Air Crew" shall be interpreted literally, and shall be substantiated by the battle station bill of the unit, under such instructions that may be approved and promulgated by the Bureau of Naval Personnel.

b. Having suffered injuries or other physical impairment, while engaged in combatant operations since 7 December 1941, as a regularly assigned member of a combatant aircraft, which precludes the possibility of fulfillment of the time requirements, stated in subparagraph (a) above, and is recommended by the Commanding Officer of the Unit in which injury or physical impairment was received.

c. Individual combat stars will be authorized by Unit Commanders, in conformance with instructions issued by Commander-in-Chief, United States Fleet, to those members of Air Crews who:

1. Engage enemy aircraft, singly or in formation.
2. Engage armed enemy combatant vessels with bombs, torpedoes, or machine guns.
3. Engage in bombing offensive operations against enemy fortified positions.
4. A maximum of three combat stars shall be awarded for display on the Air Crew Insignia; combat actions reports in excess of three will be credited only in the record of the individual concerned.

d. Personnel qualified by provisions of subparagraphs (a) and (b) above may wear the Air Crew Insignia permanently.

The qualification requirements to wear the insignia were modified several times. BuPers Circular Letter Numbers 173-43 of 8 September 1943, 22-44 of 29 January 1944, and 174-44 of 16 June 1944 all make modifications to the qualifications but do not give a detailed description of the insignia.

BuPers Circular Letter Number 395-44, dated 30 December 1944, provided a comprehensive description of the wings:

> The Aircrew Insignia is a silver-plated or silver-color, winged, metal, pin, with gold-color circular shield with surcharged foul anchor, superimposed on wing roots, with words "AIRCREW" below circular shield; a silver-color bar over the circular shield with three threaded holes to receive three gold-color combat stars when officially awarded. The insignia will measure two inches from tip to tip of the wings: circle on shield 5/16"; total depth of the shield from the top of the circle to the bottom of the shield 9/16".

The uniform regulations of 2 May 1947 provided a modified description of the wings:

> A silver-plated or silver color, winged, metal pin, with gold circular shield surcharged with foul anchor, superimposed on wing roots, with word "AIRCREW" in raised letters on a silver-color background below the circular shield; above the shield there shall be a silver-color scroll; the insignia to measure 2" from tip to tip of the wings; circle on shield 5/16" in diameter; total height of the shield and silver background beneath the shield 9/16". The scroll shall be 1/8" wide and 3/4" long and shall be centered over the wings. Gold stars to a total of three, as merited, shall be mounted on the scroll, necessary holes being pierced to receive them. A silver star may be worn in lieu of three gold stars.

This drawing of an early Aircrew Insignia without stars was published in the April 1943 issue of *Naval Aviation News*.

In 1958 there was a major change in the insignia. On 10 April 1958 Change 5 to the 1951 uniform regulations was issued. The name Aircrew or Air Crew insignia was redesignated Combat Aircrew insignia. Beside the redesignation, there were a few minor changes to the breast insignia. The new description read:

> A silver color, metal pin; winged, with gold color circular shield surcharged with a foul anchor, superimposed on wing roots; with word "AIRCREW" in raised letters on a silver background

below the shield. Above the shield there shall be a silver color scroll. The insignia shall measure 2" from tip to tip of wings; the circular shield shall be 3/8" in diameter; height of anchor 1/4" with other dimensions proportionate; total height of shield and silver background beneath 9/16"; the scroll shall be 3/4" long and 1/4" wide; centered over the shield, each end to rest on top of wings. Gold stars of a size to be inscribed in a circle 1/8" in diameter, to a total of three, as merited, shall be mounted on the scroll, necessary holes being pierced to receive them. A silver star may be worn in lieu of three gold stars.

In 1958 the Navy redesignated the Aircrew Wing Insignia—that had been approved in 1943 to recognize and be awarded to personnel who flew in combat on naval aircraft—to the new designation Combat Aircrew Wings and then created a new design for Aircrew Wings Insignia. The new aircrew insignia was worn by naval aviation person who flew as crewmembers on board naval aircraft but had nothing to do with whether they flew in combat or non-combat missions.

Following the 1958 redesignation, the Navy continued to allow the wearing of the redesignated Aircrew insignia for those Navy individuals who had previously been authorized to wear the device.

With the establishment of a new aircrew wing insignia the Navy no longer awarded or issued the combat aircrew wing insignia that had been created in 1943 to Navy personnel. The 1978 U.S. Navy uniform regulations removed the Combat Aircrew insignia from the authorized list of aviation breast insignia. However, the Marine Corps continued to use the 1943 aircrew insignia design, now called Combat Aircrew Wings, and awarded the wings to personnel who met the qualification requirements.

A Bureau of Naval Personnel Memorandum, approved by Chief of Naval Operations on 7 November 1994, authorized Navy personnel, who flew as aircrew with Marine Corps units in combat, to wear the combat aircrew wings. However, they are not authorized for Navy personnel flying in combat on board Navy aircraft. They are only authorized to wear the aircrew wings. The appropriate change was made to the Navy uniform regulations.

Aircrew Insignia Wings

Change 5 to the 1951 Uniform Regulations, dated 10 April 1958, redesignated the 1943 designed Aircrew insignia to Combat Aircrew insignia and also established a new Aircrew insignia design. The new aircrew insignia was patterned along the basic lines of the Naval Aviation Observer insignia and was described as: "Shall be a gold color metal pin; winged, with a circular center design and anchor upon which the block letters AC are superimposed. Width between tips of wings shall be 2 3/4"; circle diameter shall be 3/4"; height of anchor shall be 1/2" with other dimension proportionate."

On 11 August 1965, BuPers Notice 1020 authorized the wearing of the aircrew breast insignia on a permanent basis. From the establishment of the newly designed Aircrew insignia in 1958 and until 1965, the insignia could only be worn by qualified personnel serving in an aircrew position. If an individual was assigned to a shore billet and not involved in aircrew duties, then they were not authorized to wear the insignia. Under the new guidance, a person who qualified to wear the Aircrew insignia could continue to wear the breast device at anytime during their military service or unless the person was disqualified for aircrew duty.

Naval Aviation Experimental Psychologists and Naval Aviation Physiologists Wings

On 12 April 1967, the Under Secretary of the Navy approved a change to the Navy uniform regulations that authorized a new wing insignia for aviation experimental psychologists and aviation physiologists. In February 1966, both were designated as crew members and ordered to duty involving flying. These individuals were assigned to duties such as in-flight analysis of human performance in fleet and training operations covering a myriad of weapons systems and tactics, providing extensive training for all aircrew personnel in airborne protective equipment and egress systems, and test and evaluation of new and improved aircraft systems.

Their gold wings are similar to those worn by flight surgeons, except the gold oak leaf does not have the acorn. The photo below shows the wings of the naval aviation experimental psychologists and physiologists.

Naval Aviation Supply Wings

Plans began in 1982 for the establishment of a naval aviation supply officer program and the authorization for a breast insignia for qualifying Supply Corps officers. On 8 May 1984, during the 73rd annual Aviation Ball, the first naval aviation supply wings were presented by Vice Adm. Robert F. Schoultz, Deputy Chief of Naval Operations (Air Warfare), to Vice Adm. Eugene A. Grinstead Jr., SC, USN; Rear Adm. Andrew A. Giordano, SC, USN (Ret); and Commo. John H. Ruehlin, SC, USN, Commanding Officer, Aviation Supply Office, Philadelphia, Pa. Officers qualified to wear the naval aviation supply wings must complete a demanding qualification program that requires approximately 350 hours of study and practical experience. They must also pass an oral examination administered by supply and aviation maintenance officers at their operating sites.

The naval aviation supply wings consist of the traditional naval aviator wing style with an oak leaf cluster in the center. The photograph below is a line drawing depicting the wings.

Enlisted Aviation Warfare Specialist Wings

In order to recognize enlisted personnel serving in naval aviation who were not aircrew members, a new program and set of wings was established. The Operational Navy Instruction (OPNAVINST) 1412.5 of 19 March 1980 established the Enlisted Aviation Warfare Qualification Program and the new wing insignia. The enlisted aviation warfare specialist wings are issued to enlisted personnel who acquired the specific professional skills, knowledge, and military experience that resulted in unique qualification for service in the aviation activities of the Navy.

The 1981 uniform regulations described the aviation warfare wings as follows: "A silver embroidered or silver color metal pin (for enlisted); winged, with a central device consisting of a shield with an anchor superimposed thereon and a scroll at the bottom of the insignia."

Balloon Pilot Wing Insignia

The exact date the balloon pilot wing device was approved is not clear. However, the description of the wing first appeared in the uniform regulations of 20 September 1922. In this regulation the following statement appears: "Enlisted men holding certificates of qualification as balloon pilots shall wear the same insignia as in paragraph (a) but with the right wing removed." Paragraph (a) was a description of the naval aviator wings. There were no changes between 1922 and 1947. In the uniform regulations of 2 May 1947, the words "Enlisted men" are replaced by "Persons" in the above statement. The 1978 U.S. Navy uniform regulations removed the Balloon Pilot insignia from the authorized list of aviation breast insignia.

Flight Nurse Wing Insignia

BuPers Circular Letter Number 86-45 of 30 March 1945 announced the Secretary of the Navy had approved an insignia for naval flight nurses on 15 March 1945. The change to the 1941 uniform regulations read:

> Aviation Insignia, Naval Flight Nurses—Nurses who have been designated as Naval Flight Nurses shall wear the following insignia: Gold-plated metal pin, wings, with slightly convex oval crest with appropriate embossed rounded edge and scroll. The central device shall be surcharged with gold anchor, gold spread oak leaf and silver acorn, symbol of the Nurse Corps insignia. The insignia shall measure 2" from tip to tip of the wings; oval crest $^{9}/_{16}$" in vertical dimension and $^{7}/_{16}$" in width; oak leaf $^{13}/_{32}$" in length, $^{7}/_{32}$" in width, to be diagonally mounted surcharged on the anchor; silver acorn $^{1}/_{8}$" in length surmounted on oak leaf.

The insignia was to be worn until the designation "Flight Nurse" was revoked.

These are the 1945 Flight Nurse Wings.

On 11 August 1952, the Secretary of the Navy approved a revision to the insignia. The BuPers Change Memo 1-2 of 6 February 1953 described the new version as: "The insignia shall consist of a gold color metal pin of the same design as that prescribed for Flight Surgeons . . . except that the acorn shall be omitted, and the width between wing tips shall be 2"; oval width $^{15}/_{32}$" vertical and $^{5}/_{16}$" horizontal axis; thickness at leaf center, $^{1}/_{8}$"."

This version of the Flight Nurse Wing Insignia was approved in 1952.

Flight Surgeon Wing Insignia

On 18 May 1942, the Chief of Naval Personnel approved an insignia for naval flight surgeons. BuPers Circular Letter Number 107-42 of 29 July 1942 announced changes to the 1941 uniform regulations. These, as approved by the Secretary of the Navy, included the establishment of the new flight surgeon wings. The change read:

> Officers of the Medical Corps who have qualified as Naval Flight Surgeons shall wear the following insignia on the left breast: A gold plated metal pin, winged, with slightly convex oval crest, with appropriate embossed rounded edge and scroll. The central device to be surcharged with gold

> oak leaf and silver acorn, symbol of Medical Corps insignia. The metal pin shall be of dull finish. Dimensions: 2 3/4 inches between wing tips, central device 1 inch in vertical dimension to lower edge of fringe. Lateral width of oval crest, 3/4 inch. Oak leaf 7/8 inch in length, 9/16 inch in width, to be vertically mounted surcharged on oval. Silver acorn 3/8 inch in length surmounted on oak leaf.

A Navy Press Release issued a few days earlier, on 27 July 1942, noted, "It will consist of wings which are a modification of the Perian Feroher with a central design consisting of convex oval crest with appropriate scroll and rounded edge. The central device is to be surcharged with the gold leaf and silver acorn that serves as the Medical Corps symbol."

These are the Flight Surgeon Wings approved in 1942.

On 11 August 1952, the Secretary of the Navy approved a major revision to the flight surgeon wings. The new design superimposed the Medical Corps device (gold oak leaf and silver acorn) on the style of wings used for the naval aviator wing insignia. BuPers Memo 1-2 of 6 February 1953 and the change to the 1951 uniform regulations describes the new design:

> A gold embroidered or gold color metal pin; winged; with an oval center design upon which the Medical Corps device (a gold oak leaf and silver acorn) is superimposed. Width between tips of wings shall be 2 3/4"; oval with 5/8" vertical and 13/32" horizontal axis; thickness with acorn 3/16"; acorn and cup 7/32" long; acorn width 1/8"; cup depth 11/16"; cup width 11/64".

These are the revised Flight Surgeon Wings of 1952.

Naval Astronaut (Naval Flight Officer) Wings

The 1984 uniform regulations, issued on 6 February 1984, authorized the wearing of the new naval astronaut (naval fight officer) wings. The regulations described them as: "Naval Astronaut (NFO) Insignia. A gold embroidered or solid gold metal pin; winged and containing a shooting star with an elliptical ring surrounding the trailing shafts; superimposed diagonally from bottom right to top left, on the shield of the traditional Naval Flight Officer's Wings."

A naval flight officer or an active duty officer qualified as a Naval Astronaut (Specialist), who is not a Navy pilot or NFO, may wear the naval astronaut (NFO) wings if they are designated by the CNO or Commandant of the Marine Corps after meeting the following qualifications:

a. Currently on flying status as a naval flight officer or a payload specialist as a shuttle astronaut (but not qualified as a Navy pilot or NFO) in either the Navy, Marine Corps, or their Reserve components.

b. Trained, qualified, and certified to fly as a mission or payload specialist in powered vehicles designed for flight above 50 miles from the earth's surface.

c. Have completed a minimum of one flight as a mission or payload specialist aboard an extraterrestrial vehicle in a flight above 50 miles from the earth's surface.

Naval Astronaut (Pilot) Wings

The Navy's first naval astronaut (pilot) wings were presented to Cmdr. Alan B. Shepard Jr. on 6 December 1961 by the Chief of Naval Operations, Adm. George W. Anderson. On 18 December 1962, the Secretary of the Navy officially approved the Uniform Board's recommendation to include a description and photograph of the naval astronaut wing insignia in the 1959 uniform regulations. The naval astronaut (pilot) wings are identical to the Navy pilot wings with the addition of a shooting star superimposed over the shield. The shooting star symbolized the astronaut's spatial environment.

The *Naval Military Personnel Manual* states the criteria for designation as a Naval Astronaut (Pilot). A naval pilot may wear the wings upon designation by the CNO or Commandant of the Marine Corps after meeting the following qualifications:

a. Currently on flying status as a naval pilot in either the Navy, Marine Corps, or their reserve components.

b. Trained, qualified, and certified to fly a powered vehicle designed for flight above 50 miles from the earth's surface.

c. Completed a minimum of one flight as a pilot or mission specialist aboard an extraterrestrial vehicle in a flight above 50 miles from the earth's surface.

Naval Aviation Observer Wings

The Naval Aviation Observer (NAO) designation had its origin in an act of Congress on 12 July 1921, which created the Bureau of Aeronautics and provided that its chief qualify within one year of his appointment as an "aircraft pilot or observer." The functions and qualifications for an observer were first defined on 27 March 1922; on 17 June of the same year, Rear Adm. William A. Moffett became the first to qualify for the designation as a Naval Aviation Observer.

The 1922 uniform regulations, approved 20 September, provided that officers designated as Naval Aviation Observer wear the same insignia as that worn by naval aviators, except with the right wing and shield removed and an "O" superimposed on the foul anchor.

This, the first Naval Aviation Observer Wing Insignia, was used from 1922 to January 1927.

A 26 January 1927 change to the 1922 uniform regulations (Change Number 3) modified the design and changed it to the same insignia worn by naval aviators except that it was to be in silver.

Between January 1927 and October 1929 the design of Naval Aviation Observer Wings was identical to the gold Naval Aviator Wings except the observer wings were silver.

Bureau of Navigation Circular Letter 71-29 of 19 October 1929 (Change Number 7 to the 1922 uniform regulations) directed another change. This described the new design as: "an insignia the same as for naval aviators as to gold wings, but that the central device shall be an 'O' circumscribing an erect plain anchor, both in silver.

The 'O' and anchor to be in bold relief, the center of the 'O' being filled in gold." The 1941 uniform regulations, of 31 May 1941, repeated the previous description and added dimensions: ". . . outer diameter of 'O' shall be 3/4 inch, inner diameter 9/16 inch. Height of anchor shall be 1/2 inch."

This Naval Aviation Observer Wing design was used by the Navy between 1929 to 1968.

The wings made the same transition that occurred to the naval aviator wings during WWII. A change to the 1951 uniform regulations, issued on 6 February 1953 as BuPers Change Memorandum 1-2, directed the wing style used by the naval aviator breast insignia be adopted for the Naval Aviation Observer insignia. Hence, the series of dots, or circles were incorporated into the upper-part of the design where the wings break.

This detailed description of the insignia is from the uniform regulations of 6 April 1959:

> A gold embroidered or gold color metal pin, winged, with a central device consisting of an O circumscribing an erect, plain anchor, both in silver; the O and the anchor to be in bold relief, the center of the O being filled with gold. The insignia shall measure 2 3/4" between wing tips; outer diameter of O shall be 3/4"; inner diameter of O shall be 9/16"; height of anchor shall be 1/2" with other dimensions proportionate.

This Naval Aviation Observer Insignia shows the dots in the upperpart of the wing.

In the 1950s and 1960s, the naval aviation observer wings were worn by officers who were radar intercept operators (RIOs), bombardier/navigators (BNs), and airborne electronic countermeasures operators (AECMs). They were also worn by enlisted personnel who were qualified navigators, airborne electronic countermeasures operators, airborne radio operators, VG jet aircraft flight engineers, and qualified observers.

On 18 July 1968, the CNO approved a new qualification breast insignia for Navy and Marine Corps personnel designated as Naval Flight Officers (NFOs). BuPers Notice 1020 of 24 August 1968 issued the change to the uniform regulations (NavPers 15665) for the new naval flight officer wings: "This new insignia will replace the Naval Aviation Observer insignia currently worn by Naval Flight Officers and will be authorized for wear upon source availability.

The Naval Aviation Observer insignia will become obsolete after 31 December 1968." This ended the old naval aviation observer wings for a short period of time. However, they were destined for continued use by naval aviation.

Naval Aviation Observer and Flight Meteorologist Wings

On 21 May 1969, the CNO approved the use of the naval aviation observer wings for wear by flight meteorologists and for those officers formerly entitled but not selected as naval flight officers. This change was incorporated into the 1959 uniform regulations by Bureau of Personnel Notice 1020 of 16 June 1969.

The 1969 uniform regulations, issued on 17 October 1969, did not mention the Flight Meteorologist insignia. However, the 1975 uniform regulations, which replaced the 1969 edition, listed the naval aviation observers and flight meteorologist wings. The 1975 regulations state:

> Naval Aviation Observer and Flight Meteorologist Insignia. A gold embroidered or gold color metal pin; winged, with a central device consisting of an O circumscribing an erect, plan anchor, both in silver; the O and the anchor to be in bold relief, the center of the O being filled with gold. The embroidered device shall be on a background to match the color of the uniform on which worn.

Qualifications to wear the naval aviation observer wings, the second oldest wings in the Navy, are outlined

in the *Naval Military Personnel Manual*. Although not aeronautically designated, the following types of officers are authorized to wear NAO wings upon initial qualification: Flight Meteorology and Oceanography Officer; Special Evaluator (officers and warrant officers from the cryptologic community); Aviation Operations Limited Duty Officer (632X); Aviation Operations Technician Warrant Officer (732X); and other officers assigned by the Chief of Naval Personnel to duty involving flying as technical observers and airborne command post crew members.

The Marine Corps authorized the use of the old naval aviation observer wings for personnel completing the Naval Aviation Observer School at Marine Corps Air Station New River. Qualified aerial observers were to provide commanders with information of intelligence value not readily available from normal ground sources regarding enemy forces; procure information concerning terrain, and to supplement operational information of friendly forces; direct supporting fires for ground forces to include artillery, naval gunfire, and close air support; to perform utility and liaison missions as directed from an observation aircraft and to advise commanders of ground units on matters pertaining to aerial observation.

See the section on Naval Aviation Observer Wings for a photograph of the device.

Naval Aviation Observer (Navigation) Wings

BuPers Circular Letter 88-45 of 31 March 1945 announced the Secretary of the Navy had approved an insignia for Naval Aviation Observers (Navigation) on 30 March 1945. It revised the 1941 uniform regulations by adding the following:

> Officers designated as Naval Aviation Observers (Navigation) by the Chief of Naval Personnel shall wear the following insignia: A gold-embroidered or bronze gold-plated metal pin, winged, with silver center device superimposed upon crossed gold-color foul anchors. The centerpiece shall have superimposed upon it, in bold relief and in gold color, one gold disc with eight intercardinal points of the compass; superimposed upon this gold disc will be a second disc, in bold relief and in gold color, with four cardinal points and four intercardinal points of the compass. The insignia shall measure 2 3/4" from tip to tip of wings; silver center device shall be approximately 15/32" in diameter; crossed foul anchors shall be of a size to be inscribed in a circle 3/4" in diameter; the inner gold disc shall be approximately 1/8" in diameter, and the outer gold disc shall be approximately 1/4" in diameter. Naval Aviators and Naval Aviation Observers will not wear the Naval Aviation Observer (Navigation) insignia.

A Bureau of Naval Personnel letter dated 18 March 1947 abolished the Naval Aviation Observer (Navigation) insignia and authorized all officers designated as Naval Aviation Observer (Navigation) to wear the same insignia as that worn by Naval Aviation Observers.

Naval Aviation Observers (Radar) Wings

The Secretary of the Navy approved the Naval Aviation Observer (Radar) insignia on 29 August 1945. BuPers Circular Letter Number 313-45 of 17 October 1945 announced the insignia and a subsequent change was made to the 1941 uniform regulations. The letter described the wings as follows: "Naval Aviation Observers (Radar) shall wear a gold embroidered or bronze gold-platted metal pin, winged, with silver center device superimposed upon crossed gold-color foul anchors. The center piece shall have superimposed upon it, in bold relief and in gold color, a symbolic radar manifestation. The insignia shall measure 2 3/4" from tip to tip of wings; silver center device shall be approximately 15/32" in diameter; crossed foul anchors shall be of a size to be inscribed in a circle 3/4" in diameter. Naval Aviation Observers (Radar) shall not wear any other aviation breast insignia."

A Bureau of Naval Personnel letter dated 18 March 1947 abolished the Naval Aviation Observers (Radar) insignia, and authorized all officers designated as Naval Aviation Observers (Radar) to wear the same insignia

prescribed for Naval Aviation Observers.

Naval Aviation Observers (Tactical) Wing

On 19 January 1946, the Secretary of the Navy approved the naval aviation observers (tactical) wings for Navy and Marine Corps officers performing duty as gunfire and artillery spotters and general liaison operations. A BuPers Circular Letter Number 28-46 of 5 February 1946 changed the 1941 uniform regulations to reflect that Naval Aviation Observers (Tactical) would wear a device similar to the Naval Aviation Observer (Navigation) insignia except "the centerpiece shall have two crossed guns superimposed upon it, in bold relief and in gold color." The BuPers letter provided the following description:

> Naval Aviation Observers (Tactical) shall wear a gold embroidered or bronze gold-plated metal pin, winged, with silver center device superimposed upon crossed gold-color foul anchors. The center piece shall have two crossed guns superimposed upon it, in bold relief and in gold color. The insignia shall measure $2\,{}^{3}/_{4}$" from tip to tip of wings; silver center device shall be approximately ${}^{15}/_{32}$" in diameter; crossed foul anchors shall be of a size to be inscribed in a circle ${}^{3}/_{4}$" in diameter and the crossed guns shall be of a size to be inscribed in a circle ${}^{13}/_{32}$" in diameter.

A Bureau of Naval Personnel letter dated 18 March 1947 abolished the Naval Aviation Observers (Tactical) insignia and authorized all officers designated as Naval Aviation Observers (Tactical) to wear the same insignia prescribed for Naval Aviation Observers.

Naval Aviation Observer (Aerology)

BuPers Circular Letter Number 87-47 of 15 May 1947 established the designation Naval Aviation Observer (Aerology). Besides establishing the qualifications necessary for the designation, the circular letter also stated that: "Officers designated naval aviation observers (aerology) by the Chief of Naval Personnel will be authorized to wear the insignia already established for naval aviation observers . . ." BuPers letter (Pers-329-MEB A2-3) of 24 February 1948 issued Change 1 to the 1947 uniform regulations and states:

> Naval Aviation Observer Insignia. Officers who have been designated as naval aviation observers, Naval Aviation Observers (Aerology), Naval Aviation Observers (Navigation), Naval Aviation Observers (Radar), or Naval Aviation Observers (Tactical) by the Chief of Naval Personnel shall wear the following insignia: A gold embroidered or bronze gold-plated metal pin, winged, with a central device consisting of an "O" circumscribing an erect, plan anchor, both in silver; the "O" and the anchor to be in bold relief, the center of the "O" being filled with gold. The insignia shall measure 2 3/4" between wing tips; the outer diameter of the "O" shall be 3/4", the inner diameter 9/16"; height of anchor shall be 1/2". The embroidered device shall be on a background to match the color of the uniform.

See the Naval Aviation Observer Wing section for a photograph of the Naval Aviation Observer wing.

Naval Flight Officer Wings

On 8 February 1965, a change to Bureau of Personnel Instruction 1210.4C authorized a new designator and name, Naval Flight Officer (NFO). The new designator was appropriate for "an unrestricted line officer, a member of the aeronautical organization . . . who may fill any billet not requiring actual control knowledge of an aircraft." Eight subspecialties were available at the time: bombardier, controller, electronic countermeasures evaluator, navigator, interceptor, photographer-navigator, tactical coordinator, and reconnaissance navigator. The new NFOs continued wearing the naval aviation observer wings.

On 18 July 1968, the CNO approved a new qualification breast insignia for Navy and Marine Corps personnel designated as Naval Flight Officers (NFOs). BuPers Notice 1020 of 24 August 1968 changed the uniform regulations (NAVPers 15665). The notice stated: "This new insignia will replace the Naval Aviation Observer insignia currently worn by Naval Flight Officers and will be authorized for wear upon source availability. The Naval Aviation Observer insignia will become obsolete after 31 December 1968." In this change to the uniform regulations (NAVPERS 15665) all references to Naval Aviation Observers were changed to Naval Flight Officer. Article 0157.2d. of the uniform regulations read: "Naval Flight Officer Insignia. A gold embroidered or gold color metal pin; winged, with a central device consisting of a shield superimposed on a set of small, crossed, fouled anchors. The embroidered device shall be on a background to match the color of the uniform on which worn."

The naval flight officer wings were approved to keep pace with the changes to the designators and new titles for personnel that had been designated Naval Aviation Observers. Flight officers are more closely aligned with pilots as opposed to meteorologists and other scientists. Also, the flying officer/crewmen were line officers who were allowed to compete for and earn any command assignment for which they qualify by demonstrated performance and ability, with the exception of a billet that required actual control knowledge of an aircraft. Hence, naval flight officers were line officers who could qualify for command of a ship or carrier or commanding officer of a squadron just like naval aviators.

Professional Aviation Maintenance Officer Wing Insignia

NAVADMIN 051/09 issued by CNO message of 10 February 2009 (102033Z FEB 09) approved the Professional Aviation Maintenance Officer (PAMO) designation and wing insignia that had been recommended for approval by the Navy Uniform Board in November 2008. Qualification requirements for the PAMO were outlined in OPNAV Instruction 1412.11 of 19 May 2009. The designation and wings are designed to recognize the significant contributions made by aviation ground officers in support of the Navy's aviation mission and warfighting capabilities.

The PAMO wing insignia is $2\frac{3}{4}$ inches by $1\frac{1}{8}$ inches. It is a gold and silver metal device showing the silver eagle and shield superimposed over gold aviation wings with a gold banner depicting "AERO MAINTENANCE". It will have either an anodized or oxidized finish.

Navy and Marine Corps Parachutist Wing Insignia

BuPers Notice 1020 of 12 July 1963 issued information on a change to the 1959 uniform regulations concerning the adoption of a new wing insignia for Navy and Marine Corps parachutists. This notice stated: "The old parachutist insignia . . . shall be renamed the 'Basic Parachutist Insignia' in conformance with the Army and Air Force nomenclature. The subject insignia shall be referred to as the 'Navy and Marine Corps Parachutist Insignia'." The insignia was described as:

> A gold embroidered (Navy only) or gold-colored metal pin, same as that provided for Naval Aviator's insignia, except that a gold-colored open parachute shall be centered on the wings vice the shield and foul anchor; width of the wings from tip to tip shall be $2\frac{3}{4}$"; width of the parachute $\frac{1}{2}$" at the widest part; length of the parachute from top to bottom $\frac{13}{16}$".

General qualifications for wearing the Navy and Marine Corps Parachutist Wings were:

1. Have previously qualified for the Basic Parachutist insignia by completing formal parachutist training at an armed services installation.
2. Have completed a minimum of five additional parachute jumps, under competent orders, with a Navy or Marine Corps organization whose mission includes parachute jumping.

Once a person qualified for the Navy and Marine Corps parachutist insignia it will be worn in lieu of the basic parachutist insignia.

Basic Parachutist Wing Insignia

The first mention of a parachutist designation and qualification badge is found in a change to the 1941 uniform regulations issued by a BuNav Circular Letter Number 51-42 of 31 March 1942. It stated:

> The following Parachute Regulations, having been approved by the Secretary of the Navy on 6 February 1942, are published herewith for the information of all concerned:
>
> 1. (2) DESIGNATION: The designation (ratings) of "Parachutist" and "Student Parachutist" are hereby established for officers, warrant officers, and enlisted men of the Navy and Marine Corps of the United States, which designations (ratings) shall be in addition to such military or Naval ratings or ranks as are now or may hereafter be authorized by law.
> (5) RETENTION OF DESIGNATION AS PARACHUTIST OR STUDENT PARACHUTIST: An officer, warrant officer or enlisted man of the Navy . . . who has attained a designation (rating) as a parachutist or student parachutist . . . provided, that officers, warrant officers, and enlisted men . . . who have been designated as parachutists pursuant to these regulations are authorized to retain permanently and to wear such qualification badge as parachutists as may be prescribed by competent authority.

However, the Secretary of the Navy did not authorize the parachutist badge, even though the above change to the 1941 uniform regulation references the wearing of such a qualification badge. There is no description of a parachutist insignia until January 1947. A BuPers letter (Pers-329-MEB A2-3) of 17 January 1947 issued changes to the 1941 uniform regulations as approved by the Secretary of the Navy. This letter states:

> (j) A parachutist insignia, enclosure (B), has been authorized for enlisted personnel who have been designated as parachutists in accordance with the Bureau of Naval Personnel Manual. This insignia is the same as the parachutist insignia authorized by the Marine Corps and the Army.
> 2. The wearing of the parachutist insignia, enclosure (B), by officers and warrant officers who have been designated as parachutists in accordance with the Bureau of Naval Personnel Manual has also been authorized. Pending a revision of Chapters II and III, U.S. Navy Uniform Regulations, 1941, officers and warrant officers who are eligible to wear the parachutist insignia may do so under similar regulations contained in Art. 8-8 of enclosure (A).

A 14 February 1947 letter from BuPers issued the new Chapter II to the 1941 uniform regulations and included the parachutist insignia.

The 1951 uniform regulations described the parachutist insignia as: "An open parachute, in silver, flanked on each side by wings, curved upward; the device to be 1 1/2" wide and 3/4" high." A BuPers Notice 1020 of 12 July 1963 issued information on a change to the 1959 uniform regulations concerning the adoption of a new wing insignia for Navy and Marine Corps Parachutists. This notice stated: "The old parachutist insignia . . . shall be renamed the 'Basic Parachutist Insignia' in conformance with the Army and Air Force nomenclature."

Marine Aerial Navigator Wings

In June 1976, the Marine Corps approved the use of the old WWII Naval Aviation Observer (Navigation) wings for use by Marine Corps personnel who qualified as Marine Aerial Navigators. *See* the section on Naval Aviation Observer (Navigation) wings for a description and photograph of the wings.

Marine Aerial Observer Wings

See the section on Naval Aviation Observer and Flight Meteorologist Wings. These are the wings worn by Marine aerial observers.

Chapter 10

Aviation Ratings

Enlisted men have served in naval aviation since its inception. The first men reported for duty with Lt. Theodore G. Ellyson and Lt. John Rodgers when they began flight training in 1911. Their numbers increased as the number of aviators and aircraft on hand increased. Despite the specialties involved in aviation, it was a number of years before these men were required to meet special qualifications beyond those of their basic rating. Such special courses as enlisted men received in the 1916–1917 period gave them a certificate to prove satisfactory completion and made them better qualified to carry out aviation duty. However, it had no effect on their basic ratings, the qualifications for which were still based on the requirements of the regular naval service.

Greater emphasis on aviation requirements accompanied the expansion for WW I and with it the basic requirements of the pre-war period were somewhat relaxed but not completely forgotten. One indication of change was a parenthetical addition to the rating to indicate aviation duty, as for example, Machinist's Mate (Aviation) or MM (A). But it was not until 1921 that aviation ratings received recognition as a special branch and the first strictly aviation ratings were established. Since then, adjustments to the rating structure have been frequent. These produced a number of changes and additions to the original basic ratings as well as a great variety of subdivisions within them, some representing a mere change in title, others reflecting changing technology.

The following list covers the aviation basic ratings, shown in alphabetical order.

Aerographer

Rating (**Aerog**) established effective 1 Jul 1924 by CL 99-23 of Dec 1923; distinguishing mark approved by CL 62-26 of 29 Oct 1926*; *See* Aerographer's Mate.

Aerographer's Mate

Aerographer rating (**Aerog**) redesignated Aerographer's Mate (**AerM**) by CL 113-42 of 8 Aug 1942, abbreviation changed to (**AG**) by CL 106-48 of 9 Jun 1948.

Air Controlman

Rating (**SP**) established effective 2 Apr 1948 by CL 40-47 of 21 Feb 1947; abbreviation changed to (**AC**) by CL 106-48 of 9 Jun 1948; *See* Air Traffic Controller.

Aircraft Maintenanceman
A master chief's rating (**AFCM**) approved by SecNav, 5 Nov 1963. *See* Aviation Machinist's Mate.

Aircrew Survival Equipmentman

Parachute Rigger rating (**PR**) redesignated Aircrew Survival Equipmentman effective 7 Dec 1965 by BuPers Note 1440 of 2 Feb 1966, without change of abbreviation.

Airship Rigger

Rating (**AR**) established by CL 205-43 of 12 Oct 1943; distinguishing mark approved by CL 58-44 of 29 Feb 1944*; abolished effective 2 Apr 1948 by CL 246-47 of 15 Dec 1947.

Air Traffic Controller

Air Controlman rating (**AC**) redesignated Air Traffic Controller by BuPers Note 1220 of 10 December 1977, without change in abbreviation.

Aviation Antisubmarine Warfare Operator

Rating (**AW**) established effective 1 Sep 1968 by BuPers Note 1440 of 29 Feb 1968. The Aviation Antisubmarine Warfare Operator rating was redesignated Aviation Warfare Systems Operator by BuPers Note 1440 of 16 November 1993 without change of abbreviation; *See* Aviation Warfare Systems Operator.

Aviation Antisubmarine Warfare Technician

Rating (**AX**) was established effective 1 Dec 1962 by BuPers Note 1440 of 29 Jun 1962. The AX rating was absorbed into the (**AT**) rating by amendments to NAVOP 075/89 of 23 Aug 1990, effective 1 Jan 1991; *See* Aviation Electronics Technician.

Aviation Boatswain's Mate

Rating (**ABM**) established by CL 268-44 of 14 Sep 1944; distinguishing mark approved CL 363-44 of 30 Nov 1944*; abbreviation changed to (**AB**) by CL 106-48 of 9 Jun 1948. Three sub-ratings were created for the Aviation Boatswain's Mate. Responsibilities for the (**ABH**) rating (Aviation Boatswain's Mate–Aircraft Handler) include movement, spotting and securing of aircraft and equipment ashore and afloat; performing crash rescue, fire fighting, crash removal, and damage control duties in connection with launching and recovery of aircraft. The (**ABF**) Aviation Boatswain's Mate–Fuels responsibilities include operating, maintaining, and performing organizational maintenance on aviation fueling and lubricating oil systems on CVs, CVNs, LPHs, and LPDs; observing and enforcing handling safety precautions and maintaining fuel quality surveillance and control in aviation fuel systems; supervising the operation and servicing of fuel farms and equipment associated with the fueling and defueling of aircraft ashore and afloat; and training, directing, and supervising fire fighting crews, fire rescue teams, and damage control parties in assigned fuel and lubricating oil spaces. Aviation Boatswain's Mate–Launch/Recovery (**ABE**) responsibilities include maintaining and performing organization maintenance on hydraulic and steam catapults, barricades, arresting gear, and arresting gear engines; operating catapult launch and arresting consoles, firing panels, water brakes, blast deflectors, and cooling panels; and performing aircraft-handling duties related to the operation of launching and recovery of naval aircraft. The (**AB**) designation is used only for the pay grade E-9 (Master Chief).

Aviation Bombsight Mechanic

Rating (**AOMB**) established as a sub-rating of Aviation Ordnanceman by CL 205-43 of 12 Oct 1943; *See* Aviation Bombsight and Fire Control Mechanic.

Aviation Bombsight And Fire Control Mechanic

Aviation Bombsight Mechanic rating (**AOMB**) renamed Aviation Bombsight and Fire Control Mechanic by CL 355-44 of 27 Nov 1944, without change in abbreviation. The Aviation Bombsight and Fire Control Mechanic (**AOMB**) was redesignated Aviation Fire Controlman (**AFC**) and was designated a basic rate by CL 39-45 of 15 Feb 1945; *See* Aviation Fire Controlman.

Aviation Carpenter's Mate

The Aviation Carpenter's mate rating (**ACM**) was established effective 1 Jul 1921 by CL 9-21 of 24 Mar 1921; distinguishing mark approved by CL 62-26 of 29 Oct 1926*; the (**ACM**) rating was abolished effective 30 Jun 1940 by CL 36-40 of 21 May 1940 and redesignated Aviation Metalsmith (**AM**); *See* Aviation Metalsmith.

Aviation Electrician's Mate

The Aviation Electrician's Mate rating (**AEM**) was established by CL 129-42 of 4 Sep 1942; abbreviation changed to (**AE**) by CL 106-48 of 9 Jun 1948.

Aviation Electronicsman

The Aviation Radioman rating (**ARM**) was redesignated Aviation Electronicsman effective 2 Apr 1948 by CL 40-47 of 21 Feb 1947, without change in abbreviation; abbreviation changed to (**AL**) by CL 106-48 of 9 Jun 1948; abolished by BuPers Instruction 1440.10B of 18 Dec 1959.

Aviation Electronics Technician

Aviation Electronics Technician's Mate rating (**AETM**) was redesignated Aviation Electronics Technician (**AET**) effective 2 Apr 1948 by CL 40-47 of 21 Feb 1947; abbreviation changed to (**AT**) by CL 106-48 of 9 Jun 1948. Ratings (**AQ**), (**AX**), and (**AV**) were scheduled to merge and be redesignated (**AT**) by NAVOP 075/89 of 27 Jun 1989; the (**AV**) rating was removed so only ratings (**AQ**) and (**AX**) were absorbed into the already existing rate of (**AT**) by amendments to NAVOP 075/89 of 23 Aug 1990, effective 1 Jan 1991. The Master Chief rating for Aviation Electronics Technician (Intermediate) and (Organization) remained (**AVCM**). *See* Avionics Technician.

Aviation Electronics Technician's Mate

Aviation Radio Technician rating (**ART**) redesignated Aviation Electronics Technician's Mate (**AETM**) by CL 325-45 of 31 Oct 1945. The Aviation Electronics Technician's Mate rating (**AETM**) was redesignated Aviation Electronics Technician (**AET**) effective 2 Apr 1948 by CL 40-47 of 21 Feb 1947; *See* Aviation Electronics Technician.

Aviation Fire Controlman

Aviation Bombsight and Fire Control Mechanic (**AOMB**) was redesignated Aviation Fire Controlman (**AFC**) and became a basic rate by CL 39-45 of 15 Feb 1945; abolished effective 2 Apr 1948 by CL 40-47 of 21 Feb 1947; *See* Aviation Fire Control Technician.

Aviation Fire Control Technician

The Aviation Fire Control Technician rating (**AQ**) was established in 1954 from sub-ratings of the former Aviation Fire Controlman and in a sense a revival of that rating; under amendments to NAVOP 075/89 of 23 Aug 1990 the (**AQ**) rating was absorbed into the (**AT**) rating; *See* Aviation Electronics Technician.

Aviation Guided Missileman

The Aviation Guided Missileman rating (**GF**) was established and approved by SecNav 23 Jan 1953; abolished by BuPers Instruction 1440.25 of 10 Jun 1960, effective 1 Jul 1960.

Aviation Machinist's Mate

The Aviation Machinist's Mate rating (**AMM**) was established effective 1 July 1921 by CL 9-21 of 24 Mar 1921; distinguishing mark approved by CL 17-41 of 11 Feb 1941*; abbreviation changed to (**AD**) by CL 106-48 of 9 Jun 1948.

Aviation Maintenance Administrationman

The Aviation Maintenance Administrationman rating (**AZ**) was established effective 1 Jan 1964 by BuPers Note 1440 of 22 Jan 1963.

Aviation Metalsmith

The Aviation Metalsmith rating (**AM**) was established effective 1 Jul 1921 by CL 9-21 of 24 Mar 1921; the Aviation Carpenter's Mate rating (**ACM**) was abolished and incorporated into the Aviation Metalsmith (**AM**) rating by CL 36-40 of 21 May 1940; the Aviation Metalsmith rating (**AM**) was redesignated Aviation Structural Mechanic effective 2 Apr 1948 by CL 40-47 of 21 Feb 1947, without change in abbreviation. *See* Aviation Structural Mechanic.

Aviation Ordnanceman

The Aviation Ordnanceman rating (**AOM**) was established by CL 14-26 of 2 Mar 1926; abbreviation changed to (**AO**) by CL 106-48 of 9 Jun 1948.

Aviation Photographer's Mate

See Photographer's Mate.

Aviation Pilot

Rating (**AP**) established by CL 18-24 of 13 Mar 1924, changed to Chief Aviation Pilot and Aviation Pilot First Class by CL 66-27 of 21 Sep 1927, and abolished by a change from a rating to a designation by CL 10-33 of 28 Mar 1933; distinguishing mark approved by CL 24-33 of 30 June 1933*; reestablished as a rating by CL 43-42 of 17 Mar 1942, and again abolished by a change to a designation, effective 2 Apr 1948 by CL 40-47 of 21 Feb 1947. *See* Chapter 8 for more information on Naval Aviation Pilots.

Aviation Quartermaster (Quartermaster, Aviation)

The Quartermaster, Aviation rating was established by BuNav Letter N9H/B-5690 of 16 October 1918; the Quartermaster, Aviation rating was redesignated Aviation Rigger (**AR**) effective 1 Jul 1921 by CL 9-21 of 24 Mar 1921; *See* Aviation Rigger.

Aviation Radioman

The Aviation Radioman rating (**ARM**) was established by CL 5-42 of 13 Jan 1942; the distinguishing mark for the Aviation Radioman (**ARM**) and Aviation Radio Technician (**ART**) are identified as the same specialty marking used by both in the 1944 edition of *The Bluejackets Manual*; *See* Aviation Electronicsman.

Aviation Radio Technician

Rating (**ART**) established by CL 169-42 of 11 Dec 1942, according to the 1944 edition of *The Bluejackets Manual* the same specialty marking was used for Aviation Radioman (**ARM**) and Aviation Radio Technician (**ART**); *See* Aviation Electronics Technician's Mate.

Aviation Rigger

Aviation Quartermaster rating was redesignated Aviation Rigger (**AR**) effective 1 Jul 1921 by CL 9-21 of 24 Mar 1921; abolished effective 30 Jun 1927 by CL 13-26 of 25 Feb 1926.

Aviation Storekeeper

The Aviation Storekeeper rating (**SKV**) was established and approved by SecNav on 28 Sep 1943; distinguishing mark approved by CL 65-45 of 15 Mar 1945*; abbreviation changed to (**AK**) by CL 106-48 of 9 Jun 1948. Aviation Storekeeper rate (**AK**) was abolished NAVADMIN 023/00 dated 10 Feb 2000 with final conversion of all AKs to Storekeeper (**SK**) by 1 Jan 2003.

Aviation Structural Mechanic

Aviation Metalsmith rating (**AM**) redesignated Aviation Structural Mechanic effective 2 Apr 1948 by CL 40-47 of 21 Feb 1947, without change in abbreviation. Three sub-ratings for (**AM**) were created: (**AME**) Aviation Structural Mechanic–Safety Equipment, (**AMH**) Aviation Structural Mechanic–Hydraulics, and (**AMS**) Aviation Structural Mechanic–Structures. NAVADMIN dated 21 Jun 2000 announced the merger of the sub-ratings (**AMS**) and (**AMH**) into the general (**AM**) rating using the regular (**AM**) rating badge. The effective date for the completion of this action was 1 Mar 2001.

Aviation Support Equipment Technician

The Aviation Support Equipment Technician rating (**AS**) was established effective 1 Sep 1966 by BuPers Note 1440 of 24 Feb 1966.

Aviation Warfare Systems Operator

Aviation Antisubmarine Warfare Operator rating (**AW**) was established on 1 Sep 1968 by BuPers Note 1440 of 29 Feb 1968 and redesignated Aviation Warfare Systems Operator by BuPers Note 1440 of 16 Nov 1993, without change of abbreviation. NavAdmin 092/05 of 2 May 2005 directed the consolidation of Enlisted Naval Aircrew (**NAC**) ratings into Naval Aircrewman (**AW**) with five subspecialities and eliminated the Aviation Warfare Systems Operator designation. *See* Naval Aircrewman.

Avionics Technician

A master chief's rating (**AVCM**) established and approved by SecNav, 5 Nov 1963, this rating applies to the functional areas of Aviation Electronics Technician (Intermediate) and (Organizational); *See* Aviation Electronics Technician.

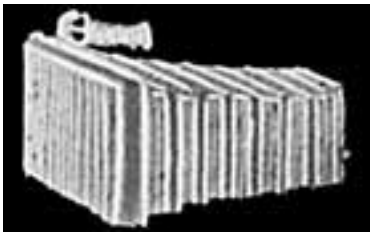
Naval Aircrewman

The Naval Aircrewman (**AW**) rating was established by NavAdmin 092/05 of 2 May 2005 and eliminated the rating Aviation Warfare Systems Operator but maintained the (**AW**) designation. The (**AW**) designation is only for Master Chief Naval Aircrewman effective 1 October 2008. There are five subspecialities of Naval Aircrewman: (**AWF**) for Naval Aircrewman Mechanical, (**AWO**) for Naval Aircrewman Operator, (**AWS**) for Naval Aircrewman Helicopter, (**AWR**) for Naval Aircrewman Tactical Helicopter, and (**AWV**) for Naval Aircrewman Avionics. Naval Aircrewman will continue to use the Aviation Warfare Systems Operator rating badge.

Parachute Rigger

The Parachute Rigger rating (**PR**) was established by CL 33-42 of 24 Feb 1942; the Parachute Rigger rating was redesignated Aircrew Survival Equipmentman effective 7 Dec 1965; *See* Aircrew Survival Equipmentman.

Photographer

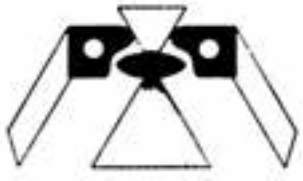


Rating (**P**) established in the Aviation Branch effective 1 Jul 1921 by CL 9-21 of 24 Mar 1921, apparently later transferred to Special Branch, but returned to the Aviation Branch by CL 14-26 of 2 Mar 1926; *See* Photographer's Mate.

Photographer's Mate

Photographer's rating (**P**) redesignated Photographer's Mate (**PhoM**) by CL 113-42 of 8 Aug 1942 and removed from the Aviation Branch; rating split into Photographer's Mate and Aviation Photographer's Mate (both **PhoM**) effective 2 Apr 1948 by CL 40-47 of 21 Feb 1947; abbreviation changed to (**AF**) by CL 106-48 of 9 Jun 1948; ratings combined to become Photographer's Mate (**PH**) of the Aviation Group by CL 116-50 of 31 Jul 1950. The (**PH**), (**JO**), (**LI**), and (**DM**) ratings were merged to form a new rating called Mass Communications Specialist (**MC**) as directed by NAVADMIN 339/05 OF 28 Dec 2005.

Photographic Intelligenceman



The Photographic Intelligenceman rating (**PT**) was established by BuPers Note 1223 of 2 Oct 1957. The (**PT**) rate merged with (**YN**) NEC 2505 to form Intelligence Specialist (**IS**) (not an aviation rating) by BuPers Note 1440 of 6 Dec 1974.

Tradevman (Training Devices Repairman and Instructor)

The Tradevman rating (**TD**) was established by CL 106-48 of 9 Jun 1948; rate slated for disestablishment by BuPers Note 1440 of 22 Jul 1982 beginning in Fiscal Year (FY) 1984 with all conversions of personnel in this rate to be completed by the end of FY 1988.

* Distinguishing marks are for non-rated qualified as striker in a particular aviation rating (e.g. Aviation Machinist's Mate). The mark is worn midway between the wrist and elbow of the left sleeve. Distinguishing marks were superseded by the introduction of group rates used with striker marks by non-rated men in 1948.

CHAPTER 11

Aviation Personnel on Active Duty

	Navy					Marine Corps				
	Officers			Enlisted		Officers			Enlisted	
1 July	Pilots	NFO	Other	Pilots	Aviation Rates	Pilots	NFO	Other	Pilots	Aviation Rates
1920	630		243		4,404					
1921	370		108		3,494					
1922	314		220		2,209					
1923	326		241		1,612					
1924	328		161		1,788					
1925	382		137		1,711					
1926	426		173		1,722					
1927	472		177	108	1,984					
1928	466		196	141	2,644					
1929	520		207	173	2,894					
1930	614		221	244	2,651	82		17	24	1,112
1931	737		427	330	2,806	98		15	33	999
1932	803		396	355	2,958	101		17	32	917
1933	826		450	337	11,949	103		15	30	913
1934	834		496	306	11,667	104		16	34	938
1935	867		559	280	12,129	110		15	28	985
1936	963		502	297	13,055	113		20	29	978
1937	1,002		530	355	15,091	135		20	41	1,093
1938	1,059		580	447	19,463	171		23	46	1,082
1939	1,068		609	533	19,907	180		16	47	1,091
1940	2,203		145	349	5,924	304		17	45	1,677
1941	3,483		963	629	10,640	453		27	52	3,051
1942	9,059		5,716	732	27,286	1,284		345	85	12,583
1943	20,847		20,958	774	105,445	4,898		2,419	132	50,485
1944	37,367		26,596	475	183,886	10,416		4,406	41	91,246
1945	49,380		27,946	439	241,364	10,229		5,080	47	96,354
1946 Data not available										
1947	10,052		3,054	537	44,201					
1948	10,232		2,475	629	56,767	1,955		213	352	11,629
1949	11,509		2,343	622	73,631	1,975		221	269	14,631
1950	9,481		1,906	920	63,505	1,922		214	255	12,017
1951	14,079		3,936	775	114,038	3,127		785	237	25,025
1952	15,774		4,633	715	129,412	4,169		1,472	210	38,359
1953	17,612		4,403	684	137,218	4,484		1,475	131	49,742
1954	16,722		4,078	631	125,102	3,848		1,647	123	39,748
1955	16,448		3,823	622	115,011	4,208		1,976	120	38,173
1956	17,193		4,209	264	135,600	4,399		1,778	109	36,232
1957	17,993		4,662	243	140,283	4,348		1,780	101	39,433
1958	18,236		4,683	210	134,212	4,225		1,697	102	37,027

	Navy					Marine Corps				
	Officers			Enlisted		Officers			Enlisted	
1 July	Pilots	NFO	Other	Pilots	Aviation Rates	Pilots	NFO	Other	Pilots	Aviation Rates
1959	17,813		4,572	179	127,811	3,937		1,281	105	32,900
1960	17,090		4,977	124	121,985	3,958		1,329	96	30,326
1961	17,354		4,475	87	123,134	4,031		1,349	66	34,253
1962	18,301		6,436	70	135,453	4,087		1,437	51	41,476
1963	17,613		6,567	59	132,538	4,131		1,594	27	41,834
1964	17,074		7,069	51	130,742	4,234		2,132	23	41,791
1965§	16,570		7,932	43	126,988	4,372		2,346	17	41,563
1966	16,469		8,649	37	133,359	4,541		2,963	13	36,232
1967	15,973		8,985	35	139,742	4,401		3,987	12	60,192
1968	15,767		9,633	30	141,713	4,440		3,887	9	63,361
1969	15,274		10,220	27	147,679	4,648		3,973	5	62,858
1970	14,594		8,433	22	135,945	4,892		4,241	4	62,032
1971	14,890		8,215	13	120,301	4,917		3,569	4	54,672
1972	14,245		7,978	5	114,136	4,787		2,124	3	53,605
1973	13,665		7,701	3	111,329	4,384		3,126		48,110
1974	13,236		7,690	1	108,203	4,042		2,927		32,527
1975*	13,056		7,643	1	105,619	3,921		2,671		32,454
1976‖	12,560	4,128	2,302	1	101,058	3,712		2,744		30,338
1977†	11,608	3,970	2,343	1	102,445	3,644		2,679		30,499
30 Sep										
1978	10,632	4,268	2,271	1	108,180	3,429		2,850		28,176
1979	9,707	4,327	2,123	1	107,669	3,219		2,856		29,369
1980	9,487	4,377	2,012	1	107,996	2,312#	61#			34,059#
1981	9,828	4,666	1,954		109,915	2,532#	66#			33,832#
1982	10,203	4,819	1,891		112,209	2,780#	73#			35,532#
1983	10,483	5,160	2,223		114,722	2,991#	82#			37,972#
1984	10,479	5,280	2,425		115,325	3,086#	85#			41,408#
1985	10,559	5,566	2,685		114,866	3,119#	99#			42,050#
1986	10,516	5,734	2,796		117,886	3,056#	96#			39,846#
1987	10,748	5,966	2,749		122,563	3,357#	120#			38,163#
1988	10,835	6,111	2,723		123,428	3,423#	145#			36,523#
1989	11,022	6,241	2,641		123,651	3,429#	154#			36,136#
1990	11,018	6,340	2,534		118,611	3,492#	193#			37,024#
1991	10,491	6,109	2,487		114,056	3,582#	223#			37,114#
1992	10,338	6,060	2,443		113,943	3,536#	259#			36,644#
1993	9,162	5,222	1,116		72,182#	3,556#	303#			34,365#
1994	8,287	4,537	977		69,725#	3,473#	324#			33,260#
1995	7,751	4,079	939		63,309#	3,579#	353#			32,605#
1996	‡	‡	‡		‡	3,552#	361#			32,680#
1997	7,915	4,050	4,109**		69,085#	3,467#	360#			32,843#
1998	7,431	3,848	4,313**		67,179#	3,401#	371#			33,851#
1999	7,276	3,759	4,195**		67,583#	3,441#	384#			34,942#
2000	7,286	3,741	4,254**		68,654#	3,475#	403#			35,401#

	Navy					Marine Corps				
	Officers			Enlisted		Officers			Enlisted	
30 Sep	Pilots	NFO	Other	Pilots	Aviation Rates	Pilots	NFO	Other	Pilots	Aviation Rates
2001	7,348	3,871	4,030**		79,345#	‡	‡			35,580#
2002	7,469	3,871	4,233**		82,293#	‡	‡			36,327#
2003	7,686	3,838	4,308**		82,725#	‡	‡			36,735#
2004	7,859	3,801	4,016**		80,967#	4,006#	458#			37,675#
2005	7,823	3,738	3,860**		78,871#	3,965#	469#			37,768#
2006	7,779	3,618	3,789**		74,132#	3,924#	461#			36,824#
2007	7,808	3,540	4,020**		70,525#	3,956#	465#			37,531#
2008	7,022	3,273	4,080**		62,684#	3,913#	444#			39,345#
2009	7,014	3,236	4,064**		62,184#	3,978#	429#			40,372#
2010	6,929	3,191	4,208**		62,604#	4,088#	401#			40,378#

* Navy figures are for 31 Mar 1975. USMC figures are for 30 Jun 1975.

† Navy figures are for 30 Jun 1977. USMC figures are for 30 Sep 1977.

‡ Data not available.

§ Naval Aviation Observers (NAO) redesignated Naval Flight Officers (NFO) by BuPers Instruction 1210.4C of 8 Feb 1965, effective 1 May 1965.

‖ NFO designation separated from other non-pilots.

Annual Report, *Bureau of Naval Personnel Statistics* (Report 15658), discontinued in mid FY 1993. Figures for Navy enlisted personnel in aviation rates provided directly from BuPers. Figures for Marine Corps Pilots, NFO and Aviation Rates from 1980 to 2010 provided by HQMC Aviation.

** These figures include Pilot or NFO rating that has been terminated, training to be a pilot or NFO, Aeronautical Engineering and Maintenance Specialties, LDO for Aviation Deck, Aviation Operations, Aviation Maintenance, Aviation Ordnance, Avionics, and Air Traffic Control.

Note: Does not include men in training. Aviation rates under Navy for years 1933–39 include general service ratings assigned to aviation duty. Enlisted pilots for 1920–26 are included under aviation rates. All Navy figures for WWII period, 1940–45, include Coast Guard. Figures not available for Marine Corps, 1920–29.

Chapter 12

Medal of Honor Awards in Naval Aviation

To Naval Aviators and Naval Aviation Pilots in Connection with Aviation

Name	Rank/Service	N.A. Number	Occasion for Award
Bauer, Harold W.*	Lt. Col., USMC	4189	Action in air combat, South Pacific area; 28 Sep–3 Oct 1942
Bennett, Floyd	CWO, USN	NAP-9	Piloted plane on first flight over North Pole; 9 May 1926
Boyington, Gregory	Maj., USMC	5160	Action in air combat, Central Solomons area; 12 Sep 1943–3 Jan 1944
Byrd, Richard E.	Lt. Cmdr., USN	608	Commanded plane on first flight over North Pole; 9 May 1926
Corry, William M.*	Lt. Cmdr., USN	23	Attempted rescue of pilot from burning aircraft; 2 Oct 1920
DeBlanc, Jefferson J.	Capt., USMC	12504	Action as leader of a fighter mission in air combat off Kolombangara Island, South Pacific; 31 Jan 1943
Elrod, Henry T.*	Capt., USMC	4093	Action in air and ground combat in defense of Wake Island; 8–23 Dec 1941
Estocin, Michael J.*	Lt. Cmdr., USN		Action as leader of air attack against enemy targets in North Vietnam; 20 and 26 Apr 1967
Fleming, Richard E.*	Capt., USMC	6889	Action as leader of dive bombing attack, Battle of Midway; 4–6 Jun 1942
Foss, Joseph J.	Capt., USMC	7290	Action in air combat in defense of Guadalcanal; 9 Oct–19 Nov 1942
Galer, Robert E.	Maj., USMC	5197	Action in air combat, South Pacific area; Aug–Sep 1942
Gordon, Nathan G.	Lt., USN	11421	Rescue of 15 officers and men under fire in Kavieng Harbor; 15 Feb 1944
Hall, William E.	Lt. j.g., USN	6072	Determined attacks on enemy carrier, Battle of Coral Sea; 7–8 May 1942
Hammann, Charles H.	Ens., USNRF	1494	Rescue of fellow pilot under fire during raid on Pula, Austria; 21 Aug 1918
Hanson, Robert M.*	1st Lt., USMC		Action in air combat at Bougainville; 1 Nov 1943, and New Britain; 24 Jun 1944
Hudner, Thomas J., Jr.	Lt. j.g., USN		Attempted rescue of squadron mate downed behind enemy lines in Korea; 4 Dec 1950
Hutchins, Carlton B.	Lt., USN	3435	Remained at controls of his aircraft after a mid-air collision to allow his crew to escape; 2 Feb 1938
Koelsch, John K.*	Lt. j.g., USN		Attempted rescue by helicopter during heavy overcast and under fire, Korea; 3 Jul 1951
Lassen, Clyde E.	Lt. j.g., USN		Night helicopter rescue under enemy fire of two downed aviators in North Vietnam; 19 Jun 1968
McCampbell, David	Cmdr., USN	5612	Action in air combat during Battle of Philippine Sea and Leyte Gulf; June and Oct 1944
O'Hare, Edward H.	Lt., USN	6405	Action in air combat in defense of carrier off Rabaul; 20 Feb 1942
Pless, Stephen W.	Capt., USMC		Helicopter rescue under enemy fire of four American soldiers beset by a large group of Viet Cong; 19 Aug 1967
Powers, John J.*	Lt., USN	6880	Determined attacks on enemy ships during Battle of Coral Sea; 4–8 May 1942

Name	Rank/Service	N.A. Number	Occasion for Award
Schilt, Christian F.	1st Lt., USMC	2741	Air evacuation of wounded under fire, Qualili, Nicaragua; 6–8 Jan 1928
Smith, John L.	Maj., USMC	5978	Action in air combat in defense of Guadalcanal; 21 Aug–15 Sep 1942
Swett, James E.	1st Lt., USMC	11893	Action in air combat, Solomon Islands area; 7 Apr 1943
Talbot, Ralph	2d Lt., USMC	802	Action in air combat, Europe; 8 and 14 Oct 1918
Van Voorhis, Bruce*	Lt. Cmdr., USN	3859	Determined low-level heavy bomber attack, Battle of the Solomon Islands; 6 Jul 1943
Walsh, Kenneth A.	1st Lt., USMC		Action in air combat at Vella Lavella; 15 and 30 Aug 1943

To Naval Aviators for Action not Associated with Aviation

Name	Rank/Service	N.A. Number	Occasion for Award
Antrim, Richard N.	Lt., USN	6750	Action on behalf of fellow prisoners while POW; April 1942
Edson, Merritt A.	Col., USMC	3026	Leading ground action in defense of the airfield at Guadalcanal; 13–14 Sep 1942
Stockdale, James B.	Capt., USN		Action on behalf of fellow prisoners while POW; 4 Sep 1969

To Officers and Men later Designated Naval Aviator, NAP, Naval Aviation Observer, and NFO

Name	Rank/Service	N.A. Number	Occasion for Award
Commiskey, Henry A.	2d Lt., USMC		Leading ground attack on strong enemy position near Yongdungpo, Korea; 20 Sep 1950
McDonnell, Edward	Ens., USN	18	Establishing signal station ashore and maintaining communications while under fire at Veracruz; 21–22 Apr 1914
Moffett, William A.	Cmdr., USN	NAO-1	Action in command of a ship at Veracruz; 21–22 Apr 1914
Ormsbee, Francis, Jr.	CMM(A), USN†	NAP-25	Rescuing enlisted men and attempted rescue of pilots downed in seaplane crash in Pensacola Bay; 25 Sep 1918

To Non-Aviators for Action Associated with Aviation

Name	Rank/Service	N.A. Number	Occasion for Award
Clausen, Raymond M.	PFC, USMC		Repeated rescues by helicopter of men trapped by enemy fire and minefield, South Vietnam; 30 Jan 1970
Finn, John W.	AOC, USN‡		Action under fire under the attack NAS Kaneohe; 7 Dec 1941
Gary, Donald A.	Lt. j.g., USN		Repeated rescues of trapped men on board *Franklin* (CV 13), severely damaged by enemy attack; 19 Mar 1945
McGunigal, Patrick	SF1c, USN§		Rescue of a kite balloon pilot entangled underwater in the balloon rigging, *Huntington* (ACR 5); 17 Sep 1917
O'Callahan, Joseph T.	Lt. Cmdr., USN (CHC)		Inspiration, leadership, and repeated rescues on board *Franklin* (CV 13) damaged by air attack; 19 Mar 1945
Ricketts, Milton E.*	Lt., USN		Leading damage control party on board *Yorktown* (CV 5) damaged during Battle of Coral Sea; 8 May 1942
Robinson, Robert G.	Gy. Sgt., USMC		Action during air combat as gunner to Lt. Ralph Talbot, USMC; 8 and 14 Oct 1918

To Aviators for Participating in the Space Program

The Congressional Space Medal of Honor, first awarded to former astronauts by President Jimmy Carter on 1 October 1978, was authorized by Congress on 29 September 1969 to recognize "any astronaut who in the performance of his duties has distinguished himself by exceptionally meritorious efforts and contributions to the welfare of the Nation and mankind."

Name	Rank/Service	N.A. Number	Occasion for Award
Armstrong, Neil A.			Participated in the Gemini 8 and Apollo 11 space flight missions. On Apollo 11, he became the first person to walk on the moon; 1 Oct 1978
Conrad, Charles, Jr.	Capt., USN		Participated in four space flight missions: Gemini 5, Gemini 11, Apollo 12, and Skylab 2. Commanded the crew of the first manned Skylab mission that conducted repairs on the orbital workshop; 1 Oct 1978
Glenn, John H., Jr.	Col., USMC		One of the original Mercury Astronauts and the first American to orbit the Earth; 1 Oct 1978
Lovell, James A., Jr.	Capt., USN		Participated in four space flight missions: Gemini 7, Gemini 12, Apollo 8, and Apollo 13. Commanded the crew of Apollo 13; 26 July 1995
Shepard, Alan B., Jr.	Rear Adm., USN		One of the original Mercury Astronauts and the first American into space. Commanded the Apollo 14 mission; 1 Oct 1978
Young, John W.	Capt., USN		Participated in five space flight missions: Gemini 3, Gemini 10, Apollo 10, and Apollo 16, and STS-1 (Space Shuttle *Columbia*) benefiting human progress in space; 19 May 1981

* Received award posthumously
† Chief Machinist's Mate (Aviation)
‡ Aviation Ordnance Chief; later promoted to commissioned status
§ Shipfitter 1st Class

Chapter 13

U.S. Navy and Marine Corps Aces

The Navy Department has never officially compiled or issued a list of "Aces". During WWII, the period with the largest number of aerial shoot-downs for naval flyers, the Navy did not keep an overall record of individual scores in aerial combat; hence, there is no official list of confirmed shoot-downs.

The most comprehensive work done on Navy and Marine Corps WWII aces was written and published by Frank Olynyk. His two books are *USN Credits for the Destruction of Enemy Aircraft in Air-to-Air Combat World War II, Victory List No. 2,* published in 1982, and *USMC Credits for the Destruction of Enemy Aircraft in Air-to-Air Combat World War II,* published in 1981. In 1986 *Naval Aviation News* magazine published a list of U.S. Navy and Marine Corps aces that had been compiled by Olynyk. The following list of aces, as published by the magazine in 1986, includes his WWII list and also those from WWI, Korea, and Vietnam.

	Name	Service	Time Frame§
*	Aldrich, Donald N.	USMC	
	Alley, Stuart C., Jr.	USMC	
	Amsden, Benjamin C.	USN	
	Anderson, Alexander L.	USN	
	Anderson, Robert H.	USN	
‡	Andre, John W,	USMC	
	Axtell, George C.	USMC	
	Bailey, Oscar C.	USN	
	Baird, Robert	USMC	
*	Baker, Douglas	USN	
	Baker, Robert M.	USMC	
	Bakutis, Fred E.	USN	
	Balch, Donald L.	USMC	
	Baldwin, Frank B.	USMC	
	Balsiger, Henry W.	USN	
	Banks, John L.	USN	
	Barackman, Bruce M.	USN	
	Bardshar, Frederic A.	USN	
	Bare, James D.	USN	
	Barnard, Lloyd G.	USN	
	Barnes, James M.	USN	
	Bartol, John W.	USN	
†	Bassett, Edgar R.	USN	
	Bate, Oscar M., Jr.	USMC	
	Batten, Hugh N.	USN	
	Bauer, Harold W.	USMC	
	Beatley, Redman C.	USN	
	Beaudry, Paul H. N.	USN	
	Beebe, Marshall U.	USN	
	Berkheimer, Jack S.	USN	
	Berree, Norman R.	USN	
	Bertelson, Richard L.	USN	
†	Billo, James D.	USN	
	Bishop, Walter D.	USN	
	Blackburn, John T.	USN	

	Name	Service	Time Frame§
†	Blair, Foster J.	USN	
	Blair, William K.	USN	
	Blaydes, Richard B.	USN	
	Blyth, Robert L.	USN	
	Bolduc, Alfred G.	USN	
	Bolt, John F., Jr.	USMC	
	Bolt, John F., Jr.	USMC	Korea
	Bonneau, William J.	USN	
	Bordelon, Guy P.	USN	Korea
	Borley, Clarence A.	USN	
*	Boyington, Gregory	USMC	
	Boyle, Gerald F.	USN	
	Brassfield, Arthur J.	USN	
	Braun, Richard L.	USMC	
	Brewer, Charles W.	USN	
	Bridges, Johnnie J.	USNR	
	Bright, Mark K.	USN	
	Brocato, Samuel J.	USN	
	Brown, Carl A., Jr.	USN	
	Brown, William P., Jr.	USMC	
	Bruneau, Paul J.	USN	
	Brunmier, Carland E.	USN	
	Bryce, James A.	USN	
	Buchanan, Robert L.	USN	
	Buie, Paul D.	USN	
	Burckhalter, William E.	USN	
	Burley, Franklin N.	USN	
	Burnett, Roy O., Jr.	USN	
	Burriss, Howard M.	USN	
†	Bushner, Frances X.	USN	
*	Byrnes, Matthew S., Jr.	USN	
	Cain, James B.	USN	
	Carey, Henry A., Jr.	USN	
	Carl, Marion E.	USMC	
	Carlson, Robert B.	USN	

	Name	Service	Time Frame§
	Carlton, William A.	USMC	
	Carmichael, Daniel A., Jr.	USN	
	Carr, George R.	USN	
	Carroll, Charles H.	USN	
	Case, William N.	USMC	
	Caswell, Dean	USMC	
	Chambers, Cyrus J.	USN	
	Champion, Henry K.	USN	
	Chandler, Creighton	USMC	
	Check, Leonard J.	USN	
	Chenoweth, Oscar I., Jr.	USN	
	Clark, Lawrence A.	USN	
	Clark, Robert A.	USN	
	Clarke, Walter E.	USN	
	Clements, Robert E.	USN	
	Clements, Donald C.	USN	
	Coats, Robert C.	USN	
	Coleman, Thaddeus T., Jr.	USN	
	Coleman, William M.	USN	
	Collins, William M., Jr.	USN	
	Conant, Arthur R.	USMC	
	Conant, Edwin S.	USN	
	Conger, Jack E.	USMC	
	Conroy, Thomas J.	USN	
	Copeland, William E.	USN	
	Cordray, Paul	USN	
	Cormier, Richard L.	USN	
†	Cornell, Leland B.	USN	
	Cowger, Richard D.	USN	
	Cozzens, Melvin	USN	
	Craig, Clement M.	USN	
	Cronin, Donald F.	USN	
	Crosby, John T.	USN	
	Crowe, William E.	USMC	
	Cunningham, Daniel G.	USN	
	Cunningham, Randall H.	USN	Vietnam
	Cupp, James N.	USMC	
	Dahms, Kenneth J.	USN	
	Davenport, Merl W.	USN	
	Davidson, George H.	USN	
	Davies, Clarence E.	USN	
	Davis, Leonard K.	USMC	
	Davis, Robert H.	USN	
	Dean, William A., Jr.	USN	
	Dear, John W., Jr.	USN	
	De Blanc, Jefferson J.	USMC	
	De Cew, Leslie	USN	
‡	Delong, Philip C.	USMC	
	Denman, Anthony J.	USN	

	Name	Service	Time Frame§
	Denoff, Reuben H.	USN	
	Devine, Richard O.	USN	
	Dewing, Lawrence A.	USN	
	Dibb, Robert A. M.	USN	
	Dillard, Joseph V.	USMC	
	Dillow, Eugene	USMC	
	Dobbin, John F.	USMC	
	Donahue, Archie G.	USMC	
	Doner, Landis E.	USN	
	Dorroh, Jefferson D.	USMC	
	Doyle, Cecil J.	USMC	
	Drake, Charles W.	USMC	
	Driscoll, Daniel B. J.	USN	
	Driscoll, William P. (NFO)	USN	Vietnam
	Drury, Frank C.	USMC	
	Drury, Paul E.	USN	
	Duffy, James E.	USN	
	Duncan, George C.	USN	
	Duncan, Robert W.	USN	
	Dungan, Fred L.	USN	
	Dunn, Bernard	USN	
	Durnford, Dewey F.	USMC	
	Eastmond, Richard T.	USN	
	Eberts, Byron A.	USN	
†	Eccles, William G	USN	
	Eckard, Bert	USN	
	Eder, William E.	USN	
	Edwards, William C., Jr.	USN	
	Elliott, Ralph E., Jr.	USN	
	Elwood, Hugh M.	USMC	
	Enman, Anthony J.	USN	
	Erickson, Lyle A.	USN	
	Evenson, Eric A.	USN	
	Everton, Loren D.	USMC	
	Fair, John W.	USN	
	Farmer, Charles D.	USN	
	Farnsworth, Robert A., Jr.	USN	
	Farrell, William	USMC	
	Fash, Robert P.	USN	
	Fecke, Alfred J.	USN	
	Feightner, Edward L.	USN	
	Ferko, Leo M.	USN	
	Finn, Howard J.	USMC	
	Fisher, Don H.	USMC	
†	Flatley, James H., Jr.	USN	
	Fleming, Francis M.	USN	
	Fleming, Patrick D.	USN	
	Flinn, Kenneth A.	USN	
	Foltz, Frank E.	USN	

	Name	Service	Time Frame§
	Foltz, Ralph E.	USN	
	Fontana, Paul J.	USMC	
	Ford, Kenneth M.	USMC	
	Formanek, George, Jr.	USN	
	Forrer, Samuel W.	USN	
*	Foss, Joseph J.	USMC	
	Foster, Carl C.	USN	
	Fowler, Richard E., Jr.	USN	
	Franger, Marvin J.	USN	
	Franks, John M.	USN	
	Fraser, Robert B.	USMC	
	Frazier, Kenneth D.	USMC	
	Freeman, Doris C.	USN	
	Freeman, William B.	USMC	
	French, James B.	USN	
	Frendberg, Alfred L.	USN	
	Funk, Harold N.	USN	
	Gabriel, Franklin T.	USN	
	Galer, Robert E.	USMC	
	Galt, Dwight B., Jr.	USN	
	Galvin, John R.	USN	
	Gayler, Noel A. M.	USN	
	Gildea, John T.	USN	
	Gile, Clement D.	USN	
	Gillespie, Roy F.	USN	
	Godson, Lindley W.	USN	
	Gordon, Donald	USN	
	Graham, Vernon E.	USN	
	Gray, James S., Jr.	USN	
	Gray, John F.	USN	
	Gray, Lester E., Jr.	USN	
	Gregory, Hayden A.	USN	
	Griffin, Richard J.	USN	
	Gustafson, Harlan I.	USN	
	Gutt, Fred E.	USMC	
	Haas, Walter A.	USN	
	Haberman, Roger A.	USMC	
	Hacking, Albert E., Jr.	USMC	
	Hadden, Mayo A., Jr.	USN	
	Hall, Sheldon O.	USMC	
	Hamblin, Lewis R.	USN	
	Hamilton, Henry B.	USMC	
	Hamilton, Robert M.	USN	
	Hanks, Eugene R.	USN	
	Hansen, Herman, Jr.	USMC	
*	Hanson, Robert M.	USMC	
	Hardy, Willis E.	USN	
	Hargreaves, Everett C.	USN	
	Harman, Walter R.	USN	

	Name	Service	Time Frame§
*	Harris, Cecil E.	USN	
	Harris, Leroy E.	USN	
	Harris, Thomas S.	USN	
	Harris, William H., Jr.	USN	
	Haverland, Charles H., Jr.	USN	
	Hawkins, Arthur R.	USN	
	Hayde, Frank R.	USN	
	Hearrell, Frank C., Jr.	USN	
	Heath, Horace W.	USN	
	Hedrick, Roger R.	USN	
	Heinzen, Lloyd P.	USN	
	Henderson, Paul M., Jr.	USN	
	Henry, William E.	USN	
	Hernan, Edwin J., Jr.	USMC	
	Hibbard, Samuel B.	USN	
	Hildebrandt, Carlos K.	USN	
	Hill, Harry E.	USN	
	Hills, Hollis H.	USN	
	Hippe, Kenneth G.	USN	
	Hoag, John B.	USN	
	Hoel, Ronald W.	USN	
	Hollowell, George L.	USMC	
	Hood, William L., Jr.	USMC	
	Houck, Herbert N.	USN	
	Hudson, Howard R.	USN	
	Huffman, Charles W., Jr.	USN	
	Humphrey, Robert J.	USN	
	Hundley, John C.	USMC	
	Hurst, Robert	USN	
	Ingalls, David S.	USN	WWI
	Ireland, Julius W.	USMC	
	Jaques, Bruce D.	USN	
	Jennings, Robert H., Jr.	USN	
	Jensen, Hayden M.	USN	
	Jensen, Alvin J.	USMC	
	Johannsen, Delmar K.	USN	
	Johnson, Byron M.	USN	
	Johnson, Wallace R.	USN	
	Johnston, John M.	USN	
	Jones, Charles D.	USMC	
	Jones, James M.	USN	
	Kaelin, Joseph	USN	
	Kane, William R.	USN	
	Keith, Leroy W. J.	USN	
	Kendrick, Charles	USMC	
*	Kepford, Ira C.	USN	
	Kerr, Leslie H., Jr.	USN	
	Kidwell, Robert J.	USN	
	Kincaid, Robert A.	USN	

	Name	Service	Time Frame§
	Kingston, William J., Jr.	USN	
	Kinsella, James J.	USN	
	Kirk, George N.	USN	
	Kirkpatrick, Floyd C.	USMC	
	Kirkwood, Philip L.	USN	
	Knight, William M.	USN	
	Kostik, William J.	USN	
	Kunz, Charles M.	USMC	
	Laird, Dean S.	USN	
	Laird, Wayne W.	USMC	
	Lake, Kenneth B.	USN	
‡	Lamb, William E.	USN	
	Lamoreaux, William E.	USN	
	Laney, Willis G.	USN	
	Langdon, Ned W.	USN	
	Leonard, William N.	USN	
	Leppla, John A.	USN	
	Lerch, Alfred	USN	
	Lillie, Hugh D.	USN	
	Lindsay, Elvin L.	USN	
	Loesch, Gregory K.	USMC	
	Long, Herbert H.	USMC	
	Lundin, Walter A.	USN	
	Lynch, Joseph P.	USMC	
	Maas, John B.	USMC	
	Maberry, Lewin A.	USN	
	Magee, Christopher L.	USMC	
	Mahe, Thomas R., Jr.	USMC	
	Mallory, Charles M.	USN	
	Mankin, Lee P., Jr.	USN	
	Mann, Thomas H., Jr.	USMC	
	Manson, Armand G.	USN	
	March, Harry A., Jr.	USN	
	Marontate, William P.	USMC	
	Martin, Albert E., Jr.	USN	
	Masoner, William J., Jr.	USN	
	Maxwell, William R.	USN	
	May, Richard H.	USN	
	May, Earl, Jr.	USN	
	Mazzocco, Michele A.	USN	
*	McCampbell, David	USN	
	McCartney, Henry A.	USMC	
	McClelland, Thomas G.	USN	
	McClure, Edgar B.	USN	
	McClurg, Robert W.	USMC	
	McCormick, William A.	USN	
	McCuddin, Leo B.	USN	
	McCuskey, Elbert S.	USN	
	McGinty, Selva E.	USMC	

	Name	Service	Time Frame§
	McGowan, Edward C.	USN	
	McGraw, Joseph D.	USN	
	McKinley, Donald J.	USN	
	McLachlin, William W.	USN	
	McManus, John	USMC	
	McPherson, Donald M.	USN	
	McWhorter, Hamilton, III	USN	
	Mehle, Roger W.	USN	
	Menard, Louis A., Jr.	USN	
	Mencin, Adolph	USN	
†	Merritt, Robert S.	USN	
	Michaelis, Frederick H.	USN	
	Miller, Johnnie G.	USN	
	Milton, Charles B.	USN	
	Mims, Robert	USN	
	Mitchell, Harris E.	USN	
	Mitchell, Henry E., Jr.	USN	
	Mollard, Norman W., Jr.	USN	
	Mollenhauer, Arthur P.	USN	
	Montapert, John R.	USN	
	Moranville, Horace B.	USN	
	Morgan, John L., Jr.	USMC	
	Morris, Bert D., Jr.	USN	
	Moseley, William C.	USN	
	Mulcahy, Douglas W.	USN	
	Mullen, Paul A.	USMC	
	Munsen, Arthur H.	USN	
	Murray, Robert E.	USN	
	Narr, Joseph L.	USMC	
	Nelson, Robert J.	USN	
	Nelson, Robert K.	USN	
	Noble, Myrvin E.	USN	
*	Nooy, Cornelius N.	USN	
	Novak, Marvin R.	USN	
	Null, Cleveland L.	USN	
	O'Hare, Edward H.	USN	
	O'Keefe, Jeremiah J.	USMC	
	O'Mara, Paul, Jr.	USN	
	Olander, Edwin L.	USMC	
	Olsen, Austin L.	USN	
	Orth, John	USN	
	Ostrom, Charles H.	USN	
	Outlaw, Edward C.	USN	
	Overend, Edmund F.	USMC	
	Overton, Edward W., Jr.	USN	
	Owen, Donald C.	USMC	
	Owen, Edward M.	USN	
	Owens, Robert G., Jr.	USMC	
	Parrish, Elbert W.	USN	

	Name	Service	Time Frame§
	Paskoski, Joseph J.	USN	
	Payne, Frederick R., Jr.	USMC	
	Pearce, James L.	USN	
	Percy, James G.	USMC	
	Philips, David P., III	USN	
	Phillips, Edward A.	USN	
	Phillips, Hyde	USMC	
	Picken, Harvey P.	USN	
	Pierce, Francis E., Jr.	USMC	
	Pigman, George W., Jr.	USN	
	Pittman, Jack, Jr.	USMC	
	Plant, Claude W., Jr.	USN	
	Pond, Zenneth A.	USMC	
	Pool, Tilman E.	USN	
	Pope, Albert J.	USN	
	Porter, Robert B.	USMC	
	Poske, George H.	USMC	
	Post, Nathan T., Jr.	USMC	
	Pound, Ralston M., Jr.	USN	
	Powell, Ernest A.	USMC	
	Prater, Luther D., Jr.	USN	
	Presley, Frank H.	USMC	
	Prichard, Melvin M.	USN	
	Quiel, Norwald R.	USN	
†	Ramlo, Orvin H.	USMC	
	Reber, James V., Jr.	USN	
	Redmond, Eugene D.	USN	
	Register, Francis R.	USN	
	Rehm, Dan R., Jr.	USN	
	Reidy, Thomas H.	USN	
	Reinburg, Joseph H.	USMC	
	Reiserer, Russell L.	USN	
	Rennemo, Thomas J.	USN	
	Reulet, Joseph E.	USN	
	Revel, Glenn M.	USN	
	Rhodes, Thomas W.	USN	
	Rieger, Vincent A.	USN	
	Rigg, James F.	USN	
	Roach, Thomas D.	USN	
	Robbins, Joe D.	USN	
	Robinson, Leroy W.	USN	
	Robinson, Ross F.	USN	
	Rosen, Ralph J.	USN	
	Ross, Robert P.	USN	
	Rossi, Herman J., Jr.	USN	
	Ruhsam, John W.	USMC	
	Runyon, Donald E.	USN	
	Rushing, Roy W.	USN	
	Sapp, Donald H.	USMC	

	Name	Service	Time Frame§
	Sargent, John J., Jr.	USN	
	Savage, Jimmie E.	USN	
	Scales, Harrell H.	USN	
	Scarborough, Hartwell V., Jr.	USMC	
	Schecter, Gordon E.	USN	
	Schell, John L.	USN	
	Scherer, Raymond F.	USMC	
	Schiller, James E.	USN	
	Schneider, Frank E.	USN	
	Seckel, Albert, Jr.	USN	
	See, Robert B.	USMC	
	Segal, Harold E.	USMC	
	Self, Larry R.	USN	
	Shackford, Robert W.	USN	
	Shands, Courtney	USN	
	Shaw, Edward O.	USMC	
	Sherrill, Hugh V.	USN	
	Shields, Charles A.	USN	
	Shirley, James A.	USN	
	Shuman, Perry L.	USMC	
	Sigler, Wallace E.	USMC	
	Silber, Sam L.	USN	
	Singer, Arthur, Jr.	USN	
	Sipes, Lester H.	USN	
	Sistrunk, Frank	USN	
	Skon, Warren A.	USN	
	Slack, Albert C.	USN	
	Smith, Armistead B., Jr.	USN	
	Smith, Carl E.	USN	
	Smith, Clinton L.	USN	
	Smith, Daniel F., Jr.	USN	
*	Smith, John L.	USMC	
	Smith, John M.	USN	
	Smith, Kenneth D.	USN	
	Smith, Nicholas J., III	USN	
	Snider, William N.	USMC	
	Sonner, Irl V., Jr.	USN	
	Southerland, James J., III	USN	
*	Spears, Harold L.	USMC	
	Spitler, Clyde P.	USN	
	Stanbook, Richard E.	USN	
	Stanley, Gordon A.	USN	
	Starkes, Carlton B.	USN	
	Stebbins, Edgar E.	USN	
	Stewart, James S.	USN	
*	Stimpson, Charles R.	USN	
	Stokes, John D.	USN	
	Stone, Carl V.	USN	
	Stout, Robert F.	USMC	

	Name	Service	Time Frame§
	Strane, John R.	USN	
	Strange, Johnnie C.	USN	
	Streig, Frederick J.	USN	
	Sturdevant, Harvey W.	USN	
	Sutherland, John F.	USN	
*	Swett, James E.	USMC	
	Swinburne, Harry W., Jr.	USN	
	Swope, James S.	USN	
	Symmes, John C. C.	USN	
	Synar, Stanley T.	USMC	
	Taylor, Ray A., Jr.	USN	
	Taylor, Will W.	USN	
	Terrill, Francis A.	USMC	
	Thach, John S.	USN	
	Thelen, Robert H.	USN	
	Thomas, Franklin C., Jr.	USMC	
	Thomas, Robert F.	USN	
*	Thomas, Wilbur J.	USMC	
	Toaspern, Edward W.	USN	
	Topliff, John W.	USN	
	Torkelson, Ross E.	USN	
	Townsend, Eugene P.	USN	
	Tracey, Fredrick W.	USN	
	Troup, Franklin W.	USN	
	Trowbridge, Eugene A.	USMC	
	Traux, Myron M.	USN	
	Turner, Charles H.	USN	
	Turner, Edward B.	USN	
	Twelves, Wendell V.	USN	
	Ude, Vernon R.	USN	
	Umphfres, Donald E.	USN	
*	Valencia, Eugene A.	USN	
	Valentine, Herbert J.	USMC	
	Van Der Linden, Peter J., Jr.	USN	
	Van Dyke, Rudolph D., Jr.	USN	
	Van Haren, Arthur, Jr.	USN	
	Vedder, Milton N.	USMC	
	Vejtasa, Stanley W.	USN	
	Vineyard, Merriwell W.	USN	
	Vita, Harold E.	USN	
	Voris, Roy M.	USN	
	Vorse, Albert O., Jr.	USN	
*	Vraciu, Alexander	USN	
	Wade, Robert	USMC	
*	Walsh, Kenneth A.	USMC	
	Ward, Lyttleton T.	USN	
	Warner, Arthur T.	USMC	
	Watson, Jack O.	USN	
	Watts, Charles E.	USN	

	Name	Service	Time Frame§
	Webb, Wilbur B.	USN	
	Weissenberger, Gregory J.	USMC	
	Wells, Albert P.	USMC	
	Wesolowski, John M.	USN	
	West, Robert G.	USN	
	White, Henry S.	USN	
	Williams, Bruce W.	USN	
	Williams, Gerard M. H.	USMC	
	Wilson, Robert C.	USN	
	Winfield, Murray	USN	
	Winston, Robert A.	USN	
	Winters, Theodore H., Jr.	USN	
	Wirth, John L.	USN	
	Wolf, John T.	USN	
	Wood, Walter A.	USN	
	Wooley, Millard J.	USN	
	Woolverton, Robert C.	USN	
	Wordell, Malcolm T.	USN	
	Wrenn, George L.	USN	
	Yeremain, Harold	USN	
	Yost, Donald K.	USMC	
	Yunck, Michael R.	USMC	
	Zaeske, Earling W.	USN	
	Zink, John A.	USN	

* Ace with 15 kills or more.

† Unconfirmed as ace in WWII.

‡ Ace status acquired from combined kills of WWII and Korea.

§ Timeframe is WWII unless indicated otherwise.

Chapter 14

Early Naval Jet Pilots

The first flight in a turbojet aircraft in the United States was made at Muroc, Calif., on 1 October 1942, by Robert M. Stanley, chief test pilot of the Bell Aircraft Corporation. The next day Col. Lawrence C. Craigie of the U.S. Army Air Forces, took up the same plane for its first flight by a military pilot. The first jet flight by a naval aviator was made in the same plane at the same location on 21 April 1943 by Capt. Frederick M. Trapnell of Flight Test, NAS Anacostia, D.C. In each instance, the plane was a Bell XP-59A powered by two General Electric 1A turbojet engines. It was the first jet aircraft built in the United States and a prototype of the first jet aircraft acquired by the United States Navy.

Before the end of the war, the Navy had acquired three of the Bell Airacomets and in the first year after the war acquired two more. All were obtained from the Army Air Forces and assigned to NAS Patuxent River, Md. Their purpose was to provide a means of testing the adaptability of jet aircraft to naval requirements and a means of training pilots to fly the new aircraft type. They served through 1947.

Even before their acquisition, the Navy's interest in jet propulsion had been evident as it not only monitored the progress of jet programs in the Army Air Forces and took part in certain joint studies, but also initiated a study contract, which led to the development of the first Westinghouse jet engines. As early as 1943, two carrier fighter designs employing jet engines were initiated. The first with Ryan Aeronautical Company had the immediate objective of developing a fighter capable of operating from escort carriers as a replacement for the FM Wildcat. It resulted in the XFR-1 Fireball, which was powered by a Wright Cyclone engine in the nose, and a General Electric I-16 in the after section of the fuselage. Its development and production were handled on a crash basis and the first model flew in June 1944. Within a year it was assigned to a fleet squadron. Limited operations from escort carriers for short periods in the immediate post-war period uncovered numerous bugs and by July 1947 the decision to withdraw them from service had been made and carried out. A similar concept of composite power, carried out with the XF15C was abandoned after experimental models had been evaluated at Patuxent, Md.

The second contract of 1943 authorized the McDonnell Aircraft Corporation to design a twin-jet carrier fighter. To avoid disrupting wartime production and to meet the not-so-urgent objective of using the plane to explore the feasibility of jet operations on carriers, progress was intentionally slow. Even so, the airplane—the XFD-1 Phantom, powered by two Westinghouse 19B jets—took to the air for the first time on 26 January 1945. After another year and a half of flight testing, a production FD-1 was taken on board *Franklin D. Roosevelt* (CVB 42) and on 21 July 1946 the first jet operations from a U.S. carrier were conducted. A year later, the Phantom became the first jet aircraft assigned to a fleet squadron when two FDs were delivered to VF-17A at NAS Quonset Point, R.I.

In the meantime, studies and contracts had been let for other jet aircraft, which were to become operational. One of these, made in January 1945 with North American Aviation, produced the FJ-l Fury equipped with a single Allison/GE jet. Claimed by some to be the hottest, straight-wing jet ever built, this airplane made its first flight in September 1946 and, in November of the next year, was delivered to VF-5A at NAS San Diego, Calif. On 10 March 1948, the squadron commanding officer and executive officer took the Fury on board *Boxer* (CV 21) for carrier suitability tests, conducting a number of takeoffs and landings. Shortly after, VF-17A completed carrier qualifications in the Phantom, by then redesignated FH, on board *Saipan* (CVL 48). The Navy's transition to jet aircraft had definitely begun.

By 1948, the number of naval aviators qualified to fly jets had assumed fairly generous proportions. Because it appeared desirable to have a list of the men who pioneered the Navy's effort in this field in the historical record, a project to obtain their names was initiated in October 1961 by Adrian O. Van Weyn, head of the Naval Aviation History Office.

It soon became apparent that there was no ready-made list and, further, that no official records had been kept from which one could be compiled. Even the flight logs from Patuxent, where the first jet aircraft had been assigned, seemed to have disappeared. It was then that a general appeal for help was made through a letter in the March 1962 issue of *Naval Aviation News*.

Help came from many sources. Twenty men in all answered this call giving not only the particulars of their first flights but also the names of others who had flown in the early period. One pilot sent a list of 73 men awarded Phantom Jockey Certificates by McDonnell Aircraft Corporation commemorating their flights in the Phantom jet. Perhaps the most unexpected, but no less useful, was a report from an officer assigned to the Aviation Safety Center listing all men involved in accidents in jet aircraft through 1948. From these replies and from other sources, a list was

made up of another 80 men who had probably qualified in the period 1943–48. Each was sent a letter asking for the particulars of his qualification as well as for the names of others who should be questioned. The project developed quickly into a letter writing campaign as almost every third answer added more names, which in turn spawned yet other possibilities.

When these leads had been exhausted, the project seemed about complete and preparations were made to put the list in order for publication. It was then that the earlier search for the Patuxent flight logs produced results. They were found at the Federal Records Center in Alexandria. With some interest but only a little expectancy of finding any more than confirmation of what was already known, a few were called over for leisurely perusal. The first one dispelled all dreams of the project being finished.

About two months and 31 logs later, another 200 names had been added to the probables list. But what names! Almost without fail, the log entries identified the pilot by last name only, giving no initials, no rank, and no indication of service affiliation. This should have presented no difficulty with the more unusual names but experience proved quickly that no names are unusual. Reference to unit rosters and Navy Registers helped some, and the Bureau of Personnel contributed its share, but when all available sources had been used, there were still about 100 names lacking identity.

Some of these were cleared up by a day spent at NATC Patuxent, Md., and the follow-up assistance of RAdm. Paul H. Ramsey's staff. Some remain only names, some of those identified could not be found, and many were not heard from. Several were no longer living. Others were separated from their logs by vacation or change of duty and could not give exact information. Still others reported their logs as lost or destroyed by fire and had no means of confirming their recollections. In spite of these difficulties, the list was compiled and because publication might resolve some still unanswered questions, it was printed in the March 1963 issue of *Naval Aviation News* as a tentative list.

Tabulation of the replies revealed interesting elements of history. The early date at which many qualified was perhaps most surprising, but under the circumstances should not have been. All aspects of early jet aircraft were highly classified. During the war years, the interests of security dictated that early jet engines be called superchargers. Even the XP-59A designation for the first jet airplane had a security angle. The original XP-59 was a conventional experimental fighter, and it was thought that use of the same designation with a suffix letter would hide the true identity of the new model. Its early operations at Muroc were also conducted under the veil of secrecy—if jet flight can be kept a secret. Admiral Frederick M. Trapnell wrote: "When flown, this aircraft was towed well out onto the lake bed, with tarpaulins covering most of the fuselage and with a fake wooden propeller on the nose. This, of course, was removed prior to run-up."

This airplane, relatively unknown even today as the Navy's first jet, was for obvious reason the one in which most Navy pilots made their first jet flights. In the period of its use through 1947, by which time 262 flights are listed, 196 were in the P-59. Because Patuxent was the center of flight testing and the first station to which jet aircraft were assigned, it topped all other locations as the scene of first flights through 1948. A number of pilots received their first indoctrination from the Army Air Forces and made their first flights at AAF bases in the southwest. Others attended RAF schools at Hullavington and Cranfield, England, and made their first flights there. When delivery of the FD Phantoms and FJ Furies began in 1947, the location of first flights extended to St. Louis, Mo.; Quonset Point, R.I.; Cherry Point, N.C.; and San Diego, Calif.

The first Navy pilot to qualify in jets was also the first Navy pilot to fly seven post-war jets, which he listed as the XFJ, XF2H, XF9F, XF3D, XF6U, XF-86, and the XF7U. Only five men with flag rank qualified and, prior to 1948, only three qualified while holding the rank of ensign. The majority qualified as lieutenant commanders (major for the Marines) and lieutenants (captain for the Marines), with the former leading the pack. The pilots of VF-5A and VF-17A, on board at the time the squadrons were being equipped with jets, are all members of this early group although some that were not heard from do not appear on the list.

The replies included many interesting comments supplementing the basic information. The somewhat naive attitude of the historian was rudely jolted very early in the project. Under the assumption that some training was necessary to fly a radically different airplane, he provided a place on the questionnaire to report the extent of training received. The answers, when they were given at all, were unanimously in the vein of one report, which stated: "In contrast to present practice, training consisted of looking at handbook, cockpit checkout, then go." Its elaboration by another qualifier was: "Your request for information on training is amusing. Training was very informal, to put it politely. It consisted of: 'This is the low pressure fuel cock; this is the high pressure fuel cock; it flies real easy.'" Even in the later period when the first squadrons were being equipped with jets, the training does not appear to have been extensive. One pilot reported, "VF-17A trained itself. Checkout consisted of reading the handbook and watching a movie on compressibility."

One pilot told of winning third place in the 1948 Bendix Trophy Race from Long Beach, Calif., to Cleveland, Ohio, in which he "landed at Cleveland dead stick, out of fuel the last 50 miles." Another reported ferrying an FH-1 from Patuxent, Md., to Pensacola, Fla., in 1948 with the comment: "I daresay the only jet ever to use Station Field." In a similar vein, one told of his work with another pilot on chase flights out of Point Mugu, Calif., in which they, "operated P-80s off a 5,000-foot Marston mat with full ammo and fuel, for two years without incident. The P-80 was not supposed to be landed in this configuration (we later found out)."

The men who qualified in flag rank had some toppers. The first of these, Adm. Alfred M. Pride, gave the following account of events leading to his qualification: "I had been ordered to relieve [Harold B.] Sallada as Chief and to report a month before the turnover date of 1 May. That gave me considerable time to look around. It then dawned on me that I would be up to my neck in jet procurement and that I had better find out a little about them at first hand. Furthermore, since no flag officer seemed to have soloed the things, it seemed appropriate that the Chief of the Bureau set the pace. So I went down and asked for a McDonnell but the Patuxent boys were not taking any chances with their new pet, I guess, and were 'so sorry, but it was out of commission.' I looked around and saw the P-59 sitting there and asked how about that one. They admitted it was 'up' and so I said that I would take it. It worked fair enough except that one engine gave out after I got out over the Bay and I had to yell for a clear runway and come on home. Never did find out what the trouble really was."

Adm. Daniel V. Gallery reported: "Rear Admirals Apollo Soucek, Edgar A. 'Bat' Cruise and I checked out in Phantoms and flew a section formation at the opening of Idlewild and also at the Cleveland Air Races. Called ourselves the Gray Angels." To that somewhat noncommittal statement, Adm. Edgar A. Cruise provided a footnote quoted here in full. He wrote:

> For your information Admirals Soucek and Gallery flew with me, with Gallery leading, as the Gray Angels in both the Idlewild, N.Y., dedication and later at the National Air Races in Cleveland, Ohio, in September 1948. In Idlewild on one flight I ran out of fuel on one tank resulting in a flame-out. Inasmuch as our formation was only at 2600 feet and directly over the field, I elected to land dead stick on Idlewild. I never made a more precise approach and landing in my whole life.
>
> At Cleveland the Gray Angels caused some consternation by passing the reviewing stand simultaneously with, but in the opposite direction from, a 90-plane Air Group. The Air Group leader was flying low (about 4–500 feet) which forced us down to 75–100 feet. Needless to say flying wing, I was somewhat perturbed.

Adm. Cruise, who was Head of the Air Warfare Division in DCNO (Air) when he was making the above flights, also reported that his forced landing at Idlewild was directly involved in the subsequent installation of a positive cross connection which would prevent future flame-outs from the same cause.

As might be expected, this list of early jet pilots includes several men who later achieved other prominence in flight. Turner Caldwell set a world speed record in the D-558-1 in August 1947, the first held by the Navy since Al Williams' record in 1923. Marion Carl broke that record one week later in the same plane and later soared to a new altitude record for research aircraft in the D-558-2. Carl and Caldwell were also the first of their respective services to fly faster than sound in level flight. Larry Flint took the Phantom II to a new world altitude record in 1959 and F. Taylor Brown set a time-to-climb record to 20,000 meters in 1962, also in the Phantom II. Thomas H. Miller set a new speed record for 500 kilometers in the Phantom II in September 1960. The first U.S. Navy jet operations on a carrier were flown by James J. Davidson; Marion Carl flew tests of the P-80 on the same ship later in the year. Najeeb Halaby, former head of the FAA, was the first to fly a jet on continuous flight across the United States from Muroc, Calif., to Patuxent, Md., which he did in a P-80A on 28 June 1945. On the other side of the ledger, the list also includes the first pilot to bail out of a jet and the first to crash-land a jet in the water, both of whom shall be nameless.

In regard to the following list itself, words of explanation and caution are necessary. In explanation of the order, flights made on the same day are in the order of time of day when known, and alphabetical when not known. When only the month and year could be given for date, the flight appears after all others made during the month. Rank is that held at the time of first flight, and all are naval aviators on active duty at the time. Designations for the McDonnell Phantom appear as FD initially and as FH after the change made 21 August 1947.

The cautions are particularly important. First, qualification as a jet pilot was defined loosely. For this purpose, it was considered simply as the first flight on which complete command of the aircraft was held. Whether the first flight was also the last made in a jet by a particular pilot or the beginning of a whole career of jet flying, it was accepted as meeting the requirement. Second, only flights in pure jet aircraft were considered. The question of what to do about

the Ryan FR-1 Fireball came up early in the project. Several facts of its early existence give weight to its importance in the Navy's transition to jet aircraft. Yet the fact that it was equipped with a reciprocating engine for use in normal operations and with a turbojet engine for use as a booster during takeoff and maximum performance flights, removes it from the jet aircraft class. For this reason, justified or not, flights in the FR are not included.

Thirdly, only those men with whom we could make contact or about whom we could gain specific knowledge appear in the list. Those found in log books or otherwise reported as having flown jets in the early period who could neither be identified nor located had to be omitted. Those who died after their first jet flight (indicated by *) could be included only if the necessary information was available from another source. Their flight dates are generally the earliest found in Patuxent flight logs and may not be the actual first flight. Others deceased, reported as having flown in the period but for whom no specific information was found, had to be omitted from the order of precedence. They are: John E. Darden Jr., Ralph Fuoss, Bud B. Gear, John Magda, Alfred E. Nauman Jr., Albert D. Pollock Jr., Horatio G. Sickel, Warren P. Smith, and Conrad J. Wigge.

For the above reasons, the list is the best that could be updated and compiled. On the basis of evidence available, it is concluded that the completeness and accuracy of the list is best at the beginning and decreases as the precedence numbers increase.

The following is a list of the Early Jet Pilots in Order of First Jet Flight:

No.	Name	Rank	Date	Plane	Place
1	Trapnell, Frederick M.	Capt.	21 Apr 43	XP-59A	Muroc
2	Pearson, John B., Jr.	Cmdr.	27 May 43	XP-59	Muroc
3	Ramsey, Paul H.	Cmdr.	29 Jul 43	XP-59A	Muroc
4	Gayler, Noel A. M.	Lt. Cmdr.	13 Jan 44	YP-59A	Patuxent
5	Booth, Charles T.	Cmdr.	14 Jan 44	YP-59A	Patuxent
6	Halaby, Najeeb E.	Lt. j.g.	21 Jan 44	YP-59A	Patuxent
7	Ferguson, John A.	Lt.	14 Feb 44	YP-59A	Patuxent
8	Drewelow, Robert W.	Lt.	21 Apr 44	YP-59A	Patuxent
9	Owen, Edward M.	Lt. Cmdr.	15 May 44	YP-59A	Patuxent
10	Brown, Ira W., Jr.	Lt. Cmdr.	28 Jun 44	YP-59A	Patuxent
11	Burroughs, Sherman E.	Capt.	11 Jul 44	XP-59	Muroc
12	Hayward, John T.	Cmdr.	11 Jul 44	XP-59	Palmdale
13	Storrs, Aaron P.	Capt.	17 Jul 44	YP-59A	Patuxent
14	Canavan, Desmond E.	Lt. Col.	18 Jul 44	YP-59A	Patuxent
15	Rozamus, Michael J.	Lt. Cmdr.	20 Jul 44	YP-59A	Patuxent
16	Davenport, M. W.	Lt.	21 Jul 44	XP-59A	Patuxent
17	Runyon, Donald E.	Lt.	21 Jul 44	YP-59A	Patuxent
18	Gerberding, Jas. H.*	Lt. Cmdr.	30 Aug 44	YP-59A	Patuxent
19	Elder, Robert M.	Lt.	28 Sep 44	XP-80	Dayton
20	Milner, Robert M.	Lt. Cmdr.	24 Oct 44	YP-59A	Patuxent
21	Soule, Ernest D.	Lt.	24 Oct 44	YP-59A	Patuxent
22	Kelly, William W.	Lt.	30 Oct 44	YP-59A	Patuxent
23	Flint, Lawrence E.	Lt.	30 Oct 44	YP-59A	Patuxent
24	Guerrieri, Mario A.	Lt. Cmdr.	31 Oct 44	YP-59A	Patuxent
25	Harrington, Daniel J.	Lt. Cmdr.	01 Nov 44	YP-59A	Patuxent
26	Davidson, James J.	Lt.	02 Nov 44	YP-59A	Patuxent
27	Christofferson, F. E.	Lt.	02 Nov 44	YP-59A	Patuxent
28	Caffey, Kenneth W.	Lt. Cmdr.	07 Nov 44	YP-59A	Patuxent
29	Miller, Kenneth W., Jr.	Lt.	08 Nov 44	YP-59A	Patuxent
30	McNeely, Henry E.	Lt. Cmdr.	08 Nov 44	YP-59A	Patuxent
31	Wood, Charles R., Jr.	Lt. Cmdr.	08 Nov 44	YP-59A	Patuxent

No.	Name	Rank	Date	Plane	Place
32	Tuttle, Magruder H.	Cmdr.	08 Nov 44	YP-59A	Patuxent
33	Palmer, Fitzhugh L., Jr.	Cmdr.	09 Nov 44	YP-59A	Patuxent
34	Andrews, Clyde C.	Lt.	09 Nov 44	YP-59A	Patuxent
35	Gough, William V., Jr.	Lt. Cmdr.	09 Nov 44	YP-59A	Patuxent
36	Hollar, Frank E.	Maj.	09 Nov 44	YP-59A	Patuxent
37	Bauer, Louis H.	Cmdr.	11 Nov 44	YP-59A	Patuxent
38	Sutherland, John F.	Lt. Cmdr.	24 Nov 44	XP-80	Palmdale
39	Carl, Marion E.	Maj.	14 Feb 45	YP-59A	Patuxent
40	Wheatley, John P.	Lt.	15 Feb 45	YP-59A	Patuxent
41	Kenna, William E.	Cmdr.	15 Feb 45	YP-59A	Patuxent
42	Connolly, Thomas F.	Cmdr.	24 Feb 45	YP-59A	Patuxent
43	Neefus, James L.	Lt. Col.	10 Mar 45	YP-59A	Patuxent
44	Sallenger, Asbury H.	Lt.	14 Mar 45	YP-59A	Patuxent
45	Cleland, Cook	Lt.	– Mar 45	YP-59A	Patuxent
46	Schickel, Norbert H.	Lt.	25 Apr 45	YP-59A	Patuxent
47	Brown, Robert M.	Lt.	05 May 45	YP-59A	Patuxent
48	Schrefer, John F.	Lt. Cmdr.	09 May 45	YP-59A	Patuxent
49	Ellenburg, George W.	Lt. Cmdr.	23 May 45	YP-59A	Patuxent
50	Bakutis, Fred E.	Cmdr.	11 Jun 45	YP-59A	Patuxent
51	Schroeder, F. J.	Lt. Cmdr.	12 Jun 45	YP-59A	Patuxent
52	Larsen, Leif W.*	Lt.	12 Jun 45	YP-59A	Patuxent
53	McClelland, T. G.*	Lt.	27 Jun 45	YP-59A	Patuxent
54	Schiller, James E.	Lt.	27 Jun 45	YP-59A	Patuxent
55	Beveridge, Richard A.	Lt. Cmdr.	18 Jul 45	YP-59A	Patuxent
56	Thomas, John M.	Lt.	19 Jul 45	YP-59A	Patuxent
57	Hannegan, Edward A.	Capt.	21 Jul 45	YP-59A	Patuxent
58	Billett, Dudley S., Jr.	Lt. Cmdr.	23 Jul 45	YP-59A	Patuxent
59	Thawley, Charles B.	Lt. j.g.	08 Aug 45	YP-59A	Patuxent
60	May, Richard H.	Lt.	20 Aug 45	YP-59A	Patuxent
61	Houck, Herbert N.	Cmdr.	27 Oct 45	P-59B	Patuxent
62	Rees, Joseph R.	Lt.	27 Oct 45	P-59B	Patuxent
63	Tavernetti, Thomas F.	Lt. Cmdr.	29 Oct 45	P-59B	Patuxent
64	Mooty, Alfred F.	Lt.	30 Oct 45	P-59B	Patuxent
65	Franks, John M.	Lt.	30 Oct 45	P-59B	Patuxent
66	Earnest, Albert K.	Lt. Cmdr.	31 Oct 45	P-59B	Patuxent
67	Standring, Frank E.	Lt.	– Oct 45	Meteor	England
68	MacGregor, Robert A.	Lt. Cmdr.	03 Nov 45	P-59B	Patuxent
69	Hackett, Hugh J.	Lt.	29 Nov 45	P-59B	Patuxent
70	Callan, Allie W., Jr.	Lt.	02 Jan 46	P-59B	Patuxent
71	Myers, Raymond F.	Lt. Cmdr.	05 Jan 46	P-59B	Patuxent
72	Friesz, Robert P.*	Lt. Cmdr.	11 Jan 46	P-59B	Patuxent
73	Leonard, William N.	Cmdr.	23 Jan 46	P-59B	Patuxent
74	Martin, William I.	Cmdr.	28 Jan 46	P-59B	Patuxent
75	Bolt, William H., Jr.	Lt. Cmdr.	07 Feb 46	P-59B	Patuxent
76	Morrison, Jack W.	Maj.	08 Feb 46	P-59B	Patuxent
77	Umphfres, Donald E.*	Lt.	09 Feb 46	P-59B	Patuxent

No.	Name	Rank	Date	Plane	Place
78	Holley, Edward B.	Lt. Cmdr.	11 Feb 46	P-59B	Patuxent
79	Quilter, Charles J.	Lt. Col.	13 Feb 46	P-59B	Patuxent
80	Davis, Leslie D.	Lt. Cmdr.	19 Feb 46	P-59B	Patuxent
81	Jorgensen, John B.	Lt. Cmdr.	19 Feb 46	P-59B	Patuxent
82	Reedy, James R.	Cmdr.	20 Feb 46	P-59B	Patuxent
83	Sim, Vincent M.*	Lt. Cmdr.	21 Feb 46	P-59B	Patuxent
84	Sollenberger, Robert L.	Lt. Cmdr.	21 Feb 46	P-59B	Patuxent
85	Burnett, Robert G.	Lt. Cmdr.	26 Feb 46	P-59B	Patuxent
86	Somerville, Henry B.	Lt. Cmdr.	27 Feb 46	P-59B	Patuxent
87	Pugh, Paul E.	Lt. Cmdr.	01 Mar 46	P-59B	Patuxent
88	Smith, James W.	Lt. Cmdr.	01 Mar 46	Meteor	England
89	Fleming, Francis M.	Lt.	09 Mar 46	P-59B	Patuxent
90	Hey, Richard J.	Capt.	20 Mar 46	P-59B	Patuxent
91	Clarke, Robert A.	Lt.	21 Mar 46	YP-59A	Patuxent
92	Murray, Thomas O.	Cmdr.	22 Mar 46	YP-59A	Patuxent
93	Hanks, E. Ralph	Lt.	23 Mar 46	YP-59A	Patuxent
94	Smith, Francis A.	Lt.	26 Mar 46	YP-59A	Patuxent
95	Jackson, Mercer L.	Lt. j.g.	27 Mar 46	YP-59A	Patuxent
96	Guillory, Troy T.	Lt. Cmdr.	27 Mar 46	YP-59A	Patuxent
97	Kunz, Melvin M.	Lt.	27 Mar 46	P-59B	Patuxent
98	Kanze, Robert F.	Lt.	27 Mar 46	YP-59A	Patuxent
99	Mehle, Roger W.	Lt. Cmdr.	27 Mar 46	YP-59A	Patuxent
100	Tracy, Lloyd W.	Lt.	28 Mar 46	P-59B	Patuxent
101	Rodenburg, Eugene E.	Lt.	28 Mar 46	P-59B	Patuxent
102	Thoms, Joseph I.	Lt. j.g.	28 Mar 46	P-59B	Patuxent
103	Weaver, Victor H.	Lt.	01 Apr 46	P-59B	Patuxent
104	McHenry, Robert E.	Lt. Cmdr.	01 Apr 46	P-59B	Patuxent
105	Hoerner, Helmuth E.	Lt. Cmdr.	01 Apr 46	P-59B	Patuxent
106	Alford, William L.*	Lt.	02 Apr 46	P-59B	Patuxent
107	Hine, Thomas L.	Lt.	03 Apr 46	P-59B	Patuxent
108	Cain, Mahlon E.	Lt. Cmdr.	03 Apr 46	P-59B	Patuxent
109	Deitchman, Richard P.	Lt. j.g.	05 Apr 46	YP-59A	Patuxent
110	Ness, Dwight O.	Lt. Cmdr.	05 Apr 46	YP-59A	Patuxent
111	Colvin, Louis E.	Lt. j.g.	09 Apr 46	P-59B	Patuxent
112	Westover, Roland W.	Lt.	09 Apr 46	P-59B	Patuxent
113	Daniel, Walter E.	1st Lt.	09 Apr 46	YP-59A	Patuxent
114	Fitzgerald, Joseph W.	Lt. j.g.	09 Apr 46	YP-59A	Patuxent
115	Valencia, Eugene A.	Lt.	19 Apr 46	P-59B	Patuxent
116	Adair, Robert F.	Lt.	23 Apr 46	P-59B	Patuxent
117	Alley, C. John	Lt. Cmdr.	23 Apr 46	P-59B	Patuxent
118	David, Edmonds	Lt. Cmdr.	23 Apr 46	P-59B	Patuxent
119	Junk, Winfield H.	Lt. Cmdr.	24 Apr 46	P-80A	March Field
120	Blackburn, John T.	Cmdr.	13 May 46	YP-59A	Patuxent
121	Miller, Thomas H.	Capt.	17 May 46	YP-59A	Patuxent
122	Foley, Walter A.	Lt. j.g.	17 May 46	YP-59A	Patuxent
123	Candler, William R.	Lt.	17 May 46	YP-59A	Patuxent

No.	Name	Rank	Date	Plane	Place
124	Mechling, Wallace B.	Capt.	21 May 46	P-59B	Patuxent
125	Sanders, Roger M.	1st Lt.	21 May 46	P-59	Patuxent
126	Matthews, Herbert S.	Lt. j.g.	22 May 46	YP-59A	Patuxent
127	Johnson, D. H.	Capt.	22 May 46	YP-59A	Patuxent
128	Aurand, Evan P.	Cmdr.	07 Jun 46	P-59B	Patuxent
129	Empey, Robert E.	Lt.	12 Jun 46	P-59B	Patuxent
130	Shryock, William A.	Lt. Cmdr.	13 Jun 46	P-59B	Patuxent
131	Giblin, Robert B.	Lt.	20 Jun 46	Meteor	England
132	Giese, Carl E.	Capt.	28 Jun 46	P-59B	Patuxent
133	Metsger, Alfred B.	Cmdr.	10 Jul 46	P-59B	Patuxent
134	Griffin, Edwin C.	Lt.	11 Jul 46	P-80A	Inyokern
135	Hyland, John J.	Cmdr.	15 Aug 46	P-59B	Patuxent
136	Pearce, James L.	Lt.	15 Aug 46	P-59B	Patuxent
137	Cram, Jack E.	Lt. Col.	19 Aug 46	P-59B	Patuxent
138	Ruefle, William J.	Lt. Cmdr.	– Aug 46	YP-59	Patuxent
139	Rembert, John P., Jr.	Capt.	04 Sep 46	P-59B	Patuxent
140	Larson, Vernon H.	Lt. Cmdr.	25 Sep 46	P-59B	Patuxent
141	Vatcher, Walter W.	1st Lt.	26 Sep 46	YP-59A	Patuxent
142	Rand, Herbert C.	Lt. Cmdr.	27 Sep 46	P-59B	Patuxent
143	Harris, Floyd L.	Lt.	03 Oct 46	P-59B	Patuxent
144	Byng, John W.	Cmdr.	07 Oct 46	P-59B	Patuxent
145	Arnold, James T.	Lt.	22 Oct 46	P-59B	Patuxent
146	Deasy, Charles J.	Lt. j.g.	22 Oct 46	YP-59A	Patuxent
147	Puckett, Ronald G.	Lt.	19 Nov 46	P-59B	Patuxent
148	Lee, Earl C.	Lt. j.g.	21 Nov 46	P-59B	Patuxent
149	Chapman, Melvin L.	Lt.	29 Jan 47	FD-1	St. Louis
150	Garton, Norman F.	Capt.	29 Jan 47	FD-1	St. Louis
151	Kneeland, Kenneth P.	Lt. j.g.	31 Jan 47	FD-1	St. Louis
152	Turner, Frank	Capt.	06 Feb 47	P-59B	Patuxent
153	Caldwell, Turner F.	Cmdr.	15 Feb 47	P-80	Muroc
154	Weems, George T.*	Lt. Cmdr.	04 Mar 47	P-59B	Patuxent
155	Mulvihill, Francis*	Lt. Cmdr.	17 Mar 47	P-59B	Patuxent
156	Pahl, Herschel A.	Lt.	21 Mar 47	P-80A	Chandler
157	Baumall, John F.	Lt.	27 Mar 47	P-59B	Patuxent
158	Nelson, Robert J.	Lt.	29 Mar 47	P-59B	Patuxent
159	Doerflinger, Carl	Cmdr.	31 Mar 47	P-59B	Patuxent
160	Crocker, John A.	Lt.	31 Mar 47	P-59B	Patuxent
161	Provost, Thomas C.*	Lt. Cmdr.	31 Mar 47	P-59B	Patuxent
162	Danbury, William T.	Lt. Cmdr.	01 Apr 47	FD-1	St. Louis
163	O'Connor, Harry N.	Lt. j.g.	01 Apr 47	P-59B	Patuxent
164	Thompson, Harley F.	Lt. Cmdr.	03 Apr 47	P-59A	Patuxent
165	Whillans, Jack E.*	Lt.	04 Apr 47	P-59A	Patuxent
166	Wood, Robert B.	Lt. Cmdr.	07 Apr 47	P-59A	Patuxent
167	Krantz, William F.	Lt. Cmdr.	10 Apr 47	Vampire	England
168	Reeves, Roy S.	Lt. Cmdr.	10 Apr 47	P-59B	Patuxent
169	McKinley, Charles E.	Lt.	10 Apr 47	P-59B	Patuxent

No.	Name	Rank	Date	Plane	Place
170	Coats, Robert C.	Lt. Cmdr.	15 Apr 47	P-59B	Patuxent
171	Hamilton, Chas. B., Jr.	Lt. j.g.	17 Apr 47	P-59B	Patuxent
172	Pride, Alfred M.	Rear Adm.	24 Apr 47	YP-59A	Patuxent
173	Clifton, Joseph C.	Capt.	01 May 47	P-59B	Patuxent
174	Ballinger, Richard R.	Capt.	01 May 47	P-59A	Patuxent
175	Bott, Alan R.	Lt. j.g.	08 May 47	P-59B	Patuxent
176	Franger, Marvin J.	Lt. Cmdr.	09 May 47	FD-1	Patuxent
177	McGinty, William G.	Lt.	19 May 47	P-80	Williams AFB
178	Cousins, Ralph W.	Cmdr.	20 May 47	P-59B	Patuxent
179	Simpler, Leroy C.	Capt.	21 May 47	FD-1	St. Louis
180	Billo, James D.	Lt. Cmdr.	04 Jun 47	P-59	Patuxent
181	Timmes, Francis X.	Lt. Cmdr.	12 Jun 47	P-59B	Patuxent
182	Neddo, Donald N.	Lt. Cmdr.	13 Jun 47	P-59B	Patuxent
183	Stapler, Charles R.*	Lt. Cmdr.	16 Jun 47	YP-59A	Patuxent
184	Bates, Richard S.	Lt.	18 Jun 47	YP-59A	Patuxent
185	Smith, Joseph G.	Lt. Cmdr.	24 Jun 47	YP-59B	Patuxent
186	Weatherup, Robert A.	Lt. Cmdr.	25 Jun 47	P-59	Patuxent
187	Nester, Robert G.	Lt. Cmdr.	30 Jun 47	YP-59A	Patuxent
188	Dibble, Edgar J.	Lt.	30 Jun 47	YP-59A	Patuxent
189	Minter, Chas. S., Jr.	Cmdr.	02 Jul 47	YP-59B	Patuxent
190	Campbell, Robert K.	Lt. Cmdr.	03 Jul 47	YP-59A	Patuxent
191	Gates, Clark H.	Lt. Cmdr.	09 Jul 47	P-59B	Patuxent
192	Weymouth, Ralph	Lt. Cmdr.	11 Jul 47	P-59B	Patuxent
193	Collins, Francis L.	Lt. j.g.	12 Jul 47	FD-1	St. Louis
194	Russell, Hawley	Cmdr.	15 Jul 47	FD-1	Patuxent
195	Brehm, William W.	Lt. Cmdr.	17 Jul 47	FD-1	Patuxent
196	Miller, Charles G.*	Lt.	17 Jul 47	P-59B	Patuxent
197	Dace, Carl C.	Lt. j.g.	17 Jul 47	P-59B	Patuxent
198	Perry, Adrian H.	Cmdr.	18 Jul 47	FD-1	Patuxent
199	Phillips, Thomas A.	Capt.	23 Jul 47	P-59	Patuxent
200	Clasen, William E.	Maj.	25 Jul 47	P-59B	Patuxent
201	Glover, John W.	Lt. j.g.	26 Jul 47	FD-1	Patuxent
202	Greenslade, John F.	Capt.	05 Aug 47	P-59B	Patuxent
203	Raposa, William C.	Lt. j.g.	06 Aug 47	FD-1	St. Louis
204	Mryo, Robert A.	Lt. Cmdr.	07 Aug 47	FD-1	Patuxent
205	Bicknell, John R.	Lt. j.g.	07 Aug 47	P-59B	Patuxent
206	Payne, Paul E.	Lt.	07 Aug 47	FD-1	Patuxent
207	Buxton, Elliott A.*	Lt.	08 Aug 47	FD-1	Patuxent
208	Sullivan, John*	Lt.	08 Aug 47	FD-1	Patuxent
209	Long, John O., Jr.*	Ens.	08 Aug 47	FD-1	Patuxent
210	Cauble, Lawrence M.	Lt.	08 Aug 47	P-59B	Patuxent
211	Biggers, William D.*	Lt. Cmdr.	09 Aug 47	FD-1	Patuxent
212	Davis, William V.	Capt.	10 Aug 47	P-59B	Patuxent
213	Taylor, Donald C.	Lt.	12 Aug 47	P-59B	Patuxent
214	Genta, John L.*	Lt. Cmdr.	12 Aug 47	P-59B	Patuxent
215	McGowan, Edward C.	Lt.	12 Aug 47	XFD-1	NAS Mustin

No.	Name	Rank	Date	Plane	Place
216	Jensen, Alvin J.	Capt.	19 Aug 47	P-59B	Patuxent
217	Heath, Thomas W.	Lt. Cmdr.	23 Aug 47	FH-1	Patuxent
218	Ellis, Paul B.	Lt. Cmdr.	23 Aug 47	FH-1	Patuxent
219	Kimak, Charles	Maj.	26 Aug 47	P-59B	Patuxent
220	Newell, James H.	Cmdr.	29 Aug 47	FH-1	Patuxent
221	Fox, Frank A.	Lt.	10 Sep 47	FH-1	Quonset
222	Laird, Dean S.	Lt.	10 Sep 47	FH-1	Quonset
223	Wiktorski, Peter A.	Capt.	16 Sep 47	FH-1	Patuxent
224	Turner, Frederick G.	Lt. j.g.	18 Sep 47	FH-1	Quonset
225	Roberts, Carson A.	Col.	01 Oct 47	P-59B	Patuxent
226	McElroy, Richard S.	Lt. Cmdr.	02 Oct 47	P-59B	Patuxent
227	Werner, Ralph L.	Lt. Cmdr.	10 Oct 47	P-59B	Patuxent
228	James, George S., Jr.	Cmdr.	14 Oct 47	FH-1	St. Louis
229	Torry, John A., Jr.	Lt. Cmdr.	14 Oct 47	P-59B	Patuxent
230	Parker, Chester A.	Lt.	16 Oct 47	FH-1	Quonset
231	Helms, Jonee L.	1st Lt.	16 Oct 47	P-80	Williams AFB
232	Blackmun, Arvid W.	Maj.	23 Oct 47	P-59B	Patuxent
233	Barnett, Marvin E.	Lt. Cmdr.	04 Nov 47	FH-1	Quonset
234	Sedaker, Thomas S.	Lt.	04 Nov 47	FH-1	Quonset
235	Sells, Warren H.	Ens.	04 Nov 47	FH-1	Quonset
236	Couch, Eugene	Ens.	07 Nov 47	FH-1	Quonset
237	Oelrich, Martin E. W.	Maj.	12 Nov 47	FH-1	Cherry Point
238	Domina, Walter E.	1st Lt.	17 Nov 47	FH-1	Cherry Point
239	Panchision, Walter	1st Lt.	17 Nov 47	FH-1	Cherry Point
240	Connelly, Frederick G.	1st Lt.	18 Nov 47	FH-1	Cherry Point
241	Jeter, Manning T., Jr.	1st Lt.	18 Nov 47	FH-1	Cherry Point
242	Conner, Andrew B.	Lt. Cmdr.	19 Nov 47	P-59B	Patuxent
243	Gordon, Donald	Lt. Cmdr.	19 Nov 47	P-59B	Patuxent
244	Lindley, Johnny D.	Capt.	25 Nov 47	FH-1	Cherry Point
245	Green, Robert D.	1st Lt.	26 Nov 47	FH-1	Cherry Point
246	Iglehart, Louis T., Jr.	1st Lt.	26 Nov 47	FH-1	Cherry Point
247	Mars, William G., Jr.	1st Lt.	26 Nov 47	FH-1	Cherry Point
248	Seaman, Milford V.	1st Lt.	28 Nov 47	FH-1	Cherry Point
249	Blass, Lytton F.	MSgt.	05 Dec 47	FH-1	Cherry Point
250	Tate, Hugh J.	Lt. j.g.	07 Dec 47	P-59B	Patuxent
251	Schilt, C. Frank	Brig. Gen.	09 Dec 47	FH-1	St. Louis
252	Kinser, Dick R.	1st Lt.	09 Dec 47	FH-1	Cherry Point
253	Ramsay, Thomas W.*	Lt. Cmdr.	16 Dec 47	FH-1	Patuxent
254	Ives, Donald A.	MSgt.	18 Dec 47	FH-1	Cherry Point
255	Bortz, William H.	1st Lt.	19 Dec 47	FH-1	Cherry Point
256	Roark, Walter N., Jr.	1st Lt.	19 Dec 47	FH-1	Cherry Point
257	McDaniel, James	1st Lt.	23 Dec 47	FH-1	Cherry Point
258	Bosee, Roland A.	Cmdr.	29 Dec 47	FH-1	Patuxent
259	Kibbe, Richard L.	Cmdr.	29 Dec 47	FH-1	Patuxent
260	Rockwell, John H.*	Lt. Cmdr.	29 Dec 47	FH-1	Patuxent
261	Speirs, Carl L.	Lt. Cmdr.	30 Dec 47	FH-1	Patuxent

No.	Name	Rank	Date	Plane	Place
262	Morton, Wilbur Y.	Lt. Cmdr.	31 Dec 47	FH-1	Patuxent
263	Armstrong, Alan J.	Maj.	08 Jan 48	FH-1	Patuxent
264	Morton, Wilbur Y.	Maj.	08 Jan 48	FH-1	Patuxent
265	Stefan, Karl H.	Lt. Cmdr.	11 Jan 48	FH-1	Patuxent
266	Beatle, Ralph H.	Lt.	15 Jan 48	P-59B	Patuxent
267	Vail, Malcolm E.	Ens.	15 Jan 48	P-80A	Williams AFB
268	Brown, Nelson E.	1st Lt.	15 Jan 48	FH-1	
269	Jones, Charles D.	Capt.	15 Jan 48	FH-1	
270	Brown, F. Taylor	Ens.	16 Jan 48	P-80A	Williams AFB
271	Hansen, Dale W.	1st Lt.	16 Jan 48	FH-1	
272	Pierozzi, C. Nello	Ens.	18 Jan 48	P-80A	Williams AFB
273	Davis, Donald C.	Lt.	19 Jan 48	P-80A	Williams AFB
274	Pickett, Phillip G.	1st Lt.	22 Jan 48	FH-1	
275	Mooney, Thomas G.	MSgt.	26 Jan 48	FH-1	
276	McLean, Carl T.	Capt.	26 Jan 48	FH-1	
277	Schoch, Edwin F.*	Lt. Cmdr.	29 Jan 48	FJ-1	Patuxent
278	Firebaugh, Gordon E.	Lt. Cmdr.	30 Jan 48	FH-1	Patuxent
279	Nifong, James M.	Lt.	31 Jan 48	FH-1	Patuxent
280	Bayers, Edward H.	Lt. Cmdr.	02 Feb 48	FH-1	Patuxent
281	Cotariu, Alan R.	Ens.	02 Feb 48	FH-1	Patuxent
282	Stetson, Thomas H.	Lt. Cmdr.	02 Feb 48	FH-1	Patuxent
283	Folsom, Samuel B.	Capt.	03 Feb 48	FH-1	Patuxent
284	Kelly, Vincent F.	Lt.	04 Feb 48	FJ-1	San Diego
285	Thompson, Lewis E.	Lt.	06 Feb 48	FJ-1	N. Island
286	Roach, Walter, Jr.	Lt.	09 Feb 48	FH-1	Patuxent
287	Capriotti, Anthony	Lt.	11 Feb 48	FJ-1	San Diego
288	Ritchie, James	Lt.	11 Feb 48	FJ-1	San Diego
289	Davidson, Paul D.	Lt. j.g.	12 Feb 48	FJ-1	N. Island
290	Smith, Robert R.	MSgt.	16 Feb 48	FH-1	Cherry Point
291	Wehmeyer, Wilbur J.	Cmdr.	17 Feb 48	FH-1	Patuxent
292	Stacy, James M.	Lt.	19 Feb 48	FH-1	
293	Nemoff, Alfred J.	Ens.	20 Feb 48	FJ-1	San Diego
294	Oeschlin, Robert E.	Ens.	24 Feb 48	FJ-1	San Diego
295	Pettiet, Rudolph L.	Lt. Cmdr.	24 Feb 48	FH-1	Patuxent
296	Coppola, Earnest J.	Lt. j.g.	25 Feb 48	FH-1	Patuxent
297	Bell, William R.*	Lt. Cmdr.	06 Mar 48	FH-1	Patuxent
298	Meyersburg, R. B.	Maj.	10 Mar 48	Meteor	
299	Yunck, Michael R.	Maj.	11 Mar 48	P-80	Williams AFB
300	Jackson, Dewey H.	1st Lt.	12 Mar 48	P-80A	Williams AFB
301	Martin, Benjamin G.	1st Lt.	12 Mar 48	P-80A	Williams AFB
302	Ellis, James W.*	Lt.	13 Mar 48	FH-1	Patuxent
303	Poulson, George W.	1st Lt.	13 Mar 48	P-80A	Williams AFB
304	Condon, John P.	Lt. Col.	16 Mar 48	P-80A	Williams AFB
305	Galer, Robert	Col.	16 Mar 48	FH-1	
306	Starkes, C. B.	Lt. Cmdr.	22 Mar 48	FH-1	
307	Pankurst, Paul L.	Capt.	23 Mar 48	FH-1	

No.	Name	Rank	Date	Plane	Place
308	Whitaker, James L.	Capt.	30 Mar 48	FH-1	
309	Gibson, Charles E.	Cmdr.	05 Apr 48	FH-1	Quonset
310	Durand, Paul H.	Lt. Cmdr.	06 Apr 48	FH-1	Patuxent
311	Ruehlow, Standley E.	Cmdr.	07 Apr 48	FH-1	
312	Severson, Martin A.	Lt. Col.	09 Apr 48	FH-1	
313	Houser, William D.	Lt. Cmdr.	15 Apr 48	FH-1	Patuxent
314	Spiess, Morris K.	Lt. j.g.	16 Apr 48	FH-1	Patuxent
315	McNeil, Wilfred J.*	Lt.	26 Apr 48	FH-1	Patuxent
316	Gray, James S., Jr.	Cmdr.	11 May 48	P-80B	Okinawa
317	Dawson, Marion L.	Col.	12 May 48	FH-1	
318	Manchester, B. B., III	Lt. Col.	26 May 48	FH-1	
319	Roush, Martin B.	Capt.	29 May 48	FH-1	
320	Soucek, Apollo*	Rear Adm.	01 Jun 48	FH-1	Patuxent
321	Millington, W. A.	Lt. Col.	03 Jun 48	FH-1	
322	Gallery, Daniel V.	Rear Adm.	09 Jun 48	FH-1	Patuxent
323	Peterson, Harry W.	Lt.	18 Jun 48	FJ-1	San Diego
324	McManus, John	1st Lt.	23 Jun 48	FH-1	
325	Cruise, Edgar A.	Rear Adm.	02 Jul 48	FH-1	Patuxent
326	Pawka, E. J.	Cmdr.	02 Jul 48	TO-1	San Diego
327	Weissenberger, G. J.	Lt. Col.	07 Jul 48	FH-1	
328	Johnson, Robert J.	Lt. Col.	07 Jul 48	FH-1	
329	Beebe, Marshall U.	Cmdr.	12 Jul 48	FH-1	Patuxent
330	Harris, Thomas S.	Lt.	15 Jul 48	FH-1	Quonset
331	Mueller, Richard C.	Lt. Cmdr.	22 Jul 48	FH-1	Patuxent
332	Spears, Paul H. A.	Lt.	— Jul 48	TO-1	Burbank
333	Billings, Thomas C.	1st Lt.	27 Jul 48	TO-1	
334	Fiegener, Kenneth G.	1st Lt.	03 Aug 48	TO-1	El Toro
335	Rafferty, Edgar L.	1st Lt.	04 Aug 48	TO-1	
336	Harrison, Patrick	Capt.	04 Aug 48	TO-1	
337	Case, William N.	Capt.	04 Aug 48	TO-1	
338	Perry, Jack E.	1st Lt.	04 Aug 48	TO-1	
339	Smith, Stanley E.	Lt. j.g.	05 Aug 48	FH-1	Quonset
340	Guss, William F.	1st Lt.	05 Aug 48	TO-1	
341	Klingman, Robert R.	1st Lt.	05 Aug 48	TO-1	
342	Abbott, Edwin W., II	Lt. j.g.	05 Aug 48	FH-1	
343	Gourley, Norman W.	1st Lt.	05 Aug 48	TO-1	
344	Mitchell, Weldon R.	1st Lt.	06 Aug 48	TO-1	
345	Jarrett, Clyde R.	1st Lt.	06 Aug 48	TO-1	
346	Wolfe, Ted E., Jr.	Lt. Cmdr.	09 Aug 48	FH-1	Atlantic City
347	Brown, John B.	Capt.	09 Aug 48	FH-1	
348	Wilder, James H.	Ens.	09 Aug 48	FH-1	
349	Ganschow, Edward F.	Capt.	11 Aug 48	FH-1	Cherry Point
350	Parker, Elwin A.	Lt. Cmdr.	12 Aug 48	FH-1	Patuxent
351	Moro, Albert J.	Lt. j.g.	16 Aug 48	FH-1	Quonset
352	Furney, Maynard M.	Lt. Cmdr.	17 Aug 48	FH-1	Patuxent
353	Prahar, T. F.	Lt.	17 Aug 48	FH-1	Patuxent

No.	Name	Rank	Date	Plane	Place
354	Macomber, Brainard	Lt. Cmdr.	18 Aug 48	FH-1	Patuxent
355	Widhelm, William J.*	Cmdr.	19 Aug 48	FH-1	Patuxent
356	Cloud, Guy M.	1st Lt.	30 Aug 48	TO-1	
357	Carter, Frank B.	Ens.	17 Sep 48	FH-1	Quonset
358	Nye, Robert D.	Lt. Cmdr.	17 Sep 48	FH-1	Quonset
359	Pugh, Edward L.	Col.	17 Sep 48	FH-1	
360	Ingalls, Chas. E., Jr.	Cmdr.	22 Sep 48	FH-1	Patuxent
361	Everton, Loren D.	Maj.	29 Sep 48	FH-1	
362	Brtek, F. C.	Lt. j.g.	06 Oct 48	FH-1	Quonset
363	Trammel, Thomas B.	Capt.	14 Oct 48	TO-1	El Toro
364	Stuckey, Harry B.	1st Lt.	14 Oct 48	TO-1	
365	Haley, Harold L.	1st Lt.	14 Oct 48	TO-1	
366	Robinson, Robert B.	1st Lt.	14 Oct 48	TO-1	
367	Austin, Marshall S.	1st Lt.	14 Oct 48	TO-1	
368	Pottinger, William K.	Lt. Col.	14 Oct 48	TO-1	
369	Grey, Jack R.	1st Lt.	14 Oct 48	TO-1	
370	Read, Robert R.	Maj.	14 Oct 48	TO-1	El Toro
371	Sharp, James, II	1st Lt.	14 Oct 48	TO-1	
372	Houser, Fred C.	Capt.	14 Oct 48	TO-1	
373	Connell, Herschell G.	1st Lt.	14 Oct 48	TO-1	
374	Johnson, Danny W.	1st Lt.	14 Oct 48	TO-1	
375	Schroeder, Charles	1st Lt.	14 Oct 48	TO-1	
376	Rutledge, Rockwell M.	1st Lt.	14 Oct 48	TO-1	
377	Frankovic, Boris J.	1st Lt.	14 Oct 48	TO-1	
378	Hemstad, Robert S.	1st Lt.	14 Oct 48	TO-1	
379	Davis, Leonard K.	Lt. Col.	14 Oct 48	FH-1	
380	Bright, Cruger L.	Maj.	15 Oct 48	FH-1	
381	Jernigan, Curtis	1st Lt.	22 Oct 48	FH-1	
382	McCullough, William F.	Lt. j.g.	26 Oct 48	F-80	
383	Stapp, Donald H.	Maj.	26 Oct 48	TO-1	El Toro
384	Holloway, Harding H.	1st Lt.	28 Oct 48	FH-1	
385	Russell, Allard G.	Lt. Cmdr.	04 Nov 48	TO-1	San Diego
386	Conger, Jack E.	Maj.	04 Nov 48	FH-1	
387	Jackson, Billy	Lt. j.g.	04 Nov 48	TO-1	San Diego
388	Plog, Leonard H.	Lt. j.g.	04 Nov 48	TO-1	San Diego
389	Lizotte, Wesley E.	Lt. j.g.	04 Nov 48	TO-1	San Diego
390	Freeman, Dewitt L.	Lt. j.g.	04 Nov 48	TO-1	San Diego
391	Lloyd, Marshall O.	Lt.	04 Nov 48	TO-1	
392	Sears, Harry E.	Cmdr.	05 Nov 48	FH-1	Patuxent
393	Johnson, James	1st Lt.	14 Nov 48	FH-1	
394	Jensen, Harvey	1st Lt.	15 Nov 48	TO-1	El Toro
395	King, George J.	1st Lt.	15 Nov 48	TO-1	
396	Oster, Eugene M.	1st Lt.	15 Nov 48	TO-1	
397	Meyer, Eugene W.	1st Lt.	15 Nov 48	TO-1	
398	Turcotte, Edward	1st Lt.	15 Nov 48	TO-1	
399	Toups, Thaddeus J.	1st Lt.	15 Nov 48	TO-1	

No.	Name	Rank	Date	Plane	Place
400	Harper, Edwin A.	Capt.	15 Nov 48	TO-1	
401	Hamilton, John	1st Lt.	15 Nov 48	TO-1	
402	Thornbury, Donald S.	Capt.	15 Nov 48	TO-1	
403	Croyle, Fred K.	1st Lt.	16 Nov 48	TO-1	
404	Keller, Harold F.	1st Lt.	19 Nov 48	TO-1	
405	Logan, Thomas B.	Lt.	01 Dec 48	TO-1	Patuxent
406	Wattenburger, Robert	Lt. j.g.	06 Dec 48	TO-1	Patuxent
407	Adams, Allan M., Jr.	Lt. j.g.	06 Dec 48	TO-1	Patuxent
408	Bunger, Samuel J.	Ens.	06 Dec 48	TO-1	
409	Smith, Mercer R.	1st Lt.	10 Dec 48	FH-1	Cherry Point
410	Regan, Robert F.	Lt.	13 Dec 48	FH-1	Quonset
411	Gilman, George L.	2nd Lt.	14 Dec 48	FH-1	
412	Campbell, Donald L.	Lt. j.g.	15 Dec 48	FH-1	Quonset
413	Davis, Judson C.	Lt.	15 Dec 48	FH-1	Quonset
414	Quilty, Joseph F.	Maj.	21 Dec 48	TO-1	
415	Funk, Harold N.	Cmdr.	22 Dec 48	FH-1	Patuxent
416	Hill, John S.	Lt. Cmdr.	23 Dec 48	FH-1	Patuxent
417	Penne, Harold B.	Maj.	28 Dec 48	FH-1	
418	Wenzell, R. M.	Lt.	28 Dec 48	FH-1	

Chapter 15

Early Helicopter Pilots

The Bureau of Aeronautics issued a planning directive on 24 July 1942 calling for procurement of four Sikorsky helicopters for study and development by Navy and Coast Guard aviation forces. However, this was not the Navy's first interest in helicopters. That may be traced back to 5 December 1917 when the policy regarding helicopter development was established by the Secretaries of the Navy and War Departments on the basis of recommendations made by the Joint Technical Board on Aircraft. At that time, it was stated there was a need for improvements in power plants and propellers if a successful helicopter was to be obtained. Actual support of development efforts was to be limited to moral encouragement until a vendor had demonstrated a helicopter of military value.

The Navy's first rotary-wing vehicle was the XOP-1 autogiro ordered on 25 February 1931 from Pitcairn Aircraft. This machine was not a true helicopter because it had fixed wings and could not rise vertically. On 12 March 1935, the Navy issued a contract to Pitcairn Autogiro Company to remove the wings from the XOP-1, thereby converting it to the XOP-2, which thus became the Navy's first heavier-than-air aircraft without wings. Tests were conducted with the XOP-1, including landings on *Langley* (CV 1) in September 1931. However, conclusions from the tests, which compared the autogiros with fixed-wing aircraft, indicated the advantages were not great enough to override the disadvantages of payload, range, and the difficulties of flying. Personnel involved in the testing of the XOP-1 included future naval aviation greats such as Alfred Pride, Ralph A. Ofstie, Robert B. Pirie, and Frederick M. Trapnell. Other attempts were made between 1932 and 1937 to improve rotary-wing capabilities, but they were not successful. The Marine Corps used the OP-1 autogiro in Nicaragua in 1932 with the comment that its chief value in expeditionary duty was in inspecting small fields recommended by ground troops as landing areas, evacuating medical "sitting" cases, and ferrying of important personnel. In 1937 the Navy also experimented with the XOZ-1, a modified N2Y-1 with a cyclic controlled rotor, but the tests were not successful.

In the early 1940s, a class desk was established in the Bureau of Aeronautics for the Navy's helicopter program and staffed by a small group of individuals who saw the potential for rotary-wing development. They included Capt. Clayton C. Marcy, Cmdr. James W. Klopp, and Cmdr. Raymond Doll. The impetus for more Navy involvement in helicopters was spearheaded by the Coast Guard, which was very interested in its ASW and rescue capabilities. Their vision for the use of the helicopter, whose development responsibility had been assigned to the Army Air Corps, resulted in a 15 February 1943 directive from the Commander in Chief, U.S. Fleet that assigned responsibility for sea-going development of helicopters and their operation in convoys to the Coast Guard. Tests were to be carried out to determine if helicopters operating from merchant ships would be of value in combating submarines. On 4 May 1943, to expedite the evaluation of the helicopter in antisubmarine operations, the Commander in Chief, U.S. Fleet, directed that a "joint board" be formed with representatives from the Commander in Chief, U.S. Fleet; the Bureau of Aeronautics, the Coast Guard, the British Admiralty, and the Royal Air Force. The resulting Combined Board for the Evaluation of the Ship-Based Helicopter in Antisubmarine Warfare was later expanded to include representatives of the Army Air Forces (AAF), the War Shipping Administration, and the National Advisory Committee for Aeronautics (NACA). A few days later, on 7 May, Navy representatives witnessed landing trials in Long Island Sound of the XR-4 helicopter on board the merchant tanker SS *Bunker Hill* in a demonstration sponsored by the Maritime Commission. The pilot, Col. R. F. Gregory, AAF, made about 15 flights, some of which he landed on the water before returning to the platform on the deck of the ship. On 10 June 1943, Lt. Cdmr. Frank A. Erickson, USCG, proposed that helicopters be developed for antisubmarine warfare, "not as a killer craft but as the eyes and ears of the convoy escorts." To this end he recommended that helicopters be equipped with radar and dunking sonar. With the foregoing proposals and developments, the Navy ordered and received its first helicopter—a Sikorsky YR-4B, Navy designation HNS-1—on 16 October 1943. It was accepted at Bridgeport, Conn., following a 60-minute acceptance test flight by Lt. Cdmr. Erickson. Cmdr. Charles T. Booth, USN, delivered this helicopter to NAS Patuxent River, Md., on 22 October 1943. As stated by a memo from Cmdr. Booth, he had arrived at Bridgeport "to continue instructions and to deliver to NAS Patuxent the first Navy helicopter . . . Six hours additional flight time was obtained by Commander Booth prior to his return to NAS Patuxent, Md., on 22 October."

On the basis of his belief that tests indicated the practicability of ship-based helicopters, the Chief of Naval Operations, on 18 December 1943, separated the pilot training from test and development functions in the helicopter program. He directed that, effective 1 January 1944, a helicopter pilot training program be conducted by the U.S. Coast Guard at Floyd Bennett Field, N.Y., under the direction of the Deputy Chief of Naval Operations

(Air). This planning directive of 18 December 1943, also named Rockaway, N.Y., as an outlying field for training and stated that three Coast Guard and two Navy officers had qualified as helicopter pilots to date. The directive also indicated "It has been determined that after 25 hours of dual and solo flight time, a fixed-wing pilot is qualified as a helicopter pilot." Thus, during WWII, the Coast Guard, at Floyd Bennett Field, N.Y., was responsible for pilot and enlisted mechanic training in helicopter aviation for the Navy. Helicopter pilots trained by the Coast Guard unit also included personnel from the Army Air Forces, the Civil Aeronautics Administration, and NACA.

Following the end of WWII, the Navy established VX-3 on 1 July 1946 at NAS New York (Floyd Bennett Field). This squadron took over the helicopter pilot training duties that had been done by the Coast Guard unit at Floyd Bennett Field, N.Y. VX-3 moved to NAS Lakehurst, N.J., on 10 September 1946 and continued training helicopter pilots until they were disestablished on 1 April 1948.

Helicopter Utility Squadron 2 (HU-2) was established on 1 April 1948 and took over the responsibility for training helicopter pilots at NAS Lakehurst, N.J. Many of the personnel from VX-3 helped form HU-2 when it was established. On 11 June 1948, the Chief of Naval Operations issued standards for training aviators as helicopter pilots and provided that helicopter pilots previously trained by the Coast Guard or VX-3 would retain their qualification. However, not all personnel received their qualification as a helicopter pilot from VX-3 or HU-2, even though they had been assigned the mission of training helicopter pilots. HU-2 would issue helicopter pilot qualifications to an individual that may have received training at NATC Patuxent River, Md., from HU-1, or from Connally Air Force Base in Texas.

HU-2 was not only responsible for training helicopter pilots but was also involved in providing helicopter detachments for utility services and search and rescue missions. Due to an increased demand for these services, as well as a need for more helicopter pilots, the Chief of Naval Operations decided to transfer the helicopter pilot training mission to the Naval Air Training Command at Ellyson Field, Pensacola, Fla. Helicopter Training Unit 1 (HTU-1) was established on 3 December 1950 at Pensacola, Fla. HU-2 shifted its responsibility for training helicopter pilots to HTU-1 in January 1951. HTU-1 was redesignated HTG-1 in March 1957. The HTG-1 designation was changed to HT-8 on 1 July 1960. HT-8 is still training helicopter pilots in the Pensacola area.

When a new program is established, especially one that entails listing personnel who are designated or qualified for a particular job code, the records for the evolution of that new program can be very sketchy. That is precisely what happened in the training program for helicopter pilots. The early helicopter pilots did not have a formal Navy training program to follow or the correct procedures in place to record and preserve their helicopter pilot qualifications. In fact, in 1943 the first group to qualify was sent to East Hartford, Conn., and trained by the Sikorsky Aircraft Company. They included Lt. Cmdr. Frank Erickson, USCG; Lt. A. N. Fisher, USCG; Lt. Stewart R. Graham, USCG; and Cmdr. Charles T. Booth, USN. None of these individuals were placed on the list of early helicopter pilots. In fact, the list, which appears to originate from VX-3 and HU-2 records, does not list any Coast Guard officers. The following list is the best that could be compiled from the available records on helicopter pilot qualification and training. It does not include the Coast Guard aviators.

Helicopter Pilot Number	Name	Rank	Service	Date of Qualification Designation
1	Knapp, William G.	Lt.	USNR	15 Apr 1944
2	Doll, Raymond E.	Cmdr.	USN	26 Sep 1944
3	Wood, Charles R.	Cmdr.	USNR	26 Sep 1944
4	Brown, Percy	Lt.	USNR	6 Feb 1945
5	Kembro, Marerie D.	Capt.	USN	9 Aug 1945
6	Long, Richard J.	Lt.	USN	9 Aug 1945
7	Marcy, Clayton C.	Capt.	USN	10 Oct 1945
8	Runyon, Joseph W.	Cmdr.	USN	31 Oct 1945
9	Houston, Charles E.	Cmdr.	USN	18 Dec 1945
10	Hoover, George	Lt.	USN	27 Dec 1945
11	Lawrence, M.	Lt.	USNR	28 Dec 1945
12	Wilcox, Donald E.	Capt.	USN	3 Jun 1946
13	Kosciusko, Henry M.	Lt. Cmdr.	USN	17 Jul 1946
14	Kubicki, Edward	Lt.	USN	26 Jul 1946
15	Schaufler, William G.	Lt. j.g.	USN	26 Jul 1946

Helicopter Pilot Number	Name	Rank	Service	Date of Qualification Designation
16	Delalio, Armand H.	Maj.	USMC	8 Aug 1946
17	Rullo, Guiseppe J.	Lt.	USN	28 Aug 1946
18	Reeves, George J.	Lt.	USN	28 Aug 1946
19	Lammi, James W.	Lt.	USN	27 Sep 1946
20	Junghans, Robert L.	Lt. Cmdr.	USN	1 Nov 1946
21	Sessums, Walter M.	Lt. Cmdr.	USN	5 Nov 1946
22	Tanner, Charles S.	Lt. Cmdr.	USN	9 Nov 1946
23	Fink, Christian	Lt. Cmdr.	USN	18 Dec 1946
24	Bott, Alan	Lt.	USN	18 Dec 1946
25	Tracy, Lloyd W.	Lt.	USN	23 Jun 1947
26	Glenzer, Hubert	Lt. j.g.	USN	14 Oct 1947
27	Anderson, Roy L.	1st Lt.	USMC	20 Nov 1947
28	Strieby, Robert A.	Capt.	USMC	20 Nov 1947
29	Garber, C. O.	Capt.	USMC	20 Nov 1947
30	Riley, Russell R.	Maj.	USMC	20 Nov 1947
31	Peters, Maurice A.	Cmdr.	USN	21 Nov 1947
32	Shawcross, William H.	Lt.	USN	24 Nov 1947
33	Bagshaw, James R.	Lt. j.g.	USN	24 Nov 1947
34	Montgomery, Marvin D.	Lt. j.g.	USN	24 Nov 1947
35	Morrison, Gene W.	1st Lt.	USMC	1 Dec 1947
36	Carleton, R. D.	Lt. j.g.	USN	20 Dec 1947
37	Arnold, E. A.	Lt. Cmdr.	USN	21 Dec 1947
38	Moseley, R. H.	Ens.	USN	22 Dec 1947
39	Higbee, J.	Capt.	USN	22 Dec 1947
40	Billett, Dudley S.	Lt. Cmdr.	USN	15 Jan 1948
41	Camp, R. W.	ADC(NAP)*	USN	21 Feb 1948
42	McVicars, A. L.	1st Lt.	USMC	11 Mar 1948
43	Meshier, C. W.	Lt.	USN	12 Mar 1948
44	Blatt, W. D.	Capt.	USMC	17 Mar 1948
45	Polen, R. A.	1st Lt.	USMC	17 Mar 1948
46	Ward, C. E.	1st Lt.	USMC	19 Mar 1948
47	Pope, E. J.	1st Lt.	USMC	22 Mar 1948
48	Sebach, H. U.	Lt. Cmdr.	USN	31 Mar 1948
49	Fisher, A. G.	MSgt.	USMC	1 Apr 1948
50	Schmucker, S.	Ens.	USN	7 Apr 1948
51	Mathewson, F. F.	Lt.	USN	16 Apr 1948
52	Hanies, G. D.	Lt.	USN	16 Apr 1948
53	Matthews, J. H.	Capt.	USN	20 Apr 1948
54	Mounts, L. J.	MSgt.	USMC	26 Apr 1948
55	Fox, J. E.	Lt.	USN	29 Apr 1948
56	Leary, W.	Lt. j.g.	USN	29 Apr 1948
57	Grassi, J.	Ens.	USN	29 Apr 1948
58	Longstaff, R.	1st Lt.	USMC	12 May 1948
59	Hamilton, D. E.	ADC(AP)*	USN	12 May 1948
60	Mitchell, G. D.	ADC(NAP)*	USN	18 May 1948
61	Finn, L. A.	ADC(NAP)*	USN	19 May 1948
62	Collins, V. W.	Lt.	USN	21 May 1948
63	Nebergall, M.	1st Lt.	USMC	19 Jun 1948

Helicopter Pilot Number	Name	Rank	Service	Date of Qualification Designation
64	Griffin, M. C.	Lt. j.g.	USN	7 Jul 1948
65	Brender, B. W.	Lt. j.g.	USN	8 Jul 1948
66	Hutto, C. H.	AC1(NAP)*	USN	8 Jul 1948
67	Lynch, R. E.	Ens.	USN	9 Jul 1948
68	Milner, F. D.	Lt.	USN	13 Jul 1948
69	Matthews, W. R.	Ens.	USN	22 Jul 1948
70	Torry, J. A. H.	Lt. Cmdr.	USN	6 Aug 1948
71	Nickerson, R. L.	Maj.	USMC	6 Aug 1948
72	Dyer, E. C.	Col.	USMC	6 Aug 1948
73	Ellis, W. Y.	Lt. Cmdr.	USNR	6 Aug 1948
74	Leonard, W. R.	Lt. Cmdr.	USN	16 Aug 1948
75	Cunha, G. D. M.	Cmdr.	USN	19 Aug 1948
76	Cox, W. J.	Ens.	USN	24 Aug 1948
77	Fridley, D. C.	Ens.	USN	24 Aug 1948
78	Dixon, W. C.	Lt.	USN	24 Aug 1948
79	Granger, R. P.	ADC(NAP)*	USN	26 Aug 1948
80	Crofoot, A. E.	Lt. j.g.	USN	27 Aug 1948
81	Johnson, F. E.	Ens.	USN	2 Sep 1948
82	Carey, J. F.	Lt. Col.	USMC	2 Sep 1948
83	Kilcore, W. H.	Lt. Cmdr.	USN	3 Sep 1948
84	Miller, R. A.	Lt. j.g.	USN	8 Sep 1948
85	Wrenn, E.	Lt. j.g.	USN	13 Sep 1948
86	Wheat, N. L.	Ens.	USN	14 Sep 1948
87	Garrison, R. G.	Ens.	USN	24 Sep 1948
88	Wiskirchen, R. L.	Lt.	USN	24 Sep 1948
89	Cabell, J. B.	Lt.	USN	24 Sep 1948
90	Zoecklein, W. O.	Lt. Cmdr.	USN	19 Oct 1948
91	Connolly, T. F.	Cmdr.	USN	15 Sep 1948
92	Sherby, S. S.	Cmdr.	USN	15 Sep 1948
93	Hyland, J. J.	Cmdr.	USN	15 Sep 1948
94	Rand, N. C.	Lt. Cmdr.	USN	15 Sep 1948
95	Davis, W. V., Jr.	Capt.	USN	15 Sep 1948
96	Timmins‡	Lt. Cmdr.	USNR	8 Oct 1948
97	Reilly, J. L.	Lt. j.g.	USN	20 Oct 1948
98	Denk, H. J.	Ens.	USN	20 Oct 1948
99	Little, J. C.	Lt.	USN	9 Nov 1948
100	Nash, D. E.	Lt. j.g.	USN	9 Nov 1948
101	Blades, J. L.	Lt. j.g.	USN	12 Nov 1948
102	Gauthier, A. C.	Lt.	USNR	12 Nov 1948
103	McMullen, B. E.	Lt. j.g.	USN	12 Nov 1948
104	Peterson, M. C.	ADC(NAP)*	USN	12 Nov 1948
105	Rust, D. T.	Lt. j.g.	USN	19 Nov 1948
106	Hamilton, R. C.	Ens.	USNR	23 Nov 1948
107	McCarthy, J. R.		CAA†	1 Dec 1948
108	Fisher, F. J.	Ens.	USNR	24 Nov 1948
109	Johnson, C. R.	Lt.	USN	6 Dec 1948
110	Berree, N. R.	Lt.	USN	7 Dec 1948
111	Schmeltzer, L. B.	Lt. j.g.	USN	7 Dec 1948

Helicopter Pilot Number	Name	Rank	Service	Date of Qualification Designation
112	Moore, B., Jr.	Cmdr.	USN	10 Dec 1948
113	Lieske, J. M.	ALC(NAP)*	USN	13 Dec 1948
114	Staples, C.		CAA†	14 Jan 1949
115	Olmsted, P. S.	Ens.	USNR	20 Jan 1949
116	Miller, H. M.	Lt. j.g.	USNR	21 Jan 1949
117	Hilton, J. J., Jr.	Cmdr.	USN	1 Feb 1949
118	Montgomery, W. G.	Lt.	USN	9 Feb 1949
119	Brown, H. F.	Lt.	USN	10 Feb 1949
120	Armstrong, J. G.	Lt.	USN	23 Feb 1949
121	Starr, M. R.	Ens.	USN	24 Feb 1949
122	Reed, M.	Lt.	USN	24 Feb 1949
123	Case, R. C.	1st Lt.	USMC	9 Mar 1949
124	Blackwood, R. R.	Ens.	USNR	11 Mar 1949
125	Cole, J. S.	Lt.	USN	14 Mar 1949
126	Mitchell, W. P.	Maj.	USMC	17 Mar 1949
127	Gill, R. J.	Lt. j.g.	USNR	15 Mar 1949
128	Pledger, W. G.	Lt. j.g.	USN	30 Mar 1949
129	Lueddeke, G. F.	Lt. j.g.	USN	5 Apr 1949
130	Marshall, A. R.	Lt.	USN	13 Apr 1949
131	Farwell, J. M.	Lt. j.g.	USN	13 Apr 1949
132	Tucci, F. A.	Lt.	USN	20 Apr 1949
133	Logan, I. C.	Lt. j.g.	USNR	21 Apr 1949
134	McClanan, F. H.	Lt. Cmdr.	USN	21 Apr 1949
135	Mayfield, A.	Lt. j.g.	USN	21 Apr 1949
136	Raddatz, R. W.	Lt.	USN	29 Apr 1949
137	Braun, J. F.	Lt. j.g.	USN	29 Apr 1949
138	Wrigley, G. R.	Lt. j.g.	USN	29 Apr 1949
139	Kaylor, J. O.	1st Lt.	USMC	29 Apr 1949
140	Sullivan, R. J.	1st Lt.	USMC	4 May 1949
141	Bolt, G. W.	Lt. Cmdr.	USN	6 May 1949
142	Duffey, H. J.		CAA†	9 May 1949
143	Kelley, F. E., Jr.	Ens.	USN	9 May 1949
144	Rohrich, W. H.	Lt. j.g.	USN	9 May 1949
145	Griffin‡		CAA†	15 Mar 1949
146	Titterud, S. V.	Capt.	USMC	11 May 1949
147	Lammi, W. S.	Lt.	USN	19 May 1949
148	Holmgren, A. F.	Ens.	USN	15 Apr 1944
149	Crowe, G. T.	AD1(AP)*	USN	19 May 1949
150	Taylor, C. B.	ADC(AP)*	USN	20 May 1949
151	Mullen, J., Jr.	Lt. j.g.	USN	23 May 1949
152	Larkin, H. J.	Lt.	USN	26 May 1949
153	Close, R. A.	Lt. j.g.	USN	31 May 1949
154	Drinkwater, H. T.	Lt. j.g.	USN	31 May 1949
155	Williams, D. L.	Ens.	USNR	31 May 1949
156	Mundy, E. M.	Lt. Cmdr.	USNR	10 Jun 1949
157	Pennington, B. D.	Lt. j.g.	USN	15 Jun 1949
158	Highsmith, F. L.	Ens.	USNR	15 Jun 1949
159	Crowell, L. T.	Ens.	USNR	15 Jun 1949

Helicopter Pilot Number	Name	Rank	Service	Date of Qualification Designation
160	Buerckholtz, H. M.	Ens.	USNR	15 Jun 1949
161	Banks, W. F.	Lt. j.g.	USN	15 Jun 1949
162	Price, W. J.	Lt. j.g.	USNR	23 Jun 1949
163	Marchand, J. L.	Lt. Cmdr.	USNR	23 Jun 1949
164	Heibr, W. D.	Capt.	USMC	1 Jul 1949
165	Bancroft, A. R.	1st Lt.	USMC	8 Jul 1949
166	Moran, F. P.	1st Lt.	USMC	8 Jul 1949
167	Ford, A.	Lt.	USN	28 Jun 1949
168	Deitrich, V. S.	Cmdr.	USN	14 Jul 1949
169	Neuman, A. E.	Lt.	USNR	15 Jul 1949
170	Bromka, A. C.	Lt. j.g.	USNR	19 Jul 1949
171	Leedom, H. E.	Lt. Cmdr.	USN	20 Jul 1949
172	Seay, G. W.	Lt. j.g.	USN	20 Jul 1949
173	Chagnon, W. G.	PRC(AP)*	USN	26 Jul 1949
174	Butler, W. C.	Lt.	USN	26 Jul 1949
175	Dally, F. E.	Cmdr.	USN	4 Aug 1949
176	Clabaugh, C. L.	Lt. Cmdr.	USNR	4 Aug 1949
177	Farish, G. B.	1st Lt.	USMC	8 Aug 1949
178	Armstrong, V. A.	Capt.	USMC	9 Aug 1949
179	Noble, E. V.	Cmdr.	USN	25 Aug 1949
180	Horn, F. H.	1st Lt.	USMC	7 Sep 1949
181	Vest, J. P. W.	Capt.	USN	16 Sep 1949
182	Tuffanelle, G. T.	Lt. j.g.	USN	17 Sep 1949
183	Marr, R.	AO1(AP)*	USN	23 Sep 1949
184	Woolley, S. R.	MSgt	USMC	26 Sep 1949
185	Barnes, R. O.	Lt. j.g.	USN	27 Sep 1949
186	Anderson, W. A.	AD1(AP)*	USN	27 Sep 1949
187	Dennison, G. E.	Lt. j.g.	USN	30 Sep 1949
188	Fisher, C. E.	Lt. j.g.	USN	5 Oct 1949
189	Treon, H. J.	Lt.	USN	6 Oct 1949
190	Foley, F. D.	Cmdr.	USN	7 Oct 1949
191	Asbury, D. A.	Lt.	USN	14 Oct 1949
192	Percy, G.	Maj.	USMC	17 Oct 1949
193	Rozier, W. R.	Capt.	USMC	17 Oct 1949
194	Cozine, M. E.	ADC(AP)*	USN	20 Oct 1949
195	Holman, E. D.	ADC(AP)*	USN	25 Oct 1949
196	Connant, E. S.	Lt. Cmdr.	USN	30 Sep 1949
197	Hudson, W. N.	Cmdr.	USNR	2 Oct 1949
198	Moody, J. T.	AO1(AP)*	USN	2 Nov 1949
199	Voss, C. M.	Lt. j.g.	USNRV	4 Nov 1949
200	Scott, E. A.	Lt. j.g.	USN	4 Nov 1949
201	Stokes, W. E.	Ens.	USN	8 Nov 1949
202	Russell, J. B.	Lt.	USN	9 Nov 1949
203	Milburn, K. F.	AD1(AP)*	USN	19 Nov 1949
204	Romer, R. D.	Lt. j.g.	USN	14 Nov 1949
205	Collup, W. D.	Capt.	USMC	30 Nov 1949
206	Koelsch, J. H.	Lt. j.g.	USN	9 Dec 1949
207	Proper, W. F.	Lt. j.g.	USN	14 Oct 1949

Helicopter Pilot Number	Name	Rank	Service	Date of Qualification Designation
208	Harrigan, D. W.	Capt.	USN	10 Dec 1949
209	Jenks, R. F.	AMC(AP)*	USN	14 Oct 1949
210	Hamilton, C. B.	Lt. j.g.	USN	20 Jan 1950
211	Brown, S. H.	Lt. Cmdr.	USN	23 Nov 1949
212	Bayers, E. H.	Lt. Cmdr.	USN	23 Nov 1949
213	Bach, H. A.	Lt. Cmdr.	USN	23 Nov 1949
214	Kurtz, L. A.	Lt.	USN	23 Nov 1949
215	Brownfield, R. H.	ADC(AP)*	USN	16 Jan 1950
216	Thorin, D. W.	AMC(AP)*	USN	16 Jan 1950
217	Scroggs, F. W., Jr.	TSgt	USMC	8 Feb 1950
218	Mullkoff, E.	Lt.	USNR	8 Feb 1950
219	Herring, G. W.	Lt. Col.	USMC	10 Feb 1950
220	Davis, R. O.	Lt. j.g.	USN	17 Feb 1950
221	Swinburne, H. W.	Lt.	USN	20 Mar 1950
222	Sundberg, H. J.	Lt.	USN	20 Mar 1950
223	Young, R. E.	Lt. j.g.	USN	20 Mar 1950
224	Cardoza, H.	AD1(AP)*	USN	9 Mar 1950
225	Marsh, E. D.	AD1(AP)*	USN	9 Mar 1950
226	Harbour, C. C.	Lt.	USN	31 Mar 1950
227	Omara, P.	Lt. j.g.	USN	31 Mar 1950
228	Huggins, J. C.	Lt.	USN	20 Apr 1950
229	Jones, C. C.	Lt. j.g.	USN	21 Apr 1950
230	Boegel, W. T.	AOC(AP)*	USN	21 Apr 1950
231	Larson, C. S.	Lt. j.g.	USNR	24 Apr 1950
232	Kakol, J. F.	ADC(AP)*	USN	25 Apr 1950
233	Smolen, F. E.	Lt.	USN	24 Apr 1950
234	Maghan, R. I.	Lt.	USN	28 Apr 1950
235	Richards, F. D.	Lt.	USN	4 May 1950
236	Felten, R. E.	Lt.	USN	4 May 1950
237	Jansen, T. E.	Lt.	USNR	4 May 1950
238	Bowen, J. B.	Capt.	USN	27 Apr 1950
239	Brock, M. A.	Lt.	USN	16 May 1950
240	Falabella, J. J.	Lt.	USNR	17 May 1950
241	Widmar, J. R.	Lt.	USNR	22 May 1950
242	Jensen, E. O.	Lt.	USNR	25 May 1950
243	Stearns, W. G.	Lt.	USN	2 Jun 1950
244	Hudson, F. W.	ACCA(AP)*	USN	9 Jun 1950
245	McFarlane, H.	Capt.	USAF	9 Jun 1950
246	Erwin, W. L.	Lt. j.g.	USN	13 Jun 1950
247	Englehardt, L. J.	1st Lt.	USMC	13 Jun 1950
248	Scott, J. L.	1st Lt.	USMC	13 Jun 1950
249	Waring, E. S.	Cmdr.	USN	27 Jun 1950
250	Albert, W. H.	Lt. j.g.	USNR	1 Jul 1950

Notes:
* NAP and AP: Naval Aviation Pilot, an enlisted pilot.
† Civil Aeronautics Administration
‡ Initials unknown

Chapter 16

Naval Astronauts

Sailors have long studied the sky and have used the movements of celestial bodies to guide them across the trackless seas. Realizing the need to observe the movements of the stars and planets, the U.S. Navy established the Depot of Charts and Instruments on 6 December 1830. This is the Navy's oldest scientific institution. The Depot later became the U.S. Naval Observatory. Today it continues to provide the astronomical data necessary for navigation at sea, on land as well as in space.

In 1923 the Naval Research Laboratory (NRL) began operation. The idea for a U.S. Government–supported research laboratory was suggested by the American inventor Thomas Alva Edison during World War I. Secretary of the Navy Josephus Daniels seized the opportunity and invited Edison to become head of the Naval Consulting Board. The board made plans to create a modern scientific research facility, which became the Naval Research Laboratory. Robert Morris Page who was at NRL from the late 1920s to the mid-1960s invented the technology for pulse radar. During WWII his invention assisted the Allies in detecting enemy planes and ships. Without radar, today's space program would be impossible.

Over the nearly two decades since the Navy bought its first aircraft—the Curtiss A-1 Triad—in 1911, aviation advances had aircraft flying ever higher. On 8 May 1929 Lt. Apollo Soucek set the world altitude record for landplanes by flying a Wright Apache to 39,140 feet. Barely a month later, on 4 June, he set the altitude record for seaplanes, also in an Apache, reaching 38,560 feet.

At nearly 40,000 feet, the thin air and decreased pressure made it difficult for human beings to function and survive, but the airplane was a poor vehicle in which to study the upper reaches of the atmosphere. The balloon proved to be more suitable and, in the end, resulted in the first space race between the United States and the Soviet Union.

On 4 August 1933 Lt. Cmdr. Thomas Settle ascended aloft in the sealed life-support gondola of a balloon, but the attempt failed. A similar attempt in a balloon by Soviet aeronauts the following September, achieved the height of 62,230 feet.

Two months later, on 20 November, Settle and Maj. Chester L. Fordney, USMC, flying a 600,000 cubic-foot free balloon, set the world's altitude record of 61,237 feet. While it was an official world's record, it fell 1,000 feet shy of the actual Soviet achievement.

In December 1941, the United States entered WWII with no rocket weapons, while Germany was putting a great deal of effort into rocket development, basing much of its technology on the research of American scientist Robert H. Goddard.

By the end of the war, the U.S. rocket budget was $1.3 million. Research in the use of rockets in jet-assisted takeoff (JATO) had been carried out by rocket pioneer Goddard, assisted by the Navy's Robert Truax. This program laid the groundwork for the use of rocket power in Navy guided missiles. JATO could reduce a takeoff run by 33 to 60 percent, or permit greater payloads.

After WWII, U.S. interest in high-altitude research experiments resumed. The Office of Naval Research (ONR) made plans for a manned balloon flight into the upper atmosphere through Project Helios, which called for the construction of plastic balloons with a gondola equipped with scientific observation instruments. This ambitious plan was replaced in 1947 by Project Skyhook, which used polyethylene balloons to carry instrument packages to extreme altitudes. Thousands of these balloons were sent into the stratosphere for basic research.

In 1952 a new technique was developed in which Deacon rockets were lifted above 70,000 feet by Skyhook balloons and then launched into space. The experiments proved to be so successful that in 1954 plans were made to entrust the lives of men to the Skyhook balloons.

Project Stratolab, a laboratory in the stratosphere, began in 1955. On 8 November 1956, Stratolab I, manned by Lt. Cmdrs. Malcolm D. Ross and Morton Lee Lewis reached a record altitude of 76,000 feet. Balloons, however, could not put a man in space; that would require rocket power.

Naval Research Laboratory scientists had been conducting experiments on the Aerobee and Viking sounding rockets during the early 1950s. An NRL study in 1954 indicated the feasibility of successfully placing a satellite in orbit, using a vehicle based on the Viking as a first stage and the Aerobee as the second.

In 1955 President Eisenhower announced that the United States would launch "small, unmanned, earth-circling satellites" as a part of the U.S. contributions to the International Geophysical Year, 1957–1958. The Naval Research Laboratory proposed that the Vanguard rocket, based on Viking technology, be used to launch the satellite.

The proposal was accepted with Project Vanguard having three missions: place at least one satellite in orbit during 1957–1958, accomplish a scientific experiment in space, and track the flight to demonstrate that the satellite had actually attained orbit.

Before Vanguard could launch a satellite into space, however, the Soviets announced that they had put *Sputnik* into orbit on 4 October 1957. *Sputnik*, the Russian word for travelling companion, was the earth's first artificial satellite. The perception by the United States that it was the leader in space technology was shattered, and the capability of Soviet rockets to fire weapons from space became apparent.

On 31 January 1958, the Army's Jupiter-C, a development of the Redstone rocket, put the first U.S. satellite, Explorer I, into orbit. On 31 March 1958, a Vanguard rocket launched from Cape Canaveral, Fla., put a second earth satellite into orbit.

In response to the Soviet challenge in space, the United States established the National Aeronautics and Space Administration (NASA) in July 1958, and initiated Project Mercury, which would put a man into orbit. On 15 May 1961, President John F. Kennedy went even further and stated in an address that the United States should commit itself to landing a man on the moon by the end of the decade. This goal was named Project Apollo.

The steps to the moon were incremental. First, NASA lobbed a chimpanzee into space on 31 January 1961. After this experiment proved successful, it was then believed possible to put a man into a similar sub-orbital flight. Cmdr. Alan B. Shepard Jr., was chosen to be the first American sent into space. On 5 May 1961, Shepard left earth's atmosphere in his space capsule, *Freedom 7*. It was a ballistic "cannon shot" atop an Army Redstone rocket. The capsule was recovered at sea by an HUS-1 helicopter from Marine Corps squadron HMR(L)-262, which transported it and the astronaut to the carrier *Lake Champlain* (CVS 39).

Subsequent Mercury missions successfully put other men in space and safely recovered each. On 20 February 1962, Lt. Col. John H. Glenn Jr., USMC, and his spacecraft, *Friendship 7*, made three orbits around the earth. In all, six men flew lone missions into space on board Mercury capsules. This program was followed by two-seat Project Gemini missions in 1965 and 1966. Many of these astronauts were naval aviators.

After having succeeded in demonstrating man's capability for surviving in space for extended periods, the ability to change and modify orbits, and of rendezvousing and docking, the moon was the next step. In December 1968, Lt. Cmdr. James A. Lovell Jr., was on the Apollo 8 flight that first flew to the moon and circled it, becoming among the first three men to view the side that is never seen from earth. Seven months later, on 20 July 1969 Neil A. Armstrong, a naval aviator, became the first man to walk on the moon during the Apollo 11 flight. In all, 11 missions were flown in the Apollo moon program, and of the 29 men who flew them, 14 were naval aviators. And of the 12 who walked on the moon, 7 were Navy.

The next U.S space goal was to work and live in space. *Skylab* was the vehicle, a space laboratory in which the astronauts could live a fairly normal life, work on scientific experiments, eat, sleep, and have regular periods of recreation. Three separate crews of *Skylab* astronauts were launched into space during 1973; two were all-Navy crews.

One last Apollo mission was launched on 15 July 1975. Vance D. Brand, a former Navy pilot, was the command module pilot of this mission to dock with a Soviet Soyuz spacecraft. This was the first meeting between American astronauts and Soviet cosmonauts in space. The two crews then conducted scientific experiments before Apollo splashed down in the Pacific near Hawaii and was recovered by *New Orleans* (LPH 11). This was the last splashdown recovery of a manned space capsule by a Navy amphibious ship. The next American manned space vehicle, the Space Shuttle, would make such recoveries unnecessary.

The Space Shuttle was launched by rocket engines, but could land like an airplane, albeit an unpowered glider, thus it could make multiple trips into space. *Columbia* was the first shuttle and was launched on 12 April 1981 with an all Navy-aviator crew. It was followed by Space Shuttles *Challenger, Discovery, Atlantis*, and *Endeavour*. Subsequent shuttle flights were able to take up to ten astronauts on a single flight into space and stay there for longer periods of time and continued to conduct scientific experiments. Limited cooperation with the Russian Republic, part of the former Soviet Union, also continued. In 1995, *Atlantis* transported two Russian cosmonauts to the Russian space station *Mir* where American astronaut Norman Thagard, a former naval aviator, had been living for three months. *Atlantis* docked with *Mir* and returned the American to earth.

Naval aviation continues to play an important role in space. The following three sections provide statistical data on its contributions or involvement in the manned space program.

Members of Naval Aviation Who Have Become Astronauts
(This list includes naval aviators or naval aviation personnel and does not distinguish whether they were on active duty or separated from the Navy/Marine Corps/Coast Guard when involved in space flights.)

Andrew M. Allen
Neil A. Armstrong
Alan L. Bean
Kenneth D. Bowersox
Randolph J. Bresnik
John S. Bull
Robert D. Cabana
Gerald P. Carr
Roger B. Chaffee
Charles Conrad Jr.
Frank L. Culbertson
Joe F. Edwards Jr.
Michael J. Foreman
Jake E. Garn
Richard F. Gordon Jr.
Fred W. Haise Jr.
John Herrington
Charles O. Hobaugh
Gregory C. Johnson
Joseph P. Kerwin
Don L. Lind
John R. Lousma
Bruce McCandless II
Thomas K. Mattingly II
Franklin S. Musgrave
Bryan D. O'Connor
Robert F. Overmyer
William F. Readdy
Kent V. Rominger
Elliot M. See
Robert C. Springer
Joseph R. Tanner
Pierre J. Thuot
David M. Walker
Terrence W. Wilcutt
Sunita Williams
George D. Zamka

Scott D. Altman
Jeffery Ashby
Charles F. Bolden Jr.
Vance D. Brand
David M. Brown
Daniel C. Burbank
Kenneth D. Cameron
Manley L. Carter Jr.
Michael L. Coats
John O. Creighton
R. Walter Cunningham
Ronald E. Evans
Stephen N. Frick
Robert L. Gibson
Dominic L. Pudwill Gorie
Ken Ham
Kathryn P. Hire
Douglas G. Hurley
Mark E. Kelly
Wendy B. Lawrence
Michael E. Lopez-Alegria
James A. Lovell Jr.
William McCool
Bruce E. Melnick
Carlos I. Noriega
William Oefelein
John L. Phillips
Kenneth S. Reightler Jr.
Walter M. Schirra Jr.
Alan B. Shepard Jr.
Susan L. Still
Norman E. Thagard
Richard H. Truly
Paul J. Weitz
Clifton C. Williams
Barry E. Wilmore

Dominic A. Antonelli
Michael A. Baker
Stephen G. Bowen
Daniel C. Brandenstein
James F. Buchli
Daniel W. Bursch
Malcolm Scott Carpenter
Eugene A. Cernan
Kenneth D. Cockrell
Robert L. Crippen
Robert Curbeam Jr.
Christopher J. Ferguson
Dale A. Gardner
John H. Glenn Jr.
S. David Griggs
Frederick H. Hauck
David C. Hilmers
Brent W. Jett Jr.
Scott J. Kelley
David C. Leestma
John M. Lounge
Jon A. McBride
Michael J. McCulley
Edgar D. Mitchell
Lisa M. Nowak
Stephen S. Oswald
Alan G. Poindexter
Richard N. Richards
Winston E. Scott
Michael John Smith
Frederick W. Sturckow
Stephen D. Thorne
James D. van Hoften
James D. Wetherbee
Donald E. Williams
John W. Young

Members of Naval Aviation Who Have Made Trips Into Space as of March 2011
(This list includes naval aviators or naval aviation personnel and does not distinguish whether they were on active duty or separated from the Navy/Marine Corps/Coast Guard when involved in space flights.)

One Flight

Randolph J. Bresnik
Gerald P. Carr
Joe F. Edwards Jr.
Stephen N. Frick
Fred W. Haise Jr.
Douglas G. Hurley
Joseph P. Kerwin
William McCool
Lisa M. Nowak
Michael John Smith
David M. Brown
Manley L. Carter Jr.
Ronald E. Evans
Jake E. Garn
Ken Ham
Gregory C. Johnson
Don L. Lind
Michael J. McCulley
William Oefelein
Sunita Williams
Malcolm Scott Carpenter
R. Walter Cunningham
Michael J. Foreman
S. David Griggs
John Herrington
Scott J. Kelley
Jon A. McBride
Edgar D. Mitchell
Alan G. Poindexter
Barry E. Wilmore

Two Flights

Dominic A. Antonelli
Stephen G. Bowen
Christopher J. Ferguson
Richard F. Gordon Jr.
Bruce McCandless II
Bryan D. O'Connor
Kenneth S. Reightler Jr.
Robert C. Springer
Richard H. Truly
Donald E. Williams
Neil A. Armstrong
Daniel C. Burbank
Dale A. Gardner
Kathryn P. Hire
Bruce E. Melnick
Robert F. Overmyer
Winston E. Scott
Susan L. Still
James D. van Hoften
George D. Zamka
Alan L. Bean
Frank L. Culbertson
John H. Glenn Jr.
John R. Lousma
Carlos I. Noriega
John L. Phillips
Alan B. Shepard Jr.
Joseph R. Tanner
Paul J. Weitz

Three Flights

Andrew M. Allen
Kenneth D. Cameron
John O. Creighton
Frederick H. Hauck
David C. Leestma
Thomas K. Mattingly II
Walter M. Schirra Jr.
Jeffery Ashby
Eugene A. Cernan
Robert Curbeam Jr.
Charles O. Hobaugh
Michael E. Lopez-Alegria
William F. Readdy
Pierre J. Thuot
Daniel W. Bursch
Michael L. Coats
Dominic L. Pudwill Gorie
Mark E. Kelly
John M. Lounge
Stephen S. Oswald
Terrence W. Wilcutt

Four Flights

Scott D. Altman
Kenneth D. Bowersox
James F. Buchli
Charles Conrad Jr.
Brent W. Jett Jr.
Richard N. Richards
Michael A. Baker
Vance D. Brand
Robert D. Cabana
Robert L. Crippen
Wendy B. Lawrence
Frederick W. Sturckow
Charles F. Bolden Jr.
Daniel C. Brandenstein
Kenneth Cockrell
David C. Hilmers
James A. Lovell Jr.
David M. Walker

Five Flights

Robert L. Gibson | Kent V. Rominger | Norman E. Thagard

Six Flights

Franklin S. Musgrave | James D. Wetherbee | John W. Young

U.S. Space Flights with Navy/Marine Corps/Coast Guard Pilots/Astronauts Aboard (As of March 2011)				
Order*	Date	Designation	Crew†	Duration
1	5 May 61	Mercury Redstone 3 (*Freedom 7*)	Alan B. Shepard Jr.	15 min 22 sec; 1st American into space, sub-orbital
3	20 Feb 62	Mercury Atlas 6 (*Friendship 7*)	John H. Glenn Jr., USMC	4 hrs 55 min; 1st American to orbit the earth
4	24 May 62	Mercury Atlas 7 (*Aurora 7*)	Malcolm Scott Carpenter	4 hr 56 min 5 sec
5	3 Oct 62	Mercury Atlas 8 (*Sigma 7*)	Walter M. Schirra Jr.	9 hrs 13 min 11 sec
7	23 Mar 65	Gemini 3	John W. Young	4 hrs 53 min
9	21–29 Aug 65	Gemini 5	Charles Conrad Jr.	190 hrs 56 min 1 sec
10	4–18 Dec 65	Gemini 7	James A. Lovell Jr.	330 hrs 35 min 13 sec
11	15–16 Dec 65	Gemini 6	Walter M. Schirra Jr.	25 hrs 51 min 24 sec
12	16 Mar 66	Gemini 8	Neil A. Armstrong	10 hrs 42 min 6 sec
13	3–6 Jun 66	Gemini 9	Eugene A. Cernan	72 hrs 20 min 56 sec
14	18–21 Jul 66	Gemini 10	John W. Young	70 hrs 46 min 45 sec
15	12–15 Sep 66	Gemini 11	Richard F. Gordon Jr., Charles Conrad Jr.	71 hrs 17 min 8 sec
16	11–15 Nov 66	Gemini 12	James A. Lovell Jr.	94 hrs 34 min 31 sec
17	11–22 Oct 68	Apollo 7	Walter M. Schirra Jr., R. Walter Cunningham	206 hrs 9 min
18	21–27 Dec 68	Apollo 8	James A. Lovell Jr.	147 hrs 0 min 42 sec; 1st flight to the moon
20	18–26 May 69	Apollo 10	John W. Young, Eugene A. Cernan	192 hrs 3 min 23 sec
21	16–24 Jul 69	Apollo 11	Neil A. Armstrong	195 hrs 18 min 35 sec; 1st moon landing
22	14–24 Nov 69	Apollo 12	Charles Conrad Jr., Richard F. Gordon Jr., Alan L. Bean	244 hrs 36 min 25 sec
23	11–17 Apr 70	Apollo 13	James A. Lovell Jr., Fred W. Haise Jr.	142 hrs 54 min 41 sec
24	31 Jan–9 Feb 71	Apollo 14	Alan B. Shepard Jr., Edgar D. Mitchell	216 hrs 1 min 57 sec
26	16–27 Apr 72	Apollo 16	John W. Young, Thomas K. Mattingly II	265 hrs 1 min 5 sec
27	7–19 Dec 72	Apollo 17	Eugene A. Cernan, Ronald E. Evans	301 hrs 51 min 59 sec
28	25 May–22 Jun 73	Skylab 2	Charles Conrad Jr., Joseph P. Kerwin, Paul J. Weitz	672 hrs 49 min 49 sec; 1st U.S. manned orbiting space station; all-Navy crew
29	28 Jul–25 Sep 73	Skylab 3	Alan L. Bean; John R. Lousma, USMC	1,427 hrs 9 min 4 sec
30	16 Nov 73–8 Feb 74	Skylab 4	Gerald P. Carr, USMC	2,017 hrs 15 min 32 sec
31	15–24 Jul 75	Apollo-Soyuz Test Project	Vance D. Brand	217 hrs 28 min 24 sec

Space Shuttle Missions				
Flight*	Date	Orbiter	Crew†	Notes
STS-1	12–14 Apr 1981	*Columbia*	John W. Young, Robert L. Crippen	1st flight, all-Navy crew
STS-2	12–14 Nov 1981	*Columbia*	Richard H. Truly	
STS-3	22–30 Mar 1982	*Columbia*	John R. Lousma, USMC	
STS-4	27 Jun–4 Jul 1982	*Columbia*	Thomas K. Mattingly II	
STS-5	11–16 Nov 1982	*Columbia*	Vance D. Brand; Robert F. Overmyer, USMC	
STS-6	4–9 Apr 1983	*Challenger*	Paul J. Weitz; Franklin S. Musgrave, USMC	

Space Shuttle Missions				
Flight*	Date	Orbiter	Crew†	Notes
STS-7	18–24 Jun 1983	*Challenger*	Robert L. Crippen, Frederick H. Hauck, Norman E. Thagard	
STS-8	30 Aug–5 Sep 1983	*Challenger*	Richard H. Truly, Daniel C. Brandenstein, Dale A. Gardner	
STS-9	28 Nov–8 Dec 1983	*Columbia*	John W. Young	
STS-41-B	3–11 Feb 1984	*Challenger*	Vance D. Brand, Robert L. Gibson, Bruce McCandless II	1st untethered walk in space
STS-41-C	6–13 Apr 1984	*Challenger*	Robert L. Crippen, James D. van Hoften	
STS-41-D	30 Aug–5 Sep 1984	*Discovery*	Michael L. Coats	
STS-41-G	5–13 Oct 1984	*Challenger*	Robert L. Crippen, Jon A. McBride, David C. Leestma	
STS-51-A	8–15 Nov 1984	*Discovery*	Frederick H. Hauck, David M. Walker, Dale A. Gardner	
STS-51-C	24–27 Jan 1985	*Discovery*	Thomas K. Mattingly II; James F. Buchli, USMC	
STA-51-D	12–19 Apr 1985	*Discovery*	Donald E. Williams, S. David Griggs, Jake E. Garn	
STS-51-B	29 Apr–6 May 1985	*Challenger*	Robert F. Overmyer, USMC; Don L. Lind; Norman E. Thagard	
STS-51-G	17–24 Jun 1985	*Discovery*	Daniel C. Brandenstein, John O. Creighton	
STS-51-F	29 Jul 85–6 Aug 1985	*Challenger*	Franklin S. Musgrave, USMC	
STS-51-I	27 Aug 85–3 Sep 1985	*Discovery*	James D. van Hoften, John M. Lounge	
STS-51-J	3–7 Oct 1985	*Atlantis*	David C. Hilmers, USMC	
STS-61-A	30 Oct–6 Nov 1985	*Challenger*	James F. Buchli, USMC	
STS-61-B	26 Nov–3 Dec 1985	*Atlantis*	Bryan D. O'Connor, USMC	
STS-61-C	12–18 Jan 1986	*Columbia*	Robert L. Gibson; Charles F. Bolden Jr., USMC	
STS-51-L	28 Jan 1986	*Challenger*	Michael J. Smith	Shuttle destroyed, all on board killed
STS-26	29 Sep–3 Oct 1988	*Discovery*	Frederick H. Hauck; John M. Lounge; David C. Hilmers, USMC	
STS-27	2–6 Dec 1988	*Atlantis*	Robert L. Gibson, William M. Shepherd‡	
STS-29	13–18 Mar 1989	*Discovery*	Michael L. Coats, James Buchli, Robert Springer	
STS-30	4–8 May 1989	*Atlantis*	David M. Walker, Norman E. Thagard	
STS-28	8–13 Aug 1989	*Columbia*	Richard N. Richards, David C. Leestma	
STS-34	18–23 Oct 1989	*Atlantis*	Donald E. Williams, Michael J. McCulley	
STS-33	22–27 Nov 1989	*Discovery*	Manley L. Carter Jr.; Franklin S. Musgrave, USMC	
STS-32	9–20 Jan 1990	*Columbia*	Daniel C. Brandenstein, James D. Wetherbee	
STS-36	28 Feb–4 Mar 1990	*Atlantis*	John O. Creighton; David C. Hilmers, USMC; Pierre J. Thuot	
STS-31	24–29 Apr 1990	*Discovery*	Charles F. Bolden Jr., USMC; Bruce McCandless II	
STS-41	6–10 Oct 1990	*Discovery*	Richard N. Richards; Robert D. Cabana, USMC; Bruce E. Melnick, USCG; William M. Shepherd‡	
STS-38	15–20 Nov 1990	*Atlantis*	Frank L. Culbertson; Robert C. Springer, USMC	
STS-35	2–6 Dec 1990	*Columbia*	Vance D. Brand, John M. Lounge	
STS-37	5–11 Apr 1991	*Atlantis*	Kenneth D. Cameron, USMC	
STS-39	28 Apr–6 May 1991	*Discovery*	Michael L. Coats	
STS-40	5–14 Jun 1991	*Columbia*	Bryan D. O'Connor, USMC	
STS-43	2–11 Aug 1991	*Atlantis*	Michael A. Baker	
STS-48	12–18 Sep 1991	*Discovery*	John O. Creighton; Kenneth S. Reightler Jr.; James F. Buchli, USMC	
STS-44	24 Nov–1 Dec 1991	*Atlantis*	Franklin S. Musgrave, USMC; Mario Runco Jr.‡	
STS-42	22–30 Jan 1992	*Discovery*	Stephen S. Oswald; Norman E. Thagard; William F. Readdy; David C. Hilmers, USMC	
STS-45	24 Mar–2 Apr 1992	*Atlantis*	Charles F. Bolden Jr., USMC; David C. Leestma	

Space Shuttle Missions				
Flight*	Date	Orbiter	Crew†	Notes
STS-49	7–16 May 1992	*Endeavour*	Daniel C. Brandenstein; Bruce E. Melnick, USCG; Pierre J. Thuot	
STS-50	25 Jun–9 Jul 1992	*Columbia*	Richard N. Richards, Kenneth D. Bowersox	
STS-46	31 Jul–8 Aug 1992	*Atlantis*	Andrew M. Allen, USMC	
STS-47	12–20 Sep 1992	*Endeavour*	Robert Gibson	
STS-52	22 Oct–1 Nov 1992	*Columbia*	James D. Wetherbee, Michael A. Baker, William M. Shepherd‡	
STS-53	2–9 Dec 1992	*Discovery*	David M. Walker; Robert D. Cabana, USMC	
STS-54	13–19 Jan 1993	*Endeavour*	Mario Runco Jr.‡	
STS-56	8–17 Apr 1993	*Discovery*	Kenneth D. Cameron, USMC; Stephen S. Oswald; Kenneth D. Cockrell	
STS-51	12–22 Sep 1993	*Discovery*	Frank L. Culbertson Jr., William F. Readdy, Daniel W. Bursch	
STS-61	2–13 Dec 1993	*Endeavour*	Kenneth D. Bowersox; Franklin S. Musgrave, USMC	
STS-60	3–11 Feb 1994	*Discovery*	Charles F. Bolden Jr., USMC; Kenneth S. Reightler Jr.	
STS-62	4–18 Mar 1994	*Columbia*	Andrew M. Allen, USMC; Pierre J. Thuot	
STS-65	8–23 Jul 1994	*Columbia*	Robert D. Cabana, USMC	
STS-64	9–20 Sep 1994	*Discovery*	Richard N. Richards, Jerry M. Linenger‡	
STS-68	30 Sep–11 Oct 1994	*Endeavour*	Michael A. Baker; Terrence W. Wilcutt, USMC; Daniel W. Bursch	
STS-66	3–14 Nov 1994	*Atlantis*	Joseph R. Tanner	
STS-63	2–11 Feb 1995	*Discovery*	James D. Wetherbee	
STS-67	2–18 Mar 1995	*Endeavour*	Stephen S. Oswald, Wendy B. Lawrence	
STS-71	27 Jun–7 Jul 1995	*Atlantis*	Robert L. Gibson	
STS-69	7–18 Sep 1995	*Endeavour*	David M. Walker, Kenneth Cockrell	
STS-73	20 Oct–5 Nov 1995	*Columbia*	Kenneth D. Bowersox, Kent V. Rominger, Michael E. Lopez-Alegria	
STS-74	12–20 Nov 1995	*Atlantis*	Kenneth D. Cameron, USMC	
STS-72	11–20 Jan 1996	*Endeavour*	Brent W. Jett Jr., Winston E. Scott	
STS-75	22 Feb–9 Mar 1996	*Columbia*	Andrew M. Allen, USMC	
STS-77	19–29 May 1996	*Endeavour*	Daniel W. Bursch, Mario Runco Jr.‡	
STS-78	20 Jun–7 Jul 1996	*Columbia*	Charles E. Brady Jr.‡	
STS-79	16–26 Sep 1996	*Atlantis*	William F. Readdy; Terrence W. Wilcutt, USMC	
STS-80	19 Nov–7 Dec 1996	*Columbia*	Kenneth D. Cockrell; Kent V. Rominger; Franklin S. Musgrave, USMC	
STS-81	12–22 Jan 1997	*Atlantis*	Michael A. Baker, Brent W. Jett Jr., Jerry M. Linenger‡	
STS-82	11–21 Feb 1997	*Discovery*	Kenneth D. Bowersox, Joseph R. Tanner	
STS-83	4–8 Apr 1997	*Columbia*	Susan L. Still	
STS-84	15–24 May 1997	*Atlantis*	Carlos I. Noriega, USMC	
STS-94	1–17 Jul 1997	*Columbia*	Susan L. Still	
STS-85	7–19 Aug 1997	*Discovery*	Kent V. Rominger, Robert L. Curbeam Jr.	
STS-86	25 Sep–6 Oct 1997	*Atlantis*	James D. Wetherbee, Wendy B. Lawrence	
STS-87	19 Nov–5 Dec 1997	*Columbia*	Winston E. Scott	
STS-89	22–31 Jan 1998	*Endeavour*	Terrence W. Wilcutt, USMC; Joe F. Edwards Jr.; James F. Reilly‡	
STS-90	17 Apr–3 May 1998	*Columbia*	Scott D. Altman, Kathryn P. Hire	
STS-91	2–12 Jun 1998	*Discovery*	Dominic L. Pudwill Gorie, Wendy B. Lawrence	
STS-95	29 Oct–7 Nov 98	*Discovery*	John H. Glenn Jr., USMC§	
STS-88	4–15 Dec 1998	*Endeavour*	Robert D. Cabana, USMC; Frederick W. Sturckow, USMC	
STS-96	27 May–6 Jun 1999	*Discovery*	Kent V. Rominger	
STS-93	23–27 Jul 1999	*Columbia*	Jeffrey S. Ashby	

Space Shuttle Missions				
Flight*	Date	Orbiter	Crew†	Notes
STS-103	19–27 Dec 1999	*Discovery*	Scott J. Kelly	
STS-99	11–22 Feb 2000	*Endeavour*	Dominic L. Pudwill Gorie	
STS-106	8–20 Sep 2000	*Atlantis*	Terrence W. Wilcutt, USMC; Scott D. Altman; Daniel C. Burbank, USCG	
STS-92	11–24 Oct 2000	*Discovery*	Michael Lopez-Alegria	
STS-97	30 Nov–11 Dec 2000	*Endeavour*	Brent W. Jett Jr.; Joseph Tanner; Carlos Noriega, USMC	
STS-98	7–20 Feb 2001	*Atlantis*	Kenneth Cockrell, Robert Curbeam Jr.	
STS-102	8–21 Mar 2001	*Discovery*	James Wetherbee	
STS-100	19 Apr–1 May 2001	*Endeavour*	Kent Rominger, Jeffrey Ashby, John L. Phillips	
STS-104	12–24 Jul 2001	*Atlantis*	Charles O. Hobaugh, USMC	
STS-105	10–22 Aug 2001	*Discovery*	Frederick W. Sturckow, USMC	
STS-108	5–17 Dec 2001	*Endeavour*	Dominic L. Gorie, Mark E. Kelly	
STS-109	1–12 Mar 2002	*Columbia*	Scott D. Altman	
STS-110	8–19 Apr 2002	*Atlantis*	Stephen N. Frick, Lee M. E. Morin‡	
STS-111	5–19 Jun 2002	*Endeavour*	Kenneth Cockrell	
STS-112	7–18 Oct 2002	*Atlantis*	Jeffrey Ashby	
STS-113	23 Nov–7 Dec 2002	*Endeavour*	Jim Wetherbee, Michael Lopez-Alegria, John Herrington	
STS-107	16 Jan–1 Feb 2003	*Columbia*	William C. McCool, David M. Brown, Laurel B. S. Clark‡	Shuttle destroyed, all on board killed
STS-114	26 Jul–9 Aug 2005	*Discovery*	Wendy Lawrence	
STS-121	4–17 Jul 2006	*Discovery*	Mark E. Kelly, Lisa M. Nowak	
STS-115	9–21 Sep 2006	*Atlantis*	Brent W. Jett Jr.; Christopher J. Ferguson; Daniel C. Burbank, USCG; Heidemarie M. Stefanyshyn-Piper‡; Joseph R. Tanner	
STS-116	9–22 Dec 2006	*Discovery*	William Oefelein, Robert Curbeam Jr., Sunita Williams	
STS-117	8–22 Jun 2007	*Atlantis*	Frederick W. Sturckow, USMC; James F. Reilly‡	
STS-118	8–21Aug 2007	*Endeavor*	Scott J. Kelley; Charles O. Hobaugh, USMC	
STS-120	23 Oct–Nov 2007	*Discovery*	George D. Zamka, USMC	
STS-126	14–30 Nov 2008	*Endeavour*	Christopher J. Ferguson	
STS-119	15–28 Mar 2009	*Discovery*	John L. Phillips, Dominic A. Antonelli	
STS-125	11–24 May 2009	*Atlantis*	Scott D. Altman, Gregory C. Johnson	
STS-127	15–31 Jul 2009	*Endeavour*	Douglas G. Hurley, USMC	
STS-128	28 Aug–11 Sep 2009	*Discovery*	Frederick W. Sturckow, USMC	
STS-129	16–27 Nov 2009	*Atlantis*	Charles O. Hobaugh, USMC; Randolph J. Bresnik, USMC; Michael J. Foreman; Barry E. Wilmore	
STS-130	8–21 Feb 2010	*Endeavour*	George D. Zamka, USMC; Kathryn P. Hire	
STS-131	5–20 Apr 2010	*Discovery*	Alan G. Poindexter	
STS-132	14–26 May 2010	*Atlantis*	Ken Ham, Dominic A. Antonelli, Stephen G. Bowen	
STS-133	24 Feb–9 Mar 2011	*Discovery*	Stephen G. Bowen	
STS-134	16 May–1 June 2011	*Endeavour*	Mark E. Kelly, Roberto Vittori‖	
STS-135	8–21 July 2011	*Atlantis*	Christopher J. Ferguson, Douglas G. Hurley	

* Flight is by mission date, not mission number. Only flights with naval aviation personnel, active and former, on board are listed.

† Only naval aviation personnel on board the flight are listed.

‡ Navy but not connected with naval aviation.

§ Passenger.

‖ Italian Air Force, USN Test Pilot School graduate.

Chapter 17

Naval Aviation Hall of Honor

The Naval Aviation Hall of Honor was established in 1980 to recognize those individuals who by their actions or achievements made outstanding contributions to naval aviation. A bronze plaque of the individual and their contributions is cast and placed in Naval Aviation Hall of Honor located in the National Museum of Naval Aviation at Pensacola, Fla. The first group to be inducted was in 1981. After 1984, enshrinement in the Naval Aviation Hall of Honor was placed on a two-year cycle with no more than a maximum of eight inductees. The selection committee, consisting of seven to 11 members appointed by the Chief of Naval Operations, Director Air Warfare, is responsible for making the final nominee recommendations. Final approval is done by the Chief of Naval Operations.

Personnel eligible for nomination to the Naval Aviation Hall of Honor include civilian or uniformed individuals no longer employed by the federal government or on active duty. Criteria for nomination include:

- Sustained superior performance in or for naval aviation.
- Superior contributions in the technical or tactical development of naval aviation.
- Unique and superior flight achievement in combat or non-combat flight operations.

The following are enshrined in the Naval Aviation Hall of Honor:

Enshrinee	**Year**
Vice Adm. Patrick N. L. Bellinger, USN	1981
CWO Floyd Bennett, USN	1981
Rear Adm. Richard E. Byrd Jr., USN	1981
Lt. Cmdr. Godfrey de C. Chevalier, USN	1981
Lt. Col. Alfred A. Cunningham, USMC	1981
Mr. Glenn H. Curtiss, Civilian	1981
Cmdr. Theodore G. Ellyson, USN	1981
Mr. Eugene Ely, Civilian	1981
Rear Adm. William A. Moffett, USN	1981
Rear Adm. Albert C. Read, USN	1981
Capt. Holden C. Richardson, USN	1981
Adm. John H. Towers, USN	1981
Gen. Roy S. Geiger, USMC	1983
Mr. Glenn Martin, Civilian	1983
Adm. Marc A. Mitscher, USN	1983
Adm. Arthur W. Radford, USN	1983
Vice Adm. Charles E. Rosendahl, USN	1983
Cmdr. Elmer F. Stone, USCG	1983
Vice Adm. James H. Flatley Jr., USN	1984
Mr. Leroy R. Grumman, Civilian	1984
Adm. John S. Thach, USN	1984
Capt. Kenneth Whiting, USN	1984
Maj. Gen. Marion E. Carl, USMC	1986
Fleet Adm. William F. Halsey, USN	1986
Mr. Edward H. Heinemann, Civilian	1986

Enshrinee	Year
Rear Adm. David S. Ingalls, USNR	1986
Capt. Donald Bantram MacDiarmid, USCG (Ret)	1986
Vice Adm. Robert B. Pirie, USN (Ret)	1986
Gy. Sgt. Robert G. Robinson, USMCR	1986
Vice Adm. Frederick M. Trapnell, USN (Ret)	1986
Capt. Washington I. Chambers, USN	1988
Dr. Jerome C. Hunsaker, Civilian	1988
Capt. David McCampbell, USN (Ret)	1988
Gen. Keith B. McCutcheon, USMC (Ret)	1988
Adm. Thomas H. Moorer, USN (Ret)	1988
Adm. Alfred M. Pride, USN	1988
Capt. Frank A. Erickson, USCG	1990
Capt. Henry C. Mustin, USN	1990
Adm. James S. Russell, USN (Ret)	1990
Rear Adm. Alan B. Shepard Jr., USN (Ret)	1990
Mr. Igor I. Sikorsky, Civilian	1990
Mr. George A. Spangenberg, Civilian	1990
Vice Adm. Gerald F. Bogan, USN	1992
Adm. Austin Kelvin Doyle, USN (Ret)	1992
Lt. Edward H. O'Hare, USN	1992
Vice Adm. William A. Schoech, USN (Ret)	1992
Mr. Lawrence Sperry, Civilian	1992
Col. Gregory Boyington, USMC	1994
Brig. Gen. Joseph Jacob Foss, ANG (Ret)	1994
Capt. Ashton Graybiel, Medical Corp, USN (Ret)	1994
Adm. Frederick H. Michaelis, USN	1994
Vice Adm. Apollo Soucek, USN (Ret)	1994
Rear Adm. Joseph C. Clifton, USN	1996
Mr. Charles H. Kaman, Civilian	1996
Gen. Christian F. Schilt, USMC	1996
Adm. Forrest P. Sherman, USN	1996
Vice Adm. James B. Stockdale, USN (Ret)	1996
Adm. Maurice F. Weisner, USN (Ret)	1996
Adm. Arleigh A. Burke, USN	1998
Sen. John H. Glenn Jr.	1998
Vice Adm. Thomas F. Connolly, USN	1998
Vice Adm. John T. Hayward, USN	1998
Vice Adm. Thomas G. W. Settle, USN	1998
Mr. Rex Beisel, Civilian	2000
Gen. William O. Brice, USMC	2000
Vice Adm. William I. Martin, USN	2000
Capt. Walter M. Schirra Jr., USN	2000
Fleet Adm. Ernest J. King, USN	2002

Enshrinee	Year
Adm. Joseph M. Reeves, USN	2002
Capt. Roy M. Voris, USN	2002
Lt. Col. Kenneth A. Walsh, USMC	2002
Adm. James L. Holloway, USN	2004
Brig. Gen. Robert E. Galer, USMC	2004
Capt. James A. Lovell, USN	2004
Cmdr. Stewart R. Graham, USCG	2004
Capt. Eugene A. Cernan, USN	2006
Capt. Arthur Ray Hawkins, USN	2006
Capt. Robert E. Mitchell, MC, USN	2006
Vice Adm. Donald D. Engen, USN	2006
Adm. Stanley R. Arthur, USN	2008
Lt. Col. Harold W. Bauer, USMC	2008
Rear Adm. Clarence Wade McClusky Jr., USN	2008
Rear Adm. James D. Ramage, USN	2008
Capt. Robert L. Rasmussen, USN	2008
Mr. Neal A. Armstrong, Civilian	2010
Lt. Gen. Thomas H. Miller, USMC	2010
Vice Adm. William P. Lawrence, USN	2010
Capt. Richard P. Bordone, USN	2010

Chapter 18

Gray Eagle Award

The Gray Eagle trophy made its first appearance in 1961 during the celebration of the Fiftieth Anniversary of Naval Aviation.

In 1959, while serving as Commander in Chief, Allied Forces, Southern Europe, Adm. Charles R. Brown, wrote to the Deputy Chief of Naval Operations (Air), Vice Adm. Robert B. Pirie, telling of certain discussions he had with Vice Adm. George W. Anderson, then serving as Commander, Sixth Fleet. "We suggest that it be determined from official records who, at all times, is the senior aviator in point of service in flying; that a baton or similar token be awarded him, and that, with due ceremony, this symbol be handed on down to the next man with the passing years."

Adm. Pirie took the matter from there. For a time the title "Bull Naval Aviator" was a leading contender for the choice of names for the senior aviator's title. Various cups, statuettes, plaques, and medals were proposed. Finally, a competition was conducted among aircraft companies desiring to sponsor the award. The Chance Vought Aircraft Company's (later LTV Corporation, Ling Temco Vought) design was selected and the Gray Eagle Award became a reality.

On 5 January 1961, at naval aviation's Fiftieth Anniversary Ball, Sheraton Park Hotel, Washington, D.C., Adm. Charles R. Brown received the Gray Eagle trophy from Adm. James S. Russell, then serving as Vice Chief of Naval Operations.

While Adm. Brown was the first "active" aviator to receive the trophy, replicas of the award were presented to all previous holders of the distinction, or their representative, during the ceremony. The recipients included Mrs. T. G. Ellyson, widow of Naval Aviator Number One, Cmdr. Theodore G. Ellyson. Cmdr. Ellyson would have held the Gray Eagle title from 1911 to 1928, if the award had been in existence.

The trophy, donated by Chance Vought Aircraft (now Ling Temco Vought) depicts a silver eagle landing into the arresting gear of the Navy's first aircraft carrier, *Langley* (CV 1). The inscription reads: "The Venerable Order of the Gray Eagle. The Most Ancient Naval Aviator on Active Duty. In recognition of a clear eye, a stout heart, a steady hand, and a daring defiance of gravity and the law of averages." Names of those who have held the title, either actively or prior to the 1961 ceremony, are inscribed on the trophy's plaque.

Eligibility for the Gray Eagle Award is determined by the official active duty precedence list for naval aviators, on continuous service, not recalled, who has held that designation for the longest period of time. The date of designation as a Naval Aviator is the governing factor for determining who will receive the award from the list of active duty officers. In the event that two or more aviators on active duty have been designated on the same date, the senior one qualified as the Gray Eagle. The award is passed down from the previous holder of the award on his or her retirement, or in case of death. A miniature replica is presented to each incumbent as a personal memento. The Gray Eagle trophy may be kept in possession of and displayed by the command to which the Gray Eagle is assigned. Otherwise, it may be placed in the custody of the National Museum of Naval Aviation on a temporary basis until required for presentation to the successor. It should be noted that the ceremony date for the presentation of the Gray Eagle Award and the retirement date are not always the same.

Gray Eagle Award Recipients

Name	Rank Upon Retirement or Death	Naval Aviator Number	Date Designated Naval Aviator†	Dates as Gray Eagle
Theodore G. Ellyson	Cmdr.	1	2 Jun 1911*	2 Jun 1911–27 Feb 1928
John H. Towers	Adm.	3	14 Sep 1911*	27 Feb 1928–1 Dec 1947
George D. Murray	Vice Adm.	22	20 Sep 1915	1 Dec 1947–1 Aug 1951
William W. Townsley	Capt.	320	13 Feb 1918	1 Aug 195l–1 Jul 1955
Alvin O. Preil	Capt.	538	11 Mar 1918	1 Jul 1955–1 Jan 1959
Irving M. McQuiston	Rear Adm.	905	12 Jun 1918	1 Jan 1959–1 Jul 1959
Alfred M. Pride	Vice Adm.	1119	17 Sep 1918	1 Jul 1959–1 Oct 1959
Thomas S. Combs	Vice Adm.	3064	21 Dec 1922	1 Oct 1959–1 Apr 1960
[The above list of naval aviators was designated retroactively following the establishment of the award in 1961.]				
Charles R. Brown	Adm.	3159	15 Aug 1924	1 Apr 1960–2 Jan 1962

Gray Eagle Award Recipients				
Name	**Rank Upon Retirement or Death**	**Naval Aviator Number**	**Date Designated Naval Aviator†**	**Dates as Gray Eagle**
Frank Akers	Rear Adm.	3228	11 Sep 1925	2 Jan 1962–1 Apr 1963
Wallace M. Beakley	Rear Adm.	3312	24 Nov 1926	1 Apr 1963–31 Dec 1963
Robert Goldthwaite	Rear Adm.	3364	20 May 1927	31 Dec 1963–1 Oct 1965
Richard C. Mangrum	Lt. Gen. (USMC)	4447	20 May 1929	1 Oct 1965–30 Jun 1967
Fitzhugh Lee	Vice Adm.	3512	16 Sep 1929	30 Jun 1967–31 July 1967
Charles D. Griffin	Adm.	3647	6 Jun 1930	31 Jul 1967–1 Feb 1968
Alexander S. Heyward Jr.	Vice Adm.	3867	23 Nov 1931	1 Feb 1968–1 Aug 1968
Robert J. Stroh	Rear Adm.	3888	25 Jan 1932	1 Aug 1968–28 Nov 1969
George P. Koch	Rear Adm.	4085	2 Jan 1935	28 Nov 1969–31 Jul 1971
Alfred R. Matter	Rear Adm.	4164	30 Oct 1935	31 Jul 1971–29 Feb 1972
Francis D. Foley	Rear Adm.	4178	1 Feb 1936	29 Feb 1972–29 Jun 1972
Thomas H. Moorer	Adm.	4255	12 Jun 1936	29 Jun 1972–30 Jun 1974
Leroy V. Swanson	Rear Adm.	5921	9 Dec 1938	30 Jun 1974–29 Aug 1975
Noel A. M. Gayler	Adm.	6879	14 Nov 1940	29 Aug 1975–31 Aug 1976
Martin D. Carmody	Rear Adm.	10911	22 Jan 1942	31 Aug 1976–27 May 1977
George L. Cassel	Rear Adm.	11262	3 Feb 1942	27 May 1977–31 Aug 1977
Henry Wildfang	CWO4 (USMC)	12766	16 Apr 1942	31 Aug 1977–31 May 1978
Frank C. Lang	Maj. Gen. (USMC)		12 Mar 1943	31 May 1978–30 Jun 1978
Thomas H. Miller Jr.	Lt. Gen. (USMC)		24 Apr 1943	30 Jun 1978–28 Jun 1979
Maurice F. Weisner	Adm.		May 1943	28 Jun 1979–31 Oct 1979
Andrew W. O'Donnell	Lt. Gen. (USMC)		8 Jul 1944	31 Oct 1979–26 Jun 1981
Robert F. Schoultz	Vice Adm.			26 Jun 1981–17 Feb 1987
Cecil J. Kempf	Vice Adm.			25 Feb 1987–6 June 1987
James E. Service	Vice Adm.			6 Jun 1987–21 Aug 1987
Frank E. Peterson Jr.	Lt. Gen. (USMC)			21 Aug 1987–15 Jun 1988
Ronald J. Hays	Adm.			15 Jun 1988–15 Sep 1988
Robert F. Dunn	Vice Adm.			15 Sep 1988–25 May 1989
Huntington Hardisty	Adm.			25 May 1989–1 Mar 1991
Jerome L. Johnson	Adm.			1 Mar 1991–26 Jul 1992
Edwin R. Kohn	Vice Adm.		Jun 1956	26 Jul 1992–1 Jul 1993
Jerry O. Tuttle	Vice Adm.			1 Jul 1993–19 Nov 1993
Stanley R. Arthur	Adm.			19 Nov 1993–21 Mar 1995
David R. Morris	Rear Adm.			21 Mar 1995–28 Feb 1996
Walter Davis	Vice Adm.			28 Feb 1996–1 Jan 1997
Luther Schriefer	Rear Adm.			1 Jan 1997–1 Feb 1997
Andrew Granuzzo	Rear Adm.			1 Feb 1997–24 Mar 2000
James I. Maslowski	Rear Adm.			24 Mar 2000–20 Dec 2000
Arthur K. Cebrowski	Vice Adm.		1 Dec 1965	20 Dec 2000–16 Aug 2001
Robert M. Nutwell	Rear Adm.			16 Aug 2001–26 Sep 2001
Michael D. Haskins	Vice Adm.			26 Sep 2001–21 Nov 2002
Charles W. Moore Jr.	Vice Adm.			21 Nov 2002–1 Oct 2004
Gregory G. Johnson	Adm.			1 Oct 2004–29 Nov 2004
Robert Magnus	Lt. Gen. (USMC)			29 Nov 2004–17 Jul 2008
James F. Amos	Gen. (USMC)		1971	17 Jul 2008–

* Dates qualified for Pilot Certificate under Aero Club of America; Navy Air Pilot numbers were first assigned in January 1915 and Naval Aviator numbers were assigned in January 1918.

† In many cases this date was not provided with the award announcement.

Chapter 19

Honorary Naval Aviator Designations

The official Honorary Naval Aviator Program was initiated in 1949 to honor individuals for certain extraordinary contributions and/or outstanding performance for service to naval aviation. In recognition of their service, an Honorary Naval Aviator designation is bestowed on the individual with the right to wear the "Wings of Gold."

The program is managed by the Chief of Naval Operations, Director Air Warfare (previously designated Deputy Chief of Naval Operations, Air Warfare and Assistant Chief of Naval Operations, Air Warfare). Final approval of the nomination is made by the Chief of Naval Operations.

The honor designating an individual an Honorary Naval Aviator has not been bestowed lightly. The following is a list of those individuals who have received the honor:

No	Name	Presented By	Date Received	Reason
1	Capt. Richard (Dick) Schram (Stunt Pilot)	Chief, Naval Air Reserve	Oct 1949	"Flying Professor." Outstanding contribution to aviation since the early 1930s.
2	Sgt. Clifford Iknokinok (Alaskan National Guard)	James H. Smith Jr., Asst. Secy. Navy	21 Nov 1955	Rescued 11 Navy men shot down by Soviet MiGs over international waters, Bering Strait, Alaska.
3	Sgt. Willis Walunga (Alaskan National Guard)	James H. Smith Jr., Asst. Secy. Navy	21 Nov 1955	Rescued 11 Navy men shot down by Soviet MiGs over international waters, Bering Strait, Alaska.
4	Dr. Herman J. Schaefer	Vice Adm. Robert Goldwaite	Jun 1960	Received flight surgeon wings. As a scientist, made outstanding contributions to aerospace research while at the Naval School of Aviation Medicine.
5	Dr. Dietrich E. Beischer	Vice Adm. Robert Goldwaite	Jun 1960	Received flight surgeon wings. As a scientist, made outstanding contributions to aerospace research while at the Naval School of Aviation Medicine.
6	Mr. F. Trubee Davison (Asst. Secy. of War for Air)	Vice Adm. Paul H. Ramsey, DCNO (Air)	Jul 1966	Organized the 1st Yale Unit in 1916. Served as Asst. Secy. of War for Air for 6 years, from late 1920s to 1930s.
7	Mr. Jackie Cooper (Navy Reserve commander)	Vice Adm. Bernard M. Strean, Chief, Naval Air Training	10 Jul 1970	Active in Navy's PAO program, recruiting and promoting since World War II.
8	Vice Adm. Hyman G. Rickover	Vice Adm. Thomas F. Connolly, DCNO (Air Warfare)	21 Jul 1970	Vigorously supported naval aviation and achieved great advancements in nuclear propulsion for aircraft carriers.
9	Lt. Col. Barry R. Butler, USAF	Vice Adm. Bernard M. Strean, Chief, Naval Air Training	19 Aug 1970	Made significant contributions as Advanced Training Officer, Naval Air Training Command. He flew several hundred hours in Navy aircraft and made six landings on board *Lexington* (CVT 16).
10	Mr. John Warner (Secretary of the Navy)	Vice Adm. William D. Houser, DCNO (Air Warfare)	14 Oct 1972	Vigorously supported naval aviation. Presented at establishment of VF-l and VF-2 (first F-14 squadrons) at NAS Miramar.
11	Mr. Robert G. Smith	Vice Adm. William D. Houser, DCNO (Air Warfare)	8 May 1973	Artist, McDonnell Douglas Corp. National recognition as an outstanding aviation artist.
12	Mr. George Spangeberg (NAVAIRSYSCOM)	Vice Adm. William D. Houser, DCNO (Air Warfare)	Sep 1975	Recognized for his many years of service as a Navy aircraft designer.
13	Mr. Jay R. Beasley	Vice Adm. E. C. Waller III, Director of Weapons Sys. Eva. Grp. for Vice Adm. Houser	25 Jul 1977	Presented in recognition of 23 years of exceptionally dedicated and valuable service to naval aviation as production test pilot with Lockheed and P-2/P-3 instructor.
14	Mr. Robert Osborne	Vice Adm. Frederick C. Turner, DCNO (Air Warfare)	21 Jan 1977	Presented for contributions to naval aviation safety; created Dilbert, Spoiler, and Grampaw Pettibone illustrations.
15	Capt. Virgil J. Lemmon	Vice Adm. Wesley L. McDonald, DCNO (Air Warfare)	23 Feb 1981	"Mr. Naval Aviation Maintenance." Awarded for 40 years of distinguished service to naval aviation and the naval aviation maintenance establishment.
16	Adm. Arleigh A. Burke	Vice Adm. Wesley L. McDonald, DCNO (Air Warfare)	13 Oct 1981	Outspoken supporter of naval aviation; made decisions that shaped the Navy's air arm as it is known today.

No	Name	Presented By	Date Received	Reason
17	Gen. James H. Doolittle	Adm. Thomas B. Hayward, CNO	11 Dec 1981	In recognition of many years of support of military aviation.
18	Mr. Paul E. Garber	Vice Adm. Edward H. Martin, DCNO (Air Warfare)	26 Mar 1985	Made significant contributions to naval aviation spanning the age of manned powered flight. Including service in World Wars I and II and impressive contributions in maintaining the history of naval aviation as the Ramsey Fellow and Historian Emeritus of the National Air and Space Museum.
19	Mr. Bob Hope	Vice Adm. Edward H. Martin, DCNO (Air Warfare) and the Secretary of the Navy, Mr. John Lehman	8 May 1986	Presented in recognition of 45 years of selfless dedication to the well-being of those serving their nation in the Navy, Marine Corps, and Coast Guard and for making remarkable contributions to the morale of those in naval aviation.
20	Mr. Edward H. Heinemann	Vice Adm. Edward H. Martin, DCNO (Air Warfare)	18 Oct 1986	Contributed to major achievements in the technical development of naval aircraft and as one of aviation's most highly regarded aircraft designers. The majority of the aircraft he designed served in naval aviation and he has become known as "Mr. Attack Aviation." A man whose professional life has been dedicated largely to designing a superb series of carrier-based aircraft.
21	Capt. Robert E. Mitchell, MC, USN	Rear Adm. E. D. Conner, Deputy, CNET	25 Jun 1990	Recognized for 43 years of contributions in the field of aerospace medicine. Conducted extensive research in the Thousand Aviator Program; worked with the Navy and Marine Corps Vietnam Prisoners of War (Repatriated); wrote and published numerous medical papers; and his operational work as a naval flight surgeon has helped shape the course of naval aviation.
22	Mr. Harold (Hal) Andrews	Vice Adm. Richard M. Dunleavy, ACNO (Air Warfare)	29 Apr 1991	Outstanding contributions to naval aviation as a civilian engineer with 30 years of service to the Navy; provided technical advice and support for the 50th and 75th naval aviation anniversary celebrations; volunteered support to *Naval Aviation News* magazine as technical advisor since the 1950s and his vast knowledge of naval aviation events, both technical and operational, have contributed to the advancement of naval aviation since his association with it beginning in World War II.
23	Mr. Corwin H. (Corky) Meyer	Adm. Jay L. Johnson, CNO	9 May 1997	A legendary test pilot with a career at Grumman's "Iron Works" that spanned 55 years. His contributions as a project pilot for Navy aircraft from Hellcats to Super Tigers helped provide the Navy with excellent aircraft. He was also the first civilian pilot to carrier qualify and be inducted into the Carrier Aviation Test Pilot Hall of Honor. Throughout his career as a test pilot and administrator, Corky Meyer's dedication contributed to the continued success of naval aviation.
24	Mr. Harry Gann	Adm. Jay L. Johnson, CNO	24 May 1997	A photographer, historian, writer, and engineer, Mr. Gann was a fixture in the world of naval aviation for more than 40 years. His photographs of the Blue Angels are classics and have been shown around the world. His work in naval aviation, especially his photography, was important in disseminating information about naval aviation to the American public. In 1987 he was recognized for his photography skills by being presented the annual award for Continuing Excellence in Aviation/Space Photography by the Aerofax Publishing Company.
25	Gen. James L. Jones, USMC	Adm. William J. Fallon, USN VCNO	10 Jan 2003	General Jones's extraordinary contributions to Navy and Marine Corps aviation included his efforts ensuring the success of Navy and Marine tactical air integration, supporting the Osprey, Joint Strike Fighter, and KC-130J, and upgrading legacy aircraft to bridge the gap between today's and tomorrow's aviation fleet.
26	Adm. Vern Clark, USN	Vice Adm. Mike Malone, CNAF	12 Jun 2004	For his support of naval aviation during his tenure as CNO.
27	Mr. Henry (Hank) Caruso	Vice Adm. Wally Massenburg, USN COMNAVAIR	9 Sep 2006	In recognition of his years of service as an engineer in support of various naval aviation programs and, even more significantly, for his unique aerocatures artwork. His artistic efforts have been far reaching and have conveyed a positive image of naval aviation.

Chapter 20

Navy and Marine Corps Air Stations and Fields Named for Aviators

Including Temporary Advanced Air Bases and Fields

Admiral A. W. Radford Field
At NAS Cubi Point, Philippines. Dedicated 21 December 1972, in honor of former Chairman of the Joint Chiefs of Staff, Adm. Arthur W. Radford. (Field inactive)

Alvin Callender Field
At NAS JRB New Orleans, La. Dedicated 26 Apr 1958, in honor of Capt. Alvin A. Callender, RFC, native of New Orleans, killed in aerial combat during WWI while flying with the Royal Flying Corps of Canada. He was not a U.S. naval aviator. (Active)

Archibald Field
At Managua, Nicaragua. A Marine Corps field named in late 1928 or early 1929 for Capt. Robert J. Archibald, USMC, who directed the location of airfield sites in Nicaragua and was killed in line of duty in November 1928. (Inactive)

Armitage Field
At China Lake, Calif. Name apparently assigned locally; dedicated 30 May 1945, in honor of Lt. John M. Armitage, USNR, killed 21 August 1944, while conducting air firing tests of a Tiny Tim rocket. (Active)

Ault Field
At NAS Whidbey Island, Wash. Named in honor of Commo. William B. Ault, who lost his life in the Battle of Coral Sea. Designated by the Secretary of the Navy on 25 February 1943. (Active)

Barin Field
At Foley, Ala. Name assigned 2 July 1942, prior to establishing as a NAAS, in honor of Lt. Louis T. Barin (Naval Aviator No. 56), test pilot extraordinaire and co-pilot of NC-1 on the 1919 transatlantic attempt. The former NAAS now an ALF to NAS Saufley Field. (Inactive)

Bauer Field
On Vila, New Hebrides Islands. Named in June 1943, for Lt. Col. Harold W. Bauer, commanding officer of VMF-212, who was awarded the Medal of Honor posthumously for action in South Pacific, 28 September–3 October 1942. (Inactive)

Bordelon Field
At NAS Hilo, Hawaii. Named for Sgt. William J. Bordelon, USMC, killed in the invasion of Tarawa. A Medal of Honor recipient, he was not an aviator. (Inactive)

Bourne Field
At MCAS St. Thomas, U.S.V.I. Named in late 1930s for Maj. Louis T. Bourne, first to fly nonstop from the United States to Nicaragua. (Inactive)

Brewer Field
At NAS Agana, Guam, in honor of Cmdr. Charles W. Brewer Jr. Dedicated 15 February 1973. (Inactive)

Bristol Field
At NAS Argentia, Newfoundland. Named 1 June 1943 for Rear Adm. Arthur L. Bristol, who as Commander Support Force, Atlantic, contributed much toward planning and building the station. (Inactive)

Bronson Field
A NAAS at Pensacola, Fla. Name assigned 2 July 1942, prior to establishing of the station, in honor of Lt. j.g. Clarence K. Bronson (Naval Aviator No. 15) killed by premature explosion of a bomb during early bomb dropping tests, 8 November 1916. (Inactive)

Brown Field
A NAAS at Chula Vista, Calif. Named in honor of Cmdr. Melville S. Brown killed in an airplane crash in 1936. Assigned 1 June 1943, to the field at NAAS Otay Mesa and became the station name 11 Jun 1943. (Inactive)

Brown Field
At MCAF Quantico, Va. Name assigned in 1922 in honor of 2d Lt. Walter V. Brown, killed at Quantico in an operational crash. (Inactive)

Byrd Field
A Marine Corps field at Puerto Pabezao, Nicaragua, named in the late 1920s for Capt. William C. Byrd, USMC, killed in airplane crash. (Inactive)

Cabaniss Field
At NAS Corpus Christi, Tex. Dedicated 9 July 1941, in honor of Cmdr. Robert W. Cabaniss (Naval Aviator No. 36) killed in a plane crash in 1927. The former NAAS now an OLF to NAS Corpus Christi. (Active)

Carney Field
On Guadalcanal. Named in the fall of 1942 for Capt. James V. Carney, killed early in World War II. (Inactive)

Cecil Field
A NAS near Jacksonville, Fla. Station established 20 February 1943; named in honor of Cmdr. Henry B. Cecil (Naval Aviator No. 42) lost in the crash of the rigid dirigible *Akron* (ZRS 4) 4 April 1933. (Inactive)

Chambers Field
At NAS Norfolk, Va. Named 1 June 1938, in honor of Capt. Washington I. Chambers, first officer-in-charge of aviation and director of early efforts to find a place for aviation in the fleet although he was not an aviator. (NAS Norfolk no longer active but field still active and under control of NAS Oceana).

Chase Field
A NAS at Beeville, Tex. Named 27 April 1943, in honor of Lt. Cmdr. Nathan B. Chase (Naval Aviator No. 37) killed in 1925 in an air collision while exercising his squadron in fighter tactics. (Inactive)

Chevalier Field
At NAS Pensacola, Fla. Name assigned 30 December 1936, to old Station Field, in honor of Lt. Cmdr. Godfrey de C. Chevalier (Naval Aviator No. 7). (Inactive)

Corry Field
A NAAS at Pensacola, Fla. Name initially assigned 1 November 1922, to a temporary field and reassigned to the new station 8 December 1934, in honor of Lt. Cmdr. William M. Corry (Naval Aviator No. 23) who was awarded the Medal of Honor posthumously. (Inactive)

Cuddihy Field
A NAAS at Corpus Christi, Tex. Station established 3 Sep 1941; named in honor of Lt. George T. Cuddihy, test pilot and speed record holder, killed in a 1929 crash. (Inactive)

Cunningham Field
At MCAS Cherry Point, N.C. Dedicated 4 Sep 1941, in honor of Lt. Col. Alfred A. Cunningham, (Naval Aviator No. 5), the first Marine Corps aviator. (Active)

Dowdell Field
A Marine Corps field at Apali, Nicaragua, named in the late 1920s for Sgt. Frank E. Dowdell, USMC, a non-aviator missing in action after a forced landing with Lt. Earl A. Thomas on Sapotilla Ridge, Nicaragua. (Inactive)

Dyess Field
On Roi Island, Kwajalein Atoll. Named 16 April 1944, for Lt. Col. Aquilla J. Dyess, USMCR, killed leading the assault on Roi-Namur. A non-aviator, Dyess was awarded the Medal of Honor posthumously. (Inactive)

Ellyson Field
A NAS at Pensacola, Fla. Station established 20 January 1943; named in honor of Cmdr. Theodore G. Ellyson, the first naval aviator. (Inactive)

Finucane Field
On Efate, New Hebrides. Named for 2d Lt. Arthur E. Finucane, a pilot with VMF-212 who was killed in a 1942 training accident off New Caledonia. (Inactive)

Flatley Field
At NAS Olathe, Kans. Dedicated 20 May 1962, in honor of Vice Adm. James H. Flatley, fighter pilot, carrier commander, Director of Air Warfare Division, and former commanding officer of the station. (Inactive)

Fleming Field
An auxiliary field to NAS Minneapolis, Minn. Named 20 July 1943, in honor of Capt. Richard E. Fleming, USMC, killed leading an attack on an enemy cruiser in the Battle of Midway; Medal of Honor awarded posthumously. (Inactive)

Floyd Bennett Field
At NAS New York, N.Y. Originally assigned to New York Municipal Airport, dedicated 23 May 1931, and retained as station name upon its establishing 2 June 1941. For Floyd Bennett (Naval Aviation Pilot No. 9) who with Rear Adm. Richard E. Byrd was first to fly over the North Pole. (Inactive Navy field.)

Forrest Sherman Field
At NAS Pensacola, Fla., formerly Fort Barrancas Airfield. Dedicated 2 November 1951, in honor of Adm. Forrest P. Sherman, Chief of Naval Operations, 1949–1951. (Active)

Frederick C. Sherman Field
At San Clemente Island, Calif. Dedicated 11 January 1961, in honor of Vice Adm. Frederick C. Sherman, three-time recipient of the Navy Cross and renowned leader of carrier task groups during WWII. (The former NAAS now an active NALF).

Frederick M. Trapnell Field
At NAS Patuxent River, Md. Dedicated 1 April 1976 in honor of naval aviator Vice Adm. Frederick M. Trapnell. (Active)

Frankforter Field
A Marine Corps field at Esteli, Nicaragua. Named in late 1920s for Pvt. Rudolph A. Frankforter, USMC, a non-aviator killed with Capt. William C. Byrd, USMC, in an airplane crash. (Inactive)

Halsey Field
At NAS North Island, Calif. Dedicated 20 August 1961, in honor of Fleet Adm. William F. Halsey, Commander Third Fleet in the advance across the Pacific during World War II. Officially named Admiral Halsey Field. (Active)

Haring Field
On Efate, New Hebrides. Named for 2d Lt. Richard Z. Haring, USMCR. (Inactive)

Harvey Field
At NAF Inyokern, Calif. Name assigned to field formerly known as Inyokern Airfield, 10 May 1944, in honor of Lt. Cmdr. Warren W. Harvey, for his contributions to the development of aviation ordnance and fighter tactics. (Inactive)

Hawkins Field
On Betio Island, Tarawa. Named for Lt. William D. Hawkins, USMCR, killed while landing his platoon during assault on Tarawa; a non-aviator, he was awarded the Medal of Honor posthumously. (Inactive)

Henderson Field
At NS Midway Island. Named 19 August 1942, in honor of Maj. Loften R. Henderson, lost in action during the Battle of Midway. (Active) Field on Guadalcanal, also named in honor of Maj. Henderson in August 1942. (Inactive)

Hensley Field
At NAS Dallas, Tex. Named for Col. William N. Hensley Jr., a non-aviator prominent in the reserve program during the 1920s. (NAS Dallas is inactive.)

Isley Field
A NAS on Saipan, Marianas Island. Named 30 June 1944, prior to its designation as NAS, for Cmdr. Robert H. Isely, who lost his life leading his squadron in an attack on the then enemy installation known as Aslito Airfield. The incorrect spelling of the station name became official through usage. (Inactive)

John Rodgers Field
At NAS Barbers Point, Hawaii. Dedicated on 10 September 1974 in honor of Cmdr. John Rodgers for his exploits in early naval aviation. (Inactive)

Lee Field
At NAS Green Cove Springs, Fla. Named in September 1940 in honor of Ens. Benjamin Lee, who lost his life in a crash at Killingholme, England, during WWI. Originally assigned as the station name, but reassigned to the landing field when station name changed to Green Cove Springs, 8 August 1943. (Inactive)

Maxfield Field
At NAS Lakehurst, N.J. Named 6 January 1944, in honor of Cmdr. Louis H. Maxfield (Naval Aviator No. 17) who lost his life in the crash of the dirigible R-38, 24 August 1921. (Inactive)

Max Kiel Airfield
At Little America, Antarctica. Named in early 1956 in honor of non-aviator Max Kiel, who lost his life while bridging a crevasse in Marie Byrd Land. (Inactive)

McCain Field
At NAS Meridian, Miss. Dedicated with the establishing of the station 14 July 1961, in honor of Adm. John S. McCain, carrier task force commander, Chief of BuAer, and Deputy Chief Naval Operations (Air). (Active)

McCalla Field
At NAS Guantanamo, Cuba. Named for Capt. Bowman H. McCalla, non-aviator skipper of *Marblehead* (Crusier No. 11) participating in the capture of Guantanamo Bay, and commander of a base established there, during the Spanish-American War. (NAS Guantanamo disestablished but NS Guantanamo still active along with the airfield.)

McCutcheon Field
At MCAS New River, N.C. Named in honor of Gen. Keith B. McCutcheon, a pioneer in Marine Corps helicopter assault tactics. Dedicated 1972. (Active)

Merritt Field
At MCAS Beaufort, S.C., in honor of Maj. Gen. Lewis G. Merritt. Dedicated on 19 September 1975. (Active)

Mitchell Field
At NS Adak, Alaska. Named 2 February 1944, in honor of Ens. Albert E. Mitchell, who lost his life in the Aleutians earlier in the war. Officially named Albert Mitchell Field. (Inactive)

Mitscher Field
At NAS Miramar, Calif. Named 14 June 1955, in honor of Adm. Marc A. Mitscher (Naval Aviator No. 33), leader of fast carrier task forces in WWII and Deputy Chief of Naval Operations (Air). NAS Miramar redesignated MCAS Miramar on 1 October 1997. (Active)

Moffett Field
At NAS at Sunnyvale, Calif. Named in honor of Rear Adm. William A. Moffett, naval aviation observer, first Chief of BuAer and leader of naval aviation through the 1920s who lost his life in the crash of the rigid dirigible *Akron* (ZRS 4) 4 April 1933. Name first assigned 17 May 1933, to the landing field at NAS Sunnyvale, Calif., and remained in use after the station was transferred to the U.S. Army in 1935 and after station was returned to the Navy and established as a NAS, 16 April 1942; became station name 20 April 1942. (Inactive)

Moret Field
On Zamboanga, Philippines. Named for Lt. Col. Paul Moret, USMC, killed in a crash in 1943. (Inactive)

Mullinnix Field
On Buota Island, Tarawa. Named in December 1943 in honor of Rear Adm. Henry M. Mullinnix, carrier division commander, lost in sinking of *Liscome Bay* (CVE 56), during the Gilbert Islands campaign, 24 November 1943. (Inactive)

Munn Field
At MCAS Camp Pendleton, Calif. The airfield was designated Munn Field on 12 January 1987 in honor of Lt. Gen. John C. Munn. The general had been Assistant Commandant of the Marine Corps and the first Marine Aviator to command Camp Pendleton. (Active)

Mustin Fieid
A NAF at Philadelphia, Pa. Dedicated 17 September 1926, in honor of Capt. Henry C. Mustin (Naval Aviator No. 11), an early exponent of aviation as the striking arm of the fleet. (Inactive)

Nimitz Field
At NAS Alameda, Calif. Dedicated 26 January 1967, in honor of non-aviator Fleet Adm. Chester W. Nimitz, Commander-in-Chief of the Pacific during WWII and Chief of Naval Operations. (Inactive)

Ofstie Field
At NS Roosevelt Roads, P.R. Dedicated 21 May 1959, in honor of Vice Adm. Ralph A. Ofstie, test pilot, fleet commander and Deputy Chief of Naval Operations (Air). (Inactive)

O'Hare Field
On Abemama, Gilbert Islands. Named in December 1943 in honor of Lt. Cmdr. Edward H. O'Hare, air group commander, pioneer in night carrier operations, and Medal of Honor recipient, killed in action during the Gilberts Campaign, 26 November 1943. (Inactive)

Page Field
At MCAS Parris Island, S.C. Named 19 September 1938, prior to station establishing, in honor of Capt. Arthur H. Page Jr., USMC, pioneer in instrument flying and racing pilot, who crashed to his death while leading in the 1930 Thompson Trophy Race. (Inactive)

Ramey Field
At NAS Sanford, Fla. Dedicated 6 February 1959, in honor of Lt. Cmdr. Robert W. Ramey, who lost his life by electing to guide his crippled plane away from a residential area. (Inactive)

Ream Field
At NAS Imperial Beach, Calif. Named in 1943 for Maj. William R. Ream, MC, USA, who was a non-aviator medical officer at Rockwell Field on North Island in the WWI period. Initially the station name when the station was renamed Imperial Beach, 1 January 1968. (Inactive)

Reeves Field
At NAS Lemoore, Calif. Dedicated 20 November 1961, in honor of Rear Adm. Joseph M. Reeves, naval aviation observer and farseeing pioneer in the tactical employment of aircraft carriers. Officially, Joseph Mason Reeves Field. (Active) Field at NAB San Pedro (later NAS Terminal Island), Calif., also named in honor of Adm. Reeves in the 1930s. (Inactive)

Rodd Field
A NAAS at Corpus Christi, Tex. Station established 7 June 1941; named in honor of Lt. Herbert C. Rodd, radio officer in NC-4 on the 1919 transatlantic flight. (Inactive)

Sailer Field
On Guadalcanal. Named for Maj. Joseph Sailer, who lost his life leading his squadron in an attack on enemy destroyers. (Inactive)

Saufley Field
A NAS at Pensacola, Fla. Named prior to station establishing 22 August 1940, in honor of Lt. j.g. Richard C. Saufley (Naval Aviator No. 14), killed in a crash while on a record endurance flight. NAS Saufley Field no longer an active air station, however, the field may be used as an auxiliary landing field.

Shea Field
At NAS South Weymouth, Mass. In honor of Lt. Cmdr. John J. Shea, killed in action while serving on board *Wasp* (CV 7) in 1942. Name assigned first to the field at NAS Squantum, Mass., 15 March 1946, and upon closing of that station in 1954 was transferred to the field at South Weymouth. (Inactive)

Smartt Field
An outlying field to NAS St. Louis, Mo. Named in June 1943 in honor of Ens. Joseph G. Smartt, who lost his life 7 December 1941, while serving with VP-11 at Kaneohe, Hawaii. (Inactive)

Soucek Field
At NAS Oceana, Va. Dedicated 4 June 1957, in honor of Vice Adm. Apollo Soucek, world altitude record holder, test pilot, task force commander, and Chief of BuAer. Officially named Apollo Soucek Field. (Active)

Stickell Field
On Eniwetok, Marshall Islands. Named early in 1944 in honor of Lt. John H. Stickell, naval aviator and former RAF pilot, who died from wounds received in action during a low-level attack on Jaluit in the Marshalls. (Inactive)

Taylor Field
On Efate, New Hebrides. Named for Lt. Lawrence C. Taylor, USMCR, killed while intercepting an air attack on Guadalcanal. (Inactive)

Thomas Field
A Marine Corps field at Ocotal, Nicaragua. Named in the late 1920s for Lt. Earl A. Thomas, USMC, missing in action after a forced landing on Sapotilla Ridge, Nicaragua. (Inactive)

Titcomb Field
On Mindanao, Philippines. Named in February 1945 in honor of Capt. John A. Titcomb, USMCR, a non-aviator killed while directing a close air support mission in northern Luzon. (Inactive)

Towers Field
At NAS Jacksonville, Fla. Dedicated 14 October 1960, in honor of Adm. John H. Towers (Naval Aviator No. 3), an outstanding leader in naval aviation from 1911 to his retirement in 1947. Officially named John Towers Field. (Active)

Turner Field
At MCAF Quantico, Va. Named in honor of Col. Thomas C. Turner, USMC, naval aviator and Director of Marine Aviation. Name was first assigned 1 July 1936, to the field at Marine Barracks, Quantico. (Active)

Van Voorhis Field
At NAS Fallon, Nev. Dedicated 1 November 1959, in honor of Cmdr. Bruce A. Van Voorhis, a posthumous Medal of Honor recipient who lost his life on a low-level bombing attack on enemy positions during the Battle of the Solomon Islands. (Active)

Waldron Field
At NAS Corpus Christi, Tex. Named 5 March 1943, prior to establishing of station, in honor of Lt. Cmdr. John C. Waldron, killed in action leading the attack of Torpedo Squadron 8 in the Battle of Midway, 4 June 1942. The former NAAS is now an OLF to NAS Corpus Christi. (Active)

Webster Field
A flight test field at Priest Point, Md., auxiliary to NAS Patuxent River. Named 1 June 1943 for Capt. Walter W. Webster, one-time head of Naval Aircraft Factory and long associated with test and development work. (Active)

Whiting Field
NAS Whiting Field at Milton, Fla. Named 1 June 1943, prior to establishing of station, in honor of Capt. Kenneth Whiting (Naval Aviator No. 16), first to command naval aviation units overseas in WWI, first acting commander of the Navy's first carrier, and leader in the development of carriers. (Active)

Wigley Field
On Engebi Island, Eniwetok Atoll. Named in March 1944 for Lt. Col. Roy C. Wigley, USAAF, a pilot killed in an attack on Jaluit, Marshall Islands. (Inactive)

Williams Field
At McMurdo Sound, Antarctica. Named 16 February 1956, for non-aviator Richard Williams, killed when his vehicle broke through the bay ice. (Inactive)

Chapter 21

Aviation Commands

In order of their establishment:

Office in Charge of Aviation
Director of Naval Aeronautics
Director of Naval Aviation

Capt. Washington I. Chambers	26 Sep 1910–17 Dec 1913
Capt. Mark L. Bristol	17 Dec 1913–4 Mar 1916
Capt. Noble E. Irwin	17 May 1917–May 1919
Capt. Thomas T. Craven	May 1919–7 Mar 1921
Capt. William A. Moffett	7 Mar 1921–26 Jul 1921

The person in charge of aviation affairs for the Navy was initially designated as the officer to whom all correspondence on aviation should be referred. This position was a special duty assignment as Officer in Charge of Aviation. The position was identified by the title Director of Naval Aeronautics on 23 November 1914. It was discontinued on 4 March 1916 and reinstituted as Director of Naval Aviation on 7 March 1918. The title Director of Naval Aviation was replaced in July 1921 by the establishment of the Bureau of Aeronautics.

Officer–in–Charge, Aviation, Headquarters Marine Corps
Director of Marine Corps Aviation
Deputy Chief of Staff (Air), Marine Corps
Deputy Chief of Staff for Aviation, Marine Corps
Deputy Commandant for Aviation, Marine Corps

Maj. Alfred A. Cunningham	17 Nov 1919–12 Dec 1920
Lt. Col. Thomas C. Turner	13 Dec 1920–2 Mar 1925
Maj. Edward H. Brainard	3 Mar 1925–9 May 1929
Col. Thomas C. Turner	10 May 1929–28 Oct 1931
Maj. Roy S. Geiger	6 Nov 1931–29 May 1935
Col. Ross E. Rowell	30 May 1935–10 Mar 1939
Brig. Gen. Ralph J. Mitchell	11 Mar 1939–29 Mar 1943
Maj. Gen. Roy S. Geiger	13 May 1943–15 Oct 1943
Brig. Gen. Louis E. Woods	15 Oct 1943–17 Jul 1944
Maj. Gen. Field Harris	18 Jul 1944–24 Feb 1948
Maj. Gen. William J. Wallace	24 Feb 1948–1 Sep 1950
Brig. Gen. Clayton C. Jerome	1 Sep 1950–1 Apr 1952
Lt. Gen. William O. Brice	1 Apr 1952–31 Jul 1955
Lt. Gen. Christian F. Schilt	1 Aug 1955–31 Mar 1957
Lt. Gen. Verne J. McCaul	1 Apr 1957–2 Dec 1957
Maj. Gen. Samuel S. Jack	14 Jan 1958–20 Feb 1958
Maj. Gen. John C. Munn	21 Feb 1958–14 Dec 1959
Maj. Gen. Arthur F. Binney	15 Dec 1959–10 Sep 1961
Col. Keith B. McCutcheon	11 Sep 1961–17 Feb 1962
Col. Marion E. Carl	18 Feb 1962–4 Jul 1962

Brig. Gen. Norman J. Anderson	5 Jul 1962–20 Oct 1963
Maj. Gen. Louis B. Robertshaw	21 Oct 1963–15 Jun 1966
Maj. Gen. Keith B. McCutcheon	15 Jun 1966–18 Feb 1970
Maj. Gen. Homer S. Hill	19 Feb 1970–24 Aug 1972
Maj. Gen. Edward S. Fris	25 Aug 1972–27 Aug 1974
Brig. Gen. Philip D. Shutler	28 Aug 1974–Jan 1975
Maj. Gen. Victor A. Armstrong	Jan 1975–21 Aug 1975
Lt. Gen. Thomas H. Miller Jr.	22 Aug 1975–29 Jun 1979
Lt. Gen. William J. White	1 Jul 1979–30 Jun 1982
Lt. Gen. William H. Fitch	1 Jul 1982–31 Aug 1984
Lt. Gen. Keith A. Smith	1 Sep 1984–29 Apr 1988
Lt. Gen. Charles H. Pitman	30 Apr 1988–1 Aug 1990
Lt. Gen. Duane A. Wills	17 Aug 1990–30 Jun 1993
Lt. Gen. Richard D. Hearney	1 Jul 1993–14 Jul 1994
Lt. Gen. Harold W. Blot	15 Jul 1994–Jul 1996
Lt. Gen. Terrence R. Dake	Jul 1996–28 Jun 1998
Lt. Gen. Fredrick N. McCorkle	28 Jun 1998–2 Aug 2001
Lt. Gen. William L. Nyland	2 Aug 2001–10 Sep 2002
Vacant	11 Sep 2002–2 Oct 2002
Lt. Gen. Michael A. Hough	3 Oct 2002–2 Nov 2006
Lt. Gen. John G. Castellaw	3 Nov 2006–10 Mar 2007
Lt. Gen. George J. Trautman III	10 Mar 2007–

On 1 April 1936 the title of the senior aviator attached to Headquarters, Marine Corps, changed from Officer–in–Charge, Aviation, to Director of Aviation, and on 25 April 1962 became Deputy Chief of Staff (Air). On 16 September 1972 the title changed to Deputy Chief of Staff for Aviation.

Chief of the Bureau of Aeronautics

Rear Adm. William A. Moffett	26 Jul 1921–4 Apr 1933
Rear Adm. Ernest J. King	3 May 1933–12 Jun 1936
Rear Adm. Arthur B. Cook	12 Jun 1936–1 Jun 1939
Rear Adm. John H. Towers	1 Jun 1939–6 Oct 1942
Rear Adm. John S. McCain	9 Oct 1942–7 Aug 1943
Rear Adm. Dewitt C. Ramsey	7 Aug 1943–1 Jun 1945
Rear Adm. Harold B. Sallada	1 Jun 1945–1 May 1947
Rear Adm. Alfred M. Pride	1 May 1947–1 May 1951
Rear Adm. Thomas S. Combs	1 May 1951–30 Jun 1953
Rear Adm. Apollo Soucek	30 Jun 1953–4 Mar 1955
Rear Adm. James S. Russell	4 Mar 1955–15 Jul 1957
Rear Adm. Robert E. Dixon	15 Jul 1957–1 Dec 1959

Established by act of Congress, 12 July 1921, and merged 1 December 1959 with the Bureau of Ordnance to form the Bureau of Naval Weapons.

Assistant Secretary of the Navy for Aeronautics
Assistant Secretary of the Navy for Air

Edward P. Warner	10 Jul 1926–Mar 1929
David S. Ingalls	16 Mar 1929–1 Jun 1932
Vacant	1 Jun 1932–5 Sep 1941
Artemus L. Gates	5 Sep 1941–1 Jul 1945
John L. Sullivan	1 Jul 1945–17 Jun 1946
John N. Brown	12 Nov 1946–8 Mar 1949
Dan A. Kimball	9 Mar 1949–25 May 1949
John F. Floberg	5 Dec 1949–23 Jul 1953
James H. Smith	23 Jul 1953–20 Jun 1956
Garrison R. Norton	28 Jun 1956–5 Feb 1959

Established by act of Congress 24 June 1926 with title Assistant Secretary of the Navy for Aeronautics. On 11 September 1941 it was retitled Assistant Secretary of the Navy for Air and abolished on 5 February 1959.

U.S. Naval Air Forces, Pacific Fleet
Commander, Air Force, Pacific Fleet
Commander, Naval Air Force Pacific Fleet
Commander, Naval Air Forces

Rear Adm. Aubrey W. Fitch	1 Sep 1942–15 Sep 1942
Rear Adm. Leigh Noyes	15 Sep 1942–14 Oct 1942
Vice Adm. John H. Towers	14 Oct 1942–28 Feb 1944
Rear Adm. Charles A. Pownall	28 Feb 1944–17 Aug 1944
Rear Adm. George D. Murray	17 Aug 1944–20 Jul 1945
Rear Adm. Alfred E. Montgomery	20 Jul 1945–31 Aug 1946
Vice Adm. John D. Price	31 Aug 1946–5 Jan 1948
Vice Adm. Harold B. Sallada	5 Jan 1948–1 Oct 1949
Vice Adm. Thomas L. Sprague	1 Oct 1949–1 Apr 1952
Vice Adm. Harold M. Martin	1 Apr 1952–1 Feb 1956
Vice Adm. Alfred M. Pride	1 Feb 1956–30 Sep 1959
Rear Adm. Murr E. Arnold*	30 Sep 1959–12 Oct 1959
Vice Adm. Clarence E. Ekstrom	12 Oct 1959–30 Nov 1962
Vice Adm. Paul D. Stroop	30 Nov 1962–30 Oct 1965
Vice Adm. Thomas F. Connolly	30 Oct 1965–1 Nov 1966
Vice Adm. Allen M. Shinn	1 Nov 1966–31 Mar 1970
Vice Adm. William F. Bringle	31 Mar 1970–28 May 1971
Vice Adm. Thomas J. Walker III	28 May 1971–31 May 1973
Vice Adm. Robert B. Baldwin	31 May 1973–12 Jul 1976
Vice Adm. Robert P. Coogan	12 Jul 1976–31 Jan 1980
Vice Adm. Robert F. Schoultz	31 Jan 1980–4 Aug 1982
Vice Adm. Crawford A. Easterling	4 Aug 1982–16 Aug 1985
Vice Adm. James E. Service	16 Aug 1985–21 Aug 1987
Vice Adm. John H. Fetterman Jr.	21 Aug 1987–14 Dec 1990
Vice Adm. Edwin R. Kohn Jr.	14 Dec 1990–17 Jun 1993

Rear Adm. Steven R. Briggs	17 Jun 1993–26 Oct 1993
Vice Adm. Robert J. Spane	26 Oct 1993–24 Jan 1996
Vice Adm. Brent M. Bennitt	24 Jan 1996–16 Jan 1998
Vice Adm. Michael L. Bowman	16 Jan 1998–23 Aug 2000
Vice Adm. John B. Nathman	23 Aug 2000–2 Aug 2002
Vice Adm. Michael D. Malone	2 Aug 2002–17 Aug 2004
Vice Adm. James M. Zortman	17 Aug 2004–22 Jun 2007
Vice Adm. Thomas J. Kilcline Jr.	22 Jun 2007–1 Jul 2010
Vice Adm. Allen G. Myers	1 Jul 2010–

* Acting Commander Naval Air Force Pacific Fleet

Established 1 September 1942 as an administrative command replacing the commands Carriers, Pacific Fleet and Patrol Wings, Pacific Fleet. The title, U.S. Naval Air Forces, Pacific Fleet was changed 14 October 1942 to Air Force, Pacific Fleet and 30 July 1957 to Naval Air Force Pacific Fleet. In October 2001 the Chief of Naval Operations directed Commander Naval Air Force Pacific Fleet to become the type commander for all air commands and assumed the additional title of Commander, Naval Air Forces.

Commander, Air Force, Atlantic Fleet
Commander, Naval Air Force Atlantic Fleet

Rear Adm. Alva D. Bernhard	1 Jan 1943–8 Mar 1943
Vice Adm. Patrick N. L. Bellinger	20 Mar 1943–2 Feb 1946
Vice Adm. Gerald F. Bogan	2 Feb 1946–Dec 1948
Vice Adm. Felix B. Stump	Dec 1948–11 Apr 1951
Vice Adm. John J. Ballentine	11 Apr 1951–1 May 1954
Vice Adm. Frederick W. McMahon	1 May 1954–29 May 1956
Vice Adm. William L. Rees	29 May 1956–30 Sep 1960
Vice Adm. Frank O'Beirne	30 Sep 1960–30 Sep 1963
Vice Adm. Paul H. Ramsey	30 Sep 1963–31 Mar 1965
Vice Adm. Charles T. Booth	31 Mar 1965–28 Feb 1969
Vice Adm. Robert L. Townsend	1 Mar 1969–29 Feb 1972
Vice Adm. Fredrick H. Michaelis	29 Feb 1972–14 Feb 1975
Vice Adm. Howard E. Greer	14 Feb 1975–31 Mar 1978
Vice Adm. George E. R. Kinnear	31 Mar 1978–31 Jul 1981
Vice Adm. Thomas J. Kilcline Jr.	31 Jul 1981–1 Aug 1983
Vice Adm. Carol C. Smith Jr.	1 Aug 1983–14 Oct 1983
Vice Adm. Robert F. Dunn	8 Dec 1983–23 Dec 1986
Vice Adm. Richard M. Dunleavy	23 Dec 1986–25 May 1989
Vice Adm. John K. Ready	25 May 1989–6 Aug 1991
Vice Adm. Anthony A. Less	6 Aug 1991–18 Mar 1994
Vice Adm. Richard C. Allen	18 Mar 1994–Mar 1996
Vice Adm. John J. Mazach	Mar 1996–Nov 1998
Vice Adm. Joseph S. Mobley	Nov 1998–12 Apr 2001
Rear Adm. Michael D. Malone	12 Apr 2001–10 Jul 2002
Rear Adm. James M. Zortman	10 Jul 2002–17 May 2004
Rear Adm. H. Denby Starling II	17 May 2004–20 Mar 2007

Rear Adm. John W. Goodwin	20 Mar 2007–13 Jan 2009
Rear Adm. Richard J. O'Hanlon	13 Jan 2009–

Established 1 January 1943 as an administrative command replacing the commands Carriers, Atlantic Fleet and Fleet Air Wing, Atlantic Fleet. The original title, Air Force, Atlantic Fleet, was changed 30 July 1957 to Naval Air Force Atlantic Fleet.

Deputy Chief of Naval Operations (Air)
Deputy Chief of Naval Operations (Air Warfare)
Assistant Chief of Naval Operations (Air Warfare)
Director, Air Warfare

Vice Adm. John S. McCain	18 Aug 1943–1 Aug 1944
Vice Adm. Aubrey W. Fitch	1 Aug 1944–14 Aug 1945
Vice Adm. Marc A. Mitscher	14 Aug 1945–15 Jan 1946
Vice Adm. Arthur W. Radford	15 Jan 1946–22 Feb 1947
Vice Adm. Donald B. Duncan	6 Mar 1947–20 Jan 1948
Vice Adm. John D. Price	20 Jan 1948–6 May 1949
Vice Adm. Calvin T. Durgin	16 May 1949–25 Jan 1950
Vice Adm. John H. Cassady	25 Jan 1950–31 May 1952
Vice Adm. Matthias B. Gardner	31 May 1952–16 Mar 1953
Vice Adm. Ralph A. Ofstie	16 Mar 1953–3 Mar 1955
Vice Adm. Thomas S. Combs	11 Apr 1955–1 Aug 1956
Vice Adm. William V. Davis Jr.	1 Aug 1956–22 May 1958
Vice Adm. Robert B. Pirie	26 May 1958–1 Nov 1962
Vice Adm. William A. Schoech	14 Nov 1962–1 Jul 1963
Vice Adm. John S. Thach	8 Jul 1963–25 Feb 1965
Vice Adm. Paul H. Ramsey	31 Mar 1965–1 Oct 1966
Vice Adm. Thomas F. Connolly	1 Nov 1966–31 Aug 1971
Vice Adm. Maurice F. Weisner	1 Sep 1971–4 Aug 1972
Vice Adm. William D. Houser	5 Aug 1972–30 Apr 1976
Vice Adm. Forrest S. Petersen	1 May 1976–5 Oct 1976
Vice Adm. Frederick C. Turner	6 Oct 1976–30 Jun 1979
Vice Adm. Wesley L. McDonald	1 Jul 1979–1 Sep 1982
Vice Adm. Robert F. Schoultz	2 Sep 1982–27 Jan 1985
Vice Adm. Edward H. Martin	25 Feb 1985–14 Jan 1987
Vice Adm. Robert F. Dunn	15 Jan 1987–25 May 1989
Vice Adm. Richard M. Dunleavy	25 May 1989–12 Jun 1992
Rear Adm. Riley D. Mixson	12 Jun 1992–22 Nov 1993
Rear Adm. Brent M. Bennitt	22 Nov 1993–15 Jan 1996
Rear Adm. Dennis V. McGinn	15 Jan 1996–19 Jul 1998
Rear Adm. John B. Nathman	19 Jul 1998–17 Jul 2000
Rear Adm. Michael J. McCabe	17 Jul 2000–9 Sep 2002
Rear Adm. Mark P. Fitzgerald	9 Sep 2002–14 Aug 2004
Rear Adm. Thomas J. Kilcline Jr.	14 Aug 2004–7 Jul 2006
Rear Adm. Bruce W. Clingan	7 Jul 2006–Aug 2007

Rear Adm. Allen G. Myers	Aug 2007–Aug 2008
Rear Adm. Kenneth E. Floyd*	Aug 2008–Feb 2009
Rear Adm. David L. Philman	Feb 2009–May 2010
Rear Adm. Kenneth E. Floyd	May 2010–

*Acting Director

Established by the Secretary of the Navy, 18 August 1943, as Deputy Chief of Naval Operations (Air). Changed to Deputy Chief of Naval Operations (Air Warfare) on 15 July 1971. On 1 October 1987 the Chief of Naval Operations (OPNAV) was reorganized and Deputy Chief of Naval Operations (Air Warfare) was redesignated Assistant Chief of Naval Operations (Air Warfare). On 10 August 1992 the Assistant Chief of Naval Operations (Air Warfare) was changed to Director, Air Warfare Division (N88).

Chief of the Bureau of Naval Weapons

Rear Adm. Paul D. Stroop	10 Sep 1959–29 Oct 1962
Rear Adm. Kleber S. Masterson	27 Nov 1962–24 Mar 1964
Rear Adm. Allen M. Shinn	28 May 1964–1 May 1966

Established as the Bureau of Naval Weapons on 18 August 1959, merging the Bureaus of Ordnance and Aeronautics. It was abolished on 1 May 1966 during the reorganization of the bureaus. The reorganization assigned elements of the Bureau of Naval Weapons to three new commands: Naval Air Systems Command, Naval Ordnance Systems Command, and Naval Electronic Systems Command.

Commander Naval Air Systems Command

Rear Adm. Allen M. Shinn	1 May–1 Sep 1966
Rear Adm. Robert L. Townsend	1 Sep 1966–20 Feb 1969
Rear Adm. Thomas J. Walker III	20 Feb 1969–1 Apr 1971
Rear Adm. Thomas R. McClellan	1 Apr 1971–31 Aug 1973
Vice Adm. Kent L. Lee	31 Aug 1973–29 Aug 1976
Vice Adm. Forrest S. Petersen	29 Oct 1976–30 Apr 1980
Vice Adm. Ernest R. Seymour	30 Apr 1980–22 Jul 1983
Vice Adm. James B. Busey IV	22 Jul 1983–23 Aug 1985
Vice Adm. Joseph B. Wilkinson	23 Aug 1985–19 Sep 1989
Vice Adm. Richard C. Gentz	19 Sep 1989–22 Jan 1991
Vice Adm. William C. Bowes	22 Mar 1991–10 Mar 1995
Vice Adm. John A. Lockard	10 Mar 1995–4 Jun 2000
Vice Adm. Joseph W. Dyer	2 Jun 2000–Jun 2003
Rear Adm. Charles H. Johnston*	Jun–26 Nov 2003
Vice Adm. Walter B. Massenburg	26 Nov 2003–16 Feb 2007
Vice Adm. David J. Venlet	16 Feb 2007–18 May 2010
Vice Adm. David Architzel	18 May 2010–

*Acting

Established by a reorganization of the Navy Department effective 1 May 1966.

Chapter 22

Evolution of Carrier Air Groups and Wings

The term Air Group, modified by the name of a carrier, as Saratoga Air Group, came into use during the early days of carrier aviation as a collective title for the squadrons operating on board a particular carrier. It remained a mere title until 1 July 1938, when authorization for Air Group Commander billets became effective. With this action, the squadrons on board acquired the unity of a formal command and the carrier air group as such first took form.

Numerical designation of air groups began in 1942, the first being Carrier Air Group NINE (CVG-9), established 1 March 1942. The carrier air group was sometimes referred to as CAG. However, the official designation was CVG. Existing air groups continued to be known by their carrier names until they were reformed or disbanded, only two of the early groups escaping the latter fate.

On 29 June 1944, new letter designations were set up to bring them in line with standardized complements of different carrier types. The new designations, some of which had been in use for more than a year, showed carrier type affiliation as follows: CVBG for large carrier air group, CVG for medium carrier air group, CVLG for light carrier air group, and CVEG for escort carrier air group. The CVEG designation was assigned to carriers of the *Sangamon* class. The other CVE carrier classes were assigned Composite Squadrons (VC) and listed as air groups. They remained in that category throughout the war period. The CVBG designation was for assignment to the *Midway* class, sometimes referred to as the large carriers.

On 15 November 1946, to correct the results of demobilization, which had left squadron numbers all out of sequence and a system of no apparent order, sweeping changes were made in air unit designations. Carrier Air Groups of four types were designated according to their assigned ship, as CVBG for Battle Carrier, CVG for Attack Carrier, CVLG for Light Carrier, and CVEG for Escort Carrier. Two years later, on 1 September 1948, all carrier air groups became CVG regardless of their carrier affiliation.

Carrier Air Groups were retitled Wings on 20 December 1963, and CVG became CVW. Replacement Air Groups, which were set up in 1958, became Combat Readiness Air Groups on 1 April 1963. Popularly known by the short titles RAG and CRAG in the respective periods, their designation throughout was RCVG. When Groups became Wings, CRAG became CRAW and RCVG became RCVW.

Antisubmarine Carrier Air Groups, CVSG, were established on 1 April 1960. They were slowly phased out during the 1960s, and the last were disestablished on 30 June 1973.

On 1 July 1968, the Naval Air Reserve was reorganized into wings and squadrons similar to the active fleet air organizations to ensure a more rapid and efficient transition to combat status in the event of mobilization. Two Reserve Carrier Air Wings were established and all carrier-type squadrons in the reserves were placed in these two wings. CVWR was the acronym assigned for the Reserve Carrier Air Wings. A similar organization was established for the Reserve Antisubmarine Carrier Air Groups and assigned the acronym CVSGR. The implementation of these two reserve wings and groups did not take place until 1970.

Tabulations below have two deviations from the above: use of CVG instead of the original CAG for the period to 20 June 1944, and use of the unofficial CVAG in the period 1946–48 to identify the Attack Carrier Air Groups.

Carrier Air Wings—CVW			
CVW-1		*Ranger* Air Group Formed	1 Jul 1938
		Reformed as CVG-4	3 Aug 1943
		Became CVAG-1	15 Nov 1946
		Became CVG-1	1 Sep 1948
		Became CVW-1	20 Dec 1963
CVW-2		CVBG-74 Established	1 May 1945
		Became CVBG-1	15 Nov 1946
		Became CVG-2	1 Sep 1948
		Became CVW-2	20 Dec 1963

CVW-3		*Saratoga* Air Group Formed	1 Jul 1938
		Reformed as CVG-3	25 Sep 1943
		Became CVAG-3	15 Nov 1946
		Became CVG-3	1 Sep 1948
		Became CVW-3	20 Dec 1963
CVW-4		CVG-4 Established	1 Sep 1950
		Became RCVG-4	Apr 1958
		Became RCVW-4	20 Dec 1963
		Disestablished	1 Jul 1970
CVW-5		CVG-5 Established	15 Feb 1943
		Became CVAG-5	15 Nov 1946
		Became CVG-5	1 Sep 1948
		Became CVW-5	20 Dec 1963
CVW-6		CVG-17 Established	1 Jan 1943
		Became CVBG-17	22 Jan 1946
		Became CVBG-5	15 Nov 1946
		Became CVG-6	27 Jul 1948
		Became CVW-6	20 Dec 1963
		Disestablished	1 Apr 1992
CVW-7		CVG-18 Established	20 Jul 1943
		Became CVAG-7	15 Nov 1946
		Became CVG-7	1 Sep 1948
		Became CVW-7	20 Dec 1963
CVW-8		CVG-8 Established	9 Apr 1951
		Became CVW-8	20 Dec 1963
CVW-9		CVG-9 Established	26 Mar 1952
		Became CVW-9	20 Dec 1963
CVW-10	A	CVG-10 Established	1 May 1952
		Became CVW-10	20 Dec 1963
		Disestablished	20 Nov 1969
	B	Established	1 Nov 1986
		Disestablished	1 Jun 1988
CVW-11		CVG-11 Established	10 Oct 1942
		Became CVAG-11	15 Nov 1946
		Became CVG-11	1 Sep 1948
		Became CVW-11	20 Dec 1963
CVW-12		CVG-102 Established for reserve squadrons called to active duty for Korea	1 Aug 1950
		Became CVG-12	4 Feb 1953
		Became RCVG-12	Apr 1958
		Became RCVW-12	20 Dec 1963
		Disestablished	1 Jun 1970
CVW-13		Established	1 Mar 1984
		Disestablished	1 Jan 1991
CVW-14		CVG-101 Established for reserve squadrons called to active duty for Korea	1 Aug 1950
		Became CVG-14	4 Feb 1953
		Became CVW- 14	20 Dec 1963

CVW-15		CVG-15 Established	5 Apr 1951
		Became CVW-15	20 Dec 1963
		Disestablished	31 Mar 1995
CVW-16		CVG-16 Established	1 Sep 1960
		Became CVW-16	20 Dec 1963
		Disestablished	30 Jun 1971
CVW-17		Established	1 Nov 1966
CVW-19		CVG-19 Established	15 Aug 1943
		Became CVAG-19	15 Nov 1946
		Became CVG-19	1 Sep 1948
		Became CVW-19	20 Dec 1963
		Disestablished	30 Jun 1977
CVW-21		CVG-21 Established	1 Jul 1955
		Became CVW-21	20 Dec 1963
		Disestablished	12 Dec 1975
Reserve Carrier Air Wings—CVWR			
CVWR-20		Established	1 Apr 1970
		Became Tactical Support Wing (TSW)	1 Apr 2007
CVWR-30		Established	1 Apr 1970
		Disestablished	31 Dec 1994
Carrier Air Groups—CVG			
CVG-1	A	Established	1 May 1943
		Disestablished	25 Oct 1945
	B	*See* CVW-1	
CVG-2	A	Established	1 Jun 1943
		Disestablished	9 Nov 1945
	B	*See* CVW-2	
CVG-3		*See* CVW-3	
CVG-4	A	CVBG-75	1 Jun 1945
		Became CVBG-3	15 Nov 1946
		Became CVG-4	1 Sep 1948
		Disestablished	8 Jun 1950
	B	*See* CVW-1	
	C	*See* CVW-4	
CVG-5		*See* CVW-5	
CVG-6	A	Established	15 Mar 1943
		Disestablished	29 Oct 1945
	B	*See* CVW-6	
CVG-7	A	Established	3 Jan 1944
		Disestablished	8 Jul 1946
	B	*See* CVW-7	
CVG-8	A	Established	1 Jun 1943
		Disestablished	23 Nov 1945
	B	Established	15 Sep 1948
		Disestablished	29 Nov 1949
	C	*See* CVW-8	

CVG-9	A	Established	1 Mar 1942
		Disestablished	15 Oct 1945
	B	CVG-20	15 Oct 1943
		Became CVAG-9	15 Nov 1946
		Became CVG-9	1 Sep 1948
		Disestablished	1 Dec 1949
	C	*See* CVW-9	
CVG-10	A	Established	16 Apr 1942
		Disestablished	16 Nov 1945
	B	*See* CVW-10	
CVG-11		*See* CVW-11	
CVG-12	A	Established	9 Jan 1943
		Disestablished	17 Sep 1945
	B	*See* CVW-12	
CVG-13	A	Established	2 Nov 1942
		Disestablished	20 Oct 1945
	B	CVG-81 Established	1 Mar 1944
		Became CVAG-13	15 Nov 1946
		Became CVG-13	1 Sep 1948
		Disestablished	30 Nov 1949
	C	Established	21 Aug 1961
		Disestablished	1 Oct 1962
CVG-14	A	Established	1 Sep 1943
		Disestablished	14 Jun 1946
	B	*See* CVW-14	
CVG-15	A	Established	1 Sep 1943
		Disestablished	30 Oct 1945
	B	CVG-153 Established	26 Mar 1945
		Became CVAG-15	15 Nov 1946
		Became CVG-15	1 Sep 1948
		Disestablished	1 Dec 1949
	C	*See* CVW-15	
CVG-16	A	Established	16 Nov 1943
		Disestablished	6 Nov 1945
	B	*See* CVW-16	
CVG-17	A	CVG-82 Established	1 Apr 1944
		Became CVAG-17	15 Nov 1946
		Became CVG-17	1 Sep 1948
		Disestablished	15 Sep 1958
	B	*See* CVW-6	
CVG-18		*See* CVW-7	
CVG-19		*See* CVW-19	
CVG-20		*See* CVG-9	
CVG-21	A	Established	15 Sep 1948
		Disestablished	15 Mar 1949
	B	CVG-98 Established	28 Aug 1944
		Became CVAG-21	15 Nov 1946
		Disestablished	5 Aug 1947
	C	*See* CVW-21	

CVG-74		*See* CVW-2	
CVG-75		*See* CVG-4	
CVG-80		Established	1 Feb 1944
		Disestablished	16 Sep 1946
CVG-81		*See* CVG-13	
CVG-82		*See* CVG-17	
CVG-83		Established	1 May 1944
		Disestablished	24 Sep 1945
CVG-84		Established	1 May 1944
		Disestablished	8 Oct 1945
CVG-85		Established	15 May 1944
		Disestablished	27 Sep 1945
CVG-86		Established	15 Jun 1944
		Disestablished	21 Nov 1945
CVG-87		Established	1 Jul 1944
		Disestablished	2 Nov 1945
CVG-88		Established	18 Aug 1944
		Disestablished	29 Oct 1945
CVG-89		Established	2 Oct 1944
		Disestablished	27 Apr 1946
CVG-92		Established	2 Dec 1944
		Disestablished	18 Dec 1945
CVG-93		Established	21 Dec 1944
		Disestablished	30 Apr 1946
CVG-94		Established	15 Nov 1944
		Disestablished	7 Nov 1945
CVG-95		Established	2 Jan 1945
		Disestablished	31 Oct 1945
CVG-97		Established	1 Nov 1944
		Disestablished	31 Mar 1946
CVG-98		*See* CVG-21	
CVG-99		Established	15 Jul 1944
		Disestablished	6 Sep 1945
CVG-100		Established	1 Apr 1944
		Disestablished	20 Feb 1946
CVG-101		*See* CVW-14	
CVG-102		*See* CVW-12	
CVG-150		Established	22 Jan 1945
		Disestablished	2 Nov 1945
CVG-151		Established	12 Feb 1945
		Disestablished	6 Oct 1945
CVG-152		Established	5 Mar 1945
		Disestablished	21 Sep 1945
CVG-153		*See* CVG-15	
Attack Carrier Air Groups—CVAG			
CVAG 1		*See* CVW-1	
CVAG 3		*See* CVW-3	
CVAG 5		*See* CVW-5	
CVAG 7		*See* CVW-7	
CVAG 9		*See* CVG-9	

CVAG 11		*See* CVW-11	
CVAG 13		*See* CVW-13	
CVAG 15		*See* CVG-15	
CVAG 17		*See* CVG-17	
CVAG 19		*See* CVW-19	
CVAG 21		*See* CVG-21	
Battle Carrier Air Groups—CVBG			
CVBG 1		*See* CVW-2	
CVBG 3		*See* CVG-4	
CVBG 5		*See* CVW-6	
CVBG 17		*See* CVW-6	
CVBG 74		*See* CVW-2	
CVBG 75		*See* CVG-4	
Light Carrier Air Groups—CVLG			
CVLG-1		CVLG-58 Established	15 Mar 1946
		Redesignated CVLG-1	14 Nov 1946
		Disestablished	20 Nov 1948
CVLG-21		Established	16 May 1943
		Disestablished	5 Nov 1945
CVLG-22		Established	30 Sep 1942
		Disestablished	19 Sep 1945
CVLG-23		Established	16 Nov 1942
		Disestablished	19 Sep 1945
CVLG-24		*See* CVEG-24	
CVLG-25		*See* CVEG-25	
CVLG-27		Established	1 Mar 1943
		Disestablished	26 Oct 1945
CVLG-28		CVEG-28 Established	6 May 1942
		Became CVLG-28	20 Jan 1944
		Disestablished	6 Nov 1945
CVLG-29		CVEG-29 Established	18 Jul 1942
		Became CVLG-29	1 Mar 1944
		Disestablished	10 Sep 1945
CVLG-30		Established	1 Apr 1943
		Disestablished	12 Sep 1945
CVLG-31		Established	1 May 1943
		Disestablished	28 Oct 1945
CVLG-32		Established	1 Jun 1943
		Disestablished	13 Nov 1945
CVLG-34		Established	1 Apr 1945
		Disestablished	5 Dec 1945
CVLG-38		*See* CVEG-38	
CVLG-39		CVEG-39 Established	15 Mar 1945
		Became CVLG-39	27 Jul 1945
		Disestablished	10 Sep 1945
CVLG-40		*See* CVEG-40	
CVLG-43		Established	1 Aug 1943
		Disestablished	8 Nov 1943

CVLG-44		Established	1 Feb 1944
		Disestablished	18 Sep 1945
CVLG-45		Established	1 Apr 1944
		Disestablished	10 Sep 1945
CVLG-46		Established	15 Apr 1944
		Disestablished	14 Sep 1945
CVLG-47		Established	15 May 1944
		Disestablished	21 Sep 1945
CVLG-48		Established	15 Jun 1944
		Disestablished	2 Jan 1945
CVLG-49		CVEG-49 Established	10 Aug 1944
		Became CVLG-49	2 Jan 1945
		Disestablished	27 Nov 1945
CVLG-50		*See* CVEG-50	
CVLG-51		Established	22 Sep 1943
		Disestablished	13 Nov 1945
CVLG-52		Established	1 Sep 1943
		Disestablished	8 Nov 1943
CVLG-58		*See* CVLG-1	
Escort Carrier Air Groups—CVEG			
CVEG-1		CVEG-41 Established	26 Mar 1945
		Became CVEG-1	15 Nov 1946
		Became VC-21	1 Sep 1948
		Became VS-21	23 Apr 1950
CVEG-2		CVEG-42 Established	19 Jul 1945
		Became CVEG-2	15 Nov 1946
		Disestablished	1 Sep 1948
CVEG-3		Established	21 Apr 1947
		Disestablished	1 Sep 1948
CVEG-24		CVLG-24 Established	31 Dec 1942
		Became CVEG-24	15 Aug 1944
		Disestablished	25 Sep 1945
CVEG-25		CVLG-25 Established	15 Feb 1943
		Became CVEG-25	28 Aug 1944
		Disestablished	20 Sep 1945
CVEG-26		Established	4 May 1942
		Disestablished	13 Nov 1945
CVEG-28		*See* CVLG-28	
CVEG-29		*See* CVLG-29	
CVEG-33		Established	15 May 1944
		Disestablished	19 Nov 1945
CVEG-35		Established	15 Jul 1943
		Disestablished	19 Nov 1945
CVEG-36		Established	15 May 1944
		Disestablished	28 Jan 1946
CVEG-37		Established	15 Jul 1943
		Disestablished	20 Dec 1945

CVEG-38		CVLG-38 Established	16 Jun 1943
		Became CVEG-38	15 Aug 1944
		Disestablished	31 Jan 1946
CVEG-39		*See* CVLG-39	
CVEG-40		CVLG-40 Established	15 Jun 1943
		Became CVEG-40	15 Aug 1944
		Disestablished	19 Nov 1945
CVEG-41		*See* CVEG-1	
CVEG-42		*See* CVEG-2	
CVEG-43		Established	9 Aug 1945
		Disestablished	17 Jun 1946
CVEG-49		*See* CVLG-49	
CVEG-50		CVLG-50 Established	10 Aug 1943
		Became CVEG-50	1 Oct 1944
		Disestablished	29 Oct 1945
CVEG-60		Established	15 Jul 1943
		Disestablished	19 Nov 1945
CVEG-66		Established	1 Jan 1945
		Disestablished	6 Jun 1945
Night Carrier Air Groups—CVG(N)			
CVG(N)-52		CVLG(N)-52 Established	20 Oct 1944
		Became CVG(N)-52	6 Jan 1945
		Disestablished	15 Dec 1945
CVG(N)-53		Established	2 Jan 1945
		Disestablished	11 Jun 1946
CVG(N)-55		Established	1 Mar 1945
		Disestablished	11 Dec 1945
CVG(N)-90		Established	25 Aug 1944
		Disestablished	21 Jun 1946
CVG(N)-91		Established	5 Oct 1944
		Disestablished	21 Jun 1946
CVLG(N)			
CVLG(N)-41		Established	28 Aug 1944
		Disestablished	25 Feb 1945
CVLG(N)-42		Established	25 Aug 1944
		Disestablished	2 Jan 1945
CVLG(N)-43		Established	24 Aug 1944
		Disestablished	2 Jan 1945
CVLG(N)-52		*See* CVG(N)-52	
CVEG(N)			
CVEG(N)-63		Established	20 Jun 1945
		Disestablished	11 Dec 1945
Ship-Named Air Groups			
Langley Air Group		Ship commissioned	20 Mar 1922
		Squadrons first assigned	1925
		Air group had not formally organized when ship was reclassified AV	15 Sep 1936

Lexington Air Group		Ship commissioned	14 Dec 1927
		Ships squadrons established individually. Air group organized	1 Jul 1938
		Disbanded after ship was sunk	8 May 1942
Saratoga Air Group		Ship commissioned	16 Nov 1927
		Ship squadrons established individually. Air group organized	1 Jul 1938
		Reformed as CVG-3	25 Sep 1943
		See CVW-3	
Ranger Air Group		Ship commissioned	4 Jun 1934
		Ship squadrons established individually. Air group organized	1 Jul 1938
		Reformed as CVG-4	3 Aug 1943
		See CVW-1	
Yorktown Air Group		Ship commissioned	30 Sep 1937
		Ship squadrons established	1 Apr 1937
		Air group organized	1 Jul 1938
		Disbanded after ship was sunk	7 Jun 1942
Enterprise Air Group		Ship commissioned	12 May 1938
		Ship squadrons established	1 Jun 1937
		Air group organized	1 Jul 1938
		Disbanded	Sep 1942
Wasp Air Group		Ship commissioned	25 Apr 1940
		Air group established	1 Jul 1939
		Disbanded after ship was sunk	15 Sep 1942
Hornet Air Group		Ship commissioned	20 Oct 1941
		Air group established	6 Oct 1941
		Disbanded after ship was sunk	26 Oct 1942
Antisubmarine Carrier Air Groups—CVSG			
CVSG-50		Established as RCVSG	30 Jun 1960
		Disestablished	17 Feb 1971
CVSG-51		Established as RCVSG	30 Jun 1960
		Disestablished	30 Jun 1970
CVSG-52		Established	1 Jun 1960
		Disestablished	15 Dec 1969
CVSG-53		Established	1 Apr 1960
		Disestablished	1 Jun 1973
CVSG-54		Established	18 May 1960
		Disestablished	1 Jul 1972
CVSG-55		Established	1 Sep 1960
		Disestablished	27 Sep 1968
CVSG-56		Established	25 May 1960
		Disestablished	30 Jun 1973
CVSG-57		Established	3 Jan 1961
		Disestablished	30 Sep 1969
CVSG-58		Established	6 Jun 1960
		Disestablished	31 May 1966
CVSG-59		Established	1 Apr 1960
		Disestablished	30 Jun 1973
CVSG-60		Established	2 May 1960
		Disestablished	1 Oct 1968

CVSG-62		Established	25 Sep 1961
		Disestablished	1 Oct 1962
Reserve Antisubmarine Carrier Air Groups—CVSGR			
CVSGR-70		Established	1 Apr 1970
		Disestablished	30 Jun 1976
CVSGR-80		Established	1 Apr 1970
		Redesignated COMHELWINGRES	1 Jan 1976
Composite Squadrons—VC (World War II)			
VC-1	A	VS-201 Established	5 Apr 1941
		Became VGS-1	1 Apr 1942
		Became VC-1	1 Mar 1943
		Disestablished	1 Apr 1944
	B	VOF-1 Established	15 Dec 1943
		Became VOC-1	18 Dec 1944
		Became VC-1	1 Aug 1945
		Disestablished	17 Sep 1945
VC-2	A	*See* VC-25	
	B	VOF-2 Established	1 Mar 1944
		Became VOC-2	13 Dec 1944
		Became VC-2	20 Aug 1945
		Disestablished	13 Sep 1945
VC-3		Established	26 Aug 1943
		Disestablished	28 Oct 1945
VC-4		Established	2 Sep 1943
		Disestablished	16 Oct 1945
VC-5		Established	16 Sep 1943
		Disestablished	1 Oct 1945
VC-6		VGS-25 Established	1 Jan 1943
		Became VC-25	1 Mar 1943
		Became VC-6	1 Sep 1943
		Disestablished	5 Oct 1945
VC-7		VGS-31 Established	24 Feb 1943
		Became VC-31	1 Mar 1943
		Became VC-7	1 Sep 1943
		Disestablished	1 Oct 1945
VC-8		Established	9 Sep 1943
		Disestablished	9 Oct 1945
VC-9		VGS-9 Established	6 Aug 1942
		Became VC-9	1 Mar 1943
		Disestablished	19 Sep 1945
VC-10		Established	23 Sep 1943
		Disestablished	25 Oct 1945

VC-11	A	VGS-11 Established	5 Aug 1942
		Became VC-11	1 Mar 1943
		Became VF-21	16 May 1943
		Disestablished	5 Nov 1945
	B	Established	30 Sep 1943
		Disestablished	10 Oct 1945
VC-12	A	VGS-12 Established	28 May 1942
		Became VC-12	1 Mar 1943
		Became VT-21	16 May 1943
		Disestablished	7 Aug 1945
	B	Established	6 Oct 1943
		Disestablished	7 Jun 1945
VC-13		VGS-13 Established	5 Aug 1942
		Became VC-13	1 Mar 1943
		Disestablished	24 Sep 1945
VC-14		Established	12 Oct 1943
		Disestablished	1 Oct 1945
VC-15		Established	18 Oct 1943
		Disestablished	14 Jun 1945
VC-16		VGS-16 Established	8 Aug 1942
		Became VC-16	1 Mar 1943
		Became VF-33	15 Nov 1945
		Disestablished	19 Nov 1945
VC-17		*See* VC-31	
VC-18		VGS-18 Established	15 Oct 1942
		Became VC-18	1 Mar 1943
		Became VF-36	15 Aug 1943
		Became VF-18	5 Mar 1944
		Became VF-7A	15 Nov 1946
		Became VF-71	28 Jul 1948
		Disestablished	31 Mar 1959
VC-19		VGS-23 Established	1 Jan 1943
		Became VC-19	1 Mar 1943
		Disestablished	14 Jun 1945
VC-20	A	VGS-20 Established	6 Aug 1942
		Became VC-20	1 Mar 1943
		Disestablished	15 Jun 1943
	B	Established	24 Oct 1943
		Disestablished	1 Oct 1945
VC-21	A	VGS-21 Established	15 Oct 1942
		Became VC-21	1 Mar 1943
		Disestablished	16 Jun 1943
	B	Established	30 Oct 1943
		Disestablished	15 Sep 1945

VC-22		VS-22 Established	16 Nov 1942
		Became VC-22	1 Mar 1943
		Became VT-22	15 Dec 1943
		Disestablished	22 Aug 1945
VC-23		VS-23 Established	16 Nov 1942
		Became VC-23	1 Mar 1943
		Became VT-23	15 Nov 1943
		Disestablished	19 Sep 1945
VC-24		VS-24 Established	31 Dec 1942
		Became VC-24	1 Mar 1943
		Became VB-98	15 Dec 1943
		Disestablished	25 Jun 1944
VC-25	A	VS-25 Established	15 Feb 1943
		Became VC-2	1 Mar 1943
		Became VC-25	15 Sep 1943
		Became VT-25	15 Dec 1943
		Disestablished	20 Sep 1945
	B	*See* VC-6	
VC-26		VGS-26 Established	5 May 1942
		Became VC-26	1 Mar 1943
		Became VT-26	15 Nov 1943
		Disestablished	13 Nov 1945
VC-27		Established	5 Nov 1943
		Disestablished	11 Sep 1945
VC-28		VGS-28 Established	4 May 1942
		Became VC-28	1 Mar 1943
		Became VT-28	20 Jan 1944
		Disestablished	8 Aug 1945
VC-29		VGS-29 Established	20 Jul 1942
		Became VC-29	1 Mar 1943
		Became VT-29	15 Dec 1943
		Disestablished	1 Aug 1945
VC-30		Established	1 Apr 1943
		Became VT-30	15 Dec 1943
		Disestablished	18 Aug 1945
VC-31	A	*See* VC-7	
	B	VC-17 Established	1 May 1943
		Became VC-31	15 Sep 1943
		Became VT-31	1 Nov 1943
		Disestablished	20 Oct 1945
VC-32		Established	1 Jun 1943
		Became VT-32	1 Nov 1943
		Disestablished	20 Aug 1945
VC-33		VGS-33 Established	22 Jan 1943
		Became VC-33	1 Mar 1943
		Disestablished	16 Nov 1945

VC-34		VGS-34 Established	24 Feb 1943
		Became VC-34	1 Mar 1943
		Became VF-34	15 Aug 1943
		Disestablished	8 Jul 1944
VC-35		VGS-35 Established	28 Jan 1943
		Became VC-35	1 Mar 1943
		Became VT-35	10 Mar 1944
		Disestablished	19 Nov 1945
VC-36		VGS-36 Established	21 Feb 1943
		Became VC-36	1 Mar 1943
		Disestablished	30 Jul 1945
VC-37		VGS-37 Established	22 Jan 1943
		Became VC-37	1 Mar 1943
		Became VT-37	10 Mar 1944
		Disestablished	20 Dec 1945
VC-38		Established	16 Jun 1943
		Became VT-38	11 May 1944
		Disestablished	31 Jan 1946
VC-39		Established	1 Apr 1943
		Disestablished	15 Dec 1943
VC-40		Established	15 Jun 1943
		Became VT-40	1 Jun 1944
		Disestablished	19 Nov 1945
VC-41		Established	5 May 1943
		Disestablished	16 Nov 1945
VC-42		Established	15 Apr 1943
		Disestablished	5 Jul 1945
VC-43		Established	1 Aug 1943
		Disestablished	8 Nov 1943
VC-50		Established	10 Aug 1943
		Became VT-50	8 Nov 1943
		Disestablished	29 Oct 1945
VC-51		Established	22 Sep 1943
		Became VT-51	8 Nov 1943
		Disestablished	7 Aug 1945
VC-52		Established	1 Sep 1943
		Disestablished	8 Nov 1943
VC-55		VGS-55 Established	16 Jan 1943
		Became VC-55	1 Mar 1943
		Disestablished	21 Jun 1945
VC-58		VGS-58 Established	24 Feb 1943
		Became VC-58	1 Mar 1943
		Disestablished	8 Jun 1945
VC-60		VGS-60 Established	24 Feb 1943
		Became VC-60	1 Mar 1943
		Became VT-60	10 Mar 1944
		Disestablished	19 Nov 1945
VC-63		Established	20 May 1943
		Disestablished	23 Oct 1945

VC-64		Established	1 Jun 1943
		Became VF-39	15 Aug 1943
		Disestablished	15 Mar 1944
VC-65		Established	10 Jun 1943
		Disestablished	8 Oct 1945
VC-66		Established	21 Jun 1943
		Disestablished	12 Oct 1945
VC-68		Established	1 Jul 1943
		Disestablished	1 Oct 1945
VC-69		Established	1 Jul 1943
		Disestablished	22 Jun 1945
VC-70		Established	5 Aug 1944
		Disestablished	6 Oct 1945
VC-71		Established	20 Aug 1944
		Disestablished	6 Oct 1945
VC-72		Established	1 Sep 1944
		Disestablished	1 Oct 1945
VC-75		Established	11 Nov 1943
		Disestablished	21 Sep 1945
VC-76		Established	17 Nov 1943
		Disestablished	11 Sep 1945
VC-77		Established	23 Nov 1943
		Disestablished	17 Sep 1945
VC-78		Established	29 Nov 1943
		Disestablished	21 Sep 1945
VC-79		Established	6 Dec 1943
		Disestablished	11 Sep 1945
VC-80		Established	16 Dec 1943
		Disestablished	11 Sep 1945
VC-81		Established	22 Dec 1943
		Disestablished	20 Sep 1945
VC-82		Established	28 Dec 1943
		Disestablished	18 Sep 1945
VC-83		Established	3 Jan 1944
		Disestablished	17 Sep 1945
VC-84		Established	6 Jan 1944
		Disestablished	17 Sep 1945
VC-85		Established	12 Jan 1944
		Disestablished	15 Sep 1945
VC-86		Established	18 Jan 1944
		Disestablished	7 Jun 1945
VC-87		Established	24 Jan 1944
		Disestablished	12 Jun 1945
VC-88		Established	29 Jan 1944
		Disestablished	3 Jul 1945
VC-89		Established	Jan 1944
		Disestablished	Apr 1944
VC-90		Established	3 Feb 1944
		Disestablished	19 Sep 1945

VC-91		Established	11 Feb 1944
		Disestablished	22 Sep 1945
VC-92		Established	17 Feb 1944
		Disestablished	18 Sep 1945
VC-93		Established	23 Feb 1944
		Disestablished	11 Aug 1945
VC-94		Established	29 Feb 1944
		Disestablished	27 Jul 1945
VC-95		Established	1 Feb 1944
		Disestablished	28 Jun 1945
VC-96		Established	1 Mar 1944
		Disestablished	28 Jul 1945
VC-97		Established	8 Mar 1944
		Disestablished	24 Jul 1945
VC-98		Established	15 Mar 1944
		Disestablished	11 Oct 1945
VC-99		Established	22 Mar 1944
		Disestablished	30 Oct 1945

Chapter 23

Squadron Designations and Abbreviations

The system of squadron designations was established to help define part of naval aviation's organizational structure and help identify the operational and administrative functions of aviation within the fleet. Just as the designations for ships, such as DD, CA, BB, etc., were used to define the duties of the specific units and their alignment within the fleet organization, so also were the squadron designations established to formulate the responsibilities and alignment within naval aviation and the fleet structure.

During naval aviation's early years, due to the limited capabilities of the aircraft, there were big question marks concerning its ability to succeed as a functional component of the fleet and whether it even would survive. In official publications and references, such as the *Daily Aviation News Bulletin* of 1 October 1919, casual terms were used to describe or identify various aircraft squadrons and units. The casual terms were used because no specific fleet aviation organizational structure for squadrons had been officially established. Prior to 1919, naval aircraft, excluding Marine Corps planes, were assigned primarily to shore stations. Therefore, in order to integrate aviation into the fleet, it was necessary to develop a fleet organization that included aviation units.

On 17 July 1920, the Secretary of the Navy prescribed a standard nomenclature for types and classes of naval vessels, including aircraft, in which lighter-than-air craft were identified by the type "Z" and heavier-than-air craft by the letter "V". Class letters assigned within the Z type were R, N, and K for rigid dirigibles, non-rigid dirigibles, and kite balloons respectively, while F, O, S, P, T, and G were established for fighter, observation, scouting, patrol, torpedo and bombing, and fleet planes as classes within the V type.

The use of the "V" designation with fixed-wing heavier-than-air squadron designations has been a question of debate since the 1920s. However, no conclusive evidence has been found to identify why the letter "V" was chosen. It is generally believed it was in reference to the French word *volplane*. As a verb, the word means to glide or soar. As a noun, it described an aeronautical device sustained in the air by lifting surfaces (wings), as opposed to the bag of gas that the airships (denoted by "Z") used. The same case may be made regarding the use of "Z". It is generally believed it was used in deference to Count Ferdinand von Zeppelin, the German general and developer of the airship in 1900. However, documentation has not been located to verify this assumption.

In general terms, the Navy's system for designating naval aircraft squadrons has usually conformed to the following loose classification structure:

1. Squadron designations were based on specific letters used for indicating the missions for each particular type of squadron and its assigned aircraft. As an example, a WWII squadron operating the F4U Corsair aircraft would have been designated a fighting squadron (VF). The letter F, for fighting or fighter, was the key in identifying the type of squadron and was also used in the aircraft's designation.
2. Identification numbers were assigned to each squadron, such as VF-1. The number 1 separates Fighter Squadron 1 (VF-1) from Fighter Squadron 10 (VF-10).

There have been many variations to this basic system throughout naval aviation's history. Changes were also made to the designation system when new plane types were developed and new squadrons were formed to carry out new missions. There is no logical sequence for the numerical designation assigned the various squadrons throughout most of naval aviation's history. The Marine Corps did establish a logical sequence for their squadron designations, however, there are variations to this system, as well.

As Navy squadrons were established, disestablished, or redesignated, many of the same letters and numbers were reused and assigned at a later date for newly established or redesignated units, hence, the lineage of a squadron cannot always be traced or linked by using the same designation. As an example, VF-1 from WWII has no direct relationship to VF-1 established in the 1970s. The rich tradition and heritage of the various squadrons in the Navy has not always been carried over because of the break in continuity between units. Once a squadron is disestablished, that ends its history. If a new squadron is established using the same designation of a previous squadron, it does not have any direct relationship with that unit. The reuse of many of the same letters and numerical designations adds considerable confusion to the squadron designation system. A new squadron may carry on the traditions of a previous squadron, just as a ship that has been assigned the name used by a previous ship, carries on the traditions of

the past ships with the same name. However, a squadron, just like a ship, cannot claim a heritage or historical link to the old unit with the same designation.

Consistency has been the major ingredient lacking in the Navy's squadron designation system. As an example, the use of "Plane" in squadron designations was not consistent during the 1920s. Sometimes the full designation would be written differently, depending on the squadron's assignment to the Battle Fleet, Scouting Fleet, or Asiatic Fleet. A designation such as Scouting Squadron and Scouting Plane Squadron, which used the same abbreviation, VS, was listed in the *Navy Directory* as Scouting Squadron under the Battle Fleet and Scouting Plane Squadron under the Scouting Fleet. The use of "Plane" in squadron designations was most likely designed to identify the squadron as an aviation unit, vice a destroyer squadron. This seems to be especially true during the 1920s when aviation was first being integrated into the fleet organization and operations. The *Navy Directory*; *Monthly Report, Status of Naval Aircraft*; and the *Bureau of Aeronautics Weekly Newsletter* all list squadron designations using "Plane." The Chief of Naval Operations' "Naval Aeronautical Organization," published for each fiscal year, lists the squadron designations without using "Plane" in the designation. It is obvious there is no difference between the squadrons with or without the use of "Plane" in the squadron designation. The acronym remained the same, with or without the use of "Plane" in the full squadron designation. In the 1930s the squadron designations listed in all four sources identified above usually refer to the squadron using its abbreviated designation, such as VF Squadron 1 (VF-1) instead of Fighting Plane Squadron 1. In the 1940s, the use of "Plane" in the full squadron designation is dropped.

In the late 1940s and early 1950s the VC squadron designation was used to identify a group of squadrons with several different missions but all assigned the VC designation. Missions for specific Composite Squadrons (VC) included all-weather night, attack, and defense; air early warning; antisubmarine warfare; and photographic. The only identifying factor to separate the different types of Composite Squadrons was the numerical designation. In the late 1940s, the single-digit numbers were for the Composite Night or Attack and Defense units, those numbers in the teens were for Composite Air Warning squadrons, numbers in the 20s and 30s were for Composite Anti-Submarine units, and the numbers in the 60s were for Composite Photographic squadrons.

Besides the composite squadrons (VC), several patrol squadrons (VP) had specific mission requirements that were different from their normal patrol and reconnaissance duties. However, these squadrons still maintained the normal VP designation. In the late 1940s there were two VP squadrons with a primary photographic mission and one with an air early warning mission. VP-61 and VP-62 were the photographic squadrons and VP-51 was the air early warning squadron.

The special VC and VP designated units were on the cutting edge of technology, which eventually led to the development of specialized squadron designations in the 1950s and 1960s. Squadrons such as VAW (Carrier Airborne Early Warning), VAQ (Tactical Electronic Warfare), and VQ (Electronic Countermeasures or Air Reconnaissance) were the result of technical developments in the late 1940s and early 1950s.

The use of an abbreviated squadron designation with different missions occurred in the early 1950s when the VJ designation was used for both photographic squadrons and weather squadrons. VJ-1 and -2 were designated Weather Squadrons or Weather Reconnaissance Squadrons. VJ-61 and -62 were designated Photographic Squadrons. The missions were totally different for these two types of squadrons but they used a common abbreviated squadron designation.

There are four factors that play a role in developing or changing squadron designations. They have been around since the introduction of aviation in the Navy and will continue to be the primary factors affecting squadron designations. The factors are:

1. the duties or mission of a squadron
2. technical advances in aircraft or equipment
3. changes in tactics or development of new tactics
4. changes in naval aviation or fleet organization

The following is a list of various squadron designations used by the Navy since the early 1920s. The list is in alphabetical order rather than in the chronological order of squadron development. The general time frame for when the designation was in use is listed with most of the squadron designations. Further elaboration on the assignment of squadrons to other organizations and their designations such as: a battle group, carrier air wing, cruiser group, fleet air force, scouting fleet, Asiatic Fleet, naval district, reserves, etc., has not been included in this list to prevent it from becoming too confusing or extensive. The only exception to this is for the reserves. Reserve squadron designations, beginning in 1970, are included in this list. In 1970 the naval air reserve was reorganized and the squadron structure

and arrangement was aligned to mirror the squadron designation system in existence for active fleet units.

U.S. Navy Squadron Designations and Abbreviations		
Acronym	**Full Squadron Designation**	**Time Frame in Use**
BLIMPHEDRON	LTA Headquarters Squadron	1943–1946
BLIMPRON	LTA Squadron	1942–1961
BLPHEDRON	Blimp Headquarters Squadron	1943–1946
BLPRON	Blimp Squadron	1942–1961
FASRON	Fleet Aircraft Service Squadron	1946–1960
HAL or HA(L)	Helicopter Attack Squadron Light	1967–1972 1976–1988
HC	Helicopter Combat Support Squadron	1965–2007
HCS	Helicopter Combat Support Special Squadron	1988–2006
HCT	Helicopter Combat Support Training Squadron	1974–1977
HM	Helicopter Mine Countermeasures Squadron	1971–present
HS	Helicopter Antisubmarine Squadron [Note: All HS squadrons slowly undergoing redesignation to HSC; HS designation will eventually be eliminated.]	1951–present
HSC	Helicopter Sea Combat Squadron	2005–present
HSL	Helicopter Antisubmarine Squadron (Light) [Note: All HSL squadrons slowly undergoing redesignation to HSM; HSL designation will eventually be eliminated.]	1972–present
HSM	Helicopter Maritime Strike Squadron	2005–present
HT	Helicopter Training Squadron	1960–present
HTU	Helicopter Training Unit	1950–1957
HU	Helicopter Utility Squadron	1948–1965
HX	Rotary Wing Air Test and Evaluation Squadron	2002–present
RVAH	Reconnaissance Attack Squadron	1964–1979
RVAW	Carrier Airborne Early Warning Training Squadron	1967–1983
STAGRON	Special Air Task Force Squadron (VK)	1943–1944
TACRON	Tactical Squadron or Tactical Air Control Squadron or Tactical Control Squadron [Note: The designation VTC is used by the SNDL office but is not a correct designation.]	1946–present
VA	Attack Squadron	1946–1994
VA(AW)	All-Weather Attack Squadron	1956–1959
VAH or VA(H)	Heavy Attack Squadron	1955–1971
VA(HM)	Attack Mining Squadron	1956–1959
VAK	Tactical Aerial Refueling Squadron	1979–1989
VAL or VA(L)	Light Attack Squadron	1969–1972
VAP or VA(P)	Heavy Photographic Reconnaissance Squadron or Photographic Reconnaissance Squadron (Heavy) or Heavy Photographic Squadron	1956–1971
VAQ	Carrier Tactical Electronics Warfare Squadron or Tactical Electronics Warfare Squadron	1968–1998
VAQ	Electronic Attack Squadron	1998–present
VAW	Carrier Airborne Early Warning Squadron	1948 1956–present
VAW	Carrier Tactical Electronics Warfare Squadron	1968
VB	Bombing Squadron or Light Bombing Plane Squadron	1928–1946
VBF	Bombing Fighting Squadron	1945–1946
VC	Composite Squadron	1943–1945 1948–1956
VC	Fleet Composite Squadron	1965–2008
VCN	Night Composite Squadron	1946–1948
VCP	Photographic Composite Squadron	1959–1961
VCS	Cruiser Scouting Squadron	1937–1945
VD	Photographic Squadron	1943–1946

U.S. Navy Squadron Designations and Abbreviations		
Acronym	**Full Squadron Designation**	**Time Frame in Use**
VE	Evacuation Squadron	1944–1945
VF	Combat Squadron	1922
VF	Fighting Plane Squadron or Fighting Squadron	1922–1948
VF	Fighter Squadron	1948–2006
VFA	Fighter Attack Squadron	1980–1983
VFA	Strike Fighter Squadron	1983–present
VF(AW)	All-Weather Fighter Squadron or Fighter (All-Weather) Squadron	1956–1963
VFC	Fighter Squadron Composite	1988–present
VFN or VF(N)	Night Fighting Squadron	1944–1946
VFP or VF(P)	Light Photographic Reconnaissance Squadron or Photographic Reconnaissance Squadron or Photographic Reconnaissance Squadron (Light) or Light Photographic Squadron	1956–1987
VGF	Escort-Fighter Squadron	1942–1943
VGS	Escort-Scouting Squadron	1942–1943
VH	Rescue Squadron	1944–1946
VJ	Utility Squadron or General Utility Squadron	1925–1946
VJ	Weather Squadron or Weather Reconnaissance Squadron	1952–1953
VJ	Photographic Squadron	1952–1956
VK	Special Air Task Force Squadron (STAGRON)	1943–1944
VN	Training Squadron	1927–1947
VO	Spotting Squadron	1922
VO	Observation Plane Squadron or Observation Squadron	1923–1945 1947–1949 1967–1968
VOC	Composite Spotting Squadron	1944–1945
VOF	Observation Fighter Squadron	1942–1945
VOS	Air Spotting Squadron or Observation Spotter Squadron	1944
VP	Seaplane Patrol Squadron	1922
VP	Patrol Squadron	1924–1944 1946 1948–present
VP-AM	Amphibian Patrol Squadron	1946–1948
VPB	Patrol Bombing Squadron	1944–1946
VP-HL	Heavy Patrol Squadron (landplane)	1946–1948
VP-HS	Heavy Seaplane Patrol Squadron	1946–1948
VPM	Meteorological Squadron	1946–1947
VP-ML	Medium Patrol Squadron (landplane)	1946–1948
VP-MS	Medium Patrol Squadron (seaplane)	1946–1948
VPP or VP(P)	Photographic Squadron or Patrol Squadron (photographic)	1946–1948
VPU	Patrol Squadron Special Unit	1982–1998
VPU	Special Projects Patrol Squadron	1998–present
VPW	Weather Reconnaissance Squadron	1945–1948
VPW	Air Early Warning Squadron	1948
VQ	Electronic Countermeasures Squadron	1955–1960
VQ	Fleet Air Reconnaissance Squadron	1961–present
VR	Transport Squadron or Air Transport Squadron or Fleet Logistic Air Squadron	1942–1958
VR	Fleet Tactical Support Squadron	1958–1976
VR	Fleet Logistics Support Squadron	1976–present
VRC or VR(C)	Fleet Tactical Support Squadron	1960–1976
VRC	Fleet Logistics Support Squadron	1976–present

U.S. Navy Squadron Designations and Abbreviations		
Acronym	**Full Squadron Designation**	**Time Frame in Use**
VRE	Air Transport Evacuation Squadron	1945
VRF	Transport Ferry and Service Squadron	1943–1946
VRF	Air Ferry Transport Squadron or Air Ferry Squadron	1943–1948
VRF or VR(F)	Aircraft Ferry Squadron	1957–1986
VRJ	Utility Transport Squadron	1945–1946
VRS	Air Ferry Service Squadron or Ferry Command Service Squadron	1943–1946
VRU	Transport Utility Squadron	1946–1948
VS	Scouting Plane Squadron or Scouting Squadron	1922–1946
VS	Antisubmarine Squadron or Air Antisubmarine Squadron or Carrier Air Antisubmarine Squadron	1950–1993
VS	Sea Control Squadron	1993–2009
VSF	Antisubmarine Fighter Squadron	1965–1973
VT	Torpedo & Bombing Plane Squadron or Torpedo & Bombing Squadron	1922–1930
VT	Torpedo Plane Squadron	1921
VT	Torpedo Squadron	1930–1946
VT	Training Squadron	1960–present
VTN	Night Torpedo Squadron	1944–1946
VU	Utility Squadron	1946–1965
VW	Air Early Warning Squadron or Airborne Early Warning Squadron or Fleet Early Warning Squadron	1952–1971
VW	Weather Reconnaissance Squadron or Fleet Weather Reconnaissance Squadron	1967–1975
VX	Experimental Squadron	1927–circa 1943
VX	Experimental and Development Squadron or Operational Development Squadron or Air Operational Development Squadron or Air Development Squadron	1946–1968
VX	Air Test and Evaluation Squadron	1969–present
VXE	Antarctic Development Squadron	1969–1999
VXN	Oceanographic Development Squadron	1969–1993
VXS	Scientific Development Squadron	2004–present
XVF	Experimental Development Squadron	1945–1946
XVJ	Experimental Utility Squadron	1945–1946
ZJ	Blimp Utility Squadron	1944–1945
ZK	Kite Balloon Squadron	1922–1924
ZKN	Kite Balloon Training Squadron	*
ZKO	Kite Balloon Observation Squadron	*
ZNN	Non-rigid Airship Training Squadron	*
ZNO	Non-rigid Airship Observation Squadron	*
ZNP	Non-rigid Airship Patrol Squadron	*
ZNS	Non-rigid Airship Scouting Squadron	*
ZP	Airship Patrol Squadron	1942–1961
ZP	Blimp Squadron	1942–1961
ZP	Airship Patrol Squadron (All-Weather Antisubmarine) or Airship Squadron or LTA Patrol Squadron	1942–1961
ZRN	Rigid Airship Training Squadron	*
ZRP	Rigid Airship Patrol Squadron	*
ZRS	Rigid Airship Scouting Squadron	*
ZS	Airship Antisubmarine Squadron	*
ZW	Airship Early Warning Squadron	1956–1961
ZX	Airship Operational Development Squadron or Airship Development Squadron	1950–1957

* These squadron designations were developed, however, the Navy never established any squadrons using the designations.

Marine Corps Squadron Designations/Abbreviations		
Acronym	**Full Squadron Designation**	**Time Frame in Use**
AES	Marine Aircraft Engineering Squadron	1941–present
ARS	Marine Air Regulating Squadron	1942–1943
AWRS	Marine Aviation Women's Reserve Squadron	1944–1945
AWS	Marine Air Warning Squadron	1943–1954
AWS(AT)	Marine Air Warning Squadron (Air Transportable)	1944
H&HS	Marine Headquarters & Headquarters Squadron	1954–circa 1977
HMA	Marine Helicopter Attack Squadron	1971–1983
HMH	Marine Heavy Helicopter Squadron	1962–present
HMHT	Marine Heavy Helicopter Training Squadron	1968–1972
HML	Marine Light Helicopter Squadron	1968–1987
HMLA	Marine Light Attack Helicopter Squadron	1987–present
HMM	Marine Medium Helicopter Squadron	1962–present
HMMT	Marine Medium Helicopter Training Squadron	1966–1972
HMR	Marine Helicopter Transport Squadron	1951–1956
HMR(C)	Marine Helicopter Reconnaissance Squadron	1958–1960
HMR(L)	Marine Helicopter Transport Squadron (light)	1956–1962
HMR(M)	Marine Helicopter Transport Squadron (medium)	1957–1962
H&MS	Marine Headquarters & Maintenance Squadron	1954–1988
HMT	Marine Helicopter Training Squadron	1972–present
HMX	Marine Helicopter Squadron	1947–present
MAAWS	Marine Assault Air Warning Squadron	1944–1945
MABS	Marine Air Base Squadron	1943–1946, 1951–1986
MACS	Marine Air Casual Squadron	1945–1946
MACS	Marine Air Control Squadron	1954–present
MADS	Marine Air Depot Squadron	1942–1945
MALS	Marine Aviation Logistics Squadron	1988–present
MAR&S	Marine Aircraft Repair and Salvage Squadron	1942–1944
MASS	Marine Air Support Squadron	1954–present
MATCS	Marine Air Traffic Control Squadron	1978–1994
MATTS	Marine Aviation Training Support Squadron	1974–1979, 2000–present
MAWTS	Marine Aviation Weapons and Tactics Squadron	1978–present
MGCIS	Marine Ground Control Intercept Squadron	1946–1954
MOTS	Marine Operational Training Squadron	1943–1944
MTACS	Marine Tactical Air Command Squadron	1993–present
MWCS	Marine Wing Communications Squadron	1967–present
MWFS	Marine Wing Facilities Squadron	1967–1971
MWHS	Marine Wing Headquarters Squadron	1971–present
MWSS	Marine Wing Service Squadron	1943–1947
MWSS	Marine Wing Support Squadron	1986–present
SOES	Marine Station Operations and Engineering Squadron	1961–1977
SOMS	Marine Station Operation and Maintenance Squadron	1982–1997
VMA	Marine Attack Squadron	1951–present
VMA(AW)	Marine All-Weather Attack Squadron	1965–1992
VMAQ	Marine Tactical Electronic Warfare Squadron	1975–present
VMAT	Marine Attack Training Squadron	1951–1958
VMAT(AW)	Marine All-Weather Attack Training Squadron	1968–1986
VMB	Marine Bombing Squadron	1937–1946
VMBF	Marine Fighter/Bomber Squadron	1944–1946

Marine Corps Squadron Designations/Abbreviations		
Acronym	**Full Squadron Designation**	**Time Frame in Use**
VMC	Marine Composite Squadron	1952–1955
VMCJ	Marine Composite Reconnaissance Squadron	1955–1975
VMD	Marine Photographic Squadron	1942–1946
VMF	Marine Fighting Squadron	1937–1949
VMF	Marine Fighter Squadron	1948–1965
VMFA	Marine Fighter Attack Squadron	1963–present
VMFA(AW)	Marine All-Weather Fighter Attack Squadron	1947–1951, 1958–1972, 1989–present
VMFAT	Marine Fighter Attack Training Squadron	1968–present
VMF(AW)	Marine All-Weather Fighter Squadron	1948–1967
VMF(N)	Marine Night Fighter Squadron	1942–1958
VMFP	Marine Tactical Reconnaissance Squadron	1975–1990
VMFT	Marine Fighter Training Squadron	1951–present
VMFT(AW)	Marine All-Weather Fighter Training Squadron	1955–1958
VMFT(N)	Marine Night Fighter Training Squadron	1951–1958
VMGR	Marine Aerial Refueler Transport Squadron	1962–present
VMGRT	Marine Aerial Refueler Transport Training Squadron	1986–present
VMIT	Marine Instrument Training Squadron	1951–1958
VMJ	Marine Utility Squadron	1945–1952
VMJ	Marine Photographic Squadron	1952–1955
VML	Marine Glider Squadron	1942–1943
VMM	Marine Medium Tiltrotor Squadron	2006–present
VMMT	Marine Medium Tiltrotor Training Squadron	1999–present
VMO	Marine Observation Squadron	1941–1993
VMP	Marine Photographic Squadron	1946–1949
VMR	Marine Transport Squadron	1944–1962
VMS	Marine Scouting Squadron	1937–1944
VMSB	Marine Scout Bombing Squadron	1941–1946
VMT	Marine Training Squadron	1947–present
VMTB	Marine Torpedo Bomber Squadron	1943–1946
VMU	Marine Unmanned Aerial Vehicle Squadron	1996–present
VMX	Marine Tiltrotor Test and Evaluation Squadron	2003–present
WERS	Marine Wing Equipment and Repair Squadron	1966–1976
WES	Marine Wing Engineer Squadron	1974–1986
WTS	Marine Wing Transportation Squadron	1974–1986
ZMQ	Marine Barrage Balloon Squadron	1941–1943

Note: In 1924 the letter “M” was adopted to differentiate Marine Corps squadrons from Navy squadrons.

Chapter 24

Current Squadron Lineage

The lineage and history of U.S. naval aviation squadrons has been a source of confusion since the birth of naval aviation in 1911. Much of this confusion arose from the terminology used by the Navy, the lack of a consistent policy in selecting the alphanumeric designations for squadrons, constantly reusing the same letter and numeric designations, and the many establishments, redesignations, and deactivations of aviation squadrons.

When dealing with a squadron's lineage, the only correct terms to use are establishment, deactivation, and redesignation. The terms commissioning and establishment have been used interchangeably for years and that is incorrect. Only ships are commissioned, decommissioned, and receive commissioning pennants. Squadrons have establishment and deactivation ceremonies.

A unit's history and lineage begins when it is established and ends at the time it is deactivated. Determining a squadron's "family tree" may seem cut and dried, but that is not the case. A squadron may undergo numerous redesignations during the period between its establishment and deactivation. A newly established squadron bearing the same designation of a unit that had previously existed may carry on the traditions of the old organization, but it cannot claim the history or lineage of the previous unit. The same is true of U. S. Navy ships and, thus, the rationale for such a policy becomes apparent. For example, *Ranger* (CV 61) is the seventh ship to bear the name *Ranger* and may carry on the traditions of the previous six ships. *Ranger* (CV 61) is obviously not the same Continental Navy Ship *Ranger* commanded by Capt. John Paul Jones during the War of Independence. The history of *Ranger* (CV 61) begins with its commissioning date, not with the commissioning date of the first *Ranger.*

The most recent squadron with the designation Fighter Squadron One (VF-1) was established 1 October 1972 and disestablished 1 October 1993. It was the seventh squadron in the Navy to be designated VF-1. This squadron is not the same VF-1 that used the designation for the first time in 1922. Designations, like ship's names, are reused again and again. If there is a break in the active status of a unit designation as a result of disestablishment, then there is no connection between the units bearing the same designation.

Another common problem area involves squadron insignia. The lineage or history of a squadron cannot be traced using only its insignia, because the same insignia may have been adopted and approved for official use by more than one squadron during different time frames. The insignia of a disestablished squadron may be officially approved for use by another squadron, but this does not confer upon the new squadron the right to the previous unit's history and lineage. The following outline of the Jolly Roger insignia is an example of the confusion that results if one attempts to trace the lineage and history of a squadron insignia without considering other factors.

VF-17 was established on 1 January 1943, and during WWII—when it produced an outstanding record as a fighter squadron—it adopted the Jolly Roger insignia. On 15 November 1946, all Navy squadrons were redesignated and VF-17 became VF-5B. Subsequently, it was redesignated VF-61 on 28 April 1948, and then disestablished on 15 April 1959 with Cmdr. Robert T. Hoppe as commanding officer. The Jolly Roger insignia had been used by VF-17/VF-5B/VF-61 from 1943 until 15 April 1959.

On 2 July 1955, VA-86 was established and on the same day was redesignated VF-84. This squadron was equipped with the FJ Fury and adopted the nickname Vagabonds. An insignia consisting of a lightning bolt striking the globe in the area of Norfolk, Va., with a sword behind the bolt, was approved on 27 September 1955. The squadron operated under this name and insignia until it replaced the FJs with F8U Crusaders in 1959. Cmdr. Hoppe assumed command of VF-84 two days after the disestablishment of VF-61, the Jolly Roger squadron. He initiated the request to have VF-84 adopt the old Jolly Roger insignia, which had been used by VF-61 and was no longer active. This request was approved by CNO on 1 April 1960. There is no direct connection between the former Jolly Roger squadron (VF-17/VF-5B/VF-61) and VF-84, which adopted the insignia.

To further complicate a review of the records, there have been other squadrons with the designation VF-84. During World War II, a VF-84 was established on 1 May 1944 and disestablished 8 October 1945. Naval Air Reserve squadron VF-921 was called to active duty 1 February 1951 and was redesignated VF-84 on 4 February 1954. This squadron then became VA-86 on 2 July 1955. This occurred on the same day Cmdr. Hoppe's Jolly Roger squadron was established as VA-86 and immediately redesignated VF-84. Neither of these two VF-84 squadrons had any connection with the original Jolly Rogers. Thus, Cmdr. Hoppe's VF-84 operating with the insignia and title of Jolly Roger could lay claim to the traditions of VF-17, VF-5B, and VF-61, if it wished to do so, but could only claim a history that commenced on 2 July 1955, and it was not a direct descendant of the original Jolly Roger squadron. The current Jolly Rogers are VFA-103.

A squadron's history and lineage covers only the period during which a unit is officially declared active (established by CNO), has personnel assigned to it, and is listed in the Naval Aeronautical Organization. When a squadron is disestablished, its history and lineage ends. If a squadron is redesignated while it is active, the lineage and history of the unit is carried on by the newly redesignated squadron. The following is an example of what occurs when a squadron is redesignated and its lineage and history remain unbroken.

The current VFA-25 was originally established as Torpedo Squadron 17 (VT-17) on 1 January 1943. On 15 November 1946, VT-17 was redesignated VA-6B and carried this designation until 27 April 1948, when it was redesignated VA-65. On 1 July 1959, VA-65 was redesignated VA-25 and the unit remained VA-25 until it was redesignated VFA-25 on 1 July 1983. The history and lineage of the present VFA-25 may be traced to 1 January 1943, because there was no break in active duty status of the squadron, even though its designation changed four times.

The current VFA-106 provides an example of what happens when a squadron is disestablished and then, years later, the same number is used again. This squadron was established at NAS Cecil Field on 27 April 1984. VFA-106 adopted the old insignia of VA-106 and had it officially approved. The squadron may carry on the traditions of the old VA-106, but it cannot trace its lineage and history back to VA-106. The list of commanding officers for VA-106 is not part of the list of commanding officers for VFA-106. The history of VA-106 came to an end on 7 November 1969, when it was disestablished and its personnel were transferred to other duty stations. At this time, VA-106 was removed from the active list in the Naval Aeronautical Organization.

These are the Navy squadrons as of January 2011:

Squadron Designation	Changes in Squadron Designations	Date of Change
Helicopter Combat Support Squadron (Designation no longer in use)		
HC-2	(*See* HSC-2)	
HC-3	(*See* HSC-3)	
HC-4	HC-4 Established HC-4 Deactivated	6 May 1983 30 Sep 2007
HC-5	(*See* HSC-25)	
HC-6	(*See* HSC-26)	
HC-8	(*See* HSC-28)	
HC-11	(*See* HSC-21)	
HC-85	(*See* HSC-85)	
Helicopter Combat Support Special Squadron (Designation no longer in use)		
HCS-4	(*See* HSC-84)	
HCS-5	HAL-5 Established HAL-5 Redesignated HCS-5 HCS-5 Deactivated	1 Mar 1977 1 Oct 1988 31 Dec 2006
Helicopter Mine Countermeasures Squadron		
HM-14	HM-14 Established	12 May 1978
HM-15	HM-15 Established	2 Jan 1987
Helicopter Anti-Submarine Squadron (HS designation slowly changing to HSC)		
HS-2	(*See* HSC-12)	
HS-3	(*See* HSC-9)	
HS-4	HS-4 Established	30 Jun 1952
HS-5	(*See* HSC-5)	
HS-6	HS-6 Established	1 Jun 1956
HS-7	HS-7 Established	15 Dec 1969
HS-8	(*See* HSC-8)	
HS-10	HS-10 Established	1 Jul 1960
HS-11	HS-11 Established	27 Jun 1957
HS-14	HS-14 Established	10 Jul 1984
HS-15	HS-15 Established	29 Oct 1971
HS-75	HS-75 Established HS-75 Deactivated	1 Jun 1970 1 Apr 2007

Squadron Designation	Changes in Squadron Designations	Date of Change
Helicopter Sea Combat Squadron		
HSC-2	HC-2 Established HC-2 Redesignated HSC-2	1 Apr 1987 24 Aug 2005
HSC-3	HC-3 Established HC-3 Redesignated HSC-3	1 Sep 1967 31 Oct 2005
HSC-5	HS-5 Established HS-5 Redesignated HSC-5	3 Jan 1956 28 Feb 2009
HSC-8	HS-8 Established HS-8 Redesignated HSC-8	1 Nov 1969 1 Apr 2007
HSC-9	HS-3 Established HS-3 Redesignated HSC-9	18 Jun 1952 1 Jun 2009
HSC-12	HS-2 Established HS-2 Redesignated HSC-12	7 Mar 1952 1 Jan 2009
HSC-21	HC-11 Established HC-11 Redesignated HSC-21	1 Oct 1977 7 Nov 2005
HSC-22	HSC-22 Established	1 Oct 2006
HSC-23	HSC-23 Established	1 Oct 2006
HSC-25	HC-5 Established HC-5 Redesignated HSC-25	3 Feb 1984 24 Oct 2005
HSC-26	HC-6 Established HC-6 Redesignated HSC-26	1 Sep 1967 24 Aug 2005
HSC-28	HC-8 Established HC-8 Redesignated HSC-28	3 Dec 1984 13 May 2005
HSC-84	HAL-4 Established HAL-4 Redesignated HCS-4 HCS-4 Redesignated HSC-84	1 Jul 1976 1 Oct 1989 1 Oct 2006
HSC-85	HS-85 Established HS-85 Redesignated HC-85 HC-85 Redesignated HSC-85	1 Jul 1970 1 Oct 1994 8 Feb 2006
Helicopter Maritime Strike Squadron		
HSM-40	Established as HSL-40 HSL-40 Redesignated HSM-40	4 Oct 1985 1 Nov 2009
HSM-41	Established as HSL-41 HSL-41 Redesignated HSM-41	21 Jan 1983 8 Dec 2005
HSM-70	Established as HSM-70	1 Mar 2008
HSM-71	Established as HSM-71	1 Jan 2007
HSM-77	Established as HSL-47 HSL-47 Redesignated HSM-77	25 Sep 1987 1 Feb 2009
Helicopter Anti-Submarine Squadron Light (HSL designation slowly changing to HSM)		
HSL-37	HSL-37 Established	3 Jul 1975
HSL-40	(*See* HSM-40)	
HSL-41	(*See* HSM-41)	
HSL-42	HSL-42 Established	5 Oct 1984
HSL-43	HSL-43 Established	5 Oct 1984
HSL-44	HSL-44 Established	21 Aug 1986
HSL-45	HSL-45 Established	3 Oct 1986
HSL-46	HSL-46 Established	7 Apr 1988
HSL-47	(*See* HSM-77)	
HSL-48	HSL-48 Established	7 Sep 1989
HSL-49	HSL-49 Established	23 Mar 1990
HSL-51	HSL-51 Established	1 Oct 1991
HSL-60	HSL-60 Established	1 Apr 2001
HSL-84	HS-84 Established HS-84 Redesignated HSL-84 HSL-84 Deactivated	1 Jul 1970 1 Mar 1984 30 Jun 2001

Squadron Designation	Changes in Squadron Designations	Date of Change
HSL-94	HSL-94 Established HSL-94 Deactivated	1 Oct 1985 1 Apr 2001
Helicopter Training Squadron		
HT-8	HTU-1 Established HTU-1 Redesignated HTG-1 HTG-1 Redesignated HT-8	3 Dec 1950 Mar 1957 1 Jul 1960
HT-18	HT-18 Established	1 Mar 1972
HT-28	HT-28 Established	1 Nov 2006
Tactical Electronic Warfare Squadron Redesignated Electronic Attack Squadron on 30 March 1998 (the VAQ designation remained the same)		
VAQ-128	VAQ-128 Established VAQ-128 Deactivated	1 Oct 1997 30 Sep 2004
VAQ-129	VAH-10 Established VAH-10 Redesignated VAQ-129	1 May 1961 1 Sep 1970
VAQ-130	VAW-13 Established VAW-13 Redesignated VAQ-130	1 Sep 1959 1 Oct 1968
VAQ-131	VP-931 Reserve squadron to active duty VP-931 Redesignated VP-57 VP-57 Redesignated VAH-4 VAH-4 Redesignated VAQ-131	2 Sep 1950 4 Feb 1953 3 Jul 1956 1 Nov 1968
VAQ-132	VAH-2 Established VAH-2 Redesignated VAQ-132	1 Nov 1955 1 Nov 1968
VAQ-133	VAQ-133 Established	1 Apr 1996
VAQ-134	VAQ-134 Established	17 Jun 1969
VAQ-135	VAQ-135 Established	15 May 1969
VAQ-136	VAQ-136 Established	6 Apr 1973
VAQ-137	VAQ-137 Established	1 Oct 1996
VAQ-138	VAQ-138 Established	27 Feb 1976
VAQ-139	VAQ-139 Established	1 Jul 1983
VAQ-140	VAQ-140 Established	1 Oct 1985
VAQ-141	VAQ-141 Established	1 Jul 1987
VAQ-142	VAQ-142 Established	1 Apr 1997
VAQ-143	VAQ-143 Established	1 Aug 2002
	VAQ-143 was on the books as being established on 1 August 2002 but funding for the squadron was never provided and shortage of aircraft made it impossible to effectively activate the command. The squadron was removed from the books (SNDL) and the file closed on 12 Nov 2009.	
VAQ-209	VAQ-209 Established	1 Oct 1977
Carrier Airborne Early Warning Squadron		
VAW-77	VAW-77 Established	1 Oct 1995
VAW-78	VAW-78 Established VAW-78 Deactivated	1 Jul 1970 31 Mar 2005
VAW-112	VAW-112 Established	20 Apr 1967
VAW-113	VAW-113 Established	20 Apr 1967
VAW-115	VAW-115 Established	20 Apr 1967
VAW-116	VAW-116 Established	20 Apr 1967
VAW-117	VAW-117 Established	1 Jul 1974
VAW-120	RVAW-120 Established RVAW-120 Redesignated VAW-120	1 Jul 1967 1 May 1983
VAW-121	VAW-121 Established	1 Apr 1967
VAW-123	VAW-123 Established	1 Apr 1967
VAW-124	VAW-124 Established	1 Sep 1967
VAW-125	VAW-125 Established	1 Oct 1968
VAW-126	VAW-126 Established	1 Apr 1969

Squadron Designation	Changes in Squadron Designations	Date of Change
Composite Squadron (Designation no longer in use)		
VC-6	VU-6 Established VU-6 Redesignated VC-6 VC-6 Deactivated	1 Mar 1952 1 Jul 1965 30 Jun 2008
VC-8	GMSRON-2 (Guided Missile Service Squadron 2) Established GMSRON-2 Redesignated VU-8 VU-8 Redesignated VC-8 VC-8 Deactivated	1 Jul 1958 1 Jul 1960 1 Jul 1965 1 Oct 2003
Fighter Squadron (Designation no longer in use)		
VF-2	(*See* VFA-2)	
VF-11	(*See* VFA-11)	
VF-14	(*See* VFA-14)	
VF-31	(*See* VFA-31)	
VF-32	(*See* VFA-32)	
VF-41	(*See* VFA-41)	
VF-101	VF-101 Established VF-101 Deactivated	1 May 1952 30 Sep 2005
VF-102	(*See* VFA-102)	
VF-103	(*See* VFA-103)	
VF-143	(*See* VFA-143)	
VF-154	(*See* VFA-154)	
VF-201	(*See* VFA-201)	
VF-211	(*See* VFA-211)	
VF-213	(*See* VFA-213)	
Strike-Fighter Squadron		
VFA-2	VF-2 Established VF-2 Redesignated VFA-2	14 Oct 1972 1 Jul 2003
VFA-11	VF-43 Established VF-43 Redesignated VF-11	1 Sep 1950 16 Feb 1959
	VF-11 adopted the insignia used by the previous VF-11, which had been disestablished on 15 Feb 1959. The newly designated VF-11 (16 Feb 1959) carried on the insignia and traditions of the Red Ripper squadron dating back to 1 Feb 1927, but not the lineage.	
	VF-11 Redesignated VFA-11	18 Oct 2005
VFA-14	Air Detachment, Pacific Fleet Established Became VT-5, an element of AirDet, PACFLT VT-5 Redesignated VP-4-1 VP-4-1 Redesignated VF-4 VF-4 Redesignated VF-1 VF-1 Redesignated VF-IB VF-IB Redesignated VB-2B VB-2B Redesignated VB-3 VB-3 Redesignated VB-4 VB-4 Redesignated VS-41 VS-41 Redesignated VB-41 VB-41 Redesignated VB-4 VB-4 Redesignated VA-1A VA-1A Redesignated VA-14 VA-14 Redesignated VF-14 VF-14 Redesignated VFA-14	Sep 1919 15 Jun 1920 7 Sep 1921 23 Sep 1921 1 Jul 1922 1 Jul 1927 1 Jul 1934 1 Jul 1937 1 Jul 1939 15 Mar 1941 1 Mar 1943 4 Aug 1943 15 Nov 1946 2 Aug 1948 15 Dec 1949 1 Dec 2001
VFA-15	VA-67 Established VA-67 Redesignated VA-15 VA-15 Redesignated VFA-15	1 Aug 1968 2 Jun 1969 1 Oct 1986
VFA-22	VF-63 Established VF-63 Redesignated VA-63 VA-63 Redesignated VA-22 VA-22 Redesignated VFA-22	28 Jul 1948 Mar 1956 1 Jul 1959 4 May 1990
VFA-25	VT-17 Established VT-17 Redesignated VA-6B VA-6B Redesignated VA-65 VA-65 Redesignated VA-25 VA-25 Redesignated VFA-25	1 Jan 1943 15 Nov 1946 27 Jul 1948 1 Jul 1959 1 Jul 1983

Squadron Designation	Changes in Squadron Designations	Date of Change
VFA-27	VA-27 Established VA-27 Redesignated VFA-27	1 Sep 1967 24 Jan 1991
VFA-31	VF-1B Established VF-1B Redesignated VF-6 VF-6 Redesignated VF-3 VF-3 Redesignated VF-3A VF-3A Redesignated VF-31 VF-31 Redesignated VFA-31	1 Jul 1935 1 Jul 1937 15 Jul 1943 15 Nov 1946 7 Aug 1948 1 Aug 2006
VFA-32	VBF-3 Established VBF-3 Redesignated VF-4A VF-4A Redesignated VF-32 VF-32 Redesignated VFA-32	1 Feb 1945 15 Nov 1946 7 Aug 1948 1 Aug 2006
VFA-34	VA-34 Established VA-34 Redesignated VFA-34	1 Jan 1970 30 Aug 1996
VFA-37	VA-37 Established VA-37 Redesignated VFA-37	1 Jul 1967 28 Nov 1990
VFA-41	VF-41 Established VF-41 Redesignated VFA-41	1 Sep 1950 1 Dec 2001
VFA-81	VA-66 Established VA-66 Redesignated VF-81 (same day) VF-81 Redesignated VA-81 VA-81 Redesignated VFA-81	1 Jul 1955 1 Jul 1955 1 Jul 1959 4 Feb 1988
VFA-82	VA-82 Established VA-82 Redesignated VFA-82 VFA-82 Deactivated	1 May 1967 15 Jul 1987 30 Jun 2005
VFA-83	VF-916 Reserve squadron called to active duty VF-916 Redesignated VF-83 VF-83 Redesignated VA-83 VA-83 Redesignated VFA-83	1 Feb 1951 4 Feb 1953 1 Jul 1955 1 Mar 1988
VFA-86	VF-921 Reserve squadron called to active duty VF-921 Redesignated VF-84 VF-84 Redesignated VA-86 VA-86 Redesignated VFA-86	1 Feb 1951 4 Feb 1953 1 Jul 1955 15 Jul 1987
VFA-87	VA-87 Established VA-87 Redesignated VFA-87	1 Feb 1968 1 May 1986
VFA-94	VF-94 Established VF-94 Redesignated VA-94 VA-94 Redesignated VFA-94	26 Mar 1952 1 Aug 1958 24 Jan 1991
VFA-97	VA-97 Established VA-97 Redesignated VFA-97	1 Jun 1967 24 Jan 1991
VFA-102	VA-36 Established VA-36 Redesignated VF-102	1 Jul 1955 1 Jul 1955
	On the same day, 1 Jul 1955, the old VF-102 was redesignated VA-36. This unit is separate from the VA-36 that was established on 1 Jul 1955 and then immediately redesignated VF-102.	
	VF-102 Redesignated VFA-102	1 May 2002
VFA-103	VF-103 Established VF-103 Redesignated VFA-103	1 May 1952 27 Apr 2006
VFA-105	VA-105 Established VA-105 Redesignated VFA-105	4 Mar 1968 17 Dec 1990
VFA-106	VFA-106 Established	27 Apr 1984
VFA-113	VF-113 Established VF-113 Redesignated VA-113 VA-113 Redesignated VFA-113	15 Jul 1948 Mar 1956 25 Mar 1983
VFA-115	VT-11 Established VT-11 Redesignated VA-12A VA-12A Redesignated VA-115	10 Oct 1942 15 Nov 1946 15 Jul 1948
	VA-115 was in an inactive status from Aug 1967 to 1 Jan 1970. It was not disestablished during this time frame and had a very limited number of personnel assigned to the squadron, which was located at NAS Lemoore during the period.	
	VA-115 Reactivated VA-115 Redesignated VFA-115	1 Jan 1970 30 Sep 1996
VFA-122	VFA-122 Established	1 Oct 1998

Squadron Designation	Changes in Squadron Designations	Date of Change
VFA-125	VFA-125 Established VFA-125 Deactivated	13 Nov 1980 1 Oct 2010
VFA-131	VFA-131 Established	3 Oct 1983
VFA 136	VFA-136 Established	1 Jul 1985
VFA-137	VFA-137 Established	1 Jul 1985
VFA-143	VF-871 Reserve squadron called to active duty VF-871 Redesignated VF-123 VF-123 Redesignated VF-53 VF-53 Redesignated VF-143 VF-143 Redesignated VFA-143	20 Jul 1950 4 Feb 1953 12 Apr 1958 20 Jun 1962 27 Apr 2006
VFA-146	VA-146 Established VA-146 Redesignated VFA-146	1 Feb 1956 21 Jul 1989
VFA-147	VA-147 Established VA-147 Redesignated VFA-147	1 Feb 1967 20 Jul 1989
VFA-151	VF-23 Established VF-23 Redesignated VF-151 VF-151 Redesignated VFA-151	6 Aug 1948 23 Feb 1959 1 Jun 1986
VFA-154	VF-837 Reserve squadron called to active duty VF-837 Redesignated VF-154 VF-154 Redesignated VFA-154	1 Feb 1951 4 Feb 1953 1 Oct 2003
VFA-192	VF-153 Established VF-153 Redesignated VF-15A VF-15A Redesignated VF-151 VF-151 Redesignated VF-192 VF-192 Redesignated VA-192 VA-192 Redesignated VFA-192	26 Mar 1945 15 Nov 1946 15 Jul 1948 15 Feb 1950 15 Mar 1956 10 Jan 1985
VFA-195	VT-19 Established VT-19 Redesignated VA-20A VA-20A Redesignated VA-195 VA-195 Redesignated VFA-195	15 Aug 1943 15 Nov 1946 24 Aug 1948 1 Apr 1985
VFA-201	VF-201 Established VF-201 Redesignated VFA-201 VFA-201 Deactivated	25 Jul 1970 1 Jan 1999 30 Jun 2007
VFA-203	VA-203 Established VA-203 Redesignated VFA-203 VFA-203 Deactivated	1 Jul 1970 1 Oct 1989 30 Jun 2004
VFA-204	VA-204 Established VA-204 Redesignated VFA-204	1 Jul 1970 1 May 1991
VFA-211	VB-74 Established VB-74 Redesignated VA-1B VA-1B Redesignated VA-24 VA-24 Redesignated VF-24 VF-24 Redesignated VF-211 VF-211 Redesignated VFA-211	1 May 1945 15 Nov 1946 1 Sep 1948 1 Dec 1949 9 Mar 1959 1 Aug 2006
VFA-213	VF-213 Established VF-213 Redesignated VFA-213*	22 Jun 1955 1 Aug 2006*
* No official paperwork (OPNAV NOTICE 3111) has been promulgated stating the official date for VF-213's redesignation to VFA-213.		
Fighter Squadron Composite		
VFC-12†	VC-12 Established VC-12 Redesignated VFC-12	1 Sep 1973 22 Apr 1988
VFC-13†	VC-13 Established VC-13 Redesignated VFC-13	1 Sep 1973 22 Apr 1988
VFC-111	VFC-111 Established	1 Nov 2006
Patrol Squadron		
VP-1†	VB-128 Established VB-128 Redesignated VPB-128 VPB-128 Redesignated VP-128 VP-128 Redesignated VP-ML-1 VP-ML-1 Redesignated VP-1	15 Feb 1943 1 Oct 1944 15 May 1946 15 Nov 1946 1 Sep 1948
VP-4†	VB-144 Established VB-144 Redesignated VPB-144 VPB-144 Redesignated VP-144 VP-144 Redesignated VP-ML-4 VP-ML-4 Redesignated VP-4	1 Jul 1943 1 Oct 1944 15 May 1946 15 Nov 1946 1 Sep 1948

Squadron Designation	Changes in Squadron Designations	Date of Change
VP-5†	VP-17F (VP-17) Established VP-17 Redesignated VP-42 VP-42 Redesignated VB-135 VB-135 Redesignated VPB-135 VPB-135 Redesignated VP-135 VP-135 Redesignated VP-ML-5 VP-ML-5 Redesignated VP-5	2 Jan 1937 1 Jul 1939 15 Feb 1943 1 Oct 1944 15 May 1946 15 Nov 1946 1 Sep 1948
VP-8†	VP-201 Established VP-201 Redesignated VPB-201 VPB-201 Redesignated VP-201 VP-201 Redesignated VP-MS-1 VP-MS-1 Redesignated VP-ML-8 VP-ML-8 Redesignated VP-8	1 Sep 1942 1 Oct 1944 15 May 1946 15 Nov 1946 5 Jun 1947 1 Sep 1948
VP-9†	VP-9 Established	15 Mar 1951
VP-10†	VP-10 Established	19 Mar 1951
VP-16†	VP-741 Reserve squadron called to active duty VP-741 Redesignated VP-16	1 May 1951 4 Feb 1953
VP-26†	VB-114 Established VB-114 Redesignated VPB-114 VPB-114 Redesignated VP-114 VP-114 Redesignated VP-HL-6 VP-HL-6 Redesignated VP-26	26 Aug 1943 1 Oct 1944 15 May 1946 15 Nov 1946 1 Sep 1948
VP-30	VP-30 Established	30 Jun 1960
VP-40†	VP-40 Established	20 Jan 1951
VP-45†	VP-205 Established VP-205 Redesignated VPB-205 VPB-205 Redesignated VP-205 VP-205 Redesignated VP-MS-5 VP-MS-5 Redesignated VP-45	1 Nov 1942 1 Oct 1944 15 May 1946 15 Nov 1946 1 Sep 1948
VP-46	VP-5S Established VP-5S Redesignated VP-5F VP-5F Redesignated VP-5 VP-5 Redesignated VP-33 VP-33 Redesignated VP-32 VP-32 Redesignated VPB-32 VPB-32 Redesignated VP-32 VP-32 Redesignated VP-MS-6 VP-MS-6 Redesignated VP-46	1 Sep 1931 1 Apr 1933 1937 1 Jul 1939 1 Jul 1941 1 Oct 1944 15 May 1946 15 Nov 1946 1 Sep 1948
VP-47	VP-27 Established VP-27 Redesignated VPB-27 VPB-27 Redesignated VP-27 VP-27 Redesignated VP-MS-7 VP-MS-7 Redesignated VP-47	1 Jun 1944 1 Oct 1944 15 May 1946 15 Nov 1946 1 Sep 1948
VP-62	VP-62 Established	1 Nov 1970
VP-64	(*See* VR-64)	
VP-65	VP-65 Established VP-65 Deactivated	16 Nov 1970 31 Mar 2006
VP-66	VP-66 Established VP-66 Deactivated	1 Nov 1970 31 Mar 2006
VP-69	VP-69 Established	1 Nov 1970
VP-91†	VP-91 Established VP-91 Deactivated	1 Nov 1970 31 Mar 1999
VP-92†	VP-92 Established VP-92 Deactivated	1 Nov 1970 30 Nov 2007
VP-94†	VP-94 Established VP-94 Deactivated	1 Nov 1970 31 Mar 2006
Patrol Squadron Special Project Unit Redesignated Special Projects Patrol Squadron on 8 Apr 1998 for VPU-1 and on 14 Apr 1998 for VPU-2 (the designation VPU remained the same)		
VPU-1	VPU-1 Established	1 Jul 1982
VPU-2	VPU-2 Established	1 Jul 1982
Fleet Air Reconnaissance Squadron		
VQ-1	VQ-1 Established	1 Jun 1955
VQ-2	VQ-2 Established	1 Sep 1955

Squadron Designation	Changes in Squadron Designations	Date of Change
VQ-3	VQ-3 Established	1 Jul 1968
VQ-4	VQ-4 Established	1 Jul 1968
VQ-5	VQ-5 Established VQ-5 Deactivated	15 Apr 1991 30 Jul 1999
VQ-6	VQ-6 Established VQ-6 Deactivated	5 Aug 1991 30 Sep 1999
VQ-7	Naval Training Support Unit Redesignated VQ-7	1 Nov 1999
VQ-11	VQ-11 Established VQ-11 Deactivated	1 Jul 1997 31 Mar 2000
Fleet Logistic Support Squadron		
VR-1†	VR-1 Established	1 May 1997
VR-46	VR-46 Established	1 Mar 1981
VR-48	VR-48 Established	1 Oct 1980
VR-51	VR-51 Established	1 Jun 1997
VR-52†	VR-52 Established	24 Jun 1972
VR-53	VR-53 Established	1 Oct 1992
VR-54	VR-54 Established	1 Jun 1991
VR-55	VR-55 Established	1 Apr 1976
VR-56	VR-56 Established	1 Jul 1976
VR-57	VR-57 Established	1 Nov 1977
VR-58	VR-58 Established	1 Nov 1977
VR-59	VR-59 Established	1 Oct 1982
VR-61	VR-61 Established	1 Oct 1982
VR-62	VR-62 Established	1 Jul 1985
VR-64	Established as VP-64 Redesignated VR-64	1 Nov 1970 18 Sep 2004
Fleet Logistics Support Squadron		
VRC-30	VR-30 Established VR-30 Redesignated VRC-30	1 Oct 1966 1 Oct 1978
VRC-40	VRC-40 Established	1 Jul 1960
Sea Control Squadron		
VS-21†	CVEG-41 Established CVEG-41 Redesignated CVEG-1 CVEG-1 Redesignated VC-21 VC-21 Redesignated VS-21 VS-21 Deactivated	26 Mar 1945 15 Nov 1946 1 Sep 1948 23 Apr 1950 28 Feb 2005
VS-22†	VS-22 Established VS-22 Deactivated	18 May 1960 31 Mar 2009
VS-24†	VS-24 Established VS-24 Deactivated	25 May 1960 31 Mar 2007
VS-29	VS-29 Established VS-29 Deactivated	1 Apr 1960 30 Apr 2004
VS-30†	VS-801 Reserve squadron called to active duty VS-801 Redesignated VS-30 VS-30 Deactivation Ceremony Official Deactivation	9 Apr 1951 4 Feb 1953 9 Dec 2005 20 Apr 2007
VS-31†	VC-31 Established VC-31 Redesignated VS-31 VS-31 Deactivated	28 Sep 1948 20 Apr 1950 31 Mar 2008
VS-32	VC-32 Established VC-32 Redesignated VS-32 VS-32 Deactivated	31 May 1949 20 Apr 1950 30 Sep 2008
VS-33	VS-33 Established VS-33 Deactivated	1 Apr 1960 31 Jul 2006
VS-35†	VS-35 Established VS-35 Deactivated	4 Apr 1991 31 Mar 2005

Squadron Designation	Changes in Squadron Designations	Date of Change
VS-38†	VC-892 Reserve squadron Activated VC-892 Redesignated VS-892 VS-892 Reserve squadron called to active duty VS-892 Redesignated VS-38 VS-38 Deactivated	20 Jul 1950 4 Aug 1950 4 Aug 1950 4 Feb 1953 30 Apr 2004
VS-41†	VS-41 Established VS-41 Deactivated	30 Jun 1960 30 Sep 2006
Training Squadron		
VT-2	BTG-2 Redesignated VT-2 (Basic Training Group 2)	1 May 1960
VT-3	BTG-3 Redesignated VT-3	1 May 1960
VT-4	BTG-9 Redesignated VT-4	1 May 1960
VT-6	Multi-Engine Training Group, Whiting Field Redesignated VT-6	1 May 1960
VT-7	BTG-7 Activated BTG-7 Redesignated VT-7	1 Jun 1958 1 Jul 1960
VT-9	VT-19 Established VT-19 Redesignated VT-9	2 Aug 1971 1 Oct 1998
VT-10	BNAO School Redesignated VT-10	15 Jan 1968
	Basic Naval Aviation Officers School was established within the training department of NAS Pensacola in June 1960. BNAO School became a separate command under the Chief of Naval Air Training 15 Jan 1968.	
VT-19	(*See* VT-9)	
VT-21	ATU-202 (Advanced Training Unit 202) Redesignated VT-21	1 May 1960
VT-22	ATU-212 Redesignated VT-22	1 May 1960
VT-23	ATU-222 Established ATU-222 Redesignated VT-23 VT-23 Deactivated	Nov 1958 1 May 1960 30 Sep 1999
VT-27	ATU-402 Redesignated VT-27	1 Jul 1960
VT-28	ATU-611 Redesignated VT-28	1 May 1960
VT-31	ATU-601 Redesignated VT-31	1 May 1960
VT-35	VT-35 Established	29 Oct 1999
VT-86	VT-86 Established	5 Jun 1972
Air Test and Evaluation Squadron (VX/HX), Antarctic Development Squadron (VXE), Scientific Development Squadron (VXS)		
HX-21	Established as Naval Rotary Wing Aircraft Test Squadron Redesignated HX-21	21 Jul 1995 1 May 2002
VX-1	Established as Aircraft Antisubmarine Development Detachment, Atlantic Fleet	1 Apr 1943
	Aircraft Antisubmarine Development Detachment became part of a new unit called Antisubmarine Development Det, Atlantic Fleet	17 Sep 1943
	Antisubmarine Development Det, Atlantic Fleet redesignated VX-1	15 Mar 1946
VXE-6	VX-6 Established VX-6 Redesignated VXE-6 VXE-6 Deactivated	17 Jan 1955 1 Jan 1969 27 Mar 1999
VX-9	VX-9 Established	30 Apr 1994
VX-20	Established Naval Force Aircraft Test Squadron Redesignated VX-20	21 Jul 1995 1 May 2002
VX-23	Established Naval Strike Aircraft Test Squadron Redesignated VX-23	21 Jul 1995 1 May 2002
VX-30	Established Naval Weapons Test Squadron, Point Mugu Redesignated VX-30	8 May 1995 1 May 2002
VX-31	Established Naval Weapons Test Squadron, China Lake Redesignated VX-31	8 May 1995 1 May 2002
VXS-1	VXS-1 Established	13 Dec 2004

† Previous squadrons have been assigned this designation.

Chapter 25

Visual Identification System (Tail Codes)

The rapid and accurate identification of aircraft has always been of prime importance within naval aviation and its explosive expansion during WWII compounded the problem.

A three-part identification system had been in use in the fleet from 1923 until WWII. Under this system, the aircraft identification number 5-F-1, which was placed on the fuselage of the plane, meant this was the first airplane in Fighting Squadron 5. After July 1937, the squadron number for carrier-based squadrons was the same as the hull number of the carrier. Thus *Yorktown* (CV 5) would have had VB-5, VS-5, and VF-5 assigned as part of her complement of squadrons.

This system was modified by Commander Carriers, Pacific Fleet, on 29 April 1942. To help conceal the identity of carriers engaged in operations in enemy waters, the squadron number was eliminated, leaving just the letter designating the type of squadron and the aircraft number within the squadron. Thus, the marking on the fuselage of the plane would have been F-1 to identify it as the first plane in a fighting squadron without identifying the squadron's number. This was further modified on 22 December 1943, by the deletion of the squadron type letter. All identification as to a specific unit was now removed which allowed aircraft to be drawn from a pool as necessary without the requirement of painting identification information on them.

During WWII, with the increase in the number of fleet aircraft operating in the same area as training planes, the necessity grew even more acute to quickly differentiate the large number of training planes from the operational fleet aircraft. To alleviate this problem, Naval Air Operational Training Command, on 12 January 1943, directed that all aircraft within the command be identified by an alpha/numeric system consisting of three groups of characters. The first letter(s) designated the base assignment for the aircraft. The second letter identified the aircraft mission, while the third group was the number of the aircraft within the squadron. For example, V-T-29 would indicate the aircraft was from Vero Beach, Fla., it was a torpedo plane, and the 29th aircraft in that training unit.

During the last two years of the war, many of the aircraft assigned to the carriers in the Pacific carried symbols denoting the ship or air group to which they were assigned. No directives specifying these markings are known to exist, if there ever were any. From a review of photos of the period, it appears that the symbols were assigned to the CV designated aircraft carriers while the escort carriers, designated CVE, had the symbol assigned to the squadrons that operated on board the ships. Squadrons operating on board the CVs only had that specific symbol while assigned to that particular carrier while this was a step in the right direction, the lack of a uniform system was soon apparent when a large number of aircraft were trying to rendezvous after takeoff, before landing, or over target areas.

The United States Navy Air Force, Pacific Fleet, issued on 27 January 1945 a standard set of 28 geometrical designs for the CV and CVL class carriers, which constituted Task Force 58. These designs were assigned to the vessel and were applied to all aircraft of the attached air group as long as it was on board. They were applied to both sides of the fin and rudder. While the drawings in the directive only showed the design on the top surface of the right wing, subsequent directives indicate that it was also to be applied on the under surface of the left wing tip.

The Commander, Air Force, Pacific Fleet, on 11 February 1945, issued an instruction for the aircraft in the Hawaiian Sea Frontier. All carrier and training type aircraft were to be identified with a letter followed by the individual aircraft number running from 1 to 99. These markings were not for the purpose of security, but rather to identify U.S. Navy aircraft after numerous reports of violations of air discipline involving flying too close to transport aircraft and ground installations.

Air Force, Pacific Fleet, on 2 June 1945, prescribed a series of recognition symbols for CVEs. These markings were to be painted on both sides of the vertical tail surfaces, as well as the upper right and lower left wing tips. All CVEGs, MCVGs, and VCs assigned to ships of the Escort Carrier Force, Pacific, were to carry these designs. Each carrier division was assigned a basic design. The position of the individual vessel within the division was indicated by a series of narrow stripes.

The system of geometrical symbols carried by Task Force 58 aircraft was difficult to describe over the radio and was not always readily identifiable in the air. To eliminate this problem, Commander Task Force 38, in July 1945, specified a system of 24-inch block capital letters to be used to identify CV and CVB aircraft. These were to be applied to both sides of the fin and rudder as well as the top right and lower left wing tips. In its original form some ships used a single letter, while others were assigned double letters. This was the beginning of the two-letter Visual Identification System in use today.

Naval Air Stations in Hawaii were assigned letter designations on 10 September 1945, by the Commander, Air Force, Pacific Fleet. These were to be followed by a number from 1 to 99 inclusive. In the event all available numbers in the 1 to 99 series were used, and no additional letters were available, the use of numbers over 100 was authorized.

On 8 January 1946, Air Force, Pacific Fleet, issued instructions for the application of markings on the fast carrier aircraft. This directive also assigned new alphabetical designations for the CVs, CVBs, and CVLs in place of those specified by Commander Task Force 38. This assignment of the same letter to a different carrier than previously designated may well have caused the erroneous identification of some photographs as to what ship the aircraft were actually assigned.

All of the previous directives or instructions were a search for an easy system to rapidly identify aircraft. Finally, on 7 November 1946, the Chief of Naval Operations (CNO) established the Visual Identification System for all Navy and Marine Corps aircraft. To be effective, such a system had to be simple, readable, and possess enough different combinations to cover the number of aircraft carriers and all types of squadrons to which naval aviation might expand in case of war. A system using letters satisfies these requirements as long as distinctive characters are used. The elimination of the ambiguous letters G, J, N, O, Q and Y left ample combinations to cover such expansion. Since each letter has a phonetic equivalent in communication procedures, the problem of describing geometric markings was replaced by the simple process of enunciating the names of the letters of the alphabet. Under this system each aircraft carrier had either a single or double letter symbol, some of which were a holdover from the previous system. On 12 December 1946, the Visual Identification System of Naval Aircraft was modified by CNO. Under this change the tail codes assigned to the carriers were now reassigned to individual air groups. This permitted greater flexibility since an air group was not permanently assigned to a specific carrier.

Under the CNO system, non-carrier based squadrons, such as VP, VPP, VPW, VPM, VU, VRU, VX, and VCN, also used a letter system. In these squadrons the first of the two letters designated the wing or class while the second letter designated the squadron within the wing. Marine Corps carrier-based squadrons used the letters assigned to the parent carrier while shore-based Marine squadrons used the first letter to designate the wing or other command, and the second letter identified the squadron within the wing or command. The letters in all cases were underscored to denote Marine. It was possible under this system to have the same code letters assigned to a Navy squadron and a Marine Corps squadron concurrently. This requirement to underscore the letters on Marine Corps aircraft was rescinded on 4 August 1948.

The Training Command continued to use the letter number designation system in which the first of one or two letters designated the base or station, while the second identified the squadron and/or class designation. The aircraft within the squadron were identified by a one-, two-, or three-digit number. The Chief, Naval Air Training, controlled the assignment of the letter symbols within the command.

Naval Air Reserve aircraft were also identified by two letters. The first denoted the air station to which the aircraft was assigned, while the second identified the type of squadron. From this it can be seen that it was possible to have a fleet squadron and a reserve squadron identified with the same two letters. This was resolved by the use of an orange band around the fuselage to denote a Reserve aircraft. Reorganization of the Naval Air Reserve in 1970 arranged the reserve squadron system along the same lines as the active fleet structure. The tail code assignments for these squadrons were redone to follow the procedures used for the fleet squadrons.

Naval Air Advanced Training Command on 6 January 1947 issued a directive for identifying aircraft within the command. This alpha/numeric system used a letter to identify the naval air station, followed by a second letter designating the squadron at that activity and then a three-digit aircraft number. On 31 August 1950, the Chief Naval Air Basic Training issued a directive that involved single letters to denote aircraft assigned to the various bases. This was modified on 27 September 1950 to a two-letter system whereby the first designated the base and the second the squadron. These letters were followed by a three-digit number to denote the individual aircraft within the squadron. On 6 September 1956, Chief of Naval Air Training established a new tail code identification system for the training commands. This system included two character alpha/numeric codes whereby the number 2 designated Chief Naval Air Basic Training Command aircraft, 3 designated Chief Naval Air Advanced Training Command, and 4 designated Chief Naval Technical Training Command aircraft.

One major change to occur was the move from a single letter to two letters to identify an air group's tail code. The effective date for this change was most likely the beginning of Fiscal Year 1958 (1 July 1957). Specific documentation has not been discovered to verify this date. However, the tail code (Visual Identification System) listing in the Naval Aeronautical Organization for 1957 shows the changes for the air group tail codes to two letters.

Even though numerous changes have been made since 7 November 1946 to the Visual Identification System, the basic tenet of the system has remained intact. The following is a listing of Tail Codes (Visual Identification System for Naval Aircraft) for Naval Aviation as of 31 December 2010:

Command	Tail Code
Blue Angels	BA
Carrier Air Wings (former designation Carrier Air Groups)	
CVW-1	AB
CVW-2	NE
CVW-3	AC
CVW-5	NF
CVW-7	AG
CVW-8	AJ
CVW-9	NG
CVW-11	NH
CVW-14	NK
CVW-17	AA
RCVW-4*	AD
RCVW-12†	NJ
Tactical Support Wing	AF
ASW Air Commands	
CVSG-51‡	RA
HS-10	RA
HELWINGRES§	NW
HSC-84	NW
HSC-85	NW
Fleet Logistic Support	
VRC-30	RW
VRC-40	Does not use tail code
Fleet Logistics Support Reserve	
VR-1	Does not use tail code
VR-46	JS
VR-48	JR
VR-51	RV
VR-52	JT
VR-53	AX
VR-54	CW
VR-55	RU
VR-56	JU
VR-57	RX
VR-58	JV
VR-59	RY
VR-61	RS
VR-62	JW
VR-64	BD
Helicopter Sea Combat	
HSC-2	HU
HSC-3	SA
HSC-5	AG
HSC-8	NG
HSC-9	AJ
HSC-12	NE
HSC-21	VR
HSC-22	AM
HSC-23	WC
HSC-25	RB
HSC-26	HW
HSC-28	BR
HSC-84	NW§
HSC-85	NW§

Note: Many HSC squadrons are assigned to carrier air wings and use the tail code of the assigned air wing.

Helicopter Maritime Strike	
HSM-40	HK
HSM-41	TS
HSM-70	Tail code to be assigned
HSM-71	Tail code to be assigned
HSM-77	Tail code to be assigned
Helicopter Antisubmarine Light‖	
HSL-37	TH
HSL-42	HN
HSL-43	TT
HSL-44	HP
HSL-45	TZ
HSL-46	HQ
HSL-48	HR
HSL-49	TX
HSL-51	TA
HSL-60	NW§
Helicopter Mine Countermeasure Squadron	
HM-14	BJ
HM-15	TB
Patrol	
VP-1	YB
VP-4	YD
VP-5	LA
VP-8	LC
VP-9	PD
VP-10	LD
VP-16	LF
VP-26	LK
VP-30	LL
VP-40	QE
VP-45	LN
VP-46	RC
VP-47	RD
Special Projects Patrol	
VPU-1	OB
VPU-2	SP
Patrol Reserve	
VP-62	LT
VP-69	PJ

Command	Tail Code
Fleet Air Reconnaissance	
VQ-1	PR
VQ-2	LQ
VQ-3	TC
VQ-4	HL
VQ-7	TL
Electronic Attack Expeditionary#	
VAQ-133	NL
VAQ-134	NL
VAQ-142	NL
VAQ-143	NL
Air Test and Evaluation	
HX-21	JH
VX-1	JA
VX-9	XE
VX-20	WB
VX-23	SD
VX-30	VX
VX-31	DD
VXS-1	RL
Chief of Naval Air Training	
TRAWING ONE	
Meridian	A
VT-7	A
VT-9	A
TRAWING TWO	
Kingsville	B
VT-21	B
VT-22	B
TRAWING FOUR	
Corpus Christi	G
VT-27	G
VT-28	G
VT-31	G
VT-35	G
TRAWING FIVE	
Whiting Field	E
VT-2	E
VT-3	E
VT-6	E
HT-8	E
HT-18	E
HT-28	E
TRAWING SIX	
Pensacola	F
VT-4	F
VT-10	F
VT-86	F
Naval Air Systems Command	
Test Pilot School	TPS
Fleet Marine and Marine Support Units	
Headquarters	
MWHS-1	SZ
MALS-11	TM
MALS-12	WA
MALS-13	YU
MALS-14	CN
HAMS-16	WW
MALS-24	EW
MALS-26	EL
MALS-31	EX
MALS-36	WK
MALS 41	Tail code to be assigned
MALS 49	Tail code to be assigned
HQSSDN-37	QF
Marine Attack	
VMA-211	CF
VMA-214	WA
VMA-223	WP
VMA-231	CG
VMA-311	WL
VMA-513	WF
VMA-542	CR
Marine Strike Fighter (Fighter Attack)	
VMFA-115	VE
VMFA-121 (AW)	VK
VMFA-122	DC
VMFA-134	MF
VMFA-142	MB
VMFA-212	WD
VMFA-224 (AW)	WK
VMFA-225 (AW)	CE
VMFA-232	WT
VMFA-242 (AW)	DT
VMFA-251	DW
VMFA-312	DR
VMFA-314	VW
VMFA-323	WS
VMFA-533 (AW)	ED
Marine Electronic Attack	
VMAQ-1	CB
VMAQ-2	CY
VMAQ-3	MD
VMAQ-4	RM
Marine Aerial Refueler/Transport	
VMGR-152	QD
VMGR-234	QH
VMGR-252	BH

Command	Tail Code
VMGR-352	QB
VMGR-452	NY
Marine Fleet Training/Readiness	
VMAT-203	KD
VMFAT-101	SH
VMFAT-501	Tail code to be assigned
VMFT-401	LS
VMGRT-253	GR
VMMT-204	GX
Marine Helicopter Heavy	
HMH-361	YN
HMH-362	YL
HMH-363	YZ
HMH-461	CJ
HMH-462	YF
HMH-463	YH
HMH-464	EN
HMH-465	YJ
HMH-466	YK
HMH-769	MS
HMH-772	MT
Marine Helicopter Medium	
HMM-161	YR
HMM-163	YP
HMM-165	YW
HMM-166	YX
HMM-261	EM
HMM-262	ET
HMM-264	EH
HMM-265	EP
HMM-268	YQ
HMM-364	PF
HMM-365	YM
HMM-764	ML
HMM-774	MQ
Marine Helicopter Light Attack	
HMLA-167	TV
HMLA-169	SN
HMLA-267	UV
HMLA-269	HF
HMLA-367	VT
HMLA-369	SM
HMLA-773	MP
HMLA-775	MM
Marine Medium Tiltrotor	
VMM-162	YS
VMM-263	EG
VMM-266	ES
Marine Helicopter Training	
HMMT-164	YT
HMT-302	MR
HMT-303	QT
Marine Helicopter Experimental	
HMX-1	MK
Marine Fixed-Wing Experimental	
VMX-22	MV
Unmanned Aerial Vehicle Operations	
VMU-1	WG
VMU-2	EZ

[*]RCVW-4 AD
VAW-120 AD
VFA-106 AD

RCVW-4 was disestablished on 1 June 1970. Its tail code was retained by VAW-120 and VFA-106.

[†]RCVW-12 NJ
VAQ-129 NJ
VFA-122 NJ

RCVW-12 was disestablished on 1 June 1970. Its tail code was retained by VAQ-129 and VFA-122.

[‡]CVSG-51 was disestablished on 30 June 1971. Its tail code was retained by HS-10.

[§]All helicopter squadrons assigned to Commander Helicopter Wing Reserve use the same NW tail code.

[‖]The tail code TY has been set aside effective 4 April 2004. On this date HSL-47 was assigned to CVW-2 and will be using the air wing's tail code until it is transferred to another command.

[#]The VAQ expeditionary squadrons all fall under COMVAQMIGPAC and have been assigned the same NL tail code.

Tail Code Alphabetical Listing	
Tail Code	**Command**
A	Meridian (TRAWING ONE)
A	VT-7 (TRAWING ONE)
A	VT-9 (TRAWING ONE)
B	Kingsville (TRAWING TWO)
B	VT-21 (TRAWING TWO)
B	VT-22 (TRAWING TWO)
E	Whiting Field (TRAWING FIVE)
E	HT-8 (TRAWING FIVE)
E	HT-18 (TRAWING FIVE)
E	HT-28 (TRAWING FIVE)
E	VT-2 (TRAWING FIVE)
E	VT-3 (TRAWING FIVE)
E	VT-6 (TRAWING FIVE)
F	Pensacola (TRAWING SIX)
F	VT-4 (TRAWING SIX)
F	VT-10 (TRAWING SIX)
F	VT-86 (TRAWING SIX)
G	Corpus Christi (TRAWING FOUR)
G	VT-27 (TRAWING FOUR)
G	VT-28 (TRAWING FOUR)
G	VT-31 (TRAWING FOUR)
G	VT-35 (TRAWING FOUR)

Tail Code Alphabetical Listing	
Tail Code	**Command**
AA	CVW-17
AB	CVW-1
AC	CVW-3
AD	RCVW-4*
AD	VAW-120
AD	VFA-106
AF	Tactical Support Wing
AG	CVW-7
AG	HSC-5
AJ	CVW-8
AJ	HSC-9
AM	HSC-22
AX	VR-53
BA	Blue Angels
BD	VR-64
BH	VMGR-252
BJ	HM-14
BR	HSC-28
CB	VMAQ-1
CE	VMFA-225 (AW)
CF	VMA-211
CG	VMA-231
CJ	HMH-461
CN	MALS-14
CR	VMA-542
CW	VR-54
CY	VMAQ-2
DC	VMFA-122
DD	VX-31
DR	VMFA-312
DT	VMFA-242 (AW)
DW	VMFA-251
ED	VMFA-533 (AW)
EG	VMM-263
EH	HMM-264
EL	MALS-26
EM	HMM-261
EN	HMH-464
EP	HMM-265
ES	VMM-266
ET	HMM-262
EW	MALS-24
EX	MALS-31
EZ	VMU-2
GR	VMGRT-253
GX	VMMT-204
HF	HMLA-269
HK	HSM-40

Tail Code Alphabetical Listing	
Tail Code	**Command**
HL	VQ-4
HN	HSL-42
HP	HSL-44
HQ	HSL-46
HR	HSL-48
HU	HSC-2
HW	HSC-26
JA	VX-1
JH	HX-21
JR	VR-48
JS	VR-46
JT	VR-52
JU	VR-56
JV	VR-58
JW	VR-62
KD	VMAT-203
LA	VP-5
LC	VP-8
LD	VP-10
LF	VP-16
LK	VP-26
LL	VP-30
LN	VP-45
LQ	VQ-2
LS	VMFT-401
LT	VP-62
MB	VMFA-142
MD	VMAQ-3
MF	VMFA-134
MK	HMX-1
ML	HMM-764
MM	HMLA-775
MP	HMLA-773
MQ	HMM-774
MR	HMT-302
MS	HMH-769
MT	HMH-772
MV	VMX-22
NE	CVW-2
NE	HSC-12
NF	CVW-5
NG	CVW-9
NG	HSC-8
NH	CVW-11
NJ	RCVW-12†
NJ	VAQ-129
NJ	VFA-122
NK	CVW-14

Tail Code Alphabetical Listing	
Tail Code	**Command**
NL	VAQ-133[#]
NL	VAQ-134[#]
NL	VAQ-142[#]
NL	VAQ-143[#]
NW	HELWINGRES[§]
NW[§]	HSC-84
NW[§]	HSC-85
NW[§]	HSL-60
NY	VMGR-452
OB	VPU-1
PD	VP-9
PF	HMM-364
PJ	VP-69
PR	VQ-1
QB	VMGR-352
QD	VMGR-152
QE	VP-40
QF	HQSSDN-37
QH	VMGR-234
QT	HMT-303
RA	CVSG-51[‡]
RA	HS-10
RB	HSC-25
RC	VP-46
RD	VP-47
RL	VXS-1
RM	VMAQ-4
RS	VR-61
RU	VR-55
RV	VR-51
RW	VRC-30
RX	VR-57
RY	VR-59
SA	HSC-3
SD	VX-23
SH	VMFAT-101
SM	HMLA-369
SN	HMLA-169
SP	VPU-2
SZ	MWHS-1
TA	HSL-51
TB	HM-15
TC	VQ-3
TH	HSL-37
TL	VQ-7
TM	MALS-11
TPS	Test Pilot School
TS	HSM-41

Tail Code Alphabetical Listing	
Tail Code	**Command**
TT	HSL-43
TV	HMLA-167
TX	HSL-49
TY	‖
TZ	HSL-45
UV	HMLA-267
VE	VMFA-115
VK	VMFA-121 (AW)
VR	HSC-21
VT	HMLA-367
VW	VMFA-314
VX	VX-30
WA	MALS-12
WA	VMA-214
WB	VX-20
WC	HSC-23
WD	VMFA-212
WF	VMA-513
WG	VMU-1
WK	MALS-36
WK	VMFA-224 (AW)
WL	VMA-311
WP	VMA-223
WS	VMFA-323
WT	VMFA-232
WW	HAMS-16
XE	VX-9
YB	VP-1
YD	VP-4
YF	HMH-462
YH	HMH-463
YJ	HMH-465
YK	HMH-466
YL	HMH-362
YM	HMM-365
YN	HMH-361
YP	HMM-163
YQ	HMM-268
YR	HMM-161
YS	VMM-162
YT	HMMT-164
YU	MALS-13
YW	HMM-165
YX	HMM-166
YZ	HMH-363
To be assigned	HSM-70
To be assigned	HSM-71
To be assigned	HSM-77

Tail Code Alphabetical Listing	
Tail Code	**Command**
To be assigned	MALS 41
To be assigned	MALS 49
To be assigned	VMFAT-501
None	VR-1
None	VRC-40

* RCVW-4 was disestablished on 1 June 1970. Its tail code was retained by VAW-120 and VFA-106.

† RCVW-12 was disestablished on 1 June 1970. Its tail code was retained by VAQ-129 and VFA-122.

‡ CVSG-51 was disestablished on 30 June 1971. Its tail code was retained by HS-10.

§ All helicopter squadrons assigned to Commander Helicopter Wing Reserve use the same NW tail code.

‖ The tail code TY has been set aside effective 4 April 2004. On this date HSL-47 was assigned to CVW-2 and will be using the air wing's tail code until it is transferred to another command.

The VAQ expeditionary squadrons all fall under COMVAQMIGPAC and have been assigned the same NL tail code.

Chapter 26

Aviation Ships

Attack Carriers (CV, CVA, CVB, CVL, CVAN, CVN)

The Navy established the CVB and CVL designations within the original CV designation on 15 July 1943. CVA replaced CV and CVB on 1 October 1952; CVL went out of use on 15 May 1959. CV and CVN replaced CVA and CVAN, respectively, on 30 June 1975 to designate the multi-mission character of aircraft carriers after the last CVS decommissioned in 1974.

During U.S. involvement in WWII (7 December 1941 to 2 September 1945) the Navy operated 110 carriers (including those designated CV, CVE, and CVL) of which 102 were commissioned in that period. The Navy also operated two training carriers during the war with the designation IX; *Sable* (IX 81) and *Wolverine* (IX 64).

Original Classes	*Langley*	1 ship, CV 1
	Lexington	2 ships, CV 2 and 3
	Ranger	1 ship, CV 4
	Yorktown	2 ships, CV 5 and 6
	Wasp	1 ship, CV 7
	Hornet	1 ship, CV 8
Subequent Classes	*Essex* Class	24 ships; CV 9–21, 31–34, 36–40, 45, and 47. (Of these numbers, 14, 15, 19, 21, 32–34, 36–40, 45, and 47 are sometimes referred to as "Long-Hull" *Essex* class or *Ticonderoga* class.)
	Independence	9 ships, CVL 22–30
	Midway	3 ships, CVB 41–43
	Saipan	2 ships, CVL 48 and 49
	Forrestal	4 ships, CVA 59–62
	Kitty Hawk	4 ships, CVA 63, 64, 66, and 67
	Enterprise	1 ship, CVAN 65
	Nimitz	10 ships, CVN 68–77
	Gerald R. Ford	1 ship, CVN 78

Carrier Listing for CV, CVA, CVB, CVAN, CVN, and CVL

Hull No.	Name	Commission and Decommission or Loss	New Designation or Change of Designation	Designation Change	Conversion Project*	Conversion Completed	Comments
1	*Langley*	20 Mar 1922 27 Feb 1942	CV 1 AV 3	21 Apr 1937			Lost, enemy action
2	*Lexington*	14 Dec 1927 8 May 1942	CV 2				Lost, enemy action
3	*Saratoga*	16 Nov 1927	CV 3				Expended, Operation Crossroads, 26 Jul 1946
4	*Ranger*	4 Jun 1934 18 Oct 1946	CV 4				Sold for scrap 31 Jan 1947
5	*Yorktown*	30 Sep 1937 7 Jun 1942	CV 5				Lost, enemy action
6	*Enterprise*	12 May 1938 17 Feb 1947	CV 6 CVA 6 CVS 6	1 Oct 1952 8 Aug 1953			Sold, 1 Jul 1958

Carrier Listing for CV, CVA, CVB, CVAN, CVN, and CVL							
Hull No.	Name	Commission and Decommission or Loss	New Designation or Change of Designation	Designation Change	Conversion Project*	Conversion Completed	Comments
7	*Wasp*	25 Apr 1940 15 Sep 1942	CV 7				Lost, enemy action
8	*Hornet*	20 Oct 1941 26 Oct 1942	CV 8				Lost, enemy action
9	*Essex*	31 Dec 1942 30 Jun 1969	CV 9 CVA 9 CVS 9	1 Oct 1952 8 Mar 1960	27A 125	Feb 1951 Mar 1956	Stricken 1 Jun 1973
10	*Yorktown*	15 Apr 1943 27 Jun 1970	CV 10 CVA 10 CVS 10	1 Oct 1952 1 Sep 1957	27A 125	Jan 1953 Oct 1955	Stricken 1 Jun 1973 Floating museum, Charleston, S.C., 1975
11	*Intrepid*	16 Aug 1943 15 Mar 1974	CV 11 CVA 11 CVS 11	1 Oct 1952 31 Mar 1962	27C 27C	Jun 1954 Apr 1957	Stricken 23 Mar 1982 Floating museum, New York City, N.Y., 1982
12	*Hornet*	29 Nov 1943 26 May 1970	CV 12 CVA 12 CVS 12	1 Oct 1952 27 Jun 1958	27A 125	Oct 1953 Aug 1956	Stricken 19 Aug 1989 Floating museum, Alameda, Calif., 1998
13	*Franklin*	31 Jan 1944 17 Feb 1947	CV 13 CVA 13 CVS 13	1 Oct 1952 8 Aug 1953			Stricken 10 Oct 1964
14	*Ticonderoga*	8 May 1944 1 Sep 1973	CV 14 CVA 14 CVS 14	1 Oct 1952 21 Oct 1969	27C 27C	Dec 1954 Mar 1957	Stricken 16 Nov 1973
15	*Randolph*	9 Oct 1944 13 Feb 1969	CV 15 CVA 15 CVS 15	1 Oct 1952 31 Mar 1959	27A 125	Jul 1953 Feb 1956	Stricken 1 Jun 1973
16	*Lexington*	17 Feb 1943 8 Nov 1991	CV 16 CVA 16 CVS 16 CVT 16 AVT 16	1 Oct 1952 1 Oct 1962 1 Jan 1969 1 Jul 1978	27C	Sep 1955	Stricken 8 Nov 1991 Floating museum, Corpus Christi, Texas, 1992
17	*Bunker Hill*	25 May 1943 9 Jul 1947	CV 17 CVA 17 CVS 17	1 Oct 1952 8 Aug 1953			Stricken 1 Nov 1966, retained as moored electronic test ship San Diego, Calif., until Nov 1972. Scrapped 1973.
18	*Wasp*	24 Nov 1943 1 Jul 1972	CV 18 CVA 18 CVS 18	1 Oct 1952 1 Nov 1956	27A 125	Sep 1951 Dec 1955	Stricken 1 Jul 1972 Sold for scrap 21 May 1973
19	*Hancock*	15 Apr 1944 30 Jan 1976	CV 19 CVA 19 CV 19	1 Oct 1952 30 Jun 1975	27C 17C	Mar 1954 Nov 1956	Stricken 31 Jan 1976. Sold for scrap 1 Sep 1976
20	*Bennington*	6 Aug 1944 15 Jan 1970	CV 20 CVA 20 CVS 20	1 Oct 1952 30 Jun 1959	27A 125	Nov 1952 Apr 1955	Stricken 1989
21	*Boxer*	16 Apr 1945 1 Dec 1969	CV 21 CVA 21 CVS 21 LPH 4	1 Oct 1952 1 Feb 1956 30 Jan 1959			Stricken 1 Dec 1969
22	*Independence*	14 Jan 1943 28 Aug 1946	CVL 22				Sunk in weapons test 29 Jan 1951
23	*Princeton*	25 Feb 1943 24 Oct 1944	CVL 23				Lost, enemy action
24	*Belleau Wood*	31 Mar 1943 13 Jan 1947	CVL 24				Transferred to France 5 Sep 1953 – Sep 1960, renamed *Bois Belleau* (R 97). Stricken 1 Oct 1960.
25	*Cowpens*	28 May 1943 13 Jan 1947	CVL 25 AVT 1	15 May 1959			Stricken 1 Nov 1959
26	*Monterey*	17 Jun 1943 16 Jan 1956	CVL 26 AVT 2	15 May 1959			Stricken 1 Jun 1970
27	*Langley*	31 Aug 1943 11 Feb 1947	CVL 27				Transferred to France 6 Jun 1951–1963, renamed *La Fayette* (R 96). Sold 19 Feb 1964.

Carrier Listing for CV, CVA, CVB, CVAN, CVN, and CVL							
Hull No.	Name	Commission and Decommission or Loss	New Designation or Change of Designation	Designation Change	Conversion Project*	Conversion Completed	Comments
28	*Cabot*	24 Jul 1943 21 Jan 1955	CVL 28 AVT 3	15 May 1959			Transferred to Spain on 30 Aug 1967, renamed *Dedalo* (R 01), returned to private U.S. organization in 1989, and then scrapped.
29	*Bataan*	17 Nov 1943 9 Apr 1954	CVL 29 AVT 4	15 May 1959			Stricken 1 Sep 1959
30	*San Jacinto*	15 Dec 1943 1 Mar 1947	CVL 30 AVT 5	15 May 1959			Stricken 1 Jun 1970
31	*Bon Homme Richard*	26 Nov 1944 2 Jul 1971	CV 31 CVA 31	1 Oct 1952			Stricken 1989
32	*Leyte*	11 Apr 1946 15 May 1959	CV 32 CVA 32 CVS 32 AVT 10	1 Oct 1952 8 Aug 1953 15 May 1959			Stricken 1 Jun 1969
33	*Kearsarge*	2 Mar 1946 15 Jan 1970	CV 33 CVA 33 CVS 33	1 Oct 1952 1 Oct 1958	27A 125	Mar 1952 Jan 1957	Stricken 1 May 1973
34	*Oriskany*	25 Sep 1950 20 Sep 1976	CV 34 CVA 34 CV 34	1 Oct 1952 30 Jun 1975	27A 125	Oct 1950 May 1959	Stricken 1989. Sunk as artificial reef 17 May 2006.
36	*Antietam*	28 Jan 1945 8 May 1963	CV 36 CVA 36 CVS 36	1 Oct 1952 8 Aug 1953	†		Stricken 1 May 1973
37	*Princeton*	18 Nov 1945 30 Jan 1970	CV 37 CVA 37 CVS 37 LPH 5	1 Oct 1952 1 Jan 1954 2 Mar 1959			Stricken 30 Jan 1970
38	*Shangri-La*	15 Sep 1944 30 Jul 1971	CV 38 CVA 38 CVS 38	1 Oct 1952 30 Jun 1969	27C	Feb 1955	Stricken 15 Jul 1982
39	*Lake Champlain*	3 Jun 1945 2 May 1966	CV 39 CVA 39 CVS 39	1 Oct 1952 1 Aug 1957	27A	Sep 1952	Stricken 1 Dec 1969
40	*Tarawa*	8 Dec 1945 13 May 1960	CV 40 CVA 40 CVS 40 AVT 12	1 Oct 1952 10 Jan 1955 17 Apr 1961	27A	Sep 1952	Stricken 1 Jun 1967
41	*Midway*	10 Sep 1945 11 Apr 1992	CVB 41 CVA 41 CV 41	1 Oct 1952 30 Jun 1975	110	Nov 1957	Stricken 17 Mar 1997 Floating museum, San Diego, Calif., 2003
42	*Franklin D. Roosevelt*	27 Oct 1945 1 Oct 1977	CVB 42 CVA 42 CV 42	1 Oct 1952 30 Jun 1975	110	Jun 1956	Stricken 30 Sep 1977. Sold for scrap 1 Apr 1978.
43	*Coral Sea*	1 Oct 1947 26 Apr 1990	CVB 43 CVA 43 CV 43	1 Oct 1952 30 Jun 1975	110A	Jan 1960	Stricken 30 Apr 1990 Sold for scrap 8 Sep 2000
45	*Valley Forge*	3 Nov 1946 15 Jan 1970	CV 45 CVA 45 CVS 45 LPH 8	1 Oct 1952 1 Jan 1954 1 Jul 1961			Stricken 15 Jan 1970
47	*Philippine Sea*	11 May 1946 28 Dec 1958	CV 47 CVA 47 CVS 47 AVT 11	1 Oct 1952 15 Nov 1955 15 May 1959			Stricken 1 Dec 1969
48	*Saipan*	14 Jul 1946 14 Jan 1970	CVL 48 AVT 6 AGMR 2	15 May 1959 1 Sep 1964			Following redesignation as AGMR-2, *Saipan* was renamed *Arlington* and operated under this name from 1965 to her decommissioning on 14 Jan 1970. Stricken 15 Aug 1975 and sold for scrapping.
49	*Wright*	9 Feb 1947 22 May 1970	CVL 49 AVT 7 CC 2	15 May 1959 11 May 1963			Sold for scrapping 1 Aug 1980

Carrier Listing for CV, CVA, CVB, CVAN, CVN, and CVL							
Hull No.	Name	Commission and Decommission or Loss	New Designation or Change of Designation	Designation Change	Conversion Project*	Conversion Completed	Comments
59	*Forrestal*	1 Oct 1955 11 Sep 1993	CVA 59 CV 59 AVT 59	30 Jun 1975 4 Feb 1992			Stricken 11 Sep 1993
60	*Saratoga*	14 Apr 1956 20 Aug 1994	CVA 60 CV 60	30 Jun 1972			Stricken 20 Aug 1994
61	*Ranger*	10 Aug 1957 10 Jul 1993	CVA 61 CV 61	30 Jun 1975			Stricken 8 Apr 2004
62	*Independence*	10 Jan 1959 30 Sep 1998	CVA 62 CV 62	28 Feb 1973			Stricken 8 Mar 2004
63	*Kitty Hawk*	29 Apr 1961 12 May 2009	CVA 63 CV 63	29 Apr 1973			In Reserve
64	*Constellation*	27 Oct 1961 7 Aug 2003	CVA 64 CV 64	30 Jun 1975			Stricken 2 Dec 2003
65	*Enterprise*	25 Nov 1961	CVAN 65 CVN 65	30 Jun 1975			Active
66	*America*	23 Jan 1965 9 Aug 1996	CVA 66 CV 66	30 Jun 1975			Sunk in fleet training exercise 14 May 2005
67	*John F. Kennedy*	7 Sep 1968 23 Mar 2007	CVA 67 CV 67	29 Apr 1973			Stricken 16 Oct 2009
68	*Nimitz*	3 May 1975	CVAN 68 CVN 68	30 Jun 1975			Active
69	*Dwight D. Eisenhower*	18 Oct 1977	CVN 69				Active
70	*Carl Vinson*	13 Mar 1982	CVN 70				Active
71	*Theodore Roosevelt*	25 Oct 1986	CVN 71				Active
72	*Abraham Lincoln*	11 Nov 1989	CVN 72				Active
73	*George Washington*	4 Jul 1992	CVN 73				Active
74	*John C. Stennis*	9 Dec 1995	CVN 74				Active
75	*Harry S. Truman*	25 Jul 1998	CVN 75				Active
76	*Ronald Reagan*	12 Jul 2003	CVN 76				Active
77	*George H. W. Bush*	10 Jan 2009	CVN 77				Active
78	*Gerald R. Ford*		CVN 78				Keel laid 14 Nov 2009

* Projects 27A and the first 27Cs are axial deck modernizations; all others are angled deck conversions. For more detail, see chronology entries for 4 Jun 1947, 1 Feb 1952, 2 Sep 1953, and 27 May 1954.

† Experimental angled deck installation completed Dec 1952.

Note on Decommissioning Dates: The Navy decommissioned and then recommissioned a number of carriers for further service. Only the final decommissioning date is listed for these ships. Several carriers were also placed out of commission during major renovations or yard periods. In some cases the records regarding decommissioning dates were incomplete; consequently, the decommissioning date is blank if unknown.

• Construction of hull numbers omitted above were either terminated or cancelled. Numbers 35, 46, and 50–55 were scheduled for *Essex* class; 44, 56, and 57 for *Midway* class; and No. 58 for *United States*.

• The contracts originally let for CV 59 and 60 (*Forrestal* and *Saratoga*) did not include an angled deck in their designs. In 1953 the Navy redesigned the flight deck plans for *Forrestal* to incorporate an angled landing deck, and made similar changes to the designs for *Saratoga*. The contract for *Forrestal* was awarded in 1951 and for *Saratoga* in 1952. The contract for *Ranger* and *Independence* (CV 61 and 62) were not awarded until 1954. Therefore, the original contract designs for *Ranger* and *Independence* would have included an angled deck, and *Ranger* (CVA 61) thus became the first carrier designed and built as an angled deck carrier.

Escort Carriers (AVG, ACV and CVE)

The Navy assigned the original escort carrier designation AVG (Aircraft Escort Vessel) on 31 March 1941. The classification was changed to ACV (Auxiliary Aircraft Carrier) on 20 August 1942 and to CVE (Escort Carrier) on 15 July 1943. The CVE designation went out of use when the remaining escort carriers were reclassified AKV (Aircraft Ferry) on 7 May 1959.

Classes:

Long Island	1 ship, hull number 1
Charger	1 ship, hull number 30 (originally built for Royal Navy)
Bogue	11 ships, hull numbers 9, 11–13, 16, 18, 20, 21, 23, 25, and 31
Sangamon	4 ships, hull numbers 26–29
Casablanca	50 ships, hull numbers 55–104
Commencement Bay	19 ships, hull numbers 105–123

Hull numbers not listed below are accounted for as follows:

2–5 not assigned

6, 7, 8, 10, 14, 15, 17, 19, 22, 24, and 32–54 transferred to the Royal Navy

124–139 cancelled

Carrier Listing for CVE Designations

Hull No.	Name	Commission and Decommission or Loss	New Designation or Change of Designation	Designation Change	Comments
1	*Long Island*	2 Jun 1941 20 Mar 1946			Stricken 12 Apr 1946
9	*Bogue*	26 Sep 1942 30 Nov 1946	CVHE 9	12 Jun 1955	Stricken 1 Mar 1959
11	*Card*	8 Nov 1942 13 May 1946	CVHE 11 CVU 11 AKV 40	12 Jun 1955 1 Jun 1958 7 May 1959	Stricken 15 Sep 1970
12	*Copahee*	15 Jun 1942 5 Jul 1946	CVHE 12	12 Jun 1955	Stricken 1 Mar 1959
13	*Core*	10 Dec 1942 4 Oct 1946	CVHE 13 CVU 13 AKV 41	12 Jun 1955 1 Jul 1958 7 May 1959	Stricken 15 Sep 1970
16	*Nassau*	20 Aug 1942 28 Oct 1946	CVHE 16	12 Jun 1955	Stricken 1 Mar 1959
18	*Altamaha*	15 Sep 1942 27 Sep 1946	CVHE 18	12 Jun 1955	Stricken 1 Mar 1959
20	*Barnes*	20 Feb 1943 29 Aug 1946	CVHE 20	12 Jun 1955	Stricken 1 Mar 1959
21	*Block Island*	8 Mar 1943 29 May 1944			Lost to enemy action
23	*Breton*	12 Apr 1943 30 Aug 1946	CVHE 23 CVU 23 AKV 42	12 Jun 1955 1 Jul 1958 7 May 1959	Stricken 6 Aug 1971
25	*Croatan*	28 Apr 1943 20 May 1946	CVHE 25 CVU 25 AKV 43	12 Jun 1955 1 Jul 1958 7 May 1959	Stricken 15 Sep 1970
26	*Sangamon*	25 Aug 1942 24 Oct 1945	AO 28 AVG 26	23 Oct 1940 14 Feb 1942	Stricken 1 Nov 1945. *Sangamon* (AO 28) commissioned as a fleet oiler 23 Oct 1940, before conversion to an escort carrier.
27	*Suwannee*	24 Sep 1942 8 Jan 1947	AO 33 AVG 27 CVHE 27	16 Jul 1941 14 Feb 1942 12 Jun 1955	Stricken 1 Mar 1959. *Suwannee* (AO 33) commissioned as a fleet oiler 16 Jul 1941, before conversion to an escort carrier.

Carrier Listing for CVE Designations					
Hull No.	**Name**	**Commission and Decommission or Loss**	**New Designation or Change of Designation**	**Designation Change**	**Comments**
28	*Chenango*	19 Sep 1942 14 Aug 1946	AO 31 ACV 28 CVHE 28	20 Jun 1941 19 Sep 1942 12 Jun 1955	Stricken 1 Mar 1959. *Chenango* (AO 31) commissioned as a fleet oiler 20 Jun 1941, before conversion to an escort carrier.
29	*Santee*	24 Aug 1942 21 Oct 1946	AO 29 ACV 29 CVHE 29	30 Oct 1940 24 Aug 1942 12 Jun 1955	Stricken 1 Mar 1959. *Santee* (AO 29) commissioned as a fleet oiler 30 Oct 1941, before conversion to an escort carrier.
30	*Charger*	3 Mar 1942 15 Mar 1946			Stricken 29 Mar 1946
31	*Prince William*	9 Apr 1943 29 Aug 1946	CVHE 31	12 Jun 1955	Stricken 1 Mar 1959
55	*Casablanca*	8 Jul 1943 10 Jun 1946			Sold 23 Apr 1947
56	*Liscome Bay*	7 Aug 1943 24 Nov 1943			Lost to enemy action
57	*Anzio* (ex-*Coral Sea*)	27 Aug 1943 5 Aug 1946	CVHE 57	12 Jun 1955	Stricken 1 Mar 1959
58	*Corregidor*	31 Aug 1943 4 Sep 1958	CVU 58	12 Jun 1955	Stricken 1 Oct 1958
59	*Mission Bay*	13 Sep 1943 21 Feb 1947	CVU 59	12 Jun 1955	Stricken 1 Sep 1958
60	*Guadalcanal*	25 Sep 1943 15 Jul 1946	CVU 60	12 Jun 1955	Stricken 27 May 1958
61	*Manila Bay*	5 Oct 1943 31 Jul 1946	CVU 61	12 Jun 1955	Stricken 27 May 1958
62	*Natoma Bay*	14 Oct 1943 20 May 1946	CVU 62	12 Jun 1955	Stricken 27 May 1958
63	*St. Lo* (ex-*Midway*)	23 Oct 1943 25 Oct 1944			Commissioned 23 Oct 1943 as *Midway* (CVE 63), and renamed *St. Lo* (CVE 63) 10 Oct 1944. Lost to enemy action.
64	*Tripoli*	31 Oct 1943 25 Nov 1958	CVU 64	12 Jun 1955	Stricken 1 Feb 1959
65	*Wake Island*	7 Nov 1943 5 Apr 1946			Stricken 17 Apr 1946
66	*White Plains*	15 Nov 1943 10 Jul 1946	CVU 66	12 Jun 1955	Stricken 1 Jul 1958
67	*Solomons*	21 Nov 1943 15 May 1946			Stricken 5 Jun 1946. Launched as *Nassuk Bay* (CVE 67) 6 Oct 1943 and renamed *Solomons* (CVE 67) Nov 1943.
68	*Kalinin Bay*	27 Nov 1943 15 May 1946			Stricken 5 Jun 1946
69	*Kasaan Bay*	4 Dec 1943 6 Jul 1946	CVHE 69	12 Jun 1955	Stricken 1 Mar 1959
70	*Fanshaw Bay*	9 Dec 1943 14 Aug 1946	CVHE 70	12 Jun 1955	Stricken 1 Mar 1959
71	*Kitkun Bay*	15 Dec 1943 19 Apr 1946			Sold 18 Nov 1946
72	*Tulagi*	21 Dec 1943 30 Apr 1946			Stricken 8 May 1946
73	*Gambier Bay*	28 Dec 1943 25 Oct 1944			Lost to enemy action
74	*Nehenta Bay*	3 Jan 1944 15 May 1946	CVU 74 AKV 24	12 Jun 1955 7 May 1959	Stricken 1 Aug 1959
75	*Hoggatt Bay*	11 Jan 1944 20 Jul 1946	CVHE 75 AKV 25	12 Jun 1955 7 May 1959	Stricken 1 Aug 1959
76	*Kadashan Bay*	18 Jan 1944 14 Jun 1946	CVU 76 AKV 26	12 Jun 1955 7 May 1959	Stricken 1 Aug 1959

Carrier Listing for CVE Designations					
Hull No.	**Name**	**Commission and Decommission or Loss**	**New Designation or Change of Designation**	**Designation Change**	**Comments**
77	*Marcus Island*	26 Jan 1944 12 Dec 1946	CVHE 77 AKV 27	12 Jun 1955 7 May 1959	Stricken 1 Aug 1959
78	*Savo Island*	3 Feb 1944 12 Dec 1946	CHVE 78 AKV 28	12 Jun 1955 7 May 1959	Stricken 1 Sep 1959
79	*Ommaney Bay*	11 Feb 1944 4 Jan 1945			Lost to enemy action
80	*Petrof Bay*	18 Feb 1944 30 Jul 1946	CVU 80	12 Jun 1955	Stricken 27 Jun 1958
81	*Rudyerd Bay*	25 Feb 1944 11 Jun 1946	CVU 81 AKV 29	12 Jun 1955 7 May 1959	Stricken 1 Aug 1959
82	*Saginaw Bay*	2 Mar 1944 19 Jun 1946	CVHE 82	12 Jun 1955	Stricken 1 Mar 1959
83	*Sargent Bay*	9 Mar 1944 23 Jul 1946	CVU 83	12 Jun 1955	Stricken 27 Jun 1958
84	*Shamrock Bay*	15 Mar 1944 6 Jul 1946	CVU 84	12 Jun 1955	Stricken 27 Jun 1958
85	*Shipley Bay*	21 Mar 1944 28 Jun 1946	CVHE 85	12 Jun 1955	Stricken 1 Mar 1959
86	*Sitkoh* Bay	28 Mar 1944 27 Jul 1954	CVU 86 AKV 30	12 Jun 1955 7 May 1959	Stricken 1 Apr 1960
87	*Steamer Bay*	4 Apr 1944 8 Aug 1946	CVHE 87	12 Jun 1955	Stricken 1 Mar 1959
88	*Cape Esperance*	9 Apr 1944 15 Jan 1959	CVU 88	12 Jun 1955	Stricken 1 Mar 1959
89	*Takanis Bay*	15 Apr 1944 1 May 1946	CVU 89 AKV 31	12 Jun 1955 7 May 1959	Stricken 1 Aug 1959
90	*Thetis Bay*	21 Apr 1944 1 Mar 1964	CVHA 1 LPH 6	1 Jul 1955 28 May 1959	Stricken 1 Mar 1964
91	*Makassar Strait*	27 Apr 1944 9 Aug 1946	CVU 91	12 Jun 1955	Stricken 1 Sep 1958
92	*Windham Bay*	3 May 1944 Jan 1959	CVU 92	12 Jun 1955	Stricken 1 Feb 1959
93	*Makin Island*	9 May 1944 19 Apr 1946			Stricken 5 Jun 1946
94	*Lunga Point*	14 May 1944 24 Oct 1946	CVU 94 AKV 32	12 Jun 1955 7 May 1959	Stricken 1 Apr 1960
95	*Bismarck Sea*	20 May 1944 21 Feb 1945			Lost to enemy action
96	*Salamaua*	26 May 1944 9 May 1946			Stricken 21 May 1946
97	*Hollandia*	1 Jun 1944 17 Jan 1947	CVU 97 AKV 33	12 Jun 1955 7 May 1959	Stricken 1 Apr 1960
98	*Kwajalein*	7 Jun 1944 16 Aug 1946	CVU 98 AKV 34	12 Jun 1955 7 May 1959	Stricken 1 Apr 1960
99	*Admiralty Islands*	13 Jun 1944 24 Apr 1946			Stricken 8 May 1946
100	*Bougainville*	18 Jun 1944 3 Nov 1946	CVU 100 AKV 35	12 Jun 1955 7 May 1959	Stricken 1 Apr 1960
101	*Matanikau*	24 Jun 1944 11 Oct 1946	CVU 101 AKV 36	12 Jun 1955 7 May 1959	Stricken 1 Apr 1960
102	*Attu*	30 Jun 1944 8 Jun 1946			Stricken 3 Jul 1946
103	*Roi*	6 Jul 1944 9 May 1946			Stricken 21 May 1946
104	*Munda*	8 Jul 1944 13 Sep 1946	CVU 104	12 Jun 1955	Stricken 1 Sep 1958
105	*Commencement Bay*	27 Nov 1944 30 Nov 1946	CVHE 105 AKV 37	12 Jun 1955 7 May 1959	Stricken 1 Apr 1971

Carrier Listing for CVE Designations					
Hull No.	Name	Commission and Decommission or Loss	New Designation or Change of Designation	Designation Change	Comments
106	*Block Island*	30 Dec 1944 27 Aug 1954	LPH 1 CVE 106 AKV 38	22 Dec 1957 17 Feb 1959 7 May 1959	Stricken 1 Jul 1959
107	*Gilbert Islands*	5 Feb 1945 15 Jan 1955	AKV 39	7 May 1959	Stricken 1 Jun 1961
108	*Kula Gulf*	12 May 1945 15 Dec 1955	AKV 8	7 May 1959	Stricken 15 Sep 1970
109	*Cape Gloucester*	5 Mar 1945 5 Nov 1946	CVHE 109 AKV 9	12 Jun 1955 7 May 1959	Stricken 1 Apr 1971
110	*Salerno Bay*	19 May 1945 16 Feb 1954	AKV 10	7 May 1959	Stricken 1 Jun 1960
111	*Vella Gulf*	9 Apr 1945 9 Aug 1946	CVHE 111 AKV 11	12 Jun 1955 7 May 1959	Stricken 1 Jun 1960
112	*Siboney*	14 May 1945 31 Jul 1956	AKV 12	7 May 1959	Stricken 1 Jun 1970
113	*Puget Sound*	18 Jun 1945 18 Oct 1946	CVHE 113 AKV 13	12 Jun 1955 7 May 1959	Stricken 1 Jun 1960
114	*Rendova*	22 Oct 1945 30 Jun 1955	AKV 14	7 May 1959	Stricken 1 Apr 1971
115	*Bairoko*	16 Jul 1945 18 Feb 1955	AKV 15	7 May 1959	Stricken 1 Apr 1960
116	*Badoeng Strait*	14 Nov 1945 17 May 1957	AKV 16	7 May 1959	Stricken 1 Dec 1970
117	*Saidor*	4 Sep 1945 12 Sep 1947	CVHE 117 AKV 17	12 Jun 1955 7 May 1959	Stricken 1 Dec 1970
118	*Sicily*	27 Feb 1946 4 Oct 1954	AKV 18	7 May 1959	Stricken 1 Jul 1960
119	*Point Cruz*	16 Oct 1945 31 Aug 1956	AKV 19	7 May 1959	Stricken 15 Sep 1970
120	*Mindoro*	4 Dec 1945 4 Aug 1955	AKV 20	7 May 1959	Stricken 1 Dec 1959
121	*Rabaul*		CVHE 121 AKV 21	12 Jun 1955 7 May 1959	Stricken 1 Sep 1971. Inactivated after trials 30 Aug 1946; never commissioned.
122	*Palau*	15 Jan 1946 15 Jun 1954	AKV 22	7 May 1959	Stricken 1 Apr 1960
123	*Tinian*		CVHE 123 AKV 23	12 Jun 1955 7 May 1959	Stricken 1 Jun 1970. The Navy accepted the ship 30 Jul 1946; but she never commissioned.

World War II Training Carriers

During WWII the Navy's requirements for pilots provided an increased demand on the training command for carrier flight decks for carrier qualification training. To alleviate the need to take a front line carrier out of action for qualification training, the Navy acquired two vessels that had operated on the Great Lakes and converted them to training carriers with the designation IX, miscellaneous auxiliary.

Hull Number	Name	Commission and Decommission	Disposition and Status
64	*Wolverine*	12 Aug 1942 7 Nov 1945	American Shipbuilding Co., of Wyandotte, Mich., built side-wheel steamer *Seeandbee* in 1913. The Navy acquired her 12 Mar 1942 and the ship began conversion to a training carrier 6 May 1942. Stricken 28 Nov 1945.
81	*Sable*	8 May 1943 7 Nov 1945	American Shipbuilding Co., of Lorain, Ohio, built side-wheel steamer *Greater Buffalo* in 1924. The Navy acquired her 7 Aug 1942; renamed *Sable* 19 Sep 1942 and converted to a training carrier. Stricken 28 Nov 1945.

Antisubmarine Support Aircraft Carriers (CVS)

Classification and designation for CVS (Antisubmarine Support Aircraft Carrier) established 8 August 1953. The service used *Essex*-class carriers modified to serve in the ASW role. *Enterprise* (CV 6) was designated CVS-6 but was never used as such. This listing is for quick reference, with the reclassification dates and other data found in the Carrier Listing for CV, CVA, CVB, CVAN, CVN, and CVL.

Hull Number	Name
6	*Enterprise*
9	*Essex*
10	*Yorktown*
11	*Intrepid*
12	*Hornet*
13	*Franklin*
14	*Ticonderoga*
15	*Randolph*
16	*Lexington*
17	*Bunker Hill*
18	*Wasp*
20	*Bennington*
21	*Boxer*
32	*Leyte*
33	*Kearsarge*
36	*Antietam*
37	*Princeton*
38	*Shangri-La*
39	*Lake Champlain*
40	*Tarawa*
45	*Valley Forge*
47	*Philippine Sea*

Amphibious Assault Ships (LPH)					
Hull No.	**Name**	**Commission and Decommission**	**New Designation or Change of Designation**	**Designation Change**	**Disposition and Status**
1	*Block Island*	30 Dec 1944 27 Aug 1954	CVE 106 LPH 1* CVE 106 AKV 38	22 Dec 1957 17 Feb 1959 7 May 1959	Stricken 1 Jul 1959
2	*Iwo Jima*	26 Aug 1961 14 Jul 1993			Stricken 10 Jul 1993
3	*Okinawa*	14 Apr 1962 17 Dec 1992			Stricken 17 Dec 1992
4	*Boxer*	16 Apr 1945 1 Dec 1969	CV 21 CVA 21 CVS 21 LPH 4†	16 Apr 1945 1 Oct 1952 1 Feb 1956 30 Jan 1959	Stricken 1 Dec 1969
5	*Princeton*	18 Nov 1945 30 Jan 1970	CV 37 CVA 37 CVS 37 LPH 5‡	18 Nov 1945 1 Oct 1952 1 Jan 1954 2 Mar 1959	Stricken 30 Jan 1970
6	*Thetis Bay*	21 Apr 1944 1 Mar 1964	CVHA 1 LPH 6§	1 Jul 1955 28 May 1959	Stricken 1 Mar 1964
7	*Guadalcanal*	20 Jul 1963 31 Aug 1994			Stricken 31 Aug 1994
8	*Valley Forge*	3 Nov 1946 15 Jan 1970	CV 45 CVA 45 CVS 45 LPH 8‖	3 Nov 1946 1 Oct 1952 1 Jan 1954 1 Jul 1961	Stricken 15 Jan 1970
9	*Guam*	16 Jan 1965 25 Aug 1998			Stricken 25 Aug 1998. Sunk in fleet training exercise 16 Oct 2001.
10	*Tripoli*	6 Aug 1966 15 Sep 1995			Stricken 15 Sep 1995. On loan U.S. Army.
11	*New Orleans*	16 Nov 1968 1 Oct 1997			Stricken 23 Oct 1998
12	*Inchon*	20 Jun 1970 20 Jun 2002	MCS 12	1 Mar 1995	Stricken 24 May 2004. Sunk in fleet training exercise 5 Dec 2004.

* *Block Island* was reclassified LPH 1 on 22 Dec 1957, but the service cancelled the conversion and did not reassign the LPH 1 designation, so the ship never operated with the LPH 1 designation.

† *Boxer* operated with the designation LPH 4 from 30 Jan 1959 until decommissioned 1 December 1969.

‡ *Princeton* operated with the designation LPH 5 from 2 Mar 1959 until decommissioned 30 Jan 1970.

§ *Thetis Bay* operated with the designation LPH 6 from 28 May 1959 until decommissioned 1 Mar 1964.

‖ *Valley Forge* operated with the designation LPH 8 from 1 Jul 1961 until decommissioned 15 Jan 1970.

Note on Decommissioning Dates: The Navy decommissioned and then recommissioned a number of ships for further service. Only the final decommissioning date is listed for these ships. Many ships were also placed out of commission during major renovations or yard periods.

Amphibious Assault Ships (General Purpose) (LHA) Class: *Tarawa* 5 ships; *America* 1 ship			
Hull No.	**Name**	**Commission and Decommission**	**Disposition and Status**
1	*Tarawa*	29 May 1976 31 Mar 2009	In Reserve
2	*Saipan*	15 Oct 1977 25 Apr 2007	Stricken 25 Apr 2007
3	*Belleau Wood*	23 Sep 1978 28 Oct 2005	Stricken 28 Oct 2005. Sunk in fleet exercise 12 Jul 2006.
4	*Nassau*	28 Jul 1979	Active
5	*Peleliu*	3 May 1980	Active
6	*America*		Keel laid 17 Jul 2009

Amphibious Assault Ships (Multi-Purpose) (LHD) Class: *Wasp* 8 ships			
Hull No.	**Name**	**Commissioned**	**Disposition and Status**
1	*Wasp*	29 Jul 1989	Active
2	*Essex*	17 Oct 1992*	Active
3	*Kearsarge*	16 Oct 1993	Active
4	*Boxer*	11 Feb 1995	Active
5	*Bataan*	20 Sep 1997	Active
6	*Bonhomme Richard*	15 Aug 1998	Active
7	*Iwo Jima*	30 Jun 2001	Active
8	*Makin Island*	24 Oct 2009	Active

* The ship commissioned without ceremony on 24 Aug 1992 to permit her to go to sea to avoid a hurricane that threatened Pascagoula, Miss. The official commissioning ceremony convened 17 Oct 1992.

Seaplane Tenders (AV) Classes: Five single ships AV 1, 2, 3, 6, and 8; *Curtiss* Class 2 ships, AV 4 and 5; *Currituck* Class 4 ships, AV 7, 11–13; *Pocomoke* Class 2 ships, AV 9 and 10; *Kenneth Whiting* Class 4 ships, AV 14–17					
Hull No.	**Name**	**Commission and Decommission**	**New Designation or Change of Designation**	**Designation Change**	**Disposition and Status**
1	*Wright*† *San Clemente*†	16 Dec 1921 21 Jun 1946	AZ 1 AV 1 AG 79 AG 79	17 Jul 1920 1 Nov 1923 1 Oct 1944 1 Feb 1945	Stricken 1 Jul 1946
2	*Jason*	23 Jun 1913 30 Jun 1932	AC 12 AV 2	 21 Jan 1930	Stricken 19 May 1936
3	*Langley*‡	7 Apr 1913	AC 3 CV 1 AV 3	7 Apr 1913 20 Mar 1922 21 Apr 1937	Lost to enemy action 27 Feb 1942
4	*Curtiss*	15 Nov 1940 24 Sep 1957			Stricken 1 Jul 1963
5	*Albemarle*§	20 Dec 1940 21 Oct 1960	T-ARVH 1	11 Jan 1966	Stricken 31 Dec 1974
6	*Patoka*	13 Oct 1919 1 Jul 1946	AO 9 AV 6‖ AO 9 AG 125	13 Oct 1919 11 Oct 1939 19 Jun 1940 15 Aug 1945	Stricken 31 Jul 1946
7	*Currituck*	26 Jun 1944 31 Oct 1967			Stricken 1 Apr 1971
8	*Tangier*	8 Jul 1940			Decommissioned sometime between May 1946 and Jan 1947. Stricken 1 Jun 1961.
9	*Pocomoke*	18 Jul 1941 10 Jul 1946			Stricken 1 Jun 1961

Seaplane Tenders (AV) Classes: Five single ships AV 1, 2, 3, 6, and 8; *Curtiss* Class 2 ships, AV 4 and 5; *Currituck* Class 4 ships, AV 7, 11–13; *Pocomoke* Class 2 ships, AV 9 and 10; *Kenneth Whiting* Class 4 ships, AV 14–17 (continued)					
Hull No.	**Name**	**Commission and Decommission**	**New Designation or Change of Designation**	**Designation Change**	**Disposition and Status**
10	*Chandeleur*	19 Nov 1942			Placed in reserve 12 Feb 1947. Stricken 1 Apr 1971.
11	*Norton Sound*	8 Jan 1945 11 Dec 1986	AVM 1	8 Aug 1951	Stricken 26 Jan 1987
12	*Pine Island*	26 Apr 1945 16 Jun 1967			Stricken 1 Feb 1971
13	*Salisbury Sound*	26 Nov 1945 31 Mar 1967			Stricken 1 Feb 1971
14	*Kenneth Whiting*	8 May 1944 30 Sep 1958			Stricken 1 Jul 1961
15	*Hamlin*	26 Jun 1944 15 Jan 1947			Stricken 1 Jul 1963
16	*St. George*	24 Jul 1944 1 Aug 1946			Stricken 1 Jul 1963
17	*Cumberland Sound*	21 Aug 1944 27 May 1947			Stricken 1 Jul 1961

* *Wright* was renamed *San Clemente* on 1 Feb 1945 to permit the use of the name *Wright* for a carrier under construction.

† *Jupiter* was commissioned as a collier on 7 Apr 1913 and decommissioned on 24 Mar 1920 for conversion to an aircraft carrier. She was renamed *Langley* on 21 Apr 1920 and recommissioned as *Langley* (CV 1) on 20 Mar 1922.

‡ *Albemarle* was decommissioned on 21 Oct 1960 and stricken from the Naval Vessel Register on 1 Sep 1962 and placed in the custody of the Maritime Administration James River Fleet. However, she was transferred back to the Navy on 7 Aug 1964 for conversion to a floating aeronautical maintenance facility for helicopters. On 27 March 1965 *Albemarle* was renamed *Corpus Christi Bay* and redesignated T-ARVH 1. On 11 Jan 1966 she was transferred to the Military Sealift Command (MSC). She was eventually taken out of service by MSC and stricken.

§ *Patoka* was authorized for conversion to AV on 25 Feb 1924 and operated as such, but was not reclassified an AV until 11 Oct 1939.

Note on Decommissioning Dates: There were a number of ships that were decommissioned and then recommissioned for further service. Only the final decommissioning date is listed for these ships. Many ships were also placed out of commission during major renovations or yard periods. In some cases the records regarding decommissioning dates were not complete. Consequently, the decommissioning date was left blank if it was unknown.

Small Seaplane Tenders (AVP) Classes: *Lapwing* Class Converted minesweepers assigned to aviation duty in the 1920s first given aviation designation 22 Jan 1936, 9 ships, AVP 1–9; *Barnegat* Class 32 ships, AVP 10–13, 21–26, 28–41, and 48–55; *Childs* Class 7 ships, AVP 14–20. Hull numbers omitted may be accounted for as follows: 27, 56, and 57 were commissioned as AGPs, 42–47 and 58–67 were cancelled.					
Hull No.	**Name**	**Commission and Decommission**	**New Designation or Change of Designation**	**Designation Change**	**Disposition**
1	*Lapwing*	12 Jun 1918 29 Nov 1945	AM 1 AVP 1	22 Jan 1936	Transferred to Maritime Commission 19 Aug 1946
2	*Heron*	30 Oct 1918 12 Feb 1946	AM 10 AVP 2	22 Jan 1936	Transferred to Force Logistics Command 25 Jul 1947
3	*Thrush*	25 Apr 1919 13 Dec 1945	AM 18 AVP 3	17 Jul 1920 22 Jan 1936	Stricken 8 Jan 1946. Transferred to Maritime Commission 19 Aug 1946.
4	*Avocet*	17 Sep 1918 10 Dec 1945	AM 19 AVP 4	22 Jan 1936	Stricken 3 Jan 1946
5	*Teal*	20 Aug 1918 23 Nov 1945	AM 23 AVP 5	30 Apr 1931 22 Jan 1936	Stricken 5 Dec 1945. Transferred to Maritime Commission 19 Jan 1948.
6	*Pelican*	10 Oct 1918 30 Nov 1945	AM 27 AVP 6	22 Jan 1936	Stricken 19 Dec 1945. Transferred to Maritime Commission 22 Nov 1946.
7	*Swan*	31 Jan 1919 13 Dec 1945	AM 34 AVP 7	30 Apr 1931 22 Jan 1936	Stricken 8 Jan 1946. Transferred to Maritime Commission 12 Oct 1946.
8	*Gannet*	10 Jul 1919 7 Jun 1942	AM 41 AVP 8	22 Jan 1936	Lost to enemy action 7 Jun 1942
9	*Sandpiper*	9 Oct 1919 10 Dec 1945	AM 51 AVP 9	Jul 1920 22 Jan 1936	Stricken 17 Apr 1946. Transferred to Maritime Commission 12 Oct 1946.
10	*Barnegat*	3 Jul 1941 17 May 1946			Stricken 23 May 1958
11	*Biscayne*	3 Jul 1941 29 Jun 1946	AGC 18	10 Oct 1944	Transferred to USCG 19 Jul 1946; returned to USN as target, 9 Jul 1968.

Small Seaplane Tenders (AVP)
Classes: *Lapwing* Class Converted minesweepers assigned to aviation duty in the 1920s first given aviation designation 22 Jan 1936, 9 ships, AVP 1–9; *Barnegat* Class 32 ships, AVP 10–13, 21–26, 28–41, and 48–55; *Childs* Class 7 ships, AVP 14–20. Hull numbers omitted may be accounted for as follows: 27, 56, and 57 were commissioned as AGPs, 42–47 and 58–67 were cancelled.

Hull No.	Name	Commission and Decommission	New Designation or Change of Designation	Designation Change	Disposition
12	*Casco*	27 Dec 1941 10 Apr 1947			Transferred to USCG 19 Apr 1949
13	*Mackinac*	24 Jan 1942 Jan 1947			Transferred to USCG 19 Apr 1949; returned 15 Apr 1968, expended as target.
14	*Childs*	22 Oct 1920 10 Dec 1945	DD 241 AVP 14 AVD 1	1 Jul 1938 1 Oct 1940	Stricken 8 Jan 1946
15	*Williamson*	29 Oct 1920 8 Nov 1945	DD 244 AVP 15 AVD 2 DD 244	1 Jul 1938 2 Aug 1940 1 Dec 1943	Stricken 19 Dec 1945
16	*George E. Badger*	28 Jul 1920 3 Oct 1945	DD 196 AVP 16 AVD 3 APD 33 DD 196	1 Oct 1939 2 Aug 1940 19 May 1944 20 Jul 1945	Transferred to Treasury Dept. in 1930 and returned 1934. Stricken 25 Oct 1945.
17	*Clemson*	29 Dec 1919 12 Oct 1945	DD 186 AVP 17 AVD 4 DD 186 APD 31 DD 186	15 Nov 1939 6 Aug 1940 1 Dec 1943 7 Mar 1944 17 Jul 1945	Stricken 24 Oct 1945
18	*Goldsborough*	26 Jan 1920 11 Oct 1945	DD 188 AVP 18 AVD 3 DD 188 APD 32 DD 188	15 Nov 1939 2 Aug 1940 1 Dec 1943 7 Mar 1944 10 Jul 1945	Stricken 24 Oct 1945
19	*Hulbert*	27 Oct 1920 2 Nov 1945	DD 342 AVP 6 DD 342	2 Aug 1940 1 Dec 1943	Stricken 28 Nov 1945
20	*William B. Preston*	23 Aug 1920 6 Dec 1945	DD 344 AVP 20 AVD 7	18 Nov 1939 2 Aug 1940	Stricken 3 Jan 1946
21	*Humboldt*	7 Oct 1941 19 Mar 1947	AG 121 AVP 21	30 Jul 1945 10 Sep 1945	Transferred to USCG 24 Jan 1949
22	*Matagorda*	16 Dec 1941 20 Feb 1946	AG 122 AVP 22	30 Jul 1945 10 Sep 1945	Transferred to USCG 7 Mar 1949; returned to USN in 1968 used as target in 1969.
23	*Absecon*	28 Jan 1943 19 Mar 1947			Transferred to USCG 5 Jan 1949 and then to South Vietnamese Navy on 15 Jul 1972.
24	*Chincoteague*	12 Apr 1943 12 Dec 1946			Transferred to USCG 7 Mar 1949
25	*Coos Bay*	15 May 1943 30 Apr 1946			Transferred to USCG 5 Jan 1949; returned 16 Aug 1967 expended as target.
26	*Half Moon*	15 Jun 1943 4 Sep 1946			Transferred to USCG 14 Sep 1948
28	*Oyster Bay*	17 Nov 1943 26 Mar 1946	AVP 28 AGP 6 AVP 28	1 May 1943 16 Mar 1949	The ship never operated as an AVP for the U.S. Navy. Transferred to Italy 23 Oct 1957.
29	*Rockaway*	6 Jan 1943 21 Mar 1946	AG 123 AVP 29	30 Jul 1945 26 Oct 1945	Transferred to USCG 24 Dec 1948. Stricken Sep 1966.
30	*San Pablo*	15 Mar 1943 29 May 1969	AGS 30	25 Aug 1949	Decommissioned as AVP 30 on 13 Jan 1947. Stricken 1 Jun 1969.
31	*Unimak*	31 Dec 1943 26 Jul 1946			Transferred to USCG 14 Sep 1948

Small Seaplane Tenders (AVP) Classes: *Lapwing* Class Converted minesweepers assigned to aviation duty in the 1920s first given aviation designation 22 Jan 1936, 9 ships, AVP 1–9; *Barnegat* Class 32 ships, AVP 10–13, 21–26, 28–41, and 48–55; *Childs* Class 7 ships, AVP 14–20. Hull numbers omitted may be accounted for as follows: 27, 56, and 57 were commissioned as AGPs, 42–47 and 58–67 were cancelled.					
Hull No.	**Name**	**Commission and Decommission**	**New Designation or Change of Designation**	**Designation Change**	**Disposition**
32	*Yakutat*	31 Mar 1944 29 Jul 1946			Transferred to USCG 31 Aug 1948, returned to USN 1970. Transferred to Navy of South Vietnam on 10 Jan 1971 until its fall in 1975, then transferred to Philippine government on 5 Apr 1976.
33	*Barataria*	13 Aug 1944 24 Jul 1946			Transferred to USCG 17 Sep 1948
34	*Bering Strait*	19 Jul 1944 21 Jun 1946			Transferred to USCG 14 Sep 1948
35	*Castle Rock*	8 Oct 1944 6 Aug 1946			Transferred to USCG 16 Sep 1948
36	*Cook Inlet*	5 Nov 1944 31 Mar 1946			Transferred to USCG 20 Sep 1948. Transferred to South Vietnam as HQ-05, 21 Dec 1971.
37	*Corson*	3 Dec 1944 9 Mar 1956			Stricken 1 Apr 1966
38	*Duxbury Bay*	31 Dec 1944 29 Apr 1966			Stricken 1 May 1966
39	*Gardiners Bay*	11 Feb 1945 1 Feb 1958			Transferred to Norway under Military Assistance Program. Stricken 1 Jul 1966.
40	*Floyds Bay*	25 Mar 1945 26 Feb 1960			Stricken 1 Mar 1960
41	*Greenwich Bay*	20 May 1945			Stricken 1 Jul 1966
48	*Onslow*	22 Dec 1943 22 Apr 1960			Stricken 1 Jun 1960
49	*Orca*	23 Jan 1944 Mar 1960			Transferred to Ethiopia 31 Jan 1962
50	Rehoboth	23 Feb 1944 15 Apr 1970	AGS 50	2 Sep 1948	Decommissioned as AVP 50 on 30 Jun 1947. Recommissioned under AGS-50 designation on 2 Sep 1948 and operated under decommissioned on 15 Apr 1970. Stricken 15 Apr 1970.
51	*San Carlos*	21 Mar 1944 30 Jun 1947	AGOR 1	15 Dec 1958	Transferred to MSTS 11 Jul 1958, renamed *Josiah Willard Gibbs* on 15 Dec 1958. Transferred to Greece 15 Dec 1971.
52	*Shelikof*	17 Sep 1944 30 Jun 1947			Stricken 1 May 1960
53	*Suisun*	13 Sep 1944 5 Aug 1955			Stricken 1 Apr 1966
54	*Timbalier*	24 May 1946 15 Nov 1954			Stricken 1 May 1960
55	*Valcour*	5 Jul 1946	AGF 1	15 Dec 1965	Stricken 15 Jan 1973

Note on Decommissioning Dates: There were a number of ships that were decommissioned and then recommissioned for further service. Only the final decommissioning date is listed for these ships. Many ships were also placed out of commission during major renovations or yard periods. In some cases the records regarding decommissioning dates were not complete. Consequently, the decommissioning date was left blank if it was unknown.

Destroyer Seaplane Tenders (AVD) Class: *Clemson* Class DD 14 ships, ex–flush deck 1,190-ton DDs converted for seaplane tending duties from 1938 to 1940					
Hull No.	**Name**	**Commission and Decommission**	**New Designation or Change of Designation**	**Designation Change**	**Disposition**
1	*Childs*	22 Oct 1920 10 Dec 1945	DD 241 AVP 14 AVD 1	 1 Jul 1938 1 Oct 1940	Stricken 8 Jan 1946
2	*Williamson*	29 Oct 1920 8 Nov 1945	DD 244 AVP 15 AVD 2 DD 244	 1 Jul 1938 2 Aug 1940 1 Dec 1943	Stricken 19 Dec 1945
3	*George E. Badger*	28 Jul 1920 3 Oct 1945	DD 196 AVP 16 AVD 3 APD 33 DD 196	 1 Oct 1939 2 Aug 1940 19 May 1944 20 Jul 1945	Transferred to Treasury Dept. in 1930 and returned 1934. Stricken 25 Oct 1945.
4	*Clemson*	29 Dec 1919 12 Oct 1945	DD 186 AVP 17 AVD 4 DD 186 APD 31 DD 186	 15 Nov 1939 6 Aug 1940 1 Dec 1943 7 Mar 1944 17 Jul 1945	Stricken 24 Oct 1945
5	*Goldsborough*	26 Jan 1920 11 Oct 1945	DD 188 AVP 18 AVD 3 DD 188 APD 32 DD 188	 15 Nov 1939 2 Aug 1940 1 Dec 1943 7 Mar 1944 10 Jul 1945	Stricken 24 Oct 1945
6	*Hulbert*	27 Oct 1920 2 Nov 1945	DD 342 AVP 6 DD 342	 2 Aug 1940 1 Dec 1943	Stricken 28 Nov 1945
7	*William B. Preston*	23 Aug 1920 6 Dec 1945	DD 344 AVP 20 AVD 7	 18 Nov 1939 2 Aug 1940	Stricken 3 Jan 1946
8	*Belknap*	28 Apr 1919 4 Aug 1945	DD 251 AVD 8 DD 251 APD 38	 2 Aug 1940 14 Nov 1943 22 Jun 1944	Sold for scrap 30 Nov 1945
9	*Osmond Ingram*	28 Jun 1919 8 Jan 1946	DD 255 AVD 9 DD 255 APD 35	 2 Aug 1940 4 Nov 1943 22 Jun 1944	Stricken 21 Jan 1946
10	*Ballard*	5 Jun 1919 5 Dec 1945	DD 267 AVD 10	 2 Aug 1940	Stricken 3 Jan 1946
11	*Thornton*	15 Jul 1919 2 May 1945	DD 270 AVD 11	 2 Aug 1940	Stricken 13 Aug 1945
12	*Gillis*	3 Sep 1919 15 Oct 1945	DD 260 AVD 12	 2 Aug 1940	Stricken 1 Nov 1945
13	*Greene*	9 May 1919 23 Nov 1945	DD 266 AVD 13 APD 36	 6 Apr 1941 1 Feb 1944	Stricken 5 Dec 1945
14	*McFarland*	30 Sep 1920 8 Nov 1945	DD 237 AVD 14 DD 237	 2 Aug 1940 1 Dec 1943	Stricken 19 Dec 1945

Aviation Logistic Support Ships Various types of ships fitted out to support operations, logistics and repair activities of Naval aircraft. Aircraft Ferry (AKV)					
Hull No.	**Name**	**Commission and Decommission**	**New Designation or Change of Designation**	**Designation Change**	**Disposition and Status**
1	*Kitty Hawk*	26 Nov 1941 24 Jan 1946	AVP 1 AKV 1	15 Sep 1943	Returned to owner, Seatrain Lines, 24 Jan 1946
2	*Hammondsport*	11 Dec 1941 7 Mar 1946	AVP 2 AKV 2	15 Sep 1943	Returned to Maritime Commission 7 Mar 1946

Note: Other ships classified AKV appear on Escort Carrier List.

Transport and Aircraft Ferry (APV)					
4	*Lafayette*		AP 53 AVP 4	24 Dec 1941 15 Sep 1943	Caught fire and capsized during AP conversion from French liner *Normandie*, never repaired or commissioned. Stricken 11 Oct 1945.

Aircraft Repair Ships (ARV)					
1	*Chourre*	7 Dec 1944 13 Sep 1955	ARV 1		Stricken 1 Sep 1962
2	*Webster*	17 Mar 1945 28 Jun 1946	ARV 2		Stricken 1 Sep 1962

Aircraft Repair Ships (Aircraft) (ARVA)					
5	*Fabius*	7 Jun 1945 4 Apr 1952	ARVA 5		Stricken 1 Jun 1973
6	*Megara*	27 Jun 1945 16 Jan 1956	ARVA 6		Placed in commission status 19 Jun 1945 for ferry purposes. Stricken 1 Jun 1973.

Aircraft Repair Ships (Engines) (ARVE)					
3	*Aventinus*	30 May 1945 4 Apr 1952	ARVE 3		Transferred to Chile in Aug 1963
4	*Chloris*	19 Jun 1945 9 Dec 1955	ARVE 4		Scrapped 1 Jun 1973

Advanced Aviation Base Ships (AVB)					
1	*Alameda County*	12 Jul 1943 25 Jun 1962	LST 32 AVB 1	28 Sep 1957	Stricken 30 Jun 1962
2	*Tallahatchie County*	24 May 1949 15 Jan 1970	LST 1154 AVB 2	3 Feb 1962	Stricken 15 Jan 1970

Aviation Supply Ships (AVS)					
1	*Supply*	8 Feb 1944 4 Feb 1946	IX 147 AVS 1	25 May 1945	Stricken 25 Feb 1946
2	*Fortune*	19 Feb 1944 18 Oct 1945	IX 146 AVS 2	25 May 1945	Returned to War Shipping Administration 18 Oct 1945
3	*Grumium*	20 Oct 1943 20 Dec 1945	AK 112 IX 174 AVS 3	20 Jun 1944 25 May 1945	Returned to Maritime Commission 28 Dec 1945
4	*Alioth*	25 Oct 1943 18 May 1946	AK 109 IX 204 AVS 4	31 Dec 1944 25 May 1945	Transferred to Maritime Commission 13 May 1947
5	*Gwinnett*	10 Apr 1945 11 Feb 1946	AG 92 AVS 5	25 May 1945	Returned to Maritime Commission 11 Feb 1946
6	*Nicollet*	27 Apr 1945 17 Jun 1946	AG 93 AVS 6	25 May 1945	Stricken 3 Jul 1946
7	*Pontotoc*	22 Mar 1945 26 Apr 1946	AG 94 AVS 7	25 May 1945	Stricken and returned to owner 26 Apr 1946
8	*Jupiter*	22 Aug 1942	AK 43 AVS 8	31 Jul 1945	Stricken 1 Aug 1965

Patrol Craft Tenders (AGP).
These ships were fitted to service PBRs and UH-1 helicopters and worked with the Navy's Riverine Task Force in South Vietnam beginning in 1967.

Hull No.	Name	Commission and Decommission	New Designation or Change of Designation	Designation Change	Disposition and Status
786	*Garrett County*	28 Aug 1944	LST 786 AGP 786	25 Sep 1970	Transferred to South Vietnam 23 Apr 1971
821	*Harnett County*	22 Nov 1944	LST 821 AGP 821	25 Sep 1970	Transferred to South Vietnam 12 Oct 1970
838	*Hunterdon County*	4 Dec 1944	LST 838 AGP 838	25 Sep 1970	Transferred to Malaysia 1 Jul 1971
846	*Jennings County*	9 Jan 1945	LST 846		Stricken 25 Sep 1970

* *Jennings County* was never redesignated AGP although she served in that capacity in Vietnam.

Ship Designations	
AC	Collier
AG	Miscellaneous Auxiliary
AGC	Amphibious Force Flagship
AGMR	Major Communications Relay Ship
AGOR	Oceanographic Research Ship
AGP	Patrol Craft Tender (Motor Torpedo Boat Tender, Old Design)
AGS	Surveying Ship
AKV	Aircraft Ferry; later, Cargo Ship and Aircraft Ferry
AM	Minesweeper
AO	Fleet Oiler
AP	Transport
APV	Transport and Aircraft Ferry
ARG	Repair Ship, Engines
ARV	Aircraft Repair Ship
ARVA	Aircraft Repair Ship (Aircraft)
ARVE	Aircraft Repair Ship (Engines)
ARVH	Aircraft Repair Ship (Helicopter)
AV	Seaplane Tender
AVB	Advanced Aviation Base Ship
AVD	Seaplane Tender (Destroyer)
AVM	Guided Missiles Ship
AVP	Seaplane Tender (Small)
AVS	Aviation Supply Ship
AVT	Auxiliary Aircraft Transport
AZ	Lighter-than-air Tender
CV	Aircraft Carrier
CVA	Attack Aircraft Carrier
CVAN	Nuclear-Powered Attack Aircraft Carrier
CVB	Aircraft Carrier, Large (Old)
CVE	Escort Aircraft Carrier
CVHA	Assault Helicopter Aircraft Carrier until 1963—later LPH
CVHE	Escort Helicopter Aircraft Carrier (Old)
CVL	Small Aircraft Carrier
CVN	Nuclear-Powered Aircraft Carrier
CVS	Antisubmarine Warfare Support Aircraft Carrier
CVU	Utility Aircraft Carrier
DD	Destroyer
IX	Miscellaneous auxiliary
LHA	Amphibious Assault Ship (General Purpose)
LHD	Amphibious Assault Ship (Multi-Purpose)
LPH	Amphibious Assault Ship (Helicopter)
LPD	Amphibious Assault Ship
LST	Landing Ship, Tank
MSC	Mine Countermeasure Support
T-ARVH	Associated with ARVH, indicates operated by Military Sealift Command, formerly Military Sea Transportation Service

Aviation Ships in Active Status															
YEAR	CV†	CVS	CVL	CVE	LHA/ LPH/ LHD‡	AV	AVD	AVP	AVM	ARV	AVS	AKV	AGP	AVB	CVT/ AVT
1922	1	—	—	—	—	1	—	2	—	—	—	—	—	—	—
1923	1	—	—	—	—	1	—	2	—	—	—	—	—	—	—
1924	1	—	—	—	—	1	—	3	—	—	—	—	—	—	—
1925	1	—	—	—	—	1	—	6	—	—	—	—	—	—	—
1926	1	—	—	—	—	1	—	6	—	—	—	—	—	—	—
1927	3	—	—	—	—	1	—	8	—	—	—	—	—	—	—
1928	3	—	—	—	—	1	—	10	—	—	—	—	—	—	—
1929	3	—	—	—	—	1	—	10	—	—	—	—	—	—	—
1930	3	—	—	—	—	2	—	10	—	—	—	—	—	—	—
1931	3	—	—	—	—	2	—	11	—	—	—	—	—	—	—
1932	3	—	—	—	—	2	—	10	—	—	—	—	—	—	—
1933	3	—	—	—	—	2	—	10	—	—	—	—	—	—	—
1934	4	—	—	—	—	2	—	9	—	—	—	—	—	—	—
1935	4	—	—	—	—	2	—	8	—	—	—	—	—	—	—
1936	4	—	—	—	—	1	—	9	—	—	—	—	—	—	—
1937	3	—	—	—	—	2	—	9	—	—	—	—	—	—	—
1938	5	—	—	—	—	2	—	9	—	—	—	—	—	—	—
1939	5	—	—	—	—	2	—	11	—	—	—	—	—	—	—
1940	6	—	—	—	—	2	—	16	—	—	—	—	—	—	—
1941	6	—	—	1	—	5	14	9	—	—	—	—	—	—	—
1942	5	—	—	3	—	5	14	14	—	—	—	2	—	—	—
1943	7	—	5	17	—	6	14	20	—	—	—	2	—	—	—
1944	13	—	9	63	—	10	5	27	—	—	—	2	—	—	—
1945	20	—	8	70	—	11	5	36	—	6	7	2	—	—	—
1946	14	—	1	10	—	8	—	11	—	4	1	—	—	—	—
1947	12	—	2	8	—	5	—	9	—	1	—	—	—	—	—
1948	11	—	2	7	—	5	—	7	—	1	—	—	—	—	—
1949	8	—	3	7	—	5	—	9	—	—	—	—	—	—	—
1950	7	—	4	4	—	3	—	7	—	—	—	—	—	—	—
1951	14	—	4	10	—	4	—	9	1	4	1	—	—	—	—
1952	16	—	5	12	—	5	—	11	1	3	1	—	—	—	—
1953	17	—	5	12	—	5	—	11	1	3	1	—	—	—	—
1954	16	4	3	7	—	5	—	11	1	2	1	—	—	—	—
1955	17	5	2	3	—	5	—	8	1	2	1	—	—	—	—
1956	19	7	1	3	—	5	—	7	1	—	1	—	—	—	—
1957	16	8	1	—	1	4	—	7	1	—	1	—	—	1	—
1958	15	11	—	—	1	4	—	6	1	—	1	—	—	1	—
1959	14	10	—	—	3	3	—	6	1	—	1	—	—	1	—
1960	14	10	—	—	3	3	—	3	1	—	1	—	—	1	—
1961	15	10	—	—	4	3	—	3	1	—	1	—	—	1	—
1962	16	10	—	—	6	3	—	3	1	—	1	—	—	1	—
1963	15	10	—	—	6	3	—	3	1	—	1	—	—	1	—
1964	15	10	—	—	6	3	—	3	1	—	1	—	—	1	—
1965	15	10	—	—	7	3	—	3	1	—	1	—	—	1	—
1966	17	10	—	—	8	4	—	4	1	—	1	—	4	1	—
1967	16	9	—	—	8	4	—	—	1	—	1	—	4	1	—

Aviation Ships in Active Status (continued)															
YEAR	CV†	CVS	CVL	CVE	LHA/ LPH/ LHD‡	AV	AVD	AVP	AVM	ARV	AVS	AKV	AGP	AVB	CVT/ AVT
1968	15	9	—	—	9	3	—	—	1	—	1	—	4	1	—
1969	15	8	—	—	8	3	—	—	1	—	—	—	4	1	1
1970	15	4	—	—	7	3	—	—	1	—	—	—	4	1	1
1971	14	4	—	—	7	3	—	—	1	—	—	—	2	—	1
1972	14	2	—	—	7	—	—	—	1	—	—	—	—	—	1
1973	14	2	—	—	7	—	—	—	1	—	—	—	—	—	1
1974	14	—	—	—	7	—	—	—	1	—	—	—	—	—	1
1975	15	—	—	—	7	—	—	—	1	—	—	—	—	—	1
1976	13	—	—	—	8	—	—	—	1	—	—	—	—	—	1
1977	13	—	—	—	9	—	—	—	1	—	—	—	—	—	1
1978	13	—	—	—	9	—	—	—	1	—	—	—	—	—	1
1979	13	—	—	—	11	—	—	—	1	—	—	—	—	—	1
1980	13	—	—	—	12	—	—	—	1	—	—	—	—	—	1
1981*	12	—	—	—	12	—	—	—	1	—	—	—	—	—	1
1982*	13	—	—	—	12	—	—	—	1	—	—	—	—	—	1
1983*	13	—	—	—	12	—	—	—	1	—	—	—	—	—	1
1984*	13	—	—	—	12	—	—	—	1	—	—	—	—	—	1
1985*	13	—	—	—	12	—	—	—	1	—	—	—	—	—	1
1986*	13	—	—	—	12	—	—	—	1	—	—	—	—	—	1
1987*	14	—	—	—	12	—	—	—	—	—	—	—	—	—	1
1988*	14	—	—	—	12	—	—	—	—	—	—	—	—	—	1
1989*	14	—	—	—	12	—	—	—	—	—	—	—	—	—	1
1990*	14	—	—	—	13	—	—	—	—	—	—	—	—	—	1
1991*	14	—	—	—	13	—	—	—	—	—	—	—	—	—	1
1992*	13	—	—	—	13	—	—	—	—	—	—	—	—	—	1
1993*	13	—	—	—	12	—	—	—	—	—	—	—	—	—	1
1994*	12	—	—	—	13	—	—	—	—	—	—	—	—	—	—
1995*	12	—	—	—	13	—	—	—	—	—	—	—	—	—	—
1996*	13	—	—	—	13	—	—	—	—	—	—	—	—	—	—
1997	12	—	—	—	12	—	—	—	—	—	—	—	—	—	—
1998	12	—	—	—	12	—	—	—	—	—	—	—	—	—	—
1999	12	—	—	—	12	—	—	—	—	—	—	—	—	—	—
2000	12	—	—	—	12	—	—	—	—	—	—	—	—	—	—
2001	12	—	—	—	13	—	—	—	—	—	—	—	—	—	—
2002	12	—	—	—	12	—	—	—	—	—	—	—	—	—	—
2003	12	—	—	—	12	—	—	—	—	—	—	—	—	—	—
2004	12	—	—	—	12	—	—	—	—	—	—	—	—	—	—
2005	12	—	—	—	11	—	—	—	—	—	—	—	—	—	—
2006	12	—	—	—	11	—	—	—	—	—	—	—	—	—	—
2007	11	—	—	—	10	—	—	—	—	—	—	—	—	—	—
2008	11	—	—	—	10	—	—	—	—	—	—	—	—	—	—
2009	11	—	—	—	10	—	—	—	—	—	—	—	—	—	—
2010	11	—	—	—	10	—	—	—	—	—	—	—	—	—	—

* During this reporting period, 1981–1996, the total carriers listed under CV does not include the carrier undergoing a major Service Life Extension Program.

† Includes all designations—CV, CVA, CVB, CVAN, and CVN—that have been used for the fleet carriers; missions the same.

‡ These LHA/LPH/LHDs are counted the same since mission is very similar.

Chapter 27

Ships Named for Naval Aviators

This listing covers only ships that were commissioned and designated as United States Ships (USS).

Ship	Hull No.	Named for	Commissioned
Abercrombie	DE-343	Ens. William W. Abercrombie, USN	1 May 1944
Adams	DM-27 [ex-DD-739]*	Lt. Samuel Adams, USN	10 Oct 1944
Allen, Edward H.	DE-531	Lt. Edward H. Allen, USN	16 Dec 1943
Antrim	FFG-20	Rear Adm. Richard N. Antrim, USN	26 Sep 1981
Ault	DD-698	Cmdr. William B. Ault, USN	31 May 1944
Baker	DE-190	Ens. John D. Baker, USNR	23 Dec 1943
Baker, Paul G.	DE-642	Lt. j.g. Paul G. Baker, USN	25 May 1944
Barnes, Doyle C.	DE-353	Ens. Doyle C. Barnes, USN	13 Jul 1944
Bass, Brinkley	DD-887	Lt. Cmdr. Harry B. Bass, USN	1 Oct 1945
Bass, Horace A.	APD-124 [ex-DE-691]*	Ens. Horace A. Bass, USNR	21 Dec 1944
Bassett	APD 73 [ex-DE-672]*	Ens. Edgar R. Bassett, USNR	23 Feb 1945
Bauer	DE-1025	Lt. Col. Harold W. Bauer, USMC	21 Nov 1957
Bebas	DE-10	Ens. Gus G. Bebas, USNR	15 May 1943
Berry, Fred T.	DD-858	Cmdr. Fred T. Berry, USN	12 May 1945
Billingsley	Destroyer No. 293	Ens. William D. Billingsley, USN	1 Mar 1920
Blakely	DE-1072	Capt. Johnston Blakely, USN, and great-grandnephew Vice Adm. Adam Blakely, USN aviator	18 Jul 1970
Blessman	APD-49 [ex-DE-69]†	Lt. Edward M. Blessman, USN	19 Sep 1943
Bowers	APD-40 [ex-DE-367]†	Ens. Robert K. Bowers, USNR	27 Jan 1944
Brackett	DE-41	Lt. Bruce G. Brackett, USNR	18 Oct 1943
Brannon, Charles E.	DE-446	Ens. Charles E. Brannon, USNR	1 Nov 1944
Bridget	DE-1024	Capt. Francis J. Bridget, USN	24 Oct 1957
Bristol, Arthur L.	APD-97 [ex-DE-281]*	Vice Adm. Arthur L. Bristol, USN	25 Jun 1945
Brock	APD-93 [ex-DE-234]*	Ens. John W. Brock, USN	9 Feb 1945
Bronson, Clarence K.	DD-668	Lt. j.g. Clarence K. Bronson, USN	11 Jun 1943
Brough	DE-148	Lt. j.g. David A. Brough, USNR	18 Sep 1943
Brown, Jesse L.	DE-1089	Ens. Jesse L. Brown, USN	17 Feb 1973
Bull	APD-78 [ex-DE-693]†	Lt. j.g. Richard Bull, USNR	12 Aug 1943
Bull, Richard S.	DE-402	Lt. Richard S. Bull, USN	26 Feb 1944
Bush, George H. W.	CVN-77	Pres. George H. W. Bush	10 Jan 2009
Butler, John C.	DE-339	Ens. John C. Butler, USNR	31 Mar 1944
Byrd, Richard E.	DDG-23	Rear Adm. Richard E. Byrd Jr., USN	7 Mar 1964
Camp	DE-251	Ens. Jack H. Camp, USNR	16 Sep 1943
Campbell, Joseph E.	APD-49 [ex-DE-70]†	Ens. Joseph E. Campbell, USNR	23 Sep 1943
Campbell, Kendall C.	DE-443	Ens. Kendall C. Campbell, USNR	31 Jul 1944
Carpenter	DDK-825 [ex-DD-825]†	Lt. Cmdr. Donald M. Carpenter, USN	15 Dec 1949
Chaffee	DE-230	Ens. Davis E. Chaffee, USNR	9 May 1944
Chevalier	DD-451 DD-805	Lt. Cmdr. Godfrey de C. Chevalier, USN	20 Jul 1942 9 Jan 1945
Chourre	ARV-1 [ex-ARG-14]§	Lt. Cmdr. Emile Chourre, USN	7 Dec 1944
Clark	FFG-11	Adm. Joseph J. Clark, USN	9 May 1980
Clark, Howard F.	DE-533	Lt. j.g. Howard F. Clark, USN	25 May 1944
Collett	DD-730	Lt. Cmdr. John A. Collett, USN	16 May 1944

Ship	Hull No.	Named for	Commissioned
Cook	DE-1083	Lt. Cmdr. Wilmer P. Cook, USN	18 Dec 1971
Coolbaugh	DE-217	Lt. j.g. Walter W. Coolbaugh, USNR	15 Oct 1943
Cooner	DE-172	Ens. Bunyan R. Cooner, USNR	21 Aug 1943
Cooper	DD-695	Lt. Elmer G. Cooper, USN	27 Mar 1944
Corl, Harry L.	APD-108 [ex-DE-598]†	Ens. Harry L. Corl, USN	5 Jun 1945
Corry	DD-334 DD-463 DD-817	Lt. Cmdr. William M. Corry, USN	25 May 1921 18 Dec 1941 27 Feb 1946
Craig, James E.	DE-201	Lt. Cmdr. James E. Craig, USN	1 Nov 1943
Crommelin	FFG-37	Cmdr. Charles L. Crommelin, USN Lt. Cmdr. Richard G. Crommelin, USN Vice Adm. Henry Crommelin, USN	18 Jun 1983
Cross	DE-448	Lt. j.g. Frederick C. Cross, USNR	8 Jan 1945
Cunningham, Alfred A.	DD-752	Lt. Col. Alfred A. Cunningham, USMC	23 Nov 1944
Davis, Frederick C.	DE-136	Ens. Frederick C. Davis, USNR	14 Jul 1943
Deede	DE-263	Lt. j.g. Leroy C. Deede, USNR	29 Jul 1943
Dickson, Harlan R.	DD-708	Lt. Cmdr. Harlan R. Dickson, USN	17 Feb 1945
Dobler	DE-48 [ex-BDE-48]‡	Lt. Joseph J. Dobler, USNR	17 May 1943
Doherty	DE-14 [ex-BDE-14]‡	Ens. John J. Doherty, USNR	6 Feb 1943
Donnell	DE-56	Ens. Earl R. Donnell, USNR	26 Jun 1943
Doyle, Cecil J.	DE-368	2d Lt. Cecil J. Doyle, USMC	16 Oct 1944
Duffy	DE-27 [ex-BDE-27]‡	Ens. Charles J. Duffy, USNR	5 Aug 1943
Dufilho	DE-423	Lt. Marion W. Dufilho, USN	21 Jul 1944
Duncan	FFG-10	Adm. Donald B. Duncan, USN	15 May 1980
Edson	DD-946	Maj. Gen. Merritt A. Edson, USMC	7 Nov 1958
Eichenberger	DE-202	Ens. Charles E. Eichenberger, USNR	17 Nov 1943
Eldridge	DE-173	Lt. Cmdr. John Eldridge Jr., USN	27 Aug 1943
Ellison, Harold J.	DD-864	Ens. Harold J. Ellison, USNR	23 Jun 1945
Ellyson	DMS-19 [ex-DD-454]†	Cmdr. Theodore G. Ellyson, USN	28 Nov 1941
Elrod	FFG-55	Maj. Henry T. Elrod, USMC	18 May 1985
Estocin	FFG-15	Capt. Michael J. Estocin, USN	10 Jan 1981
Eversole	DE-404 DD-789	Lt. j.g. John T. Eversole, USN	21 Mar 1944 10 May 1946
Fechteler	DE-157 DD-870	Lt. Frank C. Fechteler, USN	1 Jul 1943 2 Mar 1946
Fieberling	DE-640	Lt. Langdon K. Fieberling, USN	11 Apr 1944
Fitch, Aubrey	FFG-34	Adm. Aubrey W. Fitch, USN	9 Oct 1982
Flatley	FFG-21	Vice Adm. James H. Flatley Jr., USN	20 Jun 1981
Fleming	DE-32	Capt. Richard E. Fleming, USMC	18 Sep 1943
Fletcher	DD-445	Adm. Frank Friday Fletcher, USN	30 Jun 1942
	DD-992	Adm. Frank Jack Fletcher, USN	12 Jul 1980
Fogg	DE-57	Lt. j.g. Carleton T. Fogg, USN	7 Jul 1943
Forrestal	CVA-59 CV-59	James Vincent Forrestal	1 Oct 1955
Fox, Lee	APD-45 [ex-DE-65]†	Ens. Lee Fox Jr., USNR	30 Aug 1943
Gallery	FFG-26	Rear Adm. Daniel V. Gallery, USN Rear Adm. Philip Daly Gallery, USN Rear Adm. William G. Gallery, USN	5 Dec 1981
Geiger	AP-197	Gen. Roy Stanley Geiger, USMC	13 Sep 1952
Gentry	DE-349	2d Lt. Wayne R. Gentry, USMC	14 Jun 1944
Gillette	DE-270 DE-681	Lt. j.g. Douglas W. Gillette, USNR	8 Sep 1943 27 Oct 1943
Gray, John P.	APD-74 [ex-DE-673]*	Lt. j.g. John P. Gray, USNR	15 Mar 1944

Ship	Hull No.	Named for	Commissioned
Greene, Eugene A.	DD-711	Ens. Eugene A. Greene, USNR	8 Jun 1945
Griswold	DE-7	Ens. Don T. Griswold, USNR	28 Apr 1943
Groves, Stephen W.	FFG-29	Ens. Stephen W. Groves, USNR	17 Apr 1982
Hale, Roy O.	DE-336	Lt. j.g. Roy O. Hale Jr., USN	3 Feb 1944
Halsey	DLG-23 DDG-97	Fleet Adm. William F. Halsey Jr., USN	20 Jul 1963 30 Jul 2005
Hammann	DD-412 DE-131	Ens. Charles H. Hammann, USNR	11 Aug 1939 17 May 1943
Hancock, Lewis	DD-675	Lt. Cmdr. Lewis Hancock Jr., USN	29 Sep 1943
Hanson	DD-832	1st Lt. Robert M. Hanson, USMC	11 May 1945
Hart	DD-594	Lt. Patrick H. Hart, USN	4 Nov 1944
Harwood	DD-861	Cmdr. Bruce L. Harwood, USN	28 Sep 1945
Hastings, Burden R.	DE-19 [ex-BDE-19][‡]	Lt. Burden R. Hastings, USN	1 May 1943
Henderson	DD-785	Maj. Lofton R. Henderson, USMC	4 Aug 1945
Hissem	DE-400	Ens. Joseph M. Hissem, USNR	13 Jan 1944
Hodges	DE-231	Ens. Flourenoy G. Hodges, USNR	27 May 1944
Holder	DE-401 DD-819	Lt. j.g. Randolph M. Holder, USNR	18 Jan 1944 18 May 1946
Holt	DE-706	Lt. j.g. William M. Holt, USNR	9 Jun 1944
Hopping	APD-51 [ex-DE-155][†]	Lt. Cmdr. Halsted L. Hopping, USN	21 May 1943
Hurst	DE-250	Lt. Edwin W. Hurst, USN	30 Aug 1943
Hutchins	DD-476	Lt. Carleton B. Hutchins, USN	17 Nov 1942
Irwin	DD-794	Rear Adm. Noble E. Irwin, USN	14 Feb 1944
Isbell, Arnold J.	DD-869	Capt. Arnold J. Isbell, USN	5 Jan 1946
Jaccard	DE-355	Ens. Richard A. Jaccard, USNR	26 Jul 1944
Johnson, Earl V.	DE-702	Lt. j.g. Earl V. Johnson, USN	18 Mar 1944
Keller, Robert F.	DE-419	Ens. Robert F. Keller, USNR	17 Jun 1944
Kennedy, Jr., Joseph P.	DD-850	Lt. Joseph P. Kennedy Jr., USNR	15 Dec 1945
Kenyon, Henry R.	DE-683	Ens. Henry R. Kenyon, USNR	30 Nov 1943
King	DLG-10	Fleet Adm. Ernest J. King, USN	17 Nov 1960
Kinzer	APD-91 [ex-DE-232][*]	Ens. Edward B. Kinzer, USNR	1 Nov 1944
Koelsch	DE-1049	Lt. j.g. John K. Koelsch, USN	10 Jun 1967
Knox, Leslie L. B.	DE-580	Lt. j.g. Leslie L. B. Knox, USNR	22 Mar 1944
Lansdowne	DD-486	Lt. Cmdr. Zachary Lansdowne, USN	29 Apr 1942
Lassen	DDG-82	Cmdr. Clyde E. Lassen, USN	21 Apr 2001
Lawrence, William P.	DDG-110	Vice Adm. William P. Lawrence, USN	4 June 2011
Lewis	DE-535	Ens. Victor A. Lewis, USNR	5 Sep 1944
Lindsey	DM-32 [ex-DD-771][*]	Lt. Eugene E. Lindsey, USN	20 Aug 1944
Lough	DE-586	Ens. John C. Lough, USNR	2 May 1944
Lovelace	DE-198	Lt. Cmdr. Donald A. Lovelace, USN	7 Nov 1943
Macleish	DD-220	Lt. Kenneth MacLeish, USNR	2 Aug 1920
Mason	DE-529	Ens. Newton H. Mason, USNR	20 Mar 1944
Massey	DD-778	Lt. Cmdr. Lance E. Massey, USN	24 Nov 1944
McCain, John S.	DL-3 [ex-DD-928][*] DDG-56	Adm. John S. McCain, USN	12 Oct 1953 2 Jul 1994
McCampbell	DDG-85	Capt. David McCampbell, USN	17 Aug 2002
McClusky	FFG-41	Rear Adm. Clarence W. McClusky Jr., USN	10 Dec 1983
McCord	DD-534	Cmdr. Frank C. McCord, USN	19 Aug 1943
McDonnell, Edward O.	DE-1043	Vice Adm. Edward O. McDonnell, USNR	15 Feb 1965
McCormick	DD-223	Lt. j.g. Alexander A. McCormick, USNR	30 Aug 1920

Ship	Hull No.	Named for	Commissioned
Menges	DE-320	Ens. Herbert H. Menges, USNR	26 Oct 1943
Milius	DDG-69	Capt. Paul L. Milius, USN	23 Nov 1996
Mills	DE-383	Ens. Lloyd J. Mills, USNR	2 Oct 1943
Mitchell	DE-43 [ex-BDE-43]‡	Ens. Albert E . Mitchell, USNR	17 Nov 1943
Mitchell, Oliver	DE-417	2d Lt. Oliver Mitchell, USMCR	14 Jun 1944
Mitscher	DL-2 [ex-DD-927]* DDG-57	Adm. Marc A. Mitscher, USN	15 May 1953 10 Dec 1994
Moore, Ulvert M.	DE-442	Ens. Ulvert M. Moore, USNR	18 Jul 1944
Mosley	DE-321	Ens. Walter H. Mosley, USNR	30 Oct 1943
Mullinnix	DD-944	Rear Adm. Henry M. Mullinnix, USN	7 Mar 1958
Mustin	DD-413 DDG-89	Capt. Henry C. Mustin, USN Capt. Henry C. Mustin, USN Vice Adm. Lloyd Mustin, USN Vice Adm. Henry C. Mustin II, USN Lt. Cmdr. Thomas M. Mustin, USN	15 Sep 1939 26 Jul 2003
Nawman, Melvin R.	DE-416	2d Lt. Melvin R. Nawman, USMCR	16 May 1944
O'Flaherty	DE-340	Ens. Frank W. O'Flaherty, USNR	8 Apr 1944
O'Hare	DD-889	Lt. Cmdr. Edward H. O'Hare, USN	29 Nov 1945
Osberg	DE-538	Ens. Carl A. Osberg, USNR	10 Dec 1945
Osmus	DE-701	Ens. Wesley F. Osmus, USNR	23 Feb 1945
Owens, James C.	DD-776	Lt. James C. Owens, USN	17 Feb 1945
Parks, Floyd B.	DD-884	Maj. Floyd B. Parks, USMC	31 Jul 1945
Peiffer	DD-588	Ens. Carl D. Peiffer, USN	15 Jun 1944
Pennewill	DE-175	Lt. Cmdr. William E. Pennewill, USN	15 Sep 1943
Peterson, Dale W.	DE-337	Ens. Dale W. Peterson, USN	17 Feb 1944
Potter, Stephen	DD-538	Ens. Stephen Potter, USN	21 Oct 1943
Powers, John J.	DE-528	Lt. John J. Powers, USN	29 Feb 1944
Raby	DE-698	Rear Adm. James J. Raby, USN	7 Dec 1943
Radford, Arthur W.	DD-968	Adm. Arthur W. Radford, USN	16 Apr 1977
Ramsey	DEG-2	Adm. Dewitt C. Ramsey, USN	3 Jun 1967
Raven, Julius A.	APD-110 [ex-DE-600]*	Lt. Julius A. Raven, USNR	28 Jun 1945
Reid, Beverly W.	APD-119 [ex-DE-722]*	Ens. Beverly W. Reid, USN	25 Jun 1945
Rich	DE-695 DD-820	Lt. j.g. Ralph M. Rich, USN	10 Oct 1943 3 Jul 1946
Richey	DE-385	Ens. Joseph L. Richey, USNR	30 Oct 1943
Riddle	DE-185	Ens. Joseph Riddle, USNR	17 Nov 1943
Riley	DE-579	Lt. Paul J. Riley, USN	13 Mar 1944
Rinehart	DE-196	Lt. j.g. Clark F. Rinehart, USN	12 Feb 1944
Roark	DE-1053	Lt. William M. Roark, USN	22 Nov 1969
Roberts, John Q.	APD-94 [ex-DE-235]*	Ens. John Q. Roberts, USNR	8 Mar 1945
Roche	DE-197	Ens. David J. Roche, USNR	21 Feb 1944
Rodgers, John	DD-574 DD-983	Commo. John Rodgers, USN Rear Adm. John Rodgers, USN Cmdr. John Rodgers, USN naval aviator	9 Feb 1943 14 Jul 1979
Rombach	DE-364	Lt. j.g. Severin L. Rombach, USNR	20 Sep 1944
Rowell, Richard M.	DE-403	Ens. Richard M. Rowell, USNR	9 Mar 1944
Sample	DE-1048	Rear Adm. William D. Sample, USN	23 Mar 1968
Saufley	DD-465	Lt. j.g. Richard C. Saufley, USN	29 Aug 1942
Seaman	DD-791‖	Lt. Cmdr. Allen L. Seaman, USNR	
Seid	DE-256	Ens. Daniel Seid, USNR	11 Jun 1943
Sellstrom	DER-255	Ens. Edward R. Sellstrom, USNR	12 Oct 1943
Shea	DM-30 [ex-DD-750]*	Cmdr. John J. Shea, USN	30 Sep 1944

Ship	Hull No.	Named for	Commissioned
Shelton	DE-407 DD-790	Ens. James A. Shelton, USNR	4 Apr 1944
Sherman, Forrest P.	DD-931 DDG-98	Adm. Forrest P. Sherman, USN	21 Jun 1946 9 Nov 1955 28 Jan 2006
Smartt	DE-257	Ens. Joseph G. Smartt, USNR	18 Jun 1943
Snyder	DE-745	Ens. Russell Snyder, USNR	5 May 1944
Sprague, Clifton	FFG-16	Vice Adm. Clifton A. F. Sprague, USN	21 Mar 1981
Stickell	DD-888	Lt. John H. Stickell, USNR	31 Oct 1945
Stockdale	DDG-106	Vice Adm. James B. Stockdale, USN	18 Apr 2009
Strickland	DE-333	Ens. Everett C. Strickland, USNR	10 Jan 1944
Stump	DD-978	Adm. Felix B. Stump, USN	19 Aug 1978
Sturtevant	DD-240	Ens. Albert D. Sturtevant, USNR	21 Sep 1920
Suesens, Richard W.	DE-342	Lt. j.g. Richard W. Suesens, USN	29 Apr 1944
Tabberer	DE-418	Lt. j.g. Charles A. Tabberer, USNR	23 May 1944
Talbot, Ralph	DD-390	2d Lt. Ralph Talbot, USMC	14 Oct 1937
Taylor, Jesse Junior	FFG-50	Cmdr. Jesse J. Taylor, USN	1 Dec 1984
Taylor, Lawrence C.	DE-415	2d Lt. Lawrence C. Taylor, USMC	13 May 1944
Thach	FFG-43	Adm. John S. Thach, USN	17 Mar 1984
Thomas, Leland E.	DE-420	2d Lt. Leland E. Thomas, USMCR	19 Jun 1944
Thomas, Lloyd	DE-764	Lt. j.g. Lloyd Thomas, USN	21 Mar 1947
Thomason, John W.	DD-760	Col. John W. Thomason, USMC	11 Oct 1945
Thornhill	DE-195	Lt. j.g. Leonard W. Thornhill, USN	1 Feb 1944
Tills	DE-748	Ens. Robert G. Tills, USN	8 Aug 1944
Towers	DDG-9	Adm. John H. Towers, USN	6 Jun 1961
Trumpeter	DE-180	Lt. j.g. George N. Trumpeter, USNR	16 Oct 1943
Tweedy	DE-532	2d Lt. Albert W. Tweedy Jr., USMC	12 Feb 1944
Turner, Richmond K.	DLG-20	Adm. Richmond K. Turner, USN	13 Jun 1964
Underhill	DE-682	Ens. Samuel J. Underhill, USNR	15 Nov 1943
Vammen	DE-644	Ens. Charles E. Vammen Jr., USNR	27 Jul 1944
Vandivier	DER-540	Lt. j.g. Norman F. Vandivier, USNR	11 Oct 1955
Van Voorhis	DE-1028	Lt. Cmdr. Bruce A. Van Voorhis, USN	22 Apr 1957
Varian	DE-798	Ens. Bertram S. Varian Jr., USNR	29 Feb 1944
Waldron	DD-699	Lt. Cmdr. John C. Waldron, USN	7 Jun 1944
Ware, Charles R.	DD-865	Lt. Charles R. Ware, USN	21 Jul 1945
Weber	APD-75 [ex-DE-675]†	Lt. j.g. Frederick T. Weber, USNR	30 Jun 1943
Whiting, Kenneth	AV-14	Capt. Kenneth Whiting, USN	8 May 1944
Wileman	DE-22 [ex-BDE-22]‡	Ens. William W. Wileman, USNR	11 Jun 1943
Wilhoite	DE-397	Ens. Thomas M. Wilhoite, USNR	16 Dec 1943
Wilke, Jack W.	DE-800	Ens. Jack W. Wilke, USNR	7 Mar 1944
Willis	DE-395	Ens. Walter M. Willis, USNR	10 Dec 1943
Wiltsie	DD-716	Capt. Irving D. Wiltsie, USN	21 Jan 1946
Wingfield	DE-194	Ens. John D. Wingfield, USNR	28 Jan 1944
Wiseman	DE-667	Lt. j.g. Osborne B. Wiseman, USN	4 Apr 1944
Woodson	DE-359	Lt. j.g. Jeff D. Woodson, USN	24 Aug 1944

* Redesignated before commissioning.

† Redesignated after commissioning.

‡ Launched under different names and renamed before being commissioned.

§ Redesignated and renamed from ship already in service.

|| Never commissioned.

Chapter 28

Post–World War II Carrier Deployments by Year

The carrier deployment list covers those for escort carriers (CVE), small carriers (CVL), antisubmarine carriers (CVS), and carriers with the designations CV, CVB, CVA, CVAN, and CVN. However, the list does not include carriers, usually CVEs, that deployed as part of the Military Sea Transportation Service to transport men, aircraft, and aviation cargo or when used as replenishment carriers. The deployment list also does not include carriers that may have been used in "Magic Carpet" operations or other missions involved in transporting men from or to the United States. Departure and return dates are normally from the carrier's homeport or other stateside port.

Major Overseas Deployments for 1946				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations[ı]**
08 Jan 1946	19 Mar 1946	CVBG-75	CVB-42	Carib/SoLant
15 Feb 1946	07 May 1946	[†]	CVE-112	WestPac
20 Apr 1946	09 Aug 1946	CVG-19	CV-36	WestPac
06 May 1946	Aug 1946	[‡]	CVE-117	[‡]
03 Jul 1946	15 Apr 1947	CVG-81[•]	CV-37	WestPac
01 Aug 1946	29 Apr 1947	CVG-4[§]	CV-40	WestPac
08 Aug 1946	04 Oct 1946	CVBG-75	CVB-42	Med
16 Sep 1946	12 Dec 1946	CVG-18	CV-32	Carib/East Coast of South America
22 Oct 1946	21 Dec 1946	CVG-82[ı]	CV-15	Med

[•] CVG-81 redesignated CVAG-13
[†] No Air Group assigned.
[‡] *Saidor* (CVE 117) deployed to Bikini to take part in Operation Crossroads, atomic bomb testing. She did not have an air group or squadrons embarked during the testing.
[§] CVG-4 redesignated CVAG-1
[ı] CVG-82 redesignated CVAG-17

Major Overseas Deployments for 1947				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
02 Jan 1947	27 Feb 1947	[•]	CV-47	Antarctica
02 Feb 1947	19 Mar 1947	CVAG-17	CV-15	EastLant/Carib
31 Mar 1947	16 Jun 1947	CVG-5	CV-38	WestPac
31 Mar 1947	08 Oct 1947	CVAG-15	CV-36	WestPac
03 Apr 1947	09 Jun 1947	CVAG-7	CV-32	Med
20 May 1947	11 Aug 1947	CVAG-17	CV-15	NorLant/Carib
07 Jun 1947	11 Aug 1947	CVAG-3	CV-33	NorLant/Carib
05 Jul 1947	16 Aug 1947	VMF-461	CVE-122	SoLant
30 Jul 1947	19 Nov 1947	CVAG-7	CV-32	Med
09 Oct 1947	11 Jun 1948	CVAG-11	CV-45	World Cruise
29 Oct 1947	11 Mar 1948	CVBG-1	CVB-41	Med

[•] *Philippine Sea* (CV 47) deployed to Antarctica to participate in Operation Highjump and carried R4D transports for the operation.

Major Overseas Deployments for 1948				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
07 Feb 1948	24 Feb 1948	CVLG-1	CVL-48	Carib
09 Feb 1948	26 Jun 1948	CVAG-9	CV-47	Carib/Med
29 Feb 1948	Jun 1948	˙	CVE-115	˙
01 Jun 1948	02 Oct 1948	CVG-3	CV-33	Med
07 Jun 1948	06 Aug 1948	CVG-17	CVB-43	Med/Carib
Jun 1948	Oct 1948	VMF-225	CVE-112	Med/Persian Gulf
13 Sep 1948	23 Jan 1949	CVG-4	CVB-42	Med
01 Oct 1948	23 Dec 1948	CVG-13	CV-37	WestPac
01 Oct 1948	21 Feb 1949	CVG-1	CV-40	World Cruise

˙ *Bairoko* (CVE 115) deployed to Eniwetok Island to participate in Operation Sandstone, atmospheric nuclear tests. The carrier did not have any assigned squadrons aboard during the deployment.

Major Overseas Deployments for 1949				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
04 Jan 1949	05 Mar 1949	CVG-6	CVB-41	Med
04 Jan 1949	22 May 1949	CVG-7	CV-47	Med
03 May 1949	26 Sep 1949	CVG-2	CVB-43	Med
06 Sep 1949	26 Jan 1950	CVG-7	CV-32	Med
27 Oct 1949	23 Nov 1949	CVG-6	CVB-42	NorLant

Major Overseas Deployments for 1950				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
06 Jan 1950	23 May 1950	CVG-4	CVB-41	Med
11 Jan 1950	13 Jun 1950	CVG-19	CV-21	WestPac
27 Jan 1950	23 Feb 1950	#	CV-33	East to West Coast
01 May 1950	01 Dec 1950	CVG-5	CV-45	WestPac/Korea
02 May 1950	24 Aug 1950	CVG-3	CV-32	Med
04 Jul 1950	05 Feb 1951	ı	CVE-118	WestPac/Korea
05 Jul 1950	09 Jun 1951	CVG-11*	CV-47	WestPac/Korea
10 Jul 1950	10 Nov 1950	CVG-7	CVB-41	Med
14 Jul 1950	07 Feb 1951	§	CVE-116	WestPac/Korea
24 Aug 1950	11 Nov 1950	CVG-2	CV-21	WestPac/Korea
02 Sep 1950	14 Nov 1950	††	CVE-120	Med
09 Sep 1950	01 Feb 1951	CVG-17	CVB-43	Med
19 Sep 1950	03 Feb 1951	CVG-3	CV-32	WestPac/Korea
09 Nov 1950	09 Jun 1951	CVG-19	CV-37	WestPac/Korea
14 Nov 1950	15 Aug 1951	‡	CVE-115	WestPac/Korea
16 Nov 1950	25 Jun 1951	†	CVL-29	WestPac/Korea
06 Dec 1950	07 Apr 1951	CVG-2**	CV-45	WestPac/Korea

* CVG-11 deployed to Korea embarked in *Philippine Sea* (CV 47) and on 29 March 1951 transferred to *Valley Forge* (CV 45) and CVG-2 transferred from *Valley Forge* to *Philippine Sea*. CVG-11 returned to the States embarked in *Valley Forge*.

† While deployed to Korea for combat operations, *Bataan* (CVL 29) operated with VMF-211 on board from 11 December 1950 to 4 March 1951 and with VMF-312 from 5 March to 6 June 1951. The carrier also had HU-1 Det on board.

‡ While deployed to Korea, *Bairoko* (CVE 115) operated with VS-21 (3 Dec–16 Feb), VS-23 (17 Feb–15 Aug) and HU-1 Det on board.

§ While deployed to Korea, *Badoeng Strait* (CVE 116) operated with VMF-323 and HU-1 Det on board.

ı While deployed to Korea, *Sicily* (CVE 118) operated with VMF-214 (1 Aug–13 Nov), VS-21 (to 3 Dec) and HU-1 Det on board.

During the cruise from East to West Coast, *Kearsarge* (CV 33) did not have any aircraft, air group, or squadrons embarked.

** CVG-2 deployed to Korea embarked in *Valley Forge* (CV 45). On 29 March 1951 CVG-2 transferred to *Philippine Sea* (CV 47) and CVG-11 transferred to *Valley Forge*.

†† *Mindoro* (CVE 120) deployed with VS-22 and VC-33 Det 12.

Major Overseas Deployments for 1951				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
10 Jan 1951	18 May 1951	CVG-6	CVB-42	Med
11 Jan 1951	31 Mar 1951	VF-14	CVL-49	Med
02 Mar 1951	24 Oct 1951	CVG-101	CV-21	WestPac/Korea
06 Mar 1951	08 Jun 1951	AirDet	CVL-48	Med
20 Mar 1951	06 Oct 1951	CVG-1	CVB-43	Med
10 May 1951	17 Dec 1951	CVG-102	CV-31	Korea
12 May 1951	12 Oct 1951	§	CVE-118	WestPac/Korea
15 May 1951	04 Oct 1951	CVG-4	CV-34	Med
16 May 1951	29 Aug 1951	CVG-19	CV-37	WestPac/Korea
26 Jun 1951	25 Mar 1952	CVG-5	CV-9	WestPac/Korea
08 Jul 1951	22 Dec 1951	*	CVE-114	WestPac/Korea
03 Sep 1951	21 Dec 1951	CVG-3	CV-32	Med
03 Sep 1951	04 Feb 1952	CVG-17	CVB-42	Med
08 Sep 1951	02 May 1952	CVG-15	CV-36	Korea
Sep 1951	14 Nov 1951	ı	CVE-112	NorLand/Med
15 Sep 1951	01 Mar 1952	‡	CVE-116	WestPac/Korea
15 Oct 1951	03 Jul 1952	ATG-1	CV-45	WestPac/Korea
28 Nov 1951	11 Jun 1952	CVG-8	CV-40	Med
01 Dec 1951	09 Jun 1952	†	CVE-115	WestPac/Korea
31 Dec 1951	08 Aug 1952	CVG-11	CV-47	WestPac/Korea

* While deployed to Korea, *Rendova* (CVE 114) operated with VMF-212 (22 Sep–6 Dec), VS-892 (16 Jul–19 Sep and 11–22 Dec) and HU-1 Det on board.

† While deployed to Korea, *Bairoko* (CVE 115) operated with VS-25 (on board to 21 Jan and returned in May) and HU-1 Det on board.

‡ While deployed to Korea, *Badoeng Strait* (CVE 116) operated with VMF-212, VS-892 (on board 5 Oct–8 Dec), and HU-1 Det on board.

§ While deployed to Korea, *Sicily* (CVE 118) operated with VMF-323 (5 Jun–30 Sep), VS-892 (to 13 Jul), and HU-1 Det on board.

ı *Siboney* (CVE 112) deployed with VS-22, VC-4 Det, and HU-2 Det on board.

Major Overseas Deployments for 1952				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
09 Jan 1952	05 May 1952	CVG-6	CVB-41	Med
09 Jan 1952	26 Mar 1952	*	CVL-28	Med
27 Jan 1952	26 Aug 1952	†	CVL-29	WestPac/Korea
08 Feb 1952	26 Sep 1952	CVG-2	CV-21	WestPac/Korea
21 Mar 1952	03 Nov 1952	CVG-19	CV-37	WestPac/Korea
19 Apr 1952	12 Oct 1952	CVG-4	CVB-43	Med
19 Apr 1952	28 Jun 1952	ıı	CVE-122	Med
08 May 1952	04 Dec 1952	**	CVE-118	WestPac/Korea
20 May 1952	08 Jan 1953	CVG-7	CV-31	WestPac/Korea
24 May 1952	11 Oct 1952	CVG-1	CV-18	Med/NorLant
16 Jun 1952	06 Feb 1953	ATG-2	CVA-9	WestPac/Korea
19 Jul 1952	27 Feb 1953	#	CVE-116	WestPac/Korea
11 Aug 1952	17 Mar 1953	CVG-101	CVA-33	WestPac/Korea
26 Aug 1952	09 Oct 1952	ı	CVL-49	NorLant
26 Aug 1952	07 Dec 1952	††	CVE-110	NorLant/Med
26 Aug 1952	08 Oct 1952	CVG-6	CVB-41	NorLant
26 Aug 1952	19 Dec 1952	CVG-17	CVB-42	NorLant/Med
27 Aug 1952	11 Oct 1952	§§	CVE-120	NorLant
28 Aug 1952	04 Feb 1953	CVG-3	CVA-32	Med
15 Sep 1952	18 May 1953	CVG-102	CVA-34	WestPac/Korea

Major Overseas Deployments for 1952				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
15 Sep 1952	05 Dec 1952	‡‡	CVE-114	‡‡
28 Oct 1952	26 May 1953	‡	CVL-29	WestPac/Korea
20 Nov 1952	25 Jun 1953	CVG-5	CVA-45	WestPac/Korea
01 Dec 1952	19 May 1953	CVG-6	CVA-41	Med
15 Dec 1952	14 Aug 1953	CVG-9	CVA-47	WestPac/Korea

* *Cabot* (CVL 28) deployed to the Mediterranean Sea with one squadron aboard, VS-24.

† While deployed to Korea, *Bataan* (CVL 29) operated with VS-25 and HU-1 Det on board as well as VMA-312 for the period 21 April–21 July 1952.

‡ While deployed to Korea, *Bataan* (CVL 29) operated with VS-871, VS-21, and HU-1 Det on board as well as VMA-312 for the period 9 February–8 May 1953.

ı *Wright* (CVL 49) deployed to the North Atlantic and operated with detachments from VC-4 and VF-42.

While deployed to Korea, *Badoeng Strait* (CVE 116) operated with VMA-312 (19 Oct–9 Feb), VS-931 (10 Aug–19 Oct), and HU-1 Det on board.

** While deployed to Korea, *Sicily* (CVE 118) operated with VMA-312 (4 Sep–19 Oct), VS-931 (to 9 Aug and 19 Oct–4 Dec), and HU-1 Det on board.

†† While deployed, *Salerno Bay* (CVE 110) operated with VS-26 and HU-2 Det 4 on board.

‡‡ *Rendova* (CVE 114) deployed to the Marshall Islands to participate in atomic tests Operation Ivy. Units on board during the deployment included FASRON-7 Det, HS-2, VC-3 Det, and HMR-362 Det.

§§ *Mindoro* (CVE 120) deployed to the North Atlantic with VS-22, VC-4 Det 12, and HU-2 Det 12.

ıı *Palau* (CVE 122) deployed with VS-27 and HU-2 Det 9.

Major Overseas Deployments for 1953				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
07 Jan 1953	03 Jul 1953	CVG-10	CVA-40	Med
21 Jan 1953	24 Aug 1953	§	CVE-115	WestPac/Korea
24 Jan 1953	21 Sep 1953	CVG-15	CVA-37	Korea/WestPac
Feb 1953	Apr 1953	†	CVL-49	Med
30 Mar 1953	28 Nov 1953	ATG-1	CVA-21	WestPac/Korea
11 Apr 1953	18 Dec 1953	ı	CVE-119	WestPac/Korea
17 Apr 1953	Jun 1953	‡	CVE-106	NorLant/Med
26 Apr 1953	04 Dec 1953	CVG-4	CVA-39	Med/IO/WestPac/Korea
26 Apr 1953	21 Oct 1953	CVG-8	CVA-43	Med
11 Jun 1953	03 Dec 1953	CVG-1	CVA-42	Med
11 Jun 1953	21 Jul 1953	*	CV-36	NorLant
01 Jul 1953	18 Jan 1954	CVG-11	CVA-33	Korea/WestPac
14 Jul 1953	25 Feb 1954	**	CVE-118	WestPac
31 Jul 1953	Aug 1953	††	CVL-29	WestPac
03 Aug 1953	03 Mar 1954	CVG-2	CVA-10	WestPac
14 Sep 1953	22 Apr 1954	CVG-19	CVA-34	WestPac
16 Sep 1953	01 May 1954	CVG-17	CVA-18	World Cruise
16 Sep 1953	21 Feb 1954	CVG-7	CVA-20	NorLant/Med
16 Sep 1953	01 Dec 1953	#	CVE-112	NorLant/Med
Oct 1953	20 Jul 1954	VMA-324	CVL-48	World Cruise
12 Nov 1953	19 Aug 1954	CVG-3	CVA-40	World Cruise
01 Dec 1953	12 Jul 1954	ATG-2	CVA-9	WestPac

* The carrier deployed with VF-84, VC-4, and VS-27 but did not have an assigned air group.

† The carrier deployed with VS-27 and VS-24 Det but did not have an assigned air group.

‡ The carrier deployed with VS-22 and HU-2 Det 37 but did not have an assigned air group.

§ While deployed to Korea, *Bairoko* (CVE 115) operated with VS-21 (3 Feb–8 May), VS-23 (ashore at Guam Feb–Apr), VMA-312 (9 May–8 Jun), and HU-1 Det on board.

ı While deployed to Korea, *Point Cruz* (CVE 119) operated with VMA-332, VS-38 (put ashore at Agana 28 Apr), VS-23 (on board 28 Apr, Japan), HS-2, and HU-1 Det on board.

Siboney (CVE 112) deployed with VS-31 and HU-2 Det 14 on board.

** *Sicily* (CVE 118) deployed with VS-38 and HS-2 Det A on board.

†† *Bataan* (CVL 29) deployed as a transport carrying planes and equipment for delivery to Japan.

Major Overseas Deployments for 1954				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
Jan 1954	Jun 1954	VS-20	CVE-114	WestPac
04 Jan 1954	04 Aug 1954	CVG-6	CVA-41	Med
05 Jan 1954	12 Mar 1954	‡	CVE-107	Med
09 Jan 1954	28 May 1954	ı	CVE-115	ı
03 Feb 1954	06 Aug 1954	CVG-14	CVA-15	Med
03 Mar 1954	11 Oct 1954	CVG-12	CVA-21	WestPac
12 Mar 1954	19 Nov 1954	CVG-5	CVA-47	WestPac
05 Apr 1954	31 Oct 1954	VMA-211	CVL-49	WestPac
04 May 1954	22 Jun 1954	#	CVE-120	Med
11 May 1954	12 Dec 1954	CVG-9	CVA-12	World Cruise
07 Jun 1954	03 Aug 1954	§	CVE-112	NorLant
07 Jul 1954	20 Dec 1954	CVG-10	CVA-43	Med
01 Jul 1954	28 Feb 1955	CVG-15	CVA-10	WestPac
01 Sep 1954	11 Apr 1955	ATG-1	CVA-18	WestPac
28 Sep 1954	22 Apr 1955	CVG-8	CVA-39	Med
Sep 1954	Oct 1954	*	CVS-47	NorLant
Oct 1954	May 1955	†	CVS-37	WestPac
07 Oct 1954	12 May 1955	CVG-11	CVA-33	WestPac
03 Nov 1954	21 Jun 1955	CVG-2	CVA-9	WestPac
30 Nov 1954	18 Jun 1955	ATG-181	CVA-15	Med
27 Dec 1954	14 Jul 1955	CVG-1	CVA-41	World Cruise

* *Valley Forge* (CVS 47) deployed with VS-39, VC-4 Det 52, and HU-2 Det 52 on board. CVSGs (Antisubmarine Carrier Air Groups) were not established until various times in 1960.

† *Princeton* (CVS 37) deployed with VS-23, VS-37, VC-3 Det N, and HS-4 Det N on board. CVSGs were not established until various times in 1960.

‡ *Gilbert Islands* (CVE 107) deployed with VS-36 and HU-2 Det 40 on board.

§ *Siboney* (CVE 112) deployed with VC-4 Det 58 and HU-2 Det 58 on board.

ı *Bairoko* (CVE 115) deployed to the Marshal Islands to participate in Operation Castle, atmospheric thermonuclear tests. Squadrons deployed during this operation were VC-3 and HMR-362.

Mindoro (CVE 120) deployed with VS-30, HS-1 Det 57, and HU-2 Det 57.

Major Overseas Deployments for 1955				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
05 Jan 1955	15 Mar 1955	*	CVS-36	Med
02 Mar 1955	21 Sep 1955	CVG-19	CVA-34	WestPac
01 Apr 1955	23 Nov 1955	ATG-2	CVA-47	WestPac
05 Apr 1955	29 Sep 1955	CVG-17	CVA-43	Med
Apr 1955	01 Oct 1955	‡	CVE-116	WestPac
04 May 1955	10 Dec 1955	CVG-7	CVA-12	WestPac
28 May 1955	22 Nov 1955	CVG-4	CVA-11	Med
03 Jun 1955	03 Feb 1956	CVG-14	CVA-21	WestPac
06 Jun 1955	02 Aug 1955	†	CVE-112	Med/NorLant
10 Aug 1955	15 Mar 1956	CVG-12	CVA-19	WestPac
24 Aug 1955	Feb 1956	§	CVE-119	WestPac
09 Oct 1955	30 Apr 1956	CVG-6	CVA-39	Med
29 Oct 1955	17 May 1956	CVG-5	CVA-33	WestPac
31 Oct 1955	16 Apr 1956	ATG-201	CVA-20	WestPac
04 Nov 1955	02 Aug 1956	CVG-3	CVA-14	Med

* *Antietam* (CVS 36) deployed with VS-26, VC-4 Det 50, HS-1 Det 50, and HU-2 Det 50 aboard. CVSGs (Antisubmarine Carrier Air Groups) were not established until various times in 1960.

† *Siboney* (CVE 112) deployed with VS-22 Det, VS-30 Det, VC-33 Det and HU-2 Det aboard.

‡ *Badoeng Strait* (CVE 116) deployed with VS-38 and HS-2 Det aboard.

§ *Point Cruz* (CVE 119) deployed with VS-25 and HS-4 Det R aboard.

Major Overseas Deployments for 1956				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
Jan 1956	May 1956	*	CVS-37	WestPac
05 Jan 1956	23 Jun 1956	ATG-3	CVA-38	WestPac
11 Feb 1956	13 Jun 1956	CVG-9	CVA-34	WestPac
Feb 1956	08 Aug 1956	‡	CVE-116	‡
12 Mar 1956	05 Sep 1956	CVG-8	CVA-11	Med
19 Mar 1956	13 Sep 1956	ATG-4	CVA-10	WestPac
23 Apr 1956	15 Oct 1956	CVG-15	CVA-18	WestPac
26 May 1956	06 Jul 1956	HMR-262	CVE-112	Med
28 May 1956	20 Dec 1956	ATG-1	CVA-16	WestPac
14 Jul 1956	19 Feb 1957	ATG-202	CVA-15	Med
16 Jul 1956	26 Jan 1957	CVG-11	CVA-9	WestPac
13 Aug 1956	11 Feb 1957	CVG-10	CVA-43	Med
16 Aug 1956	28 Feb 1957	CVG-21	CVA-31	WestPac
29 Sep 1956	21 Dec 1956	†	CVS-36	Med
15 Oct 1956	22 May 1957	ATG-181	CVA-20	WestPac
07 Nov 1956	12 Dec 1956	CVG-1	CVA-59	Azores
13 Nov 1956	20 May 1957	CVG-2	CVA-38	WestPac

* *Princeton* (CVS 37) deployed with VS-20 and VS-21 on board. CVSGs (Antisubmarine Carrier Air Groups) were not established until various times in 1960.

† *Antietam* (CVS 36) deployed with VS-36, VFAW-4 Det 50, HS-3 Det 50, and HU-2 Det 50 on board. CVSGs were not established until various times in 1960.

‡ *Badoeng Strait* (CVE 116) deployed to the Marshal Islands to participate in Operation Redwing, atmospheric thermonuclear tests. She deployed with HMR-363 on board.

Major Overseas Deployments for 1957				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
Jan 1957	06 Aug 1957	ı	CVS-47	WestPac
15 Jan 1957	22 Jul 1957	CVG-1	CVA-59	Med
21 Jan 1957	25 Jul 1957	CVG-14	CVA-12	WestPac
21 Jan 1957	27 Jul 1957	ATG-182	CVA-39	Med
09 Mar 1957	15 Aug 1957	CVG-19	CVA-10	WestPac
06 Apr 1957	18 Sep 1957	ATG-2	CVA-19	WestPac
19 Apr 1957	17 Oct 1957	CVG-12	CVA-16	WestPac
01 Jul 1957	24 Feb 1958	CVG-4	CVA-15	Med
12 Jul 1957	13 Feb 1958	‡	CVS-37	WestPac/IO
12 Jul 1957	09 Dec 1957	CVG-5	CVA-31	WestPac
12 Jul 1957	05 Mar 1958	CVG-17	CVA-42	Med
09 Aug 1957	02 Apr 1958	ATG-3	CVA-33	WestPac
16 Aug 1957	21 Oct 1957	CVG-1	CVA-59	NorLant
30 Aug 1957	22 Oct 1957	*	CVS-18	NorLant
03 Sep 1957	11 Oct 1957	§	CVS-40	NorLant
03 Sep 1957	22 Oct 1957	CVG-6	CVA-11	NorLant
03 Sep 1957	22 Oct 1957	CVG-7	CVA-60	NorLant
05 Sep 1957	31 Oct 1957	MAG-26†	CVS-39	Med
16 Sep 1957	25 Apr 1958	CVG-9	CVA-14	WestPac

* *Wasp* deployed with VS-27, VS-30, and HS-5 on board. CVSGs (Antisubmarine Carrier Air Groups) were not established until various times in 1960.

† MAG-26 consisted of VMA-533, VMA-324, and VMF-312.

‡ *Princeton* (CVS 37) deployed with VS-38 and HS-8 on board. CVSGs were not established until various times in 1960.

§ *Tarawa* (CVS 40) deployed with VS-32, VA-172, VF(AW)-4 Det 38, HU-2 Det 38, and HS-1 on board. CVSGs were not established until various times in 1960.

ı *Philippine Sea* (CVS 47) deployed with VS-37 and HS-2 on board. CVSGs were not established until various times in 1960.

Major Overseas Deployments for 1958				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
06 Jan 1958	30 Jun 1958	ATG-4	CVA-12	WestPac
13 Jan 1958	15 Jul 1958	#	CVS-47	WestPac
01 Feb 1958	01 Oct 1958	CVG-3	CVA-60	Med
02 Feb 1958	17 Nov 1958	ATG-201	CVA-9	Med/IO/WestPac
15 Feb 1958	02 Oct 1958	CVG-15	CVA-19	WestPac
08 Mar 1958	21 Nov 1958	CVG-11	CVA-38	WestPac
*1958	23 Sep 1958	*	CVS-21	Eniwetok-Bikini
10 May 1958	12 Oct 1958	†	CVS-18	Med
09 Jun 1958	08 Aug 1958	ATG-181	CVA-11	NorLant
09 Jun 1958	07 Aug 1958	‡	CVS-39	NorLant
20 Jun 1958	02 Dec 1958	ı	CVS-37	WestPac
20 Jun 1958	20 Aug 1958	CVG-14	CVA-61	SoLant/SoPac
14 Jul 1958	19 Dec 1958	CVG-21	CVA-16	WestPac
16 Aug 1958	12 Mar 1959	CVG-2	CVA-41	WestPac
21 Aug 1958	12 Jan 1959	ATG-4	CVA-20	WestPac
02 Sep 1958	12 Mar 1959	CVG-10	CVA-59	Med
02 Sep 1958	12 Mar 1959	CVG-7	CVA-15	Med
01 Oct 1958	01 Nov 1958	None	CVS-21	West to East Coast via Panama Canal
04 Oct 1958	16 Feb 1959	ATG-1	CVA-14	WestPac
01 Nov 1958	18 Jun 1959	CVG-19	CVA-31	WestPac
02 Nov 1958	22 May 1959	§	CVS-10	WestPac

* Records not available to determine exact departure date, estimated to be Feb or Mar 1958. *Boxer* (CVS 21) deployed to the Eniwetok-Bikini-Johnston Island operating area as the flagship for CTG 7.3 involved in balloon launching and various atomic tests. She deployed with only HRM(L)-361 Det on board.

† Squadrons deployed on board *Wasp* (CVS 18) included VS-31, HS-11, VAW-12 Det 48, HU-2 Det 48, and HMR-262 Det. Antisubmarine Carrier Air Groups (CVSG) were not established until various periods in 1960.

‡ Squadrons deployed on board *Lake Champlain* (CVS 39) included VS-27 and HS-3. CVSGs were not established until various periods in 1960.

§ Squadrons deployed on board *Yorktown* (CVS 10) included VS-37, HS-2, and VF-92 Det N. CVSGs were not established until various periods in 1960.

ı *Princeton (CVS 37) deployed with VS-23 and HS-4. CVSGs were not established until various times in 1960.*

Philippine Sea (CVS 47) deployed with VS-21 and HS-6. CVSGs were not established until various times in 1960. Upon arrival in WestPac, the carrier also operated with VMA-332, HMR-163, and VMO-2 on board from 11–31 March 1958.

Major Overseas Deployments for 1959				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
03 Jan 1959	27 Jul 1959	CVG-14	CVA-61	WestPac
13 Feb 1959	01 Sep 1959	CVG-1	CVA-42	Med
13 Feb 1959	30 Aug 1959	CVG-6	CVA-11	Med
09 Mar 1959	03 Oct 1959	CVG-11	CVA-38	WestPac
04 Apr 1959	10 Oct 1959	*	CVS-12	WestPac
26 Apr 1959	02 Dec 1959	CVG-21	CVA-16	WestPac
05 Jun 1959	03 Sep 1959	†	CVS-39	Med
01 Aug 1959	18 Jan 1960	CVG-15	CVA-19	WestPac
07 Aug 1959	26 Feb 1960	CVG-10	CVA-9	Med
15 Aug 1959	25 Mar 1960	CVG-2	CVA-41	WestPac
15 Aug 1959	26 Feb 1960	CVG-3	CVA-60	Med
05 Sep 1959	15 Mar 1960	‡	CVS-33	WestPac
21 Nov 1959	14 May 1960	CVG-19	CVA-31	WestPac

* Squadrons deployed on board *Hornet* (CVS 12) included VS-38, HS-8, and VAW-11 Det P. Antisubmarine Carrier Air Groups (CVSG) were not established until various periods in 1960.

† Squadrons deployed on board *Lake Champlain* (CVS 39) included VS-30, HS-1, HU-2 Det 34, and VAW-12 Det 34. CVSGs were not established until various periods in 1960.

‡ Squadrons deployed on board *Kearsarge* (CVS 33) included VS-21, HS-6, and VAW-13 Det A. CVSGs were not established until various periods in 1960.

Major Overseas Deployments for 1960				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
04 Jan 1960	28 Jul 1960	*	CVS-10	WestPac
28 Jan 1960	24 Aug 1960	CVG-1	CVA-42	Med
28 Jan 1960	31 Aug 1960	CVG-8	CVA-59	Med
06 Feb 1960	30 Aug 1960	CVG-9	CVA-61	WestPac
05 Mar 1960	11 Oct 1960	CVG-5	CVA-14	WestPac
14 May 1960	15 Dec 1960	CVG-14	CVA-34	WestPac
17 May 1960	18 Dec 1960	†	CVS-12	WestPac
09 Jun 1960	31 Aug 1960	CVSG-56	CVS-47	Med
17 Jun 1960	20 Aug 1960	‡	CVS-18	Carib/SoLant
16 Jul 1960	18 Mar 1961	CVG-11	CVA-19	WestPac
04 Aug 1960	17 Feb 1961	CVG-6	CVA-11	Med
04 Aug 1960	03 Mar 1961	CVG-7	CVA-62	Med
22 Aug 1960	26 Feb 1961	CVG-3	CVA-60	Med/NorLant
06 Sep 1960	20 Oct 1960	CVG-10	CVA-38	NorLant
06 Sep 1960	15 Dec 1960	CVSG-60	CVS-9	NorLant/Med/IO
19 Sep 1960	27 May 1961	CVG-15	CVA-43	WestPac
01 Oct 1960	02 May 1961	CVSG-59	CVS-20	WestPac
29 Oct 1960	06 Jun 1961	CVG-21	CVA-16	WestPac
14 Nov 1960	27 Nov 1960	CVG-10	CVA-38	Carib

* Squadrons deployed on board *Yorktown* (CVS 10) included VS-23, HS-4, and VAW-11 Det T. Antisubmarine Carrier Air Groups (CVSG) were not established until various periods in 1960.

† Squadrons deployed on board *Hornet* (CVS 12) included VS-37, HS-2, and VAW-13 Det N. At different times during the deployment *Hornet* also had HMR-162, HMX-1, and VU-1 Det KD-21 on board. CVSGs were not established until various periods in 1960.

‡ Elements of CVSG-52 remained on board *Wasp* (CVS 18) during her emergency cruise to the Belgian Congo to evacuate American nationals.

Major Overseas Deployments for 1961				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
02 Feb 1961	15 May 1961	CVG-10	CVA-38	Med
09 Feb 1961	25 Aug 1961	CVG-8	CVA-59	Med
15 Feb 1961	28 Aug 1961	CVG-1	CVA-42	Med
16 Feb 1961	28 Sep 1961	CVG-2	CVA-41	WestPac
03 Mar 1961	18 Sep 1961	CVSG-53	CVS-33	WestPac
26 Apr 1961	13 Dec 1961	CVG-19	CVA-31	WestPac
10 May 1961	15 Jan 1962	CVG-5	CVA-14	WestPac
06 Jun 1961	01 Sep 1961	CVSG-55	CVS-18	Med
05 Jul 1961	22 Aug 1961	CVG-3	CVA-60	Carib
29 Jul 1961	02 Mar 1962	CVSG-55	CVS-10	WestPac
03 Aug 1961	01 Mar 1962	CVG-6	CVA-11	Med
04 Aug 1961	19 Dec 1961	CVG-7	CVA-62	Med
11 Aug 1961	08 Mar 1962	CVG-9	CVA-61	WestPac
11 Aug 1961	01 Nov 1961	CVG-11	CVA-63	*
24 Oct 1961	22 Feb 1962	CVSG-56	CVS-9	NorLant
09 Nov 1961	12 May 1962	CVG-14	CVA-16	WestPac
19 Nov 1961	30 Nov 1961	CVG-1	CVA-42	Carib
28 Nov 1961	12 May 1962	CVG-3	CVA-60	Med
12 Dec 1961	17 Jul 1962	CVG-15	CVA-43	WestPac

* *Kitty Hawk* (CVA 63) changed homeports from the Atlantic to the Pacific. During the transit to the Pacific, via Cape Horn, the carrier and its embarked squadrons participated in operations in the Caribbean, South Atlantic, and eastern Pacific.

Major Overseas Deployments for 1962				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
06 Jan 1962	25 Jul 1962	CVSG-59	CVS-20	WestPac
02 Feb 1962	24 Aug 1962	CVG-21	CVA-19	WestPac
07 Feb 1962	28 Aug 1962	CVG-10	CVA-38	Med
17 Feb 1962	17 Jun 1962	CVSG-52	CVS-18	NorLant
06 Apr 1962	20 Oct 1962	CVG-2	CVA-41	WestPac
19 Apr 1962	27 Aug 1962	CVG-7	CVA-62	Med
07 Jun 1962	17 Dec 1962	CVG-16	CVA-34	WestPac
07 Jun 1962	21 Dec 1962	CVSG-57	CVS-12	WestPac
07 Jun 1962	30 Aug 1962	CVSG-58	CVS-15	Med
12 Jul 1962	11 Feb 1963	CVG-19	CVA-31	WestPac
21 Jul 1962	11 Sep 1962	CVG-5*	CVA-16	SoPac/SoLant
25 Jul 1962	17 Sep 1962	CVG-5	CVA-64	SoLant/West Coast
03 Aug 1962	11 Oct 1962	CVG-6	CVAN-65	Med
03 Aug 1962	02 Mar 1963	CVG-8	CVA-59	Med
13 Sep 1962	02 Apr 1963	CVG-11	CVA-63	WestPac
14 Sep 1962	22 Apr 1963	CVG-1	CVA-42	Med
15 Oct 1962	15 Nov 1962	CVSG-60	CVS-9	Carib/Cuban Missile Crisis
19 Oct 1962	06 Dec 1962	CVG-6	CVAN-65	Carib
24 Oct 1962	22 Nov 1962	CVSG-52	CVS-18	Carib/Cuban Missile Crisis
26 Oct 1962	18 Jun 1963	CVSG-55	CVS-10	WestPac
09 Nov 1962	14 Jun 1963	CVG-9	CVA-61	WestPac
03 Dec 1962	21 Dec 1962	CVG-3	CVA-60	Carib

* Only two squadrons from CVG-5 were on board *Lexington* (CVA 16) during her homeport change and transit from the Pacific Fleet to the Atlantic Fleet.

Major Overseas Deployments for 1963				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
03 Jan 1963	15 Jul 1963	CVG-5	CVA-14	WestPac/NorPac
06 Feb 1963	04 Sep 1963	CVG-6	CVAN-65	Med
21 Feb 1963	10 Sep 1963	CVG-14	CVA-64	WestPac
29 Mar 1963	25 Oct 1963	CVG-3	CVA-60	Med
03 Apr 1963	25 Nov 1963	CVG-15	CVA-43	WestPac
19 Apr 1963	03 Dec 1963	CVSG-53	CVS-33	WestPac
07 Jun 1963	16 Dec 1963	CVG-21	CVA-19	WestPac
01 Aug 1963	10 Mar 1964	CVW-16	CVA-34	WestPac
06 Aug 1963	04 Mar 1964	CVG-7	CVA-62	Med
12 Aug 1963	31 Aug 1963	CVSG-59	CVS-20	NorPac
01 Oct 1963	24 Dec 1963	CVSG-60	CVS-9	Med/IO
01 Oct 1963	23 May 1964	CVG-10	CVA-38	Med
09 Oct 1963	15 Apr 1964	CVSG-57	CVS-12	WestPac
17 Oct 1963	20 Jul 1964	CVW-11	CVA-63	WestPac
08 Nov 1963	26 May 1964	CVW-2	CVA-41	WestPac

Major Overseas Deployments for 1964				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
28 Jan 1964	21 Nov 1964	CVW-19	CVA-31	WestPac/IO/Vietnam
08 Feb 1964	03 Oct 1964	CVW-6	CVAN-65	Med/World Cruise
19 Feb 1964	11 Aug 1964	CVSG-59	CVS-20	WestPac
14 Apr 1964	15 Dec 1964	CVW-5	CVA-14	WestPac/Vietnam
28 Apr 1964	22 Dec 1964	CVW-1	CVA-42	Med
05 May 1964	01 Feb 1965	CVW-14	CVA-64	WestPac/Vietnam
09 Jun 1964	25 Jul 1964	CVSG-60	CVS-9	NorLant
11 Jun 1964	04 Sep 1964	CVSG-56	CVS-11	Med
19 Jun 1964	17 Dec 1964	CVSG-53	CVS-33	WestPac
10 Jul 1964	13 Mar 1965	CVW-8	CVA-59	Med
05 Aug 1964	06 May 1965	CVW-9	CVA-61	WestPac/Vietnam
08 Sep 1964	05 Nov 1964	CVW-7	CVA-62	NorLant/Med
08 Sep 1964	18 Dec 1964	CVSG-52	CVS-18	NorLant/Med
10 Oct 1964	24 Nov 1964	CVSG-54	CVS-39	Med
21 Oct 1964	29 May 1965	CVW-21	CVA-19	WestPac/Vietnam
23 Oct 1964	17 May 1965	CVSG-55	CVS-10	WestPac
28 Nov 1964	12 Jul 1965	CVW-3	CVA-60	Med
07 Dec 1964	01 Nov 1965	CVW-15	CVA-43	WestPac/Vietnam

Major Overseas Deployments for 1965				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
10 Feb 1965	20 Sep 1965	CVW-10	CVA-38	Med
06 Mar 1965	23 Nov 1965	CVW-2	CVA-41	WestPac/Vietnam
22 Mar 1965	07 Oct 1965	CVSG-59	CVS-20	WestPac
05 Apr 1965	16 Dec 1965	CVW-16	CVA-34	WestPac/Vietnam
21 Apr 1965	13 Jan 1966	CVW-19	CVA-31	WestPac/Vietnam
10 May 1965	13 Dec 1965	CVW-7	CVA-62	WestPac/Vietnam
11 Jun 1965	02 Sep 1965	CVSG-58	CVS-15	Med
28 Jun 1965	17 Dec 1965	CVW-1	CVA-42	Med
12 Aug 1965	23 Mar 1966	CVSG-57	CVS-12	WestPac
24 Aug 1965	07 Apr 1966	CVW-8	CVA-59	Med
28 Sep 1965	13 May 1966	CVW-5	CVA-14	WestPac/Vietnam
19 Oct 1965	13 Jun 1966	CVW-11	CVA-63	WestPac/Vietnam
26 Oct 1965	21 Jun 1966	CVW-9	CVAN-65	SoLant/IO/WestPac/Vietnam
10 Nov 1965	01 Aug 1966	CVW-21	CVA-19	WestPac/Vietnam
30 Nov 1965	10 Jul 1966	CVW-6	CVA-66	Med
10 Dec 1965	25 Aug 1966	CVW-14	CVA-61	WestPac/Vietnam

Major Overseas Deployments for 1966				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
06 Jan 1966	28 Jul 1966	CVSG-55	CVS-10	WestPac
11 Mar 1966	26 Oct 1966	CVW-3	CVA-60	Med
04 Apr 1966	21 Nov 1966	CVW-10	CVS-11	Med/IO/WestPac/Vietnam
12 May 1966	03 Dec 1966	CVW-15	CVA-64	WestPac/Vietnam
26 May 1966	16 Nov 1966	CVW-16	CVA-34	WestPac/Vietnam
09 Jun 1966	21 Dec 1966	CVSG-53	CVS-33	WestPac/Vietnam
13 Jun 1966	01 Feb 1967	CVW-7	CVA-62	Med

Major Overseas Deployments for 1966				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
21 Jun 1966	21 Feb 1967	CVW-1	CVA-42	SoLant/IO/WestPac/Vietnam
29 Jul 1966	23 Feb 1967	CVW-2	CVA-43	WestPac/Vietnam
29 Sep 1966	20 May 1967	CVW-8	CVA-38	Med
15 Oct 1966	29 May 1967	CVW-19	CVA-14	WestPac/Vietnam
04 Nov 1966	23 May 1967	CVSG-59	CVS-20	WestPac/Vietnam
05 Nov 1966	19 Jun 1967	CVW-11	CVA-63	WestPac/Vietnam
19 Nov 1966	06 Jul 1967	CVW-9	CVAN-65	WestPac/Vietnam

Major Overseas Deployments for 1967				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
05 Jan 1967	22 Jul 1967	CVW-5	CVA-19	WestPac/Vietnam
10 Jan 1967	20 Sep 1967	CVW-6	CVA-66	Med
26 Jan 1967	25 Aug 1967	CVW-21	CVA-31	WestPac/Vietnam
27 Mar 1967	28 Oct 1967	CVSG-57	CVS-12	WestPac/Vietnam
29 Apr 1967	04 Dec 1967	CVW-14	CVA-64	WestPac/Vietnam
02 May 1967	06 Dec 1967	CVW-3	CVA-60	Med
11 May 1967	30 Dec 1967	CVW-10	CVS-11	Med/IO/WestPac/Vietnam
29 May 1967	23 Sep 1967	CVSG-54	CVS-9	NorLant/Med
06 Jun 1967	15 Sep 1967	CVW-17	CVA-59	WestPac/Vietnam
16 Jun 1967	31 Jan 1968	CVW-16	CVA-34	WestPac/Vietnam
26 Jul 1967	06 Apr 1968	CVW-15	CVA-43	WestPac/Vietnam
17 Aug 1967	06 Apr 1968	CVSG-53	CVS-33	WestPac/Vietnam
24 Aug 1967	19 May 1968	CVW-1	CVA-42	Med
22 Sep 1967	16 Dec 1967	CVSG-56	CVS-15	Med
04 Nov 1967	25 May 1968	CVW-2	CVA-61	WestPac/Vietnam
15 Nov 1967	04 Aug 1968	CVW-8	CVA-38	Med
18 Nov 1967	28 Jun 1968	CVW-11	CVA-63	WestPac/Vietnam
28 Dec 1967	17 Aug 1968	CVW-19	CVA-14	WestPac/Vietnam
28 Dec 1967	05 Jul 1968	CVSG-55	CVS-10	WestPac/Vietnam

Major Overseas Deployments for 1968				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
03 Jan 1968	18 Jul 1968	CVW-9	CVAN-65	WestPac/Vietnam
27 Jan 1968	10 Oct 1968	CVW-5	CVA-31	WestPac/Vietnam
15 Feb 1968	13 Jun 1968	CVSG-60	CVS-9	NorLant/Med
10 Apr 1968	16 Dec 1968	CVW-6	CVA-66	World Cruise/Vietnam
30 Apr 1968	27 Jan 1969	CVW-7	CVA-62	Med
30 Apr 1968	09 Nov 1968	CVSG-59	CVS-20	WestPac/Vietnam
29 May 1968	31 Jan 1969	CVW-14	CVA-64	WestPac/Vietnam
04 Jun 1968	08 Feb 1969	CVW-10	CVS-11	SoLant/IO/Pacific/Vietnam
18 Jul 1968	03 Mar 1969	CVW-21	CVA-19	WestPac/Vietnam
22 Jul 1968	29 Apr 1969	CVW-17	CVA-59	Med
22 Jul 1968	03 Sep 1968	CVSG-56	CVS-16	SoLant/UNITAS IX
20 Aug 1968	20 Dec 1968	CVSG-52	CVS-18	NorLant/Med
07 Sep 1968	18 Apr 1969	CVW-15	CVA-43	WestPac/Vietnam
30 Sep 1968	13 May 1969	CVSG-57	CVS-12	WestPac/Vietnam
26 Oct 1968	17 May 1969	CVW-2	CVA-61	WestPac/Vietnam
30 Dec 1968	04 Sep 1969	CVW-11	CVA-63	WestPac/Vietnam

Major Overseas Deployments for 1969				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
06 Jan 1969	02 Jul 1969	CVW-9	CVAN-65	WestPac/Vietnam
07 Jan 1969	29 Jul 1969	CVW-8	CVA-38	Med
21 Jan 1969	28 Feb 1969	CVSG-56	CVS-10	West to East Coast via Cape Horn
01 Feb 1969	18 Sep 1969	CVW-16	CVA-14	WestPac/Vietnam
18 Mar 1969	29 Oct 1969	CVW-5	CVA-31	WestPac/Vietnam
29 Mar 1969	04 Sep 1969	CVSG-53	CVS-33	WestPac/Vietnam
01 Apr 1969	11 Jul 1969	CVSG-54	CVS-18	NorLant
05 Apr 1969	21 Dec 1969	CVW-1	CVA-67	Med
14 Apr 1969	17 Nov 1969	CVW-19	CVA-34	WestPac/Vietnam
09 Jul 1969	22 Jan 1970	CVW-3	CVA-60	Med
02 Aug 1969	15 Apr 1970	CVW-21	CVA-19	WestPac/Vietnam
11 Aug 1969	08 May 1970	CVW-14	CVA-64	WestPac/Vietnam
02 Sep 1969	11 Dec 1969	CVSG-56	CVS-10	NorLant
03 Sep 1969	09 Oct 1969	CVW-7	CVA-62	NorLant
23 Sep 1969	01 Jul 1970	CVW-15	CVA-43	WestPac/Vietnam
14 Oct 1969	01 Jun 1970	CVW-2	CVA-61	WestPac/Vietnam
02 Dec 1969	08 Jul 1970	CVW-17	CVA-59	Med

Major Overseas Deployments for 1970				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
02 Jan 1970	27 Jul 1970	CVW-6	CVA-42	Med
05 Mar 1970	17 Dec 1970	CVW-8	CVS-38	SoLant/IO/WestPac/Vietnam
02 Apr 1970	12 Nov 1970	CVW-5	CVA-31	WestPac/Vietnam
10 Apr 1970	21 Dec 1970	CVW-9	CVA-66	WestPac/Vietnam
05 May 1970	08 Sep 1970	CVSG-54	CVS-18	NorLant
14 May 1970	10 Dec 1970	CVW-19	CVA-34	WestPac/Vietnam
17 Jun 1970	09 Nov 1970	CVW-3	CVA-60	Med
23 Jun 1970	31 Jan 1971	CVW-7	CVA-62	Med
14 Sep 1970	01 Mar 1971	CVW-1	CVA-67	Carib/Med/NorLant
22 Oct 1970	03 Jun 1971	CVW-21	CVA-19	WestPac/Vietnam
27 Oct 1970	17 Jun 1971	CVW-2	CVA-61	WestPac/Vietnam
06 Nov 1970	17 Jul 1971	CVW-11	CVA-63	WestPac/Vietnam

Major Overseas Deployments for 1971				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
05 Jan 1971	02 Jul 1971	CVW-17	CVA-59	Med
14 Jan 1971	03 Mar 1971	CVSG-54	CVS-18	Med
29 Jan 1971	23 Jul 1971	CVW-6	CVA-42	Med
11 Mar 1971	06 Jul 1971	CVSG-59	CVS-14	WestPac/IO/NorPac
16 Apr 1971	06 Nov 1971	CVW-5	CVA-41	WestPac/Vietnam
16 Apr 1971	15 Oct 1971	CVSG-56	CVS-11	NorLant/Med
14 May 1971	18 Dec 1971	CVW-19	CVA-34	WestPac/Vietnam
07 Jun 1971	28 Oct 1971	CVW-3	CVA-60	NorLant/Med
11 Jun 1971	12 Feb 1972	CVW-14	CVAN-65	WestPac/Vietnam/IO
06 Jul 1971	16 Dec 1971	CVW-8	CVA-66	Med
16 Sep 1971	16 Mar 1972	CVW-7	CVA-62	NorLant/Med
01 Oct 1971	30 Jun 1972	CVW-9	CVA-64	WestPac/Vietnam
12 Nov 1971	17 Jul 1972	CVW-15	CVA-43	WestPac/Vietnam
01 Dec 1971	06 Oct 1972	CVW-1	CVA-67	Med/NorLant

Major Overseas Deployments for 1972				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
07 Jan 1972	03 Oct 1972	CVW-21	CVA-19	WestPac/Vietnam
15 Feb 1972	08 Dec 1972	CVW-6	CVA-42	Med
17 Feb 1972	28 Nov 1972	CVW-11	CVA-63	WestPac/Vietnam
10 Mar 1972	23 Apr 1972	CVSG-56	CVS-11	EastLant
10 Apr 1972	03 Mar 1973	CVW-5	CVA-41	WestPac/Vietnam
11 Apr 1972	13 Feb 1973	CVW-3	CV-60	SoLant/IO/WestPac/Vietnam
17 May 1972	30 Jul 1972	CVSG-53	CVS-14	WestPac/Vietnam
05 Jun 1972	24 Mar 1973	CVW-8	CVA-66	WestPac/Vietnam
05 Jun 1972	30 Mar 1973	CVW-19	CVA-34	WestPac/Vietnam
11 Jul 1972	20 Oct 1972	CVSG-56	CVS-11	NorLant
12 Sep 1972	12 Jun 1973	CVW-14	CVAN-65	WestPac/Vietnam
22 Sep 1972	06 Jul 1973	CVW-17	CVA-59	Med
16 Nov 1972	23 Jun 1973	CVW-2	CVA-61	WestPac/Vietnam
24 Nov 1972	04 May 1974	CVSG-56	CVS-11	Med

Major Overseas Deployments for 1973				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
05 Jan 1973	11 Oct 1973	CVW-9	CVA-64	WestPac/Vietnam
09 Mar 1973	08 Nov 1973	CVW-15	CVA-43	WestPac
16 Apr 1973	01 Dec 1973	CVW-1	CVA-67	Med/NorLant/Med
08 May 1973	08 Jan 1974	CVW-21	CVA-19	WestPac/IO
21 Jun 1973	19 Jan 1974	CVW-7	CV-62	Med
11 Sep 1973	05 Oct 1973	CVW-5	CVA-41*	WestPac
14 Sep 1973	17 Mar 1974	CVW-6	CVA-42	Med
18 Oct 1973	05 Jun 1974	CVW-19	CVA-34	WestPac/IO
23 Nov 1973	09 Jul 1974	CVW-11	CV-63	WestPac/IO
26 Nov 1973	22 Dec 1973	CVW-5	CVA-41*	WestPac

* *Midway* (CVA 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1974				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
03 Jan 1974	03 Aug 1974	CVW-8	CVA-66	Med
29 Jan 1974	06 Mar 1974	CVW-5	CVA-41*	WestPac
11 Mar 1974	11 Sep 1974	CVW-17	CVA-59	Med
07 May 1974	18 Oct 1974	CVW-2	CVA-61	WestPac
21 Jun 1974	22 Dec 1974	CVW-9	CVA-64	WestPac/IO
19 Jul 1974	21 Jan 1975	CVW-7	CV-62	Med
06 Sep 1974	12 Oct 1974	CVW-8	CVA-66	NorLant
17 Sep 1974	20 May 1975	CVW-14	CVAN-65	WestPac/IO
27 Sep 1974	19 Mar 1975	CVW-3	CV-60	Med
18 Oct 1974	20 Dec 1974	CVW-5	CVA-41*	WestPac
05 Dec 1974	02 Jul 1975	CVW-15	CVA-43	WestPac

* *Midway* (CVA 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1975				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
03 Jan 1975	16 Jul 1975	CVW-6	CV-42	Med
13 Jan 1975	18 Feb 1975	CVW-5	CVA-41*	WestPac
05 Mar 1975	22 Sep 1975	CVW-17	CV-59	Med
18 Mar 1975	20 Oct 1975	CVW-21	CV-19	WestPac
31 Mar 1975	29 May 1975	CVW-5	CVA-41*	WestPac
21 May 1975	15 Dec 1975	CVW-11	CV-63	WestPac
28 Jun 1975	27 Jan 1976	CVW-1	CV-67	Med
16 Jul 1975	24 Sep 1975	CVW-8	CVN-68	Carib/NorLant
16 Sep 1975	03 Mar 1976	CVW-19	CV-34	WestPac
04 Oct 1975	19 Dec 1975	CVW-5	CV-41*	WestPac/IO
15 Oct 1975	05 May 1976	CVW-7	CV-62	NorLant/Med

* *Midway* (CVA 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1976				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
06 Jan 1976	28 Jul 1976	CVW-3	CV-60	Med
30 Jan 1976	07 Sep 1976	CVW-2	CV-61	WestPac/IO
13 Mar 1976	26 Apr 1976	CVW-5	CV-41*	WestPac
15 Apr 1976	25 Oct 1976	CVW-6	CV-66	Med
19 May 1976	22 Jun 1976	CVW-5	CV-41*	WestPac
07 Jul 1976	07 Feb 1977	CVW-8	CVN-68	Med
09 Jul 1976	04 Aug 1976	CVW-5	CV-41*	WestPac
30 Jul 1976	28 Mar 1977	CVW-14	CVN-65	WestPac/IO
02 Sep 1976	09 Nov 1976	CVW-1	CV-67	NorLant
04 Oct 1976	21 Apr 1977	CVW-19	CV-42	Med
01 Nov 1976	17 Dec 1976	CVW-5	CV-41*	WestPac

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1977				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
11 Jan 1977	01 Mar 1977	CVW-5	CV-41*	WestPac
15 Jan 1977	01 Aug 1977	CVW-1	CV-67	Med
15 Feb 1977	05 Oct 1977	CVW-15	CV-43	WestPac
31 Mar 1977	21 Oct 1977	CVW-7	CV-62	Med
12 Apr 1977	21 Nov 1977	CVW-9	CV-64	WestPac
19 Apr 1977	05 Sep 1977	CVW-5	CV-41*	WestPac
10 Jun 1977	19 Jul 1977	CVW-6	CV-66	SoLant
11 Jul 1977	23 Dec 1977	CVW-3	CV-60	Med
27 Sep 1977	21 Dec 1977	CVW-5	CV-41*	WestPac/IO
29 Sep 1977	25 Apr 1978	CVW-6	CV-66	Med
25 Oct 1977	15 May 1978	CVW-11	CV-63	WestPac
01 Dec 1977	20 Jul 1978	CVW-8	CVN-68	Med/NorLant

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1978				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
04 Apr 1978	26 Oct 1978	CVW-17	CV-59	Med/NorLant
04 Apr 1978	30 Oct 1978	CVW-14	CVN-65	WestPac/IO
11 Apr 1978	23 May 1978	CVW-5	CV-41*	WestPac
29 Jun 1978	08 Feb 1979	CVW-1	CV-67	Med
26 Sep 1978	17 May 1979	CVW-9	CV-64	WestPac/IO
03 Oct 1978	05 Apr 1979	CVW-3	CV-60	Med
09 Nov 1978	23 Dec 1978	CVW-5	CV-41*	WestPac

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1979				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
11 Jan 1979	20 Feb 1979	CVW-5	CV-41*	WestPac
16 Jan 1979	13 Jul 1979	CVW-7	CVN-69	Med
21 Feb 1979	22 Sep 1979	CVW-2	CV-61	WestPac
13 Mar 1979	22 Sep 1979	CVW-11	CV-66	Med
07 Apr 1979	18 Jun 1979	CVW-5	CV-41*	IO
30 May 1979	25 Feb 1980	CVW-15	CV-63	WestPac/IO
28 Jun 1979	14 Dec 1979	CVW-6	CV-62	Med
20 Aug 1979	14 Sep 1979	CVW-5	CV-41*	WestPac
10 Sep 1979	26 May 1980	CVW-8	CVN-68	Med/SoLant/IO
30 Sep 1979	20 Feb 1980	CVW-5	CV-41*	IO
13 Nov 1979	11 Jun 1980	CVW-14	CV-43	WestPac/IO
27 Nov 1979	07 May 1980	CVW-17	CV-59	Med

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1980				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
26 Feb 1980	15 Oct 1980	CVW-9	CV-64	WestPac/IO
10 Mar 1980	27 Aug 1980	CVW-3	CV-60	Med
15 Apr 1980	22 Dec 1980	CVW-7	CVN-69	IO
14 Jul 1980	26 Nov 1980	CVW-5	CV-41*	WestPac/IO
04 Aug 1980	28 Mar 1981	CVW-1	CV-67	Med
29 Aug 1980	17 Oct 1980	CVW-8	CVN-68	NorLant
10 Sep 1980	05 May 1981	CVW-2	CV-61	WestPac/IO
19 Nov 1980	10 Jun 1981	CVW-6	CV-62	SoLant/IO/Med

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1981				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
23 Feb 1981	05 Jun 1981	CVW-5	CV-41*	WestPac/IO
02 Mar 1981	15 Sep 1981	CVW-17	CV-59	Med/NorLant
01 Apr 1981	23 Nov 1981	CVW-15	CV-63	WestPac/IO
14 Apr 1981	12 Nov 1981	CVW-11	CV-66	Med/IO
26 Jun 1981	16 Jul 1981	CVW-5	CV-41*	WestPac

Major Overseas Deployments for 1981				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
03 Aug 1981	12 Feb 1982	CVW-8	CVN-68	Med
20 Aug 1981	07 Oct 1981	CVW-7	CVN-69	NorLant
20 Aug 1981	23 Mar 1982	CVW-14	CV-43	WestPac/IO
03 Sep 1981	06 Oct 1981	CVW-5	CV-41*	WestPac
20 Oct 1981	23 May 1982	CVW-9	CV-64	WestPac/IO

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1982				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
04 Jan 1982	14 Jul 1982	CVW-3	CV-67	Med/IO
05 Jan 1982	13 Jul 1982	CVW-7	CVN-69	Med
07 Apr 1982	19 Oct 1982	CVW-2	CV-61	WestPac/IO
26 Apr 1982	18 Jun 1982	CVW-5	CV-41*	WestPac
07 Jun 1982	22 Dec 1982	CVW-6	CV-62	Med
08 Jun 1982	16 Nov 1982	CVW-17	CV-59	Med/IO
23 Aug 1982	30 Oct 1982	CVW-1	CV-66	NorLant/Med/Carib
01 Sep 1982	28 Apr 1983	CVW-11	CVN-65	NorPac/WestPac
14 Sep 1982	11 Dec 1982	CVW-5	CV-41*	NorPac/WestPac
10 Nov 1982	20 May 1983	CVW-8	CVN-68	Carib/Med
08 Dec 1982	02 Jun 1983	CVW-1	CV-66	Med/IO

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1983				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
01 Mar 1983	29 Oct 1983	CVW-15	CVN-70	World Cruise
21 Mar 1983	12 Sep 1983	CVW-14	CV-43	World Cruise
27 Apr 1983	02 Dec 1983	CVW-7	CVN-69	Med
25 May 1983	01 Jul 1983	CVW-3	CV-67	NorLant
02 Jun 1983	08 Aug 1983	CVW-5	CV-41*	WestPac
15 Jul 1983	29 Feb 1984	CVW-9	CV-61	Central America/WestPac/IO
27 Sep 1983	02 May 1984	CVW-3	CV-67	SoLant/Med
25 Oct 1983	11 Dec 1983	CVW-5	CV-41*	WestPac
18 Oct 1983	11 Apr 1984	CVW-6	CV-62	Carib/Med/NorLant
28 Dec 1983	23 May 1984	CVW-5	CV-41*	IO

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Major Overseas Deployments for 1984				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
13 Jan 1984	01 Aug 1984	CVW-2	CV-63	WestPac/IO
02 Apr 1984	20 Oct 1984	CVW-17	CV-60	Med
24 Apr 1984	14 Nov 1984	CVW-1	CV-66	Carib/Med/IO
08 May 1984	20 Jun 1984	CVW-7	CVN-69	Carib/NorLant
30 May 1984	20 Dec 1984	CVW-11	CVN-65	WestPac/IO/NorPac
10 Oct 1984	08 May 1985	CVW-7	CVN-69	Med
15 Oct 1984	12 Dec 1984	CVW-5	CV-41*	WestPac
16 Oct 1984	19 Feb 1985	CVW-6	CV-62	Med/IO
18 Oct 1984	24 May 1985	CVW-15	CVN-70	NorPac/WestPac/IO

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1985				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
01 Feb 1985	28 Mar 1985	CVW-5	CV-41*	WestPac
21 Feb 1985	24 Aug 1985	CVW-14	CV-64	WestPac/IO
08 Mar 1985	04 Oct 1985	CVW-8	CVN-68	Carib/Med
10 Jun 1985	14 Oct 1985	CVW-5	CV-41*	IO/WestPac
08 Jul 1985	22 Aug 1985	CVW-7	CVN-69	Carib
24 Jul 1985	21 Dec 1985	CVW-9	CV-63	WestPac/IO
24 Aug 1985	09 Oct 1985	CVW-1	CV-66	NorLant
25 Aug 1985	16 Apr 1986	CVW-17	CV-60	Med/IO
01 Oct 1985	19 May 1986	CVW-13	CV-43	Med
15 Nov 1985	12 Dec 1985	CVW-5	CV-41*	WestPac

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1986				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
15 Jan 1986	12 Aug 1986	CVW-11	CVN-65	World Cruise
17 Jan 1986	30 Mar 1986	CVW-5	CV-41*	WestPac
10 Mar 1986	10 Sep 1986	CVW-1	CV-66	Med
02 Jun 1986	10 Nov 1986	CVW-6	CV-59	Med
12 Aug 1986	05 Feb 1987	CVW-15	CVN-70	NorPac/WestPac/IO
15 Aug 1986	16 Oct 1986	CVW-8	CVN-68	NorLant
18 Aug 1986	03 Mar 1987	CVW-3	CV-67	Med
18 Aug 1986	20 Oct 1986	CVW-2	CV-61	NorPac/WestPac
04 Sep 1986	20 Oct 1986	CVW-14	CV-64	NorPac
30 Dec 1986	26 Jul 1987	CVW-8	CVN-68	Med/SoLant/West Coast

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1987				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
03 Jan 1987	29 Jun 1987	CVW-9	CV-63	World Cruise
09 Jan 1987	20 Mar 1987	CVW-5	CV-41*	WestPac
02 Mar 1987	29 Apr 1987	CVW-2	CV-61	NorPac

Major Overseas Deployments for 1987				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
11 Apr 1987	13 Oct 1987	CVW-14	CV-64	WestPac/IO
23 Apr 1987	13 Jul 1987	CVW-5	CV-41*	WestPac
05 Jun 1987	17 Nov 1987	CVW-17	CV-60	Med
14 Jul 1987	29 Dec 1987	CVW-2	CV-61	WestPac/IO
28 Aug 1987	09 Oct 1987	CVW-6	CV-59	NorLant
29 Sep 1987	28 Mar 1988	CVW-13	CV-43	Med
15 Oct 1987	12 Apr 1988	CVW-5	CV-41*	WestPac/IO
25 Oct 1987	24 Nov 1987	CVW-11	CVN-65	NorPac

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1988				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
05 Jan 1988	03 Jul 1988	CVW-11	CVN-65	WestPac/IO/NorPac
29 Feb 1988	29 Aug 1988	CVW-7	CVN-69	Med
25 Apr 1988	07 Oct 1988	CVW-6	CV-59	Med/IO/NorLant
15 Jun 1988	14 Dec 1988	CVW-15	CVN-70	NorPac/WestPac/IO
02 Aug 1988	01 Feb 1989	CVW-3	CV-67	Med
25 Aug 1988	11 Oct 1988	CVW-8	CVN-71	NorLant
02 Sep 1988	02 Mar 1989	CVW-9	CVN-68	WestPac/IO
18 Oct 1988	09 Nov 1988	CVW-5	CV-41*	WestPac
01 Dec 1988	01 Jun 1989	CVW-14	CV-64	WestPac/IO
30 Dec 1988	30 Jun 1989	CVW-8	CVN-71	Med

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1989				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
21 Jan 1989	24 Feb 1989	CVW-5	CV-41*	WestPac
08 Feb 1989	03 Apr 1989	CVW-1	CV-66	Carib/NorLant
24 Feb 1989	24 Aug 1989	CVW-2	CV-61	WestPac/IO
27 Feb 1989	09 Apr 1989	CVW-5	CV-41*	WestPac
11 May 1989	10 Nov 1989	CVW-1	CV-66	Med/IO
31 May 1989	25 Jul 1989	CVW-5	CV-41*	WestPac
31 May 1989	30 Sep 1989	CVW-13	CV-43	Med
15 Jun 1989	09 Jul 1989	CVW-9	CVN-68	NorPac
15 Aug 1989	11 Dec 1989	CVW-5	CV-41*	WestPac/IO
05 Sep 1989	09 Nov 1989	CVW-15	CVN-70	NorPac/WestPac
16 Sep 1989	19 Oct 1989	CVW-14	CV-64	NorPac
17 Sep 1989	16 Mar 1990	CVW-11	CVN-65	World Cruise
04 Nov 1989	12 Apr 1990	CVW-6	CV-59	Med

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1990				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
25 Jan 1990	06 Apr 1990	CVW-5	CV-41*	WestPac
01 Feb 1990	31 Jul 1990	CVW-15	CVN-70	WestPac/IO
08 Mar 1990	12 Sep 1990	CVW-7	CVN-69	Med/Red Sea
23 Jun 1990	20 Dec 1990	CVW-14	CV-62	WestPac/IO/Persian Gulf
07 Aug 1990	28 Mar 1991	CVW-17	CV-60	Med/Red Sea
15 Aug 1990	28 Mar 1991	CVW-3	CV-67	Med/Red Sea
02 Oct 1990	17 Apr 1991	CVW-5	CV-41*	WestPac/IO/Persian Gulf
08 Dec 1990	08 Jun 1991	CVW-2	CV-61	WestPac/IO/Persian Gulf
28 Dec 1990	18 Apr 1991	CVW-1	CV-66	Med/Red Sea/Persian Gulf
28 Dec 1990	28 Jun 1991	CVW-8	CVN-71	Med/Red Sea/Persian Gulf

* *Midway* (CV 41) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1991				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
25 Feb 1991	24 Aug 1991	CVW-9	CVN-68	WestPac/IO/Persian Gulf
28 May 1991	28 Nov 1991	CVW-11	CVN-72	WestPac/IO/Persian Gulf
30 May 1991	21 Dec 1991	CVW-6	CV-59	Med
05 Aug 1991	11 Sep 1991	*	CV-62˙	WestPac
10 Aug 1991	14 Sep 1991	*	CV-41˙	WestPac
26 Sep 1991	02 Apr 1992	CVW-7	CVN-69	Med/Red Sea/Persian Gulf/NorLant
18 Oct 1991	11 Dec 1991	CVW-15	CV-63†	Around Cape Horn (east to west)
02 Dec 1991	06 Jun 1992	CVW-1	CV-66	NorLant/Med/Red Sea/Persian Gulf

* Change of homeports for *Midway* (CV 41) and *Independence* (CV 62) as well as a swap of air wings between the two in Hawaii. *Midway*'s CVW-5 returned to Yokosuka, Japan, on board *Independence* and *Independence*'s CVW-14 returned to San Diego on board *Midway*.

† *Kitty Hawk* (CV 63) conducted a homeport change from East to West Coasts with a transit around Cape Horn.

Major Overseas Deployments for 1992				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
15 Apr 1992	13 Oct 1992	CVW-5	CV-62*	Australia/IO/Persian Gulf
06 May 1992	06 Nov 1992	CVW-17	CV-60	Med
01 Aug 1992	31 Jan 1993	CVW-2	CV-61	IO/Persian Gulf
07 Oct 1992	07 Apr 1993	CVW-3	CV-67	Med
03 Nov 1992	03 May 1993	CVW-15	CV-63	IO/Persian Gulf

˙ *Independence* (CV 62) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1993				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
02 Feb 1993	29 Jul 1993	CVW-9	CVN-68	IO/Persian Gulf
11 Mar 1993	08 Sep 1993	CVW-8*	CVN-71	Med
27 May 1993	22 Jul 1993	CVW-2	CV-64†	Around Cape Horn (east to west)
15 Jun 1993	15 Dec 1993	CVW-11	CVN-72	WestPac/IO
11 Aug 1993	05 Feb 1994	CVW-1	CV-66	Med
17 Nov 1993	17 Mar 1993	CVW-5	CV-62‡	WestPac/IO

* *Theodore Roosevelt* (CVN 71) and CVW-8 deployed to the Mediterranean Sea augmented with a special Marine Air-Ground Task Force consisting of VMFA-312 and HMH-362.

† *Constellation* (CV 64) conducted a homeport change from East to West Coasts with a transit around Cape Horn.

‡ *Independence* (CV 62) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1994				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
11 Jan 1994	24 Jun 1994	CVW-17	CV-60	Med
18 Feb 1994	15 Aug 1994	CVW-14	CVN-70	WestPac/IO
20 May 1994	17 Nov 1994	CVW-7	CVN-73	Med
24 Jun 1994	22 Dec 1994	CVW-15	CV-63	WestPac/IO
12 Sep 1994	22 Oct 1994	*	CV-66	Haiti/Carib
13 Sep 1994	23 Sep 1994	†	CVN-69	Haiti/Carib
20 Oct 1994	14 Apr 1994	CVW-3	CVN-69	Med
10 Nov 1994	10 May 1995	CVW-2	CV-64	WestPac/IO

* *America* (CV 66) deployed to Haiti for Operation Uphold Democracy with 160th Army Special Operations Aviation Regiment (Airborne) and 64 helicopters on board. The carrier did not have a Navy air wing or squadron embarked.

† *Dwight D. Eisenhower* (CVN 69) deployed to Haiti for Operational Uphold Democracy with the 10th Army Mountain Division, 51 helicopters, and 1,800 troops embarked.

Major Overseas Deployments for 1995				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
22 Mar 1995	22 Sep 1995	CVW-8	CVN-71	Med/Red Sea/Persian Gulf
10 Apr 1995	09 Oct 1995	CVW-11	CVN-72	WestPac/IO/Persian Gulf
19 Aug 1995	18 Nov 1995	CVW-5	CV-62*	WestPac/IO/Persian Gulf
28 Aug 1995	24 Feb 1996	CVW-1	CV-66	Med/Red Sea/Persian Gulf
27 Nov 1995	20 May 1996	CVW-9	CVN-68	WestPac/IO/Persian Gulf

* *Independence* (CV 62) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1996				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
26 Jan 1996	23 Jul 1996	CVW-7	CVN-73	Med/Persian Gulf
05 Mar 1996	24 Mar 1996	CVW-5	CV-62*	China/Taiwan
11 Apr 1996	09 Oct 1996	CVW-11	CV-63	WestPac
14 May 1996	14 Nov 1996	CVW-14	CVN-70	WestPac/IO/Persian Gulf
28 Jun 1996	20 Dec 1996	CVW-17	CVN-65	Med/Persian Gulf
25 Nov 1996	22 May 1997	CVW-3	CVN-71	Med/Persian Gulf

* *Independence* (CV 62) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1997				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
15 Feb 1997	10 Jun 1997	CVW-5	CV-62*	WestPac/IO
01 Apr 1997	01 Oct 1997	CVW-2	CV-64	WestPac/IO
29 Apr 1997	28 Oct 1997	CVW-8	CV-67	Med/Persian Gulf
01 Sep 1997	01 Mar 1998	CVW-9	CVN-68	WestPac/IO
03 Oct 1997	03 Apr 1998	CVW-1	CVN-73	Med/Persian Gulf

* *Independence* (CV 62) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 1998				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
23 Jan 1998	06 Jun 1998	CVW-5	CV-62*	IO/Persian Gulf
26 Feb 1998	26 Aug 1998	CVW-7	CVN-74	Med/Persian Gulf/WestPac
10 Jun 1998	10 Dec 1998	CVW-17	CVN-69	Med/Adriatic Sea/Persian Gulf
Jul 1998	15 Aug 1998	CVW-5	CV-63†	WestPac
06 Jul 1998	Jul 1998	†	CV-62†	WestPac
11 Jul 1998	07 Dec 1998	CVW-14	CVN-72	WestPac/IO/Persian Gulf
06 Nov 1998	06 May 1999	CVW-3	CVN-65	Med/Persian Gulf/Adriatic Sea
06 Nov 1998	06 May 1999	CVW-11	CVN-70	WestPac

* *Independence* (CV 62) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

† Change of homeports for *Kitty Hawk* (CV 63) and *Independence* (CV 62) as well as a transfer of CVW-5 from *Independence* to *Kitty Hawk*. The transfer of Air Wing 5 took place in Hawaii on 18 July 1998. CVW-5 returned to Yokosuka, Japan, on board *Kitty Hawk* and *Independence* returned to the West Coast in July 1998 for decommissioning.

Major Overseas Deployments for 1999				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
02 Mar 1999	25 Aug 1999	CVW-5	CV-63*	IO/Persian Gulf
26 Mar 1999	22 Sep 1999	CVW-8	CVN-71	Med/Persian Gulf/Adriatic Sea
18 Jun 1999	18 Dec 1999	CVW-2	CV-64	WestPac
17 Sep 1999	17 Mar 2000	CVW-1	CV-67	Med/Persian Gulf

* *Kitty Hawk* (CV 63) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 2000				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
07 Jan 2000	03 Jul 2000	CVW-9	CVN-74	IO/Persian Gulf
18 Feb 2000	18 Aug 2000	CVW-7	CVN-69	Med/Persian Gulf
11 Apr 2000	05 Jun 2000	CVW-5	CV-63*	WestPac
21 Jun 2000	19 Dec 2000	CVW-17	CVN-73	Med/Persian Gulf
14 Aug 2000	12 Feb 2001	CVW-14	CVN-72	IO/Persian Gulf
26 Sep 2000	20 Nov 2000	CVW-5	CV-63*	WestPac
28 Nov 2000	23 May 2001	CVW-3	CVN-75	Med/Persian Gulf

* *Kitty Hawk* (CV 63) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 2001				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
02 Mar 2001	11 Jun 2001	CVW-5	CV-63*	WestPac
15 Mar 2001	15 Sep 2001	CVW-2	CV-64	WestPac/IO
25 Apr 2001	10 Nov 2001	CVW-8	CVN-65	Med/IO
23 Jul 2001	23 Jan 2002	CVW-11	CVN-70	IO
19 Sep 2001	27 Mar 2002	CVW-1	CVN-71	Med/IO
01 Oct 2001	23 Dec 2001	CVW-5	CV-63*	IO
12 Nov 2001	12 May 2002	CVW-9	CVN-74	IO

* *Kitty Hawk* (CV 63) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 2002				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
07 Feb 2002	17 Aug 2002	CVW-7	CV-67	Med/IO
20 Jun 2002	20 Dec 2002	CVW-17	CVN-73	Med/IO
24 Jul 2002	20 May 2003	CVW-14	CVN-72	WestPac/IO
02 Nov 2002	02 May 2003	CVW-2	CV-64	WestPac/IO
05 Dec 2002	04 Jun 2003	CVW-3	CVN-75	Med/IO

Major Overseas Deployments for 2003				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
23 Jan 2003	06 May 2003	CVW-5	CV-63*	IO/Persian Gulf
04 Feb 2003	29 May 2003	CVW-8	CVN-71	Med
07 Feb 2003	19 Sep 2003	CVW-9	CVN-70	WestPac
03 Mar 2003	05 Nov 2003	CVW-11	CVN-68	WestPac/IO/Persian Gulf
01 Oct 2003	29 Feb 2004	CVW-1	CVN-65	IO/Persian Gulf

* *Kitty Hawk* (CV 63) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 2004				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
20 Jan 2004	26 Jul 2004	CVW-7	CVN-73	Med/Persian Gulf
24 May 2004	01 Nov 2004	CVW-14	CVN-74	WestPac
07 Jun 2004	13 Dec 2004	CVW-17	CV-67	Med/Persian Gulf
13 Oct 2004	18 Apr 2005	CVW-3	CVN-75	Med/Persian Gulf
19 Oct 2004	01 Mar 2005	CVW-2	CVN-72	WestPac

Major Overseas Deployments for 2005				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
01 Feb 2005	31 Jul 2005	CVW-9	CVN-70	WestPac/Persian Gulf/Atlantic
07 May 2005	08 Nov 2005	CVW-11	CVN-68	WestPac/Persian Gulf
23 May 2005	20 Aug 2005	CVW-5	CV-63*	WestPac
01 Sep 2005	11 Mar 2006	CVW-8	CVN-71	Med/Persian Gulf

* *Kitty Hawk* (CV 63) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 2006				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
04 Jan 2006	06 Jul 2006	CVW-14	CVN-76	WestPac/IO/Persian Gulf
02 Feb 2006	08 Aug 2006	CVW-2	CVN-72	WestPac
02 May 2006	18 Nov 2006	CVW-1	CVN-65	Med/IO/Persian Gulf/WestPac
08 Jun 2006	15 Sep 2006	CVW-5	CV-63*	WestPac/IO
03 Oct 2006	23 May 2007	CVW-7	CVN-69	Med/IO/Persian Gulf

* *Kitty Hawk* (CV 63) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 2007				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
20 Jan 2007	27 Aug 2007	CVW-9	CVN-74	IO/WestPac
27 Jan 2007	20 Apr 2007	CVW-14	CVN-76	WestPac
02 Apr 2007	30 Sep 2007	CVW-11	CVN-68	WestPac/IO/Persian Gulf
23 May 2007	21 Sep 2007	CVW-5	CV-63*	WestPac/IO
07 Jul 2007	19 Dec 2007	CVW-1	CVN-65	Med/IO/Persian Gulf
05 Nov 2007	04 Jun 2008	CVW-3	CVN-75	Med/IO/Persian Gulf

* *Kitty Hawk* (CV 63) with CVW-5 and its assigned squadrons were forward deployed and homeported overseas at Naval Station Yokosuka, Japan. Only operations outside the home waters of Japan are listed as deployments.

Major Overseas Deployments for 2008				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
24 Jan 2008	03 Jun 2008	CVW-11	CVN-68	WestPac
13 Mar 2008	12 Oct 2008	CVW-2	CVN-72	IO/Persian Gulf/North Arabian Sea
19 May 2008	25 Nov 2008	CVW-14	CVN-76	WestPac/North Arabian Sea
28 May 2008	07 Aug 2008	CVW-5	CV-63*	Yokosuka/Central Pacific/San Diego
08 Sep 2008	18 Apr 2009	CVW-8	CVN-71	NorLant
01 Oct 2008	21 Nov 2008	CVW-5	CVN-73†	WestPac

* *Kitty Hawk*'s (CV 63) final deployment concluded in San Diego, Calif., where the Navy's last conventionally powered carrier turned over duties as the forward-deployed carrier in the Pacific to *George Washington* (CVN 73). Originally scheduled to take place in Pearl Harbor, Hawaii, in June 2008, the turnover was rescheduled to August as *George Washington* underwent repairs following a shipboard fire in May.

† While not a major deployment, *George Washington*'s first underway period as the forward-deployed carrier is included in this listing.

Major Overseas Deployments for 2009				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
13 Jan 2009	10 Jul 2009	CVW-9	CVN-74	WestPac/NorPac
21 Feb 2009	30 Jul 2009	CVW-7	CVN-69	Med/North Arabian Sea
29 May 2009	10 Oct 2009	CVW-14	CVN-76	WestPac
10 Jun 2009	03 Sep 2009	CVW-5	CVN-73*	WestPac
31 Jul 2009	26 Mar 2010	CVW-11	CVN-68	WestPac
08 Sep 2008	18 Apr 2009	CVW-8	CVN-71	IO/Med/North Arabian Sea

* *George Washington* (CVN 73) forward deployed to WestPac.

Major Overseas Deployments for 2010				
Departure	**Return**	**Air Group**	**Carrier**	**Area of Operations**
01 Jan 2010	31 Dec 2010	CVW-5	CVN-73*	WestPac
02 Jan 2010	28 Jul 2010	CVW-7	CVN-69	Med/IO
10 Feb 2010	08 Apr 2010	CVW-17	CVN-70	Carib/Central and South American waters (Com4thFlt)
21 May 2010	20 Dec 2010	CVW-3	CVN-75	Med/IO
07 Sep 2010	circa Mar 2011	CVW-2	CVN-72	WestPac/IO
14 Dec 2010	circa Jul 2011	CVW-1	CVN-65	Med/IO
21 Dec 2010	circa Jun 2011	CVW-17	CVN-70	WestPac/IO

* *George Washington* (CVN 73) forward deployed to WestPac.

Acronyms/Designations	
CV-9, CVA-9, CVS-9	*Essex*
CV-10, CVA-10, CVS-10	*Yorktown*
CV-11, CVA-11, CVS-11	*Intrepid*
CV-12, CVA-12 , CVS-12	*Hornet*
CV-14, CVA-14, CVS-14	*Ticonderoga*
CV-15, CVA-15, CVS-15	*Randolph*
CV-16, CVA-16, CVS-16	*Lexington*
CV-18, CVA-18, CVS-18	*Wasp*
CV-19, CVA-19	*Hancock*
CV-20, CVA-20, CVS-20	*Bennington*
CV-21, CVA-21, CVS-21	*Boxer*
CVL-26	*Monterey*
CVL-28	*Cabot*
CVL-29	*Bataan*
CV-31, CVA-31	*Bon Homme Richard*
CV-32, CVA-32, CVS-32	*Leyte*
CV-33, CVA-33, CVS-33	*Kearsarge*
CV-34, CVA-34	*Oriskany*
CV-36, CVA-36, CVS-36	*Antietam*
CV-37, CVA-37, CVS-37	*Princeton*
CV-38, CVA-38, CVS-38	*Shangri-La*
CV-39, CVA-39, CVS-39	*Lake Champlain*
CV-40, CVA-40, CVS-40	*Tarawa*
CVB-41, CVA-41, CV-41	*Midway*
CVB-42, CVA-42, CV-42	*Franklin D. Roosevelt*
CVB-43, CVA-43, CV-43	*Coral Sea*
CV-45, CVA-45, CVS-45	*Valley Forge*
CV-47, CVA-47, CVS-47	*Philippine Sea*
CVL-48	*Saipan*
CVL-49	*Wright*
CVA-59, CV-59	*Forrestal*
CVA-60, CV-60	*Saratoga*
CVA-61, CV-61	*Ranger*
CVA-62, CV-62	*Independence*
CVA-63, CV-63	*Kitty Hawk*
CVA-64, CV-64	*Constellation*
CVAN-65, CVN-65	*Enterprise*
CVA-66, CV-66	*America*
CVA-67, CV-67	*John F. Kennedy*
CVAN-68, CVN-68	*Nimitz*
CVN-69	*Dwight D. Eisenhower*
CVN-70	*Carl Vinson*
CVN-71	*Theodore Roosevelt*
CVN-72	*Abraham Lincoln*
CVN-73	*George Washington*
CVN-74	*John C. Stennis*
CVN-75	*Harry S. Truman*
CVN-76	*Ronald Reagan*
CVN-77	*George H. W. Bush*

Acronyms/Designations	
AirDet	Air Detachment
ATG	Air Task Group
CVAG	Attack Carrier Air Group
CVBG	Battle Carrier Air Group
CVG	Carrier Air Group
CVLG	Light Carrier Air Group
CVSG	Antisubmarine Carrier Air Group
CVW	Carrier Air Wing
HMR	Marine Helicopter Transport Squadron
HS	Helicopter Antisubmarine Squadron
HU	Helicopter Utility Squadron
MAG	Marine Air Group
VA	Attack Squadron
VAW	Carrier Airborne Early Warning Squadron
VC	Composite Squadron
VF	Fighter Squadron
VFAW	All-Weather Fighter Squadron
VMA	Marine Corps Attack Squadron
VMF	Marine Corps Fighter Squadron
VMO	Marine Observation Squadron
VS	Antisubmarine Squadron
VU	Utility Squadron

[1.] Area of Operations abbreviations:	
Carib	Caribbean Sea
EastLant	Eastern Atlantic Ocean
IO	Indian Ocean
Med	Mediterranean Sea
NorLant	North Atlantic Ocean
SoLant	South Atlantic Ocean
WestPac	Western Pacific Ocean

Chapter 29

Post–Korean War Amphibious Assault Ship Deployments by Year

This deployment list covers those by amphibious assault ships with the designations LPH, LHA, LHD, and CVHA. Departure and return dates are normally from the ship's homeport or other stateside port. This listing is only for major overseas deployments or operations. It does not include normal deployments to the Caribbean or Hawaii for training.

Major Overseas Deployments for 1957			
Departure	**Return**	**Ship**	**Area of Operations***
10 Jul 1957	11 Dec 1957	CVHA-1	WestPac

Major Overseas Deployments for 1958			
None			

Major Overseas Deployments for 1959			
Departure	**Return**	**Ship**	**Area of Operations**
01 Apr 1959	18 Nov 1959	LPH-6	WestPac

Major Overseas Deployments for 1960			
Departure	**Return**	**Ship**	**Area of Operations**
10 Feb 1960	11 Jul 1960	LPH-5	WestPac

Major Overseas Deployments for 1961			
Departure	**Return**	**Ship**	**Area of Operations**
01 Mar 1961	circa Aug 1961	LPH-6	WestPac
03 Jun 1961	08 Aug 1961	LPH-4	Carib, unrest in Dominican Republic
09 Sep 1961	Jun 1962	LPH-5	WestPac
Oct 1961	Dec 1961	LPH-8	Carib/Dominican Republic
Nov 1961	Dec 1961	LPH-6	West to East Coast via Panama Canal

Major Overseas Deployments for 1962			
Departure	**Return**	**Ship**	**Area of Operations**
06 Jan 1962	23 Jan 1962	LPH-8	East to West Coast via Panama Canal
16 Apr 1962	Dec 1962	LPH-8	WestPac/Indochina
18 Apr 1962	10 Aug 1962	LPH-2	Pacific
Sep 1962	Nov 1962	LPH-5	Pacific nuclear test series
Oct 1962	Dec 1962	LPH-4	Cuban Missile Crisis
14 Oct 1962	04 Dec 1962	LPH-6	Cuban Missile Crisis
21 Oct 1962	03 Dec 1962	LPH-3	Cuban Missile Crisis
27 Oct 1962	13 Dec 1962	LPH-2	Panama Canal/Carib

Major Overseas Deployments for 1963			
Departure	**Return**	**Ship**	**Area of Operations**
05 Feb 1963	26 Oct 1963	LPH-5	WestPac
05 Jun 1963	13 Jul 1963	LPH-6	NorLant
30 Aug 1963	28 Apr 1964	LPH-2	WestPac/Vietnam

Major Overseas Deployments for 1964			
Departure	**Return**	**Ship**	**Area of Operations**
11 Feb 1964	May 1964	LPH-7	Carib/Panama
20 Mar 1964	05 Nov 1964	LPH-8	WestPac/Vietnam
16 Sep 1964	29 May 1965	LPH-5	WestPac/Vietnam
07 Oct 1964	29 Nov 1964	LPH-3	EastLant/NorLant
07 Oct 1964	circa Nov 1964	LPH-7	EastLant/NorLant
12 Oct 1964	28 Nov 1964	LPH-4	EastLant/NorLant

Major Overseas Deployments for 1965			
Departure	**Return**	**Ship**	**Area of Operations**
08 Mar 1965	17 Apr 1965	LPH-8	Transport Marines to Okinawa
01 Apr 1965	29 Jun 1965	LPH-4	Carib/Dominican Republic Crisis
12 Apr 1965	17 Nov 1965	LPH-2	WestPac/Vietnam
24 May 1965	01 Jul 1965	LPH-8	Transport Marines to Okinawa
10 Aug 1965	28 Oct 1965	LPH-4	Med/IO/WestPac, transported Army 1st Cavalry Div. (Air Mobile) to South Vietnam
30 Aug 1965	09 Apr 1966	LPH-8	WestPac/Vietnam
29 Nov 1965	04 Mar 1966	LPH-9	Carib/Central America

Major Overseas Deployments for 1966			
Departure	**Return**	**Ship**	**Area of Operations**
08 Feb 1966	06 Mar 1966	LPH-4	SoLant, Project Apollo recovery
16 Feb 1966	02 Sep 1966	LPH-5	WestPac/Vietnam
26 Apr 1966	13 Jul 1966	LPH-4	Med/IO/WestPac, transit of HMM-265 to South Vietnam
Jul 1966	Jul 1966	LPH-7	Gemini 10 recovery
09 Jul 1966	08 Apr 1967	LPH-2	WestPac/Vietnam
06 Sep 1966	18 Sep 1966	LPH-9	Carib/Gemini 11 recovery
07 Sep 1966	01 Dec 1966	LPH-8	WestPac/Vietnam
06 Nov 1966	22 Nov 1966	LPH-10	East to West Coast via Panama Canal
28 Nov 1966	09 Apr 1967	LPH-9	Carib

Major Overseas Deployments for 1967			
Departure	**Return**	**Ship**	**Area of Operations**
24 Jan 1967	08 Feb 1967	LPH-3	East to West Coast via Panama Canal
30 Jan 1967	19 Jun 1967	LPH-5	WestPac/Vietnam
10 Mar 1967	05 Dec 1967	LPH-3	WestPac/Vietnam
01 May 1967	23 Dec 1967	LPH-10	WestPac/Vietnam
10 Aug 1967	13 Dec 1967	LPH-7	Carib
02 Oct 1967	28 Jun 1968	LPH-2	WestPac/Vietnam
10 Nov 1967	03 Aug 1968	LPH-8	WestPac/Vietnam
06 Dec 1967	23 Mar 1968	LPH-9	Carib

Major Overseas Deployments for 1968			
Departure	**Return**	**Ship**	**Area of Operations**
Mar 1968	Apr 1968	LPH-3	Pacific, Apollo 6 Recovery
01 May 1968	16 Dec 1968	LPH-5	WestPac/Vietnam
10 Jun 1968	06 Nov 1968	LPH-7	Carib/Panama
12 Jun 1968	19 Mar 1969	LPH-10	WestPac/Vietnam
02 Nov 1968	26 Jun 1969	LPH-3	WestPac/Vietnam

Major Overseas Deployments for 1969			
Departure	**Return**	**Ship**	**Area of Operations**
30 Jan 1969	23 Sep 1969	LPH-8	WestPac/Vietnam
12 Feb 1969	12 Jul 1969	LPH-9	Carib
18 Feb 1969	03 Mar 1969	LPH-11	East to West Coast via Panama Canal
Mar 1969	Mar 1969	LPH-7	Apollo 9 recovery
28 Apr 1969	09 Jun 1969	LPH-5	Pacific, Apollo 10 recovery
01 May 1969	27 Oct 1969	LPH-2	WestPac/Vietnam
01 Aug 1969	07 May 1970	LPH-11	WestPac/Vietnam
12 Sep 1969	11 Oct 1969	LPH-5	NorPac, nuclear testing
15 Sep 1969	25 Nov 1969	LPH-9	Carib
01 Nov 1969	16 Feb 1970	LPH-10	WestPac/Vietnam

Major Overseas Deployments for 1970			
Departure	**Return**	**Ship**	**Area of Operations**
12 Jan 1970	22 May 1970	LPH-7	Carib/Panama
27 Feb 1970	24 Jun 1970	LPH-10	WestPac/Vietnam
21 Mar 1970	01 May 1970	LPH-2	Pacific
Apr 1970	Apr 1970	LPH-2	Apollo 13 recovery
May 1970	Dec 1970	LPH-3	WestPac/Vietnam
12 May 1970	16 Jul 1970	LPH-9	Carib/West coast of South America
24 Jul 1970	07 Sep 1970	LPH-7	NorLant
17 Sep 1970	21 Nov 1970	LPH-9	Med
02 Nov 1970	07 Jun 1971	LPH-2	WestPac/Vietnam

Major Overseas Deployments for 1971			
Departure	**Return**	**Ship**	**Area of Operations**
07 Jan 1971	25 Feb 1971	LPH-11	Pacific, Apollo 14 recovery
16 Apr 1971	10 Oct 1971	LPH-9	Med
30 Apr 1971	16 Jun 1971	LPH-3	WestPac
01 May 1971	05 Nov 1971	LPH-11	WestPac
08 Jul 1971	16 Aug 1971	LPH-3	Pacific, Apollo 15 recovery
Sep 1971	Mar 1972	LPH-12	Med
21 Sep 1971	09 Nov 1971	LPH-7	Med
01 Oct 1971	20 Aug 1972	LPH-10	WestPac/Vietnam/IO

Major Overseas Deployments for 1972			
Departure	**Return**	**Ship**	**Area of Operations**
22 Feb 1972	22 Aug 1972	LPH-7	Med
20 May 1972	03 Jun 1972	LPH-2	West to East Coast via Panama Canal
17 Jul 1972	13 May 1973	LPH-11	WestPac/Vietnam
28 Jul 1972	26 Jan 1973	LPH-2	Med
Aug 1972	Oct 1972	LPH-12	NorLant
09 Nov 1972	01 Sep 1973	LPH-12	Panama Canal/WestPac/Vietnam/IO/South Atlantic†

Major Overseas Deployments for 1973			
Departure	**Return**	**Ship**	**Area of Operations**
06 Mar 1973	27 Oct 1973	LPH-10	WestPac/Vietnam (Operation Endsweep)
04 May 1973	20 Dec 1973	LPH-7	Med
18 Aug 1973	26 Sep 1973	LPH-11	Pacific, Skylab 3 recovery
20 Sep 1973	26 Apr 1974	LPH-3	WestPac
15 Oct 1973	May 1974	LPH-2	Med

Major Overseas Deployments for 1974			
Departure	**Return**	**Ship**	**Area of Operations**
27 Jan 1974	09 Feb 1974	LPH-11	Pacific, Skylab 4 recovery
16 Mar 1974	31 Aug 1974	LPH-11	WestPac
29 Apr 1974	31 Oct 1974	LPH-12	Med
27 Jul 1974	11 Feb 1975	LPH-10	WestPac
20 Sep 1974	26 Mar 1975	LPH-9	NorLant/Med

Major Overseas Deployments for 1975			
Departure	**Return**	**Ship**	**Area of Operations**
08 Jan 1975	20 Aug 1975	LPH-3	WestPac
25 Feb 1975	21 Aug 1975	LPH-2	Med
05 Jul 1975	23 Mar 1976	LPH-11	WestPac
29 Jul 1975	04 Feb 1976	LPH-12	Med
25 Sep 1975	10 Nov 1975	LPH-7	Med

Major Overseas Deployments for 1976			
Departure	**Return**	**Ship**	**Area of Operations**
12 Jan 1976	15 Jul 1976	LPH-7	Med
16 Feb 1976	25 Oct 1976	LPH-10	WestPac
07 Jun 1976	11 Dec 1976	LPH-2	Med
07 Jul 1976	06 Aug 1976	LPH-1	East to West Coast via Panama Canal
01 Sep 1976	10 Nov 1976	LPH-7	NorLant
25 Sep 1976	05 May 1977	LPH-3	WestPac
11 Nov 1976	12 May 1977	LPH-9	Med/IO

Major Overseas Deployments for 1977			
Departure	**Return**	**Ship**	**Area of Operations**
08 Sep 1977	13 Mar 1978	LPH-7	Med
03 Nov 1977	22 Jul 1978	LPH-10	WestPac

Major Overseas Deployments for 1978			
Departure	**Return**	**Ship**	**Area of Operations**
16 Jan 1978	19 Apr 1978	LPH-12	SoLant/Africa/South America
27 Feb 1978	25 Aug 1978	LPH-9	Med
21 Jun 1978	05 Oct 1978	LPH-11	WestPac
27 Jul 1978	07 Feb 1979	LPH-2	Med
22 Aug 1978	31 Oct 1978	LPH-7	NorLant
31 Aug 1978	11 Apr 1979	LPH-3	WestPac

Major Overseas Deployments for 1979			
Departure	**Return**	**Ship**	**Area of Operations**
10 Jan 1979	19 Jun 1979	LPH-12	Med
01 Mar 1979	21 Sep 1979	LHA-1	WestPac
23 May 1979	07 Nov 1979	LPH-9	Med
11 Jun 1979	09 Aug 1979	LHA-2	Carib/Nicaragua
23 Jul 1979	14 Feb 1980	LPH-10	WestPac
12 Sep 1979	27 Feb 1980	LPH-2	Med

Major Overseas Deployments for 1980			
Departure	**Return**	**Ship**	**Area of Operations**
04 Jan 1980	03 Jul 1980	LPH-3	WestPac/IO
15 Feb 1980	18 Apr 1980	LHA-2	NorLant
13 May 1980	10 Jun 1980	LHA-5	East to West Coast via Panama Canal
23 May 1980	22 Nov 1980	LPH-11	WestPac/IO
04 Jun 1980	09 Nov 1980	LPH-7	Med/IO
27 Aug 1980	25 Feb 1981	LHA-2	NorLant/Med/IO
14 Oct 1980	16 Apr 1981	LHA-1	WestPac/IO

Major Overseas Deployments for 1981			
Departure	**Return**	**Ship**	**Area of Operations**
20 Jan 1981	02 Jul 1981	LPH-2	Med
22 Jan 1981	04 Aug 1981	LHA-3	WestPac/IO
04 Feb 1981	16 Apr 1981	LPH-9	NorLant
13 Apr 1981	29 Jun 1981	LHA-4	Med
03 Jun 1981	11 Nov 1981	LPH-7	Med
25 Jun 1981	23 Dec 1981	LPH-3	WestPac/IO
03 Sep 1981	24 Feb 1982	LHA-2	Med/IO
12 Nov 1981	15 May 1982	LPH-10	WestPac/IO

Major Overseas Deployments for 1982			
Departure	**Return**	**Ship**	**Area of Operations**
19 Jan 1982	30 Jun 1982	LHA-4	Med/IO
27 Jan 1982	15 Apr 1982	LPH-7	NorLant
31 Jan 1982	19 Apr 1982	LPH-9	NorLant
27 Mar 1982	04 Oct 1982	LHA-5	WestPac
15 Jul 1982	20 Sep 1982	LPH-11	WestPac
20 Aug 1982	18 Oct 1982	LPH-7	NorLant
23 Aug 1982	10 Mar 1983	LPH-12	NorLant/Med
24 Aug 1982	30 Oct 1982	LHA-4	NorLant
24 Aug 1982	24 Feb 1983	LHA-3	WestPac/IO

Major Overseas Deployments for 1983			
Departure	**Return**	**Ship**	**Area of Operations**
26 Jan 1983	27 Jun 1983	LPH-7	Med/Carib
30 Jan 1983	14 Jul 1983	LPH-11	WestPac
31 Jan 1983	19 Apr 1983	LPH-9	NorLant
27 Apr 1983	23 Oct 1983	LPH-10	WestPac/IO
27 Apr 1983	22 Nov 1983	LHA-1	WestPac/IO/Med
10 May 1983	08 Dec 1983	LPH-2	Med
11 Aug 1983	21 Oct 1983	LPH-12	NorLant
20 Aug 1983	02 Sep 1983	LHA-4	Central America
02 Sep 1983	11 Nov 1983	LHA-2	Carib/Grenada‡
12 Sep 1983	06 Mar 1984	LHA-5	WestPac/IO
18 Oct 1983	02 May 1984	LPH-9	Carib/Med (Grenada Operation Urgent Fury)
09 Nov 1983	02 Dec 1983	LPH-7	Carib/Central America

Major Overseas Deployments for 1984			
Departure	**Return**	**Ship**	**Area of Operations**
17 Jan 1984	27 Jul 1984	LHA-3	WestPac
13 Feb 1984	28 Apr 1984	LHA-2	NorLant
13 Feb 1984	24 Aug 1984	LHA-4	NorLant/Med
14 Feb 1984	10 Apr 1984	LPH-12	NorLant
30 May 1984	19 Sep 1984	LPH-3	WestPac
30 May 1984	06 Dec 1984	LPH-11	WestPac/IO
25 Jul 1984	20 Feb 1985	LPH-12	Med
18 Oct 1984	26 Apr 1985	LHA-1	WestPac

Major Overseas Deployments for 1985			
Departure	**Return**	**Ship**	**Area of Operations**
22 Jan 1985	09 Aug 1985	LHA-2	Med
04 Apr 1985	04 Sep 1985	LHA-5	WestPac
02 Jul 1985	20 Dec 1985	LPH-2	Med
09 Aug 1985	16 Dec 1985	LPH-3	WestPac
27 Aug 1985	12 Oct 1985	LHA-4	NorLant
21 Nov 1985	04 Jun 1986	LPH-7	Med

Major Overseas Deployments for 1986			
Departure	**Return**	**Ship**	**Area of Operations**
16 Jan 1986	16 Sep 1986	LPH-11	WestPac
07 May 1986	04 Nov 1986	LPH-9	Med
19 Jun 1986	20 Dec 1986	LHA-1	WestPac
17 Aug 1986	21 Oct 1986	LPH-12	NorLant
17 Aug 1986	24 Feb 1987	LHA-2	NorLant/Med

Major Overseas Deployments for 1987			
Departure	**Return**	**Ship**	**Area of Operations**
09 Jan 1987	09 Jul 1987	LHA-3	WestPac
15 Jan 1987	17 May 1987	LPH-3	WestPac
21 Jan 1987	17 Jul 1987	LPH-12	Med
18 Jun 1987	17 Dec 1987	LPH-7	Med/IO
18 Jun 1987	18 Dec 1987	LPH-10	WestPac

29 Sep 1987	29 Mar 1988	LHA-4	Med
08 Oct 1987	06 Apr 1988	LPH-3	WestPac/IO/Med/Carib†

Major Overseas Deployments for 1988			
Departure	**Return**	**Ship**	**Area of Operations**
14 Jan 1988	14 Jul 1988	LHA-5	WestPac
29 Feb 1988	29 Aug 1988	LPH-2	Med
16 Jun 1988	16 Dec 1988	LPH-11	WestPac
02 Aug 1988	02 Feb 1989	LPH-9	Med
25 Aug 1988	15 Oct 1988	LHA-4	NorLant
25 Aug 1988	15 Oct 1988	LPH-12	NorLant
30 Dec 1988	30 Jun 1989	LPH-7	Med

Major Overseas Deployments for 1989			
Departure	**Return**	**Ship**	**Area of Operations**
12 Jan 1989	19 Jun 1989	LHA-3	WestPac
30 May 1989	10 Nov 1989	LHA-4	Med
08 Jul 1989	20 Dec 1989	LHA-1	WestPac
06 Sep 1989	16 Dec 1989	LPH-10	WestPac
18 Sep 1989	29 Oct 1989	LHA-5	NorPac
11 Oct 1989	11 Apr 1990	LPH-2	Med

Major Overseas Deployments for 1990			
Departure	**Return**	**Ship**	**Area of Operations**
12 Jan 1990	12 Jul 1990	LHA-5	WestPac
07 Mar 1990	07 Sep 1990	LHA-2	Med/West Africa
20 Jun 1990	17 Apr 1991	LPH-3	WestPac/IO/Persian Gulf
06 Aug 1990	04 Mar 1991	LPH-12	Med
18 Aug 1990	20 Apr 1991	LHA-4	Med/IO/Persian Gulf
19 Aug 1990	20 Apr 1991	LPH-9	Med/IO/Persian Gulf
20 Aug 1990	17 Apr 1991	LPH-2	Med/Persian Gulf
01 Dec 1990	08 Aug 1991	LPH-10	WestPac/IO
01 Dec 1990	28 Aug 1991	LPH-11	WestPac/IO/Persian Gulf

Major Overseas Deployments for 1991			
Departure	**Return**	**Ship**	**Area of Operations**
23 Jan 1991	07 Aug 1991	LPH-7	Med
29 May 1991	27 Nov 1991	LHA-5	WestPac/IO
20 Jun 1991	20 Dec 1991	LHD-1	Med
17 Sep 1991	17 Mar 1992	LHA-2	Med/IO
05 Dec 1991	05 Jun 1992	LPH-12	Med

Major Overseas Deployments for 1992			
Departure	**Return**	**Ship**	**Area of Operations**
06 Jan 1992	06 Jul 1992	LPH-3	WestPac/IO
26 Feb 1992	17 Apr 1992	LPH-7	NorLant
Mar 1992	Apr 1992	LHA-4	NorLant
27 May 1992	26 Nov 1992	LPH-2	Med
28 May 1992	21 Jul 1992	LHD-1	Carib/Drug law enforcement
28 May 1992	25 Nov 1992	LHA-1	WestPac/IO/Arabian Sea
31 Aug 1992	31 Dec 1992	LHA-3	WestPac[§]
16 Oct 1992	16 Apr 1993	LPH-10	WestPac/IO
20 Oct 1992	17 Apr 1993	LPH-9	Med

Major Overseas Deployments for 1993			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 1993	31 Dec 1993	LHA-3	WestPac[§]
23 Feb 1993	20 Aug 1993	LHD-1	Med/IO
17 Mar 1993	10 Sep 1993	LHA-2	Med
22 Mar 1993	17 Jun 1993	LPH-12	NorLant
11 Aug 1993	05 Feb 1994	LPH-7	Med/IO
03 Sep 1993	18 Mar 1994	LPH-11	WestPac/IO

Major Overseas Deployments for 1994			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 1994	31 Dec 1994	LHA-3	WestPac[§]
05 Jan 1994	24 Jun 1994	LPH-12	Med/IO
21 Jan 1994	21 Jul 1994	LHA-5	WestPac/IO
20 May 1994	20 Nov 1994	LPH-9	Med/IO
01 Jun 1994	09 Dec 1994	LPH-10	WestPac/IO
06 Jul 1994	17 Aug 1994	LPH-12	Carib/Haiti
12 Aug 1994	20 Oct 1994	LHD-1	Carib/Haiti
20 Oct 1994	16 Apr 1995	LHA-4	Med
25 Oct 1994	25 Apr 1995	LHD-2	WestPac/IO

Major Overseas Deployments for 1995			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 1995	31 Dec 1995	LHA-3	WestPac[§]
20 Feb 1995	15 Mar 1995	LHD-4	East to West Coast via Panama Canal
22 Mar 1995	22 Sep 1995	LHD-3	Med
23 Jun 1995	22 Dec 1995	LPH-11	WestPac/IO
28 Aug 1995	28 Feb 1996	LHD-1	Med
13 Nov 1995	13 May 1996	LHA-5	WestPac/IO

Major Overseas Deployments for 1996			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 1996	31 Dec 1996	LHA-3	WestPac[§]
26 Jan 1996	24 Jul 1996	LPH-9	Med
19 Apr 1996	19 Oct 1996	LHA-1	WestPac/IO
28 Jun 1996	21 Dec 1996	LHA-2	Med
10 Oct 1996	10 Apr 1997	LHD-2	WestPac/IO
25 Nov 1996	23 May 1997	LHA-4	Med

Major Overseas Deployments for 1997			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 1997	31 Dec 1997	LHA-3	WestPac§
31 Jan 1997	02 May 1997	LPH-11	WestPac
24 Mar 1997	24 Sep 1997	LHD-4	WestPac/IO
15 Apr 1997	15 Oct 1997	LHD-3	SouthEastLant/Med
28 Aug 1997	27 Feb 1998	LHA-5	WestPac/IO
03 Oct 1997	Apr 1998	LPH-9	Med

Major Overseas Deployments for 1998			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 1998	31 Dec 1998	LHA-3	WestPac§
07 Feb 1998	07 Aug 1998	LHA-1	WestPac/IO
22 Jun 1998	22 Dec 1998	LHD-2	WestPac/IO
01 Jul 1998	09 Dec 1998	LHA-2	Med
17 Aug 1998	28 Sep 1998	LHD-6	East to West Coast via Cape Horn
13 Nov 1998	13 May 1999	LHA-4	Med
05 Dec 1998	05 Jun 1999	LHD-4	WestPac/IO

Major Overseas Deployments for 1999			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 1999	Mar 1999	LHA-3	IO
14 Apr 1999	14 Oct 1999	LHD-3	Med/IO
21 Jun 1999	21 Dec 1999	LHA-5	WestPac/IO
15 Sep 1999	17 Mar 2000	LHD-5	Med/IO

Major Overseas Deployments for 2000			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2000	13 Oct 2000	LHA-3	WestPac‖
24 Jan 2000	14 Jul 2000	LHD-6	WestPac
18 Feb 2000	08 Aug 2000	LHD-1	Med
02 Jun 2000	31 Dec 2000	LHD-2	WestPac#
11 Jul 2000	21 Dec 2000	LHA-2	Med
14 Aug 2000	14 Feb 2001	LHA-1	WestPac/IO
28 Nov 2000	24 May 2001	LHA-4	Med

Major Overseas Deployments for 2001			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2001	31 Dec 2001	LHD-2	WestPac#
12 Mar 2001	12 Sep 2001	LHD-4	WestPac/IO
25 Apr 2001	15 Oct 2001	LHD-3	Med
13 Aug 2001	04 Mar 2002	LHA-5	WestPac/IO
18 Sep 2001	20 Apr 2002	LHD-5	Med
01 Dec 2001	18 Jun 2002	LHD-6	WestPac/IO

Major Overseas Deployments for 2002			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2002	31 Dec 2002	LHD-2	WestPac#
22 Feb 2002	30 Aug 2002	LHD-1	Med/IO
15 Jun 2002	14 Dec 2002	LHA-3	WestPac/IO
26 Aug 2002	29 May 2003	LHA-4	Med/IO

Major Overseas Deployments for 2003			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2003	31 Dec 2003	LHD-2	WestPac#
06 Jan 2003	13 Jul 2003	LHA-1	WestPac/IO
16 Jan 2003	25 Jun 2003	LHD-5	Med/IO
16 Jan 2003	26 Jun 2003	LHA-2	Med/IO
16 Jan 2003	30 Jun 2003	LHD-3	Med/IO
17 Jan 2003	26 Jul 2003	LHD-4	WestPac/IO
17 Jan 2003	26 Jul 2003	LHD-6	WestPac/IO
04 Mar 2003	24 Oct 2003	LHD-7	Med/SoLant
22 Aug 2003	09 Mar 2004	LHA-5	WestPac/IO

Major Overseas Deployments for 2004			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2004	22 Aug 2004	LHD-2	WestPac#
14 Jan 2004	29 Apr 2004	LHD-4	WestPac/IO
19 Jan 2004	31 Mar 2004	LHD-5	Med/IO
17 Feb 2004	18 Sep 2004	LHD-1	Med/IO
27 May 2004	24 Oct 2004	LHA-3	WestPac/IO
07 Jun 2004	15 Aug 2004	LHD-3	Med/IO
22 Aug 2004	31 Dec 2004	LHD-2	IO
06 Dec 2004	06 Jun 2005	LHD-6	WestPac/IO

Major Overseas Deployments for 2005			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2005	05 Apr 2005	LHD-2	IO
25 Mar 2005	27 Sep 2005	LHD-3	Med/IO
05 Apr 2005	31 Dec 2005	LHD-2	WestPac#
29 Apr 2005	14 Sep 2005	LHD-4	WestPac
25 May 2005	25 Aug 2005	LHA-2	Med
16 Jul 2005	20 Feb 2006	LHA-1	WestPac/IO/Med
07 Nov 2005	04 May 2006	LHA-4	Med/IO

Major Overseas Deployments for 2006			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2006	31 Dec 2006	LHD-2	WestPac#
15 Feb 2006	16 Aug 2006	LHA-5	WestPac/IO
06 Jun 2006	06 Dec 2006	LHD-7	Med/IO/Persian Gulf
25 Aug 2006	11 Nov 2006	LHD-1	Med/NorLant
13 Sep 2006	31 May 2007	LHD-4	WestPac/IO/Persian Gulf

Major Overseas Deployments for 2007			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2007	31 Dec 2007	LHD-2	WestPac#
04 Jan 2007	03 Jul 2007	LHD-5	Med/IO
10 Apr 2007	19 Nov 2007	LHD-6	WestPac/IO/Persian Gulf
30 Jul 2007	01 Feb 2008	LHD-3	IO
05 Nov 2007	03 Jun 2008	LHA-1	WestPac/IO

Major Overseas Deployments for 2008			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2008	31 Dec 2008	LHD-2	WestPac#
20 Feb 2008	11 Jul 2008	LHA-4	Med/IO
28 Apr 2008	26 Jun 2008	LHD-4	EastPac
04 May 2008	04 Nov 2008	LHA-5	WestPac/IO
08 Aug 2008	02 Dec 2008	LHD-3	Carib
26 Aug 2008	27 Mar 2009	LHD-7	Med/IO

Major Overseas Deployments for 2009			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2009	31 Dec 2009	LHD-2	WestPac#
09 Jan 2009	01 Aug 2009	LHD-4	WestPac/IO
13 May 2009	08 Dec 2009	LHD-5	Med/IO
24 Sep 2009	14 Apr 2010	LHD-6	WestPac/IO
04 Oct 2009	22 Dec 2009	LHD-1	GITMO/Carib

Major Overseas Deployments for 2010			
Departure	**Return**	**Ship**	**Area of Operations**
01 Jan 2010	31 Dec 2010	LHD-2	WestPac#
18 Jan 2010	15 Aug 2010	LHA-4	Med/IO
22 May 2010	15 Dec 2010	LHA-5	WestPac/IO
12 Jul 2010	18 Nov 2010	LHD-7	Carib/Central and South American waters (Com4thFlt)
27 Aug 2010	circa May 2011	LHD-3	Med/IO

Amphibious Assault Ship Designations		
CVHA-1	*Thetis Bay*	Operated with the designation CVHA-1 from 1 Jul 1955 until redesignated LPH-6 on 28 May 1959.
LPH-1	*Block Island*	Reclassified LPH-1 on 22 Dec 1957, but the conversion was cancelled and the designation was not reassigned. The ship never operated with the LPH-1 designation.
LPH-2	*Iwo Jima*	
LPH-3	*Okinawa*	
LPH-4	*Boxer*	Operated with the designation LPH-4 from 30 Jan 1959 until her decommissioning on 1 Dec 1969.
LPH-5	*Princeton*	Operated with the designation LPH-5 from 2 Mar 1959 until her decommissioning on 30 Jan 1970.
LPH-6	*Thetis Bay*	Operated with the designation LPH-6 from 28 May 1959 until her decommissioning on 1 Mar 1964.
LPH-7	*Guadalcanal*	
LPH-8	*Valley Forge*	Operated with the designation LPH-8 from 1 Jul 1961 until her decommissioning on 15 Jan 1970.
LPH-9	*Guam*	
LPH-10	*Tripoli*	
LPH-11	*New Orleans*	
LPH-12	*Inchon*	On 1 March 1995 *Inchon* (LPH 12) was redesignated *Inchon* (MCS 12). Tracking of deployments for *Inchon* came to an end in 1994 following her redesignation as a mine countermeasure command and control support ship.
LHA-1	*Tarawa*	
LHA-2	*Saipan*	
LHA-3	*Belleau Wood*	
LHA-4	*Nassau*	
LHA-5	*Peleliu*	
LHD-1	*Wasp*	
LHD-2	*Essex*	
LHD-3	*Kearsarge*	
LHD-4	*Boxer*	
LHD-5	*Bataan*	
LHD-6	*Bonhomme Richard*	
LHD-7	*Iwo Jima*	
LHD-8	*Makin Island*	

[*] Area of Operations abbreviations:

Carib	Caribbean Sea
EastLant	Eastern Atlantic Ocean
GITMO	Guantanamo Bay, Cuba
IO	Indian Ocean
Med	Mediterranean Sea
NorLant	North Atlantic Ocean
SoLant	South Atlantic Ocean
WestPac	Western Pacific Ocean

[†] World cruise

[‡] *Saipan* deployed on 21 Sep for refresher training at Guantanamo Bay. While there, she was ordered to Grenada on 30 Oct and participated in Urgent Fury operations from 1–7 Nov.

[§] On 30 Sep 1992 *Belleau Wood*'s homeport was changed from San Diego to Sasebo, Japan. She became the only forward deployed amphibious assault ship. The time frame reflects her permanent forward deployment.

[‖] In July/August 2000 timeframe *Belleau Wood*'s homeport was changed from Sasebo, Japan to San Diego. She was relieved by *Essex* (LHD 2) as the only forward deployed amphibious assault ship.

[#] In July 2000 *Essex*'s homeport was changed from San Diego to Sasebo, Japan. She relieved *Belleau Wood* as the only forward deployed amphibious assault ship. The time frame reflects her permanent forward deployment.

Chapter 30

Carrier and Squadron Deployments During the Korean War

Carrier, Air Group, and Carrier-Based Squadron Deployments		
***Essex* (CV 9) with CVG-5 (26 Jun 1951–25 Mar 1952)**		
Squadron	**Aircraft**	**Tail Code**
VF-51	F9F-2	S
VF-172	F2H-2	R
VF-53	F4U-4/B	S
VF-54	AD-2/4/L/Q	S
VC-3 Det B	F4U-5NL	NP
VC-11 Det B	AD-4W	ND
VC-35 Det B	AD-4NL	NR
VC-61 Det B	F9F-2P	PP
HU-1 Det	HO3S-1	UP
***Essex* (CVA 9) with ATG-2 (16 Jun 1952–6 Feb 1953)**		
Squadron	**Aircraft**	**Tail Code**
VF-23	F9F-2	M
VF-821	F9F-2	A
VF-871	F4U-4	D
VA-55	AD-4	S
VC-3 Det I	F4U-5N	NP
VC-11 Det I	AD-4W	ND
VC-35 Det I	AD-4N	NR
VC-61 Det I	F2H-2P	PP
HU-1 Det	HO3S-1	UP
***Boxer* (CV 21) with CVG-2 (24 Aug 1950–11 Nov 1950)**		
Squadron	**Aircraft**	**Tail Code**
VF-23	F4U-4	M
VF-63	F4U-4	M
VF-64	F4U-4	M
VF-24	F4U-4	M
VA-65	AD-2	M
VC-3 Det	F4U-5N	NP
VC-11 Det A	AD-3W	ND
VC-33 Det	AD-4N	SS
VC-61 Det	F4U-4P	PP
HU-1 Det	HO3S-1	UP
***Boxer* (CV 21) with CVG-101 (2 Mar 1951–24 Oct 1951)**		
Squadron	**Aircraft**	**Tail Code**
VF-721	F9F-2B	A
VF-791	F4U-4	A
VF-884	F4U-4	A
VA-702	AD-2/4Q	A
VC-3 Det F	F4U-5NL	NP
VC-11 Det F	AD-4W	ND

VC-35 Det F	AD-4N	NR
VC-61 Det F	F9F-2P	PP
HU-1 Det	HO3S-1	UP
***Boxer* (CVA 21) with CVG-2 (8 Feb 1952–26 Sep 1952)**		
Squadron	**Aircraft**	**Tail Code**
VF-64	F4U-4	M
VF-63	F4U-4	M
VF-24	F9F-2	M
VA-65	AD-4	M
VC-3 Det A	F4U-5N	NP
VC-11 Det A	AD-4W	ND
VC-35 Det A	AD-3N/4N/2Q	NR
VC-61 Det A	F9F-2P	PP
HU-1 Det	HO3S-1	UP
GMU-90	AD-2Q/F6F-5K	V
***Boxer* (CVA 21) with ATG-1 (30 Mar 1953–28 Nov 1953)**		
Squadron	**Aircraft**	**Tail Code**
VF-111*	F9F-5	V
VF-52	F9F-2	S
VF-151	F9F-2	H
VF-44*	F4U-4	F
VF-194	AD-4NA/Q	B
VC-3 Det H	F4U-5N	NP
VC-11 Det H	AD-4W	ND
VC-35 Det H	AD-4N	NR
VC-61	F2H-2P	PP
HU-1 Det	HO3S-1	UP

*VF-111 crossdecked (transferred) from CVA-21 to CVA-39 on 30 June 1953 and returned to the United States in October 1953. VF-44 crossdecked from CVA-39 to CVA-21 on 30 June 1953.

***Bon Homme Richard* (CV 31) with CVG-102 (10 May 1951–17 Dec 1951)**		
Squadron	**Aircraft**	**Tail Code**
VF-781	F9F-2B	D
VF-783	F4U-4	D
VF-874	F4U-4	D
VA-923	AD-3/4Q	D
VC-3 Det G	F4U-5NL	NP
VC-11 Det G	AD-4W	ND
VC-35 Det G	AD-4N	NR
VC-61 Det G	F9F-2P	PP
HU-1 Det	HO3S-1	UP
***Bon Homme Richard* (CVA 31) with CVG-7 (20 May 1952–8 Jan 1953)**		
Squadron	**Aircraft**	**Tail Code**
VF-71	F9F-2	L
VF-72	F9F-2	L
VF-74	F4U-4	L
VA-75	AD-4	L
VC-4 Det 41	F4U-5N	NA
VC-33 Det 41	AD-4NL	SS
VC-12 Det 41	AD-4W	NE

VC-61 Det N	F2H-2P/F9F-2P	PP
HU-1 Det	HO3S-1	UP
***Leyte* (CV 32) with CVG-3 (6 Sep 1950–3 Feb 1951)**		
Squadron	**Aircraft**	**Tail Code**
VF-31	F9F-2	K
VF-32	F4U-4	K
VF-33	F4U-4	K
VA-35	AD-3	K
VC-4 Det 3	F4U-5N	NA
VC-33 Det 3	AD-4N	SS
VC-12 Det 3	AD-3W	NE
VC-62 Det 3	F4U-5P	PL
HU-2 Det 3	HO3S-1	UR
***Kearsarge* (CVA 33) with CVG-101* (11 Aug 1952–17 Mar 1953)**		
Squadron	**Aircraft**	**Tail Code**
VF-11	F2H-2	T
VF-721	F9F-2	A
VF-884	F4U-4	A
VA-702	AD-4/L	A
VC-3 Det F	F4U-5N	NP
VC-11 Det F	AD-4W	ND
VC-35 Det F	AD-4N	NR
VC-61 Det F	F2H-2P	PP
HU-1 Det 15	HO3-1	UP

*CVG-101 redesignated CVG-14 on 4 February 1953.
VF-721, VF-884, and VA-702 became VF-141, VF-144, and VA-145, respectively.

Oriskany (CVA 34) with CVG-102* (15 Sep 1952–18 May 1953)		
Squadron	**Aircraft**	**Tail Code**
VF-781	F9F-5	D
VF-783	F9F-5	D
VF-874	F4U-4	D
VA-923	AD-3	D
VC-3 Det G	F4U-5N	NP
VC-11 Det G	AD-3W	ND
VC-35 Det G	AD-4N	NR
VC-61 Det G	F2H-2P	PP
HU-1 Det	HO3S-1	UP

*CVG-102 redesignated CVG-12 on 4 February 1953.
VF-781, VF-783, VF-874, and VA-923 became VF-121, VF-122, VF-124, and VA-125, respectively.

***Antietam* (CV 36) with CVG-15 (8 Sep 1951–2 May 1952)**		
Squadron	**Aircraft**	**Tail Code**
VF-713	F4U-4	H
VF-831	F9F-2B	H
VF-837	F9F-2B	H
VA-728	AD-4/L/Q	H
VC-3 Det D	F4U-5N	NP
VC-11 Det D	AD-4W	ND
VC-35 Det D	AD-4NL	NR

VC-61 Det D	F9F-2P	PP
HU-1 Det	HO3S-1	UP
***Princeton* (CV 37) with CVG-19 (9 Nov 1950–29 May 1951*)**		
Squadron	**Aircraft**	**Tail Code**
VF-191	F9F-2	B
VF-192	F4U-4	B
VF-193	F4U-4	B
VA-195	AD-4	B
VC-3 Det F	F4U-5N	NP
VC-11 Det	AD-4W	ND
VC-35 Det 3	AD-4N	NR
VC-61 Det	F9F-2P	PP
HU-1 Det	HO3S-1	UP

*Air Group transferred at Yokosuka, Japan; CV-37 remained in WestPac.

***Princeton* (CV 37) with CVG-19X (31 May 1951–29 Aug 1951)**		
Squadron	**Aircraft**	**Tail Code**
VF-23	F9F-2	B
VF-821	F4U-4	B
VF-871	F4U-4	B
VA-55	AD-4	B
VC-3 Det	F4U-5N	NP
VC-11 Det	AD-4W	ND
VC-35 Det 7	AD-4N	NR
VC-61 Det	F9F-2P	PP
HU-1 Det	HO3S-1	UP
***Princeton* (CVA 37) with CVG-19 (21 Mar 1952–3 Nov 1952)**		
Squadron	**Aircraft**	**Tail Code**
VF-191	F9F-2	B
VF-192	F4U-4	B
VF-193	F4U-4	B
VA-195	AD-4	B
VC-3 Det E	F4U-5N	NP
VC-11 Det E	AD-4W	ND
VC-35 Det E	AD-4NL	NR
VC-61 Det E	F9F-2P	PP
HU-1 Det	HO3S-1	UP
***Princeton* (CVA 37) with CVG-15 (24 Jan 1953–21 Sep 1953)**		
Squadron	**Aircraft**	**Tail Code**
VF-152	F4U-4	H
VF-153	F9F-5	H
VF-154	F9F-5	H
VA-155	AD-4	H
VC-3 Det D	F4U-5N	NP
VC-11 Det D	AD-4W	ND
VC-35 Det D	AD-4N	NR
VC-61 Det D	F9F-5P	PP
HU-1 Det	HO3S-1	UP
***Lake Champlain* (CVA 39) with CVG-4 (26 Apr 1953–4 Dec 1953)**		
Squadron	**Aircraft**	**Tail Code**

VF-22	F2H-2	F
VF-62	F2H-2	F
VF-44	F4U-4	F (to 30 Jun)
VF-111	F9F-5	V (from 30 Jun)
VA-45	AD-4B	F
VC-4 Det 44	F2H-2B/F3D-2	NA
VC-12 Det 44	AD-4W	NE
VC-33 Det 44	AD-4N	SS
VC-62 Det 44	F2H-2P	PL
HU-2 Det	HO3S-1	UR
***Valley Forge* (CV 45) with CVG-5 (1 May 1950–1 Dec 1950)**		
Squadron	**Aircraft**	**Tail Code**
VF-51	F9F-3	S
VF-52	F9F-3	S
VF-53	F4U-4B	S
VF-54	F4U-4B	S
VA-55	AD-4/Q	S
VC-3 Det C	F4U-5N/AD-3N	NP
VC-11 Det	AD-3W	ND
HedRon 1 Det	F4U-5P	AZ
HU-1 Det	HO3S-1	UP
***Valley Forge* (CV 45) with CVG-2 (6 Dec 1950-7 Apr 1951*)**		
Squadron	**Aircraft**	**Tail Code**
VF-64	F4U-4	M
VF-63	F4U-4	M
VF-24	F4U-4	M
VA-65	AD-2/4Q	M
VC-3 Det	F4U-5N	NP
VC-11 Det	AD-4W	ND
VC-35 Det 4	AD-4N	NR
VC-61 Det F	F4U-4P	PP
HU-1 Det	HO3S-1	UP

*CVG-2 crossdecked with CVG-11 from CV-47 on 28 March 1951 and CV-45 returned to San Diego, Calif., 7 April with CVG-11.

***Valley Forge* (CV 45) with ATG-1 (15 Oct 1951–3 Jul 1952)**		
Squadron	**Aircraft**	**Tail Code**
VF-111	F9F-2/B	V
VF-52	F9F-2/B	S
VF-653	F4U-4/B	H
VF-194	AD-2/3	B
VC-3 Det H	F4U-5N/NL	NP
VC-11 Det H(7)	AD-4W/2Q	ND
VC-35 Det H(10)	AD-4NL	NR
VC-61 Det H	F9F-2P/F2H-2P	PP
HU-1 Det 20	HO3S-1	UP
***Valley Forge* (CVA 45) with CVG-5 (20 Nov 1952–25 Jun 1953)**		
Squadron	**Aircraft**	**Tail Code**
VF-51	F9F-5	S
VF-92	F4U-4	N

VF-53	F9F-5	S
VF-54	AD-4	S
VC-3 Det B	F4U-5N	NP
VC-11 Det B	AD-4W	ND
VC-35 Det B	AD-4N	NR
VC-61 Det B	F9F-5P	PP
HU-1 Det 6	HO3S-1	UP
***Philippine Sea* (CV 47) with CVG-11 (5 Jul 1950-26 Mar 1951*)**		
Squadron	**Aircraft**	**Tail Code**
VF-111	F9F-2	V
VF-112	F9F-2	V
VF-113	F4U-4B	V
VF-114	F4U-4B	V
VA-115	AD-4/Q	V
VC-3 Det 3	F4U-5N/AD-4N	NP
VC-11 Det	AD-4W	ND
VC-61 Det 3	F4U-4P	PP
HU-1 Det 3	HO3S-1	UP

*CVG-11 crossdecked with CVG-2 from CV-45; CV-45 returned to San Diego, Calif., 26 March with CVG-11.

***Philippine Sea* (CV 47) with CVG-2 (28 Mar 1951–9 Jun 1951)**		
Squadron	**Aircraft**	**Tail Code**
VF-64	F4U-4	M
VF-63	F4U-4	M
VF-24	F4U-4	M
VA-65	AD-2/Q	M
VC-3 Det	F4U-5N	NP
VC-11 Det	AD-4W	ND
VC-35 Det 4	AD-4N	NR
VC-61 Det	F4U-4P	PP
HU-1 Det	HO3S-1	UP
***Philippine Sea* (CV 47) with CVG-11 (31 Dec 1951–8 Aug 1952)**		
Squadron	**Aircraft**	**Tail Code**
VF-112	F9F-2	V
VF-113	F4U-4	V
VF-114	F4U-4	V
VA-115	AD-4	V
VC-3 Unit C	F4U-5N/NL	NP
VC-11 Unit C	AD-4W	ND
VC-35 Unit C	AD-4NL/Q/-2Q	NR
VC-61 Unit C	F2H-2P/F9F-2P	PP
HU-1 Unit	HO3S-1	UP
***Philippine Sea* (CVA 47) with CVG-9 (15 Dec 1952–14 Aug 1953)**		
Squadron	**Aircraft**	**Tail Code**
VF-91	F9F-2	N
VF-93	F9F-2	N
VF-94	F4U-4	N
VA-95	AD-4/NA/NL	N
VC-3 Det M	F4U-5N	NP

VC-11 Det M	AD-4W	ND
VC-35 Det M	AD-4N	NR
VC-61 Det M	F9F-5P	PP
HU-1 Det	HO3S-1	UP
***Bataan* (CVL 29) (16 Nov 1950–25 Jun 1951)**		
Squadron	**Aircraft**	**Tail Code**
VMF-212 (on board 11 Dec–5 Mar)	F4U-4	LD
VMF-312 (on board 5 Mar–6 Jun)	F4U-4	WR
HU-1 Det 8	HO3S-1	UP
***Bataan* (CVL 29) (27 Jan 1952–26 Aug 1952)**		
Squadron	**Aircraft**	**Tail Code**
VMA-312 (on board 21 Apr–21 Jul)	F4U-4/B	WR
VS-25	AF-2S/W	SK
HU-1 Det	HO3S-1	UP
***Bataan* (CVL 29) (28 Oct 1952–26 May 1953)**		
Squadron	**Aircraft**	**Tail Code**
VMA-312 (on board 9 Feb–8 May)	F4U-4/B	WR
VS-871	TBM-3S/W	SU
VS-21	AF-2S/W	BS
HU-1 Det	HO3S-1	UP
***Rendova* (CVE 114) (8 Ju1 1951–22 Dec 1951)**		
Squadron	**Aircraft**	**Tail Code**
VMF-212 (on board 22 Sep–6 Dec)	F4U-4	LD
VS-892 (on board 16 Jul–19 Sep, 11–22 Dec)	TBM-3S/W	ST
HU-1 Det	HO3S-1	UP
***Bairoko* (CVE 115) (14 Nov 1950–15 Aug 1951)**		
Squadron	**Aircraft**	**Tail Code**
VS-21 (on board 3 Dec–16 Feb)	TBM-3S/W	BS
VS-23 (on board 17 Feb–15 Aug)	TBM-3E/S/W	MI
HU-1 Det	HO3S-1	UP
***Bairoko* (CVE 115) (1 Dec 1951–9 Jun 1952)**		
Squadron	**Aircraft**	**Tail Code**
VS-25 (on board to 21 Jan, returned in May)	AF-2S/W	SK
HU-1 Det	HO3S-1	UP
***Bairoko* (CVE 115) (12 Jan 1953–24 Aug 1953)**		
Squadron	**Aircraft**	**Tail Code**
VMA-312 (on board 9 May–8 Jun)	F4U-4/B	WR
VS-21 (on board 3 Feb–8 May)	AF-2S/W	BS
VS-23 (ashore at Agana, Guam, Feb–Apr)	TBM-3S/W	MI
HU-1 Det	HO3S-1	UP
***Badoeng Strait* (CVE 116) (14 Jul 1950–7 Feb 1951)**		
Squadron	**Aircraft**	**Tail Code**
VMF-323	F4U-4B	WS

HU-1 Det	HO3S-1	UP
***Badoeng Strait* (CVE 116) (15 Sep 1951–1 Mar 1952)**		
Squadron	**Aircraft**	**Tail Code**
VMF-212	F4U-4	LD
VS-892 (on board 5 Oct–8 Dec)	TBM-3S/W	ST
HU-1 Det 18	HO3S-1	UP
***Badoeng Strait* (CVE 116) (19 Jul 1952–27 Feb 1953)**		
Squadron	**Aircraft**	**Tail Code**
VMA-312 (on board 19 Oct–9 Feb)	F4U-4/B	WR
VS-931 (on board 10 Aug–19 Oct)	AF-2S/W	SV
HU-1 Det	HO3S-1	UP
***Sicily* (CVE 118) (4 Jul 1950–5 Feb 1951)**		
Squadron	**Aircraft**	**Tail Code**
VMF-214 (on board 1 Aug–13 Nov)	F4U-4B	WE
VS-21 (on board to 3 Dec)	TBM-3E/S	BS
HU-1 Det	HO3S-1	UP
***Sicily* (CVE 118) (12 May 1951–12 Oct 1951)**		
Squadron	**Aircraft**	**Tail Code**
VMF-323 (on board c. 5 Jun–20 Sep)	F4U-4	WS
VS-892 (on board to 13 Jul)	TBM-3S/W	ST
HU-1 Det	HO3S-1	UP
***Sicily* (CVE 118) (8 May 1952–4 Dec 1952)**		
Squadron	**Aircraft**	**Tail Code**
VMA-312 (on board 4 Sep–19 Oct)	F4U-4B	WR
VS-931 (on board to 9 Aug and 19 Oct–4 Dec)	AF-2S/W	SV
HU-1 Det	HO3S-1	UP
***Point Cruz* (CVE 119) (11 Apr 1953–18 Dec 1953)**		
Squadron	**Aircraft**	**Tail Code**
VMA-332	F4U-4B	MR
VS-38 (put shore at Agana, Guam, 28 Apr)	TBM-3S/W	ST
VS-23 (on board 28 Apr—Japan)	TBM-3S/W	MI
HS-2	HRS-2	HV
HU-1 Det	HO3S-1	UP

Shore-Based Marine Corps Squadrons Operating in Korea				
Squadron Designation	**Departed U.S.**	**Departed Korean Area**	**Tail Code**	**Aircraft Operated**
VMC-1	15 May 1952		RM	AD-2Q, -3N, -4N, -4NL, -4Q, -4W
VMJ-1	23 Mar 1952		MW	F2H-2P, F9F-2P, F7F-3P, F4U-5P
VMO-6	14 Jul 1950		WB	OY-2, HO3S-1, HTL-4, TBM-3E, OE-1, HO5S-1
VMF-115	17 Feb 1952		AE	F9F-2, -4, -5
VMA-121	2 Oct 1951		AK	AD-2, -3, -4

Shore-Based Marine Corps Squadrons Operating in Korea				
Squadron Designation	**Departed U.S.**	**Departed Korean Area**	**Tail Code**	**Aircraft Operated**
HMR-161	16 Aug 1951		HR	HRS-1, -2, HO5S-1
VMF/VMA-212	15 Sep 1950		LD	F4U-4, -4B, -5, -5N, AU-1
VMF-214	14 Jun 1950	15 Nov 1951	WE	F4U-4B
VMA-251	9 Jun 1953		AL	AD-3, -4, -4B
VMF-311	14 Nov 1950		WL	F9F-2, -2B, -5, F4U-4B
VMF/VMA-312	24 Aug 1950	16 Jun 1950	WR	F4U-4, -4B
VMF/VMA-323	14 Jul 1950		WS	F4U-4B, AU-1
VMA-332	15 May 1953		MR	F4U-4, -4B
VMF(N)-513	14 Jul 1950		WF	F4U-5N, -5NL, F7F-3N, F3D-2
VMF(N)-542	27 Aug 1950	9 Mar 1951	WH	F7F-3N

Note: Many of the Marine Corps squadrons remained permanently assigned in the Korean operating area during the Korean War.

Navy Patrol Squadrons Deployed to Korean Area				
Squadron Designation	**Arrived**	**Departed**	**Tail Code**	**Aircraft Operated**
VP-1	7 Aug 1950	27 Jul 1953	CD	P2V-3/5
VP-2	1 Sep 1951	1 Dec 1951	SB	P2V-4
VP-6	28 Jun 1950	15 Jan 1952	BE	P2V-3
VP-7	30 Jun 1953	Jan 1954	HE	P2V-5
VP-9	29 Jun 1952	16 Nov 1952	CB	P4Y-2/2S
VP-22	14 Nov 1950	30 May 1953	CE	P2V-3/4/5
VP-28	14 Jul 1950	30 Nov 1952	CF	P4Y-2/2S
VP-29	27 Sep 1952	5 Apr 1953	BF	P2V-5/6
VP-40	1 Jun 1951	24 Feb 1953	CA	PBM-5/5S
VP-42	21 Aug 1950	2 Jun 1952	SA	PBM-5/5S2
VP-46	15 Jul 1950	15 Mar 1952	BD	PBM-5
VP-47	25 Jun 1950	1 Jun 1953	BA	PBM-5
VP-48	29 May 1952	15 Mar 1953	SF	PBM-5/5S2
VP-50	5 Jul 1953	27 Jul 1953	SE	PBM-5
VP-57	29 Mar 1953	30 Sep 1953	BI	P2V-5
VP-731	29 May 1952	8 Dec 1952	SF	PBM-5
VP-772	1 Jan 1951	3 Aug 1951	BH/ZE*	P4Y-2/2S
VP-871 Det A	Oct 1951	Mar 1952	CH	P4Y-2/2S
VP-892	23 Nov 1950	1 Sep 1953	SE/SG*	PBM-5

*Note: Tail codes for two Reserve patrol squadrons VP-772 and VP-892 changed but the date of change is unknown. Both tail codes used by the squadrons have been listed. PB4Y-2 aircraft designations were changed to P4Y-2 in 1951.

CHAPTER 31

Carrier and Squadron Deployments to Vietnam

Deployments for Carriers and Carrier-Based Squadrons in the Western Pacific (WestPac) and Vietnam (1964–1975)

See Notes Section at the end of this listing for clarification on specific entries and Tail Code List.

1964 WestPac/Vietnam Deployments	
Kitty Hawk **(CVA 63) with CVW-11 (17 Oct 1963–20 Jul 1964)**	
VA-112	A-4C
VA-113	A-4C
VA-115	A-1H
VF-114	F-4B
VF-111	F-8D
VAH-13	A-3B
VFP-63 Det C	RF-8A
VAW-11 Det C	E-1B
HU-1 D1 Unit C	UH-2A
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B
Oriskany **(CVA 34) with CVW-16 (1 Aug 1963–10 Mar 1964)†**	
VF-161	F-3B
VF-162	F-8A
VA-163	A-4B
VA-164	A-4B
VA-165	A-1H, -1J
VAH-4 Det G	A-3B
VFP-63 Det G	RF-8A
VAW-11 Det G	E-1B
HU-1 D1 Unit G	UH-2A
VQ-1 Det*	EA-3B
Bon Homme Richard **(CVA 31) with CVW-19 (28 Jan 1964–21 Nov 1964)**	
VF-191	F-8E
VF-194	F-8C
VA-192	A-4C
VA-195	A-4C
VA-196	A-1H, -1J
VAH-4 Det E	A-3B
VAW-11 Det E	E-1B
VFP-63 Det E	RF-8A
HU-1 D1 Unit E	UH-2A
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B
Ticonderoga **(CVA 14) with CVW-5 (14 Apr 1964–15 Dec 1964)**	
VF-51*	F-8E
VF-53	F-8E
VA-52	A-1H, -1J
VA-55	A-4E
VA-56	A-4E
VFP-63 Det B	RF-8A
VAW-11 Det B	E-1B
HU-1 D1 Unit B	UH-2A
VAW-13 Det*	(most likely used EA-1F)
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B, KA-3B
VAH-10 Det*	A-3B
VMCJ-1 Det*	RF-8A
VAH-4 Det B	A-3B
Constellation **(CVA 64) with CVW-14 (5 May 1964–1 Feb 1965)**	
VF-142	F-4B
VF-143	F-4B
VA-144	A-4C
VA-145	A-1H, -1J
VA-146	A-4C
VAH-10	A-3B
VFP-63 Det F	RF-8A
VAW-11 Det F	E-1B
HU-1 D1 Unit F	UH-2A
VAP-61 Det*	RA-3B
VQ-1 Det*	EA-3B
VF-51*	F-8E
VMCJ-1 Det*	RF-8A
Ranger **(CVA 61) with CVW-9 (5 Aug 1964–6 May 1965)**	
VF-92	F-4B
VF-96	F-4B
VA-93	A-4C
VA-95	A-1H, -1J
VA-94	A-4C
RVAH-5	RA-5C

VFP-63 Det M	RF-8A
VAW-11 Det M	E-1B
VAH-2 Det M	A-3B
HU-1 D1 Unit M	UH-2A
VAP-61 Det*	RA-3B
VQ-1 Det*	EA-3B
***Hancock* (CVA 19) with CVW-21 (21 Oct 1964–29 May 1965)**	
VA-212	A-4E
VA-215	A-1H, -1J
VA-216	A-4C
VF-24	F-8C
VF-211	F-8E
VAW-11 Det L	E-1B
VFP-63 Det L	RF-8A
VAH-4 Det L	A-3B
HU-1 Det L	UH-2A
VAP-61 Det*	RA-3B
VQ-1 Det*	EA-3B
***Yorktown* (CVS 10) with CVSG-55 (23 Oct 1964–16 May 1965)**	
VS-23	S-2E
VS-25	S-2E
HS-4	SH-3A
VAW-11 Det T	EA-1E
VMA-223 Det T	A-4C
***Coral Sea* (CVA 43) with CVW-15 (7 Dec 1964–1 Nov 1965)**	
VA-153	A-4C
VA-155	A-4E
VA-165	A-1H, -1J
VAH-2	A-3B
VF-151	F-4B
VF-154	F-8D
VFP-63 Det D	RF-8A
VAW-11 Det D	E-1B
HU-1 D1 Unit D (redesignated HC-1 Det D on 1 Jul 1965)	UH-2A
VAP 61 Det*	RA-3B
VQ-1 Det*	EA-3B
VAW-13 Det*	EA-1F
VMCJ-1 Det*	RF-8A
***Bennington* (CVS 20) with CVSG-59 (20 Feb 1964–11 Aug 1964)**	
HS-8	SH-3A
VS-33	S-2E
VS-38	S-2E
VAW-11 Det Q	EA-1E
VA-93 Det Q	A-4B
***Kearsarge* (CVS 33) with CVSG-53 (19 Jun 1964–16 Dec 1964)**	
HS-6	SH-3A
VS-21	S-2F
VS-29	S-2F
VAW-11 Det R	EA-1E
VA-153 Det R	A-4B
1965 WestPac/Vietnam Deployments	
***Midway* (CVA 41) with CVW-2 (6 Mar 1965–23 Nov 1965)**	
VF-111	F-8D
VA-22	A-4C
VA-23	A-4E
VA-25	A-1H, -1J
VF-21	F-4B
VAH-8	A-3B
VFP-63 Det A	RF-8A
VAW-11 Det A	E-1B
HU-1 Det A (redesignated HC-1 Det A on 1 Jul 1965)	UH-2A
VAW-13 Det*	EA-1F
VAP-61 Det*	RA-3B
VQ-1 Det*	EA-3B
***Oriskany* (CVA 34) with CVW-16 (5 Apr 1965–16 Dec 1965)**	
VF-162	F-8E
VA-152	A-1H, -1J
VA-163	A-4E
VA-164	A-4E
VMF(AW)-212	F-8E
VFP-63 Det G	RF-8A
VAW-11 Det G	E-1B
HU-1 Det G (redesignated HC-1 Det G on 1 Jul 1965)	UH-2A, -2B
VMCJ-1 Det*	(most likely used EF-10B)
VAW-13 Det*	EA-1F
VQ-1 Det*	EA-3B
VAH-4 Det G	A-3B
***Independence* (CVA 62) with CVW-7 (10 May 1965–13 Dec 1965)**	
VF-41	F-4B
VF-84	F-4B
VA-72	A-4E
VA-75	A-6A
VA-86	A-4E
RVAH-1	RA-5C
VAW-12 Det 62	E-1B
HU-2 Det 62 (redesignated HC-1 Det 62 on 1 Jul 1965)	UH-2A
VAH-4 Det 62	A-3B
VAW-13 Det*	EA-1F
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B

Bon Homme Richard (CVA 31) with CVW-19 (21 Apr 1965–13 Jan 1966)	
VF-191	F-8E
VF-194	F-8E
VA-192	A-4C
VA-195	A-4C
VA-196	A-1H, -1J
VFP-63 Det E	RF-8A
VAW-11 Det E	E-1B
HU-1 D1 Unit E (redesignated HC-1 D1 Unit E on 1 Jul 1965)	UH-2A, -2B
VQ-1 Det*	EA-3B
VAW-13 Det*	EA-1F
Hornet **(CVS 12) with CVSG-57 (12 Aug 1965–23 Mar 1966)**	
HS-2	SH-3A
VS-35	S-2D
VS-37	S-2D
VAW-11 Det N	E-1B
H&MS-15 Det N	A-4C
Ticonderoga **(CVA 14) with CVW-5 (28 Sep 1965–13 May 1966)**	
VF-51	F-8E
VF-53	F-8E
VA-52	A-1H, -1J
VA-56	A-4E
VA-144	A-4C
VAH-4 Det B	A-3B
VAW-11 Det B	E-1B
VFP-63 Det B	RF-8A
HC-1 D1 Unit B	UH-2A, -2B
VQ-1 Det*	EA-3B
Enterprise **(CVAN 65) with CVW-9 (26 Oct 1965–21 Jun 1966)**	
VA-36	A-4C
VA-76	A-4C
VA-93	A-4C
VA-94	A-4C
VAH-4 Det M	A-3B
RVAH-7	RA-5C
VAW-11 Det M	E-1B
VF-92	F-4B
VF-96	F-4B
HC-1 Det M	UH-2A, -2B
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B
Hancock **(CVA 19) with CVW-21 (10 Nov 1965–1 Aug 1966)**	
VA-212	A-4E
VA-215	A-1H, -1J
VA-216	A-4C
VAW-11 Det L	E-1B
VFP-63 Det 1	RF-8A
VF-211	F-8E
VF-24	F-8C
HC-1 D1 Unit L	UH-2A, -2B
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B
Kitty Hawk **(CVA 63) with CVW-11 (19 Oct 1965–13 Jun 1966)**	
VA-85	A-6A
VA-113	A-4C
VA-115	A-1H, -1J
VAH-4 Det C	A-3B
VAW-11 Det C	E-2A
VF-114	F-4B
VF-213	F-4B, -4G
RVAH-13	RA-5C
HC-1 D1 Unit C	UH-2A, -2B
VAP-61 Det*	RA-3B
VQ-1 Det*	EA-3B
Ranger **(CVA 61) with CVW-14 (10 Dec 1965–25 Aug 1966)**	
VF-142	F-4B
VF-143	F-4B
VA-145	A-1H, -1J
VA-146	A-4C
VA-55	A-4E
RVAH-9	RA-5C
VAH-2 Det F	A-3B
VAW-11 Det F	E-2A
HC-1 D1 Unit F	UH-2A, -2B
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B
Bennington **(CVS 20) with CVSG-59 (22 Mar 1965–7 Oct 1965)**	
VS-38	S-2E
VS-33	S-2E
HS-8	SH-3A
VAW-11 Det Q	E-1B
VA-113 Det Q	A-4B
1966 WestPac/Vietnam Deployments[1]	
Yorktown **(CVS 10) with CVSG-55 (6 Jan 1966–27 Jul 1966)**	
VS-23	S-2E
VS-25	S-2E
HS-4	SH-3A
VAW-11 Det T	E-1B
Intrepid (CVS 11) **with CVW-10 (4 Apr 1966–21 Nov 1966)**	
VA-95	A-4B
VA-165	A-1H
VA-15	A-4B

VA-176	A-1H
HC-2 Det 11	UH-2A, -2B
***Constellation* (CVA 64) with CVW-15 (12 May 1966–3 Dec 1966)**	
VF-151	F-4B
VF-161	F-4B
VA-153	A-4C
VA-155	A-4E
VA-65	A-6A
RVAH-6	RA-5C
VAH-8	A-3B
VAW-11 Det D	E-2A
HC-1 D1 Unit D	UH-2A, -2B
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B
VAW-13 Det*	EA-1F
HS-6 Det*	SH-3A
***Oriskany* (CVA 34) with CVW-16 (26 May 1966–16 Nov 1966)**	
VF-111	F-8E
VF-162	F-8E
VA-163	A-4E
VA-164	A-4E
VA-152	A-1H
VAH-4 Det G	A-3B
VAW-11 Det G	E-1B
VFP-63 Det G	RF-8G
HC-1 D1 Unit G	UH-2A, -2B
VAP-61 Det*	RA-3B
***Franklin D. Roosevelt* (CVA 42) with CVW-1 (21 Jun 1966–21 Feb 1967)**	
VF-14	F-4B
VF-32	F-4B
VA-12	A-4E
VA-72	A-4E
VA-172	A-4C
VAH-10 Det 42	A-3B
VAW-12 Det 42	E-1B
VFP-62 Det 42	RF-8G
HC-2 Det 42	UH-2A, -2B
VQ-1 Det 42*	EA-3B
VAW-13 Det 42*	EA-1F
***Coral Sea* (CVA 43) with CVW-2 (29 Jul 1966–23 Feb 1967)**	
VF-21	F-4B
VF-154	F-4B
VA-22	A-4C
VA-23	A-4E
VA-25	A-1H
VAW-11 Det A	E-2A
VAH-2 Det A	A-3B
VFP-63 Det A	RF-8G
HC-1 D1 Unit A	UH-2A, -2B
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B
***Ticonderoga* (CVA 14) with CVW-19 (15 Oct 1966–29 May 1967)**	
VF-191	F-8E
VF-194	F-8E
VA-192	A-4E
VA-195	A-4C
VA-52	A-1H, -1J
VFP-63 Det E	RF-8G
VAH-4 Det E	A-3B
VAW-11 Det E	E-1B
HC-1 D1 Unit E	UH-2A, -2B
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B
***Kitty Hawk* (CVA 63) with CVW-11 (5 Nov 1966–19 Jun 1967)**	
VF-213	F-4B
VF-114	F-4B
VA-112	A-4C
VA-144	A-4C
VA-85	A-6A
RVAH-13	RA-5C
VAW-114 (previously a detachment of VAW-11)	E-2A
VAH-4 Det C	KA-3B
HC-1 D1 Unit C	UH-2A, -2B
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B
***Enterprise* (CVAN 65) with CVW-9 (19 Nov 1966–6 Jul 1967)**	
VA-56	A-4C
VA-113	A-4C
VA-35	A-6A
VF-92	F-4B
VF-96	F-4B
VAH-2 Det M	A-3B
RVAH-7	RA-5C
VAW-11 Det M	E-2A
HC-1 Det M	UH-2A
VQ-1 Det*	EA-3B
VAP-61 Det*	RA-3B
***Kearsarge* (CVS 33) with CVSG-53 (9 Jun 1966–20 Dec 1966)**	
HS-6	SH-3A
VS-29	S-2E
VS-21	S-2E

VAW-11 Det R	E-1B
***Bennington* (CVS 20) with CVSG-59 (4 Nov 1966–23 May 1967)**	
VS-3B	S-2E
VS-33	S-2E
HS-8	SH-3A
VAW-11 Det Q‖	E-1B
1967 WestPac/Vietnam Deployments[2]	
***Hancock* (CVA 19) with CVW-5 (5 Jan 1967–22 Jul 1967)**	
VF-51	F-8E
VF-53	F-8E
VA-93	A-4E
VA-94	A-4C
VA-115	A-1H
VAH-4 Det B	A-3B
VFP-63 Det B	RF-8G
HC-1 Det B	UH-2A, -2B
VAW-11 Det 31‖	E-1B
***Bon Homme Richard* (CVA 31) with CVW-21 (26 Jan 1967–25 Aug 1967)**	
VF-211	F-8E
VF-24	F-8C
VA-212	A-4E
VA-76	A-4C
VA-215	A-1H
VAH-4 Det 31	A-3B
VAW-11 Det L‖	E-1B
VFP-63 Det 31	RF-8G
HC-1 D1 Unit L	UH-2A, -2B
VAW-13 Det 31*	EA-1F
***Hornet* (CVS 12) with CVSG-57 (27 Mar 1967–28 Oct 1967)**	
VS-35	S-2E
VS-37	S-2E
HS-2	SH-3A
VAW-11 Det N‖	E-1B
***Constellation* (CVA 64) with CVW-14 (29 Apr 1967–4 Dec 1967)**	
VF-142	F-4B
VF-143	F-4B
VA-55	A-4C
VA-146	A-4C
VA-196	A-6A
RVAH-12	RA-5C
VAW-113	E-2A
VAH-8	KA-3B
HC-1 D1 Unit F/64	UH-2A, -2B
VAP-61 Det*	RA-3B
VQ-1 Det*	EA-3B
VAW-13 Det*	EA-1F
VA-65*	A-6A
***Intrepid* (CVS 11) with CVW-10 (11 May 1967–30 Dec 1967)**	
VSF-3	A-4B
VA-15	A-4C
VA-34	A-4C
VA-145	A-1H
VAW-33 Det 11	EA-1F
VAW-121 Det 11	E-1B
VFP-63 Det 11	RF-8G
VF-111 Det 11	F-8C
HC-2 Det 11	UH-2A, -2B
***Forrestal* (CVA 59) with CVW-17 (6 Jun 1967–15 Sep 1967)**	
VF-11	F-4B
VF-74	F-4B
VA-46	A-4E
VA-65	A-6A
VA-106	A-4E
RVAH-11	RA-5C
VAW-123	E-2A
VAW-13 Det	EA-1F
VAH-10 Det 59	KA-3B
HC-2 Det 59	UH-2A
VAP-61 Det*	RA-3B
***Oriskany* (CVA 34) with CVW-16 (16 Jun 1967–31 Jan 1968)**	
VF-111	F-8C
VF-162	F-8E
VA-152	A-1H, -1J
VA-163	A-4E
VA-164	A-4E
VFP-63 Det G/34	RF-8G
VAH-4 Det G/34	KA-3B
VAW-111 Det G/34	E-1B
VAW-13 Det*	EA-1F
HC-1 Det 34	UH-2A, -2B
VAP-61 Det*	RA-3B
***Coral Sea* (CVA 43) with CVW-15 (26 Jul 1967–6 Apr 1968)**	
VF-151	F-4B
VF-161	F-4B
VA-153	A-4E
VA-155	A-4E
VA-25	A-1H, -1J
VFP-63 Det 43	RF-8G
VAH-2 Det 43	KA-3B
VAW-116	E-2A
HC-1 Det 43	UH-2A
VAW-13 Det*	EA-1F
VAP-61 Det*	RA-3B

Ranger (CVA 61) with CVW-2 (4 Nov 1967–25 May 1968)	
VF-154	F-4B
VF-21	F-4B
VA-22	A-4C
VA-165	A-6A
VA-147	A-7A
RVAH-6	RA-5C
VAW-115	E-2A
VAH-2 Det 61	KA-3B
HC-1 Det 61	UH-2A, -2C
VAW-13 Det 61	EKA-3B
VAP-61 Det*	RA-3B
***Kitty Hawk* (CVA 63) with CVW-11 (18 Nov 1967–28 Jun 1968)**	
VF-213	F-4B
VF-114	F-4B
VA-75	A-6A, -6B
VA-112	A-4C
VA-144	A-4E
RVAH-11	RA-5C
VAW-114	E-2A
VAH-4 Det 63	KA-3B
VAW-13 Det 63	EA-1F
HC-1 Det 63	UH-2C
***Ticonderoga* (CVA 14) with CVW-19 (28 Dec 1967–17 Aug 1968)**	
VF-191	F-8E
VF-194	F-8E
VA-23	A-4F
VA-192	A-4F
VA-195	A-4C
VAH-4 Det 14	KA-3B
VAW-111 Det 14	E-1B
VFP-63 Det 14	RF-8G
VAQ-33 Det 14	EA-1F
HC-1 Det 14	UH-2A, -2B
***Kearsarge* (CVS 33) with CVSG-53 (17 Aug 1967–6 Apr 1968)**	
HS-6	SH-3A
VS-29	S-2E
VS-21	S-2E
VAW-111 Det 33	E-1B
HC-7 Det 110*	SH-3A
***Yorktown* (CVS 10) with CVSG-55 (28 Dec 1967–5 Jul 1968)**	
VS-23	S-2E
VS-25	S-2E
HS-4	SH-3D
VAW-111 Det 10	E-1B
HC-7 Det 111*	SH-3A

1968 WestPac/Vietnam Deployments[3]	
***Enterprise* (CVAN 65) with CVW-9 (3 Jan 1968–18 Jul 1968)**	
VF-92	F-4B
VF-96	F-4B
VA-35	A-6A, -6B
VA-56	A-4E
VA-113	A-4F
RVAH-1	RA-5C
VAW-112	E-2A
VAH-2 Det 65	KA-3B
HC-1 Det 65	UH-2C
VAW-13 Det 65**	EKA-3B
HC-7 Det 111*	SH-3A
***Bon Homme Richard* (CVA 31) with CVW-5 (27 Jan 1968–10 Oct 1968)**	
VF-51	F-8H
VF-53	F-8E
VA-93	A-4F
VA-94	A-4E
VA-212	A-4F
VFP-63 Det 31	RF-8G
VAW-13 Det 31**	EKA-3B
VAW-111 Det 31	E-1B
HC-1 Det 31	UH-2C
***America* (CVA 66) with CVW-6 (10 Apr 1968–16 Dec 1968)**	
VF-33	F-4J
VF-102	F-4J
VA-82	A-7A
VA-86	A-7A
VA-85	A-6A, -6B
VAW-122	E-2A
RVAH-13	RA-5C
VAH-10 Det 66	KA-3B
VAW-13 Det 66**	EKA-3B
HC-2 Det 66	UH-2A, -2B
***Constellation* (CVA 64) with CVW-14 (29 May 1968–31 Jan 1969)**	
VF-142	F-4B
VF-143	F-4B
VA-27	A-7A
VA-97	A-7A
VA-196	A-6A, -6B
RVAH-5	RA-5C
VAW-113	E-2A
VAH-2 Det 64 (in Nov 1968,when VAH-2 was redesignated VAQ-132, VAH-2 Det 64 became a Det of VAH-10 and operated as VAH-10 Det 64)	KA-3B
VAW-13 Det 64**	EKA-3B

HC-1 Det 64	UH-2C
***Intrepid* (CVS 11) with CVW-10 (4 Jun 1968–8 Feb 1969)**	
VA-36	A-4C
VA-66	A-4C
VA-106	A-4E
VF-111 Det 11	F-8C
VFP-63 Det 11	RF-8G
VAW-121 Det 11	E-1B
VAQ-33 Det 11	EA-1F
HC-2 Det 11	UH-2A, -2B
***Hancock* (CVA 19) with CVW-21 (18 Jul 1968–3 Mar 1969)**	
VA-55	A-4F
VA-163	A-4E
VA-164	A-4E
VF-24	F-8H
VF-211	F-8H
VFP-63 Det 19	RF-8G
VAW-111 Det 19	E-1B
HC-1 Det 19	UH-2C
VAW-13 Det 19**	EKA-3B
***Coral Sea* (CVA 43) with CVW-15 (7 Sep 1968–18 Apr 1969)**	
VF-151	F-4B
VF-161	F-4B
VA-52	A-6A
VA-153	A-4F
VA-216	A-4C
VAH-10 Det 43	KA-3B
VAW-13 Det 43**	EKA-3B
VAW-116	E-2A
VFP-63 Det 43	RF-8G
HC-1 Det 43	UH-2C
***Hornet* (CVS 12) with CVSG-57 (30 Sep 1968–13 May 1969)**	
VS-35	S-2E
VS-37	S-2E
HS-2	SH-3A
VAW-111 Det 12	E-1B
***Ranger* (CVA 61) with CVW-2 (26 Oct 1968–17 May 1969)**	
VA-165	A-6A
VF-21	F-4J
VAW-115	E-2A
VA-147	A-7A
VA-155	A-4F
VF-154	F-4J
RVAH-9	RA-5C
VAH-10 Det 61	KA-3B
VAQ-130 Det 61	EKA-3B
HC-1 Det 61	UH-2C
HS-2*	SH-3A
HC-7 Det 110*	SH-3A
***Kitty Hawk* (CVA 63) with CVW-11 (30 Dec 1968–4 Sep 1969)**	
VF-114	F-4B
VF-213	F-4B
VA-37	A-7A
VA-65	A-6A, -6B
VA-105	A-7A
RVAH-11	RA-5C
VAQ-131	KA-3B, EKA-3B
VAW-114	E-2A
HC-1 Det 63	UH-2C
HC-7 Det 110*	SH-3A
***Bennington* (CVS 20) with CVSG-59 (1 May 1968–9 Nov 1968)**	
VS-33	S-2E
VS-38	S-2E
HS-8	SH-3A
VAW-111 Det 20	E-1B
1969 WestPac/Vietnam Deployments[4]	
***Enterprise* (CVAN 65) with CVW-9 (6 Jan 1969–2 Jul 1969)**	
VF-92	F-4J
VF-96	F-4J
VA-145	A-6A, -6B
VA-146	A-7B
VA-215	A-7B
VAQ-132	EKA-3B, KA-3B
VAW-112	E-2A
RVAH-6	RA-5C
HC-1 Det 65	UH-2C
***Ticonderoga* (CVA 14) with CVW-16 (1 Feb 1969–18 Sep 1969)**	
VA-87	A-7B
VF-111	F-8H
VF-162	F-8J
VA-25	A-7B
VA-112	A-4C
VFP-63 Det 14	RF-8G
VAQ-130 Det 14	EKA-3B
VAW-111 Det 14	E-1B
HC-1 Det 14	UH-2C
HC-7 Det 110*	SH-3A
***Bon Homme Richard* (CVA 31) with CVW-5 (18 Mar 1969–29 Oct 1969)**	
VF-51	F-8J
VF-53	F-8J
VA-22	A-4F
VA-94	A-4E

VA-144	A-4E
VFP-63 Det 31	RF-8G
VAQ-130 Det 31	EKA-3B
VAW-111 Det 31	E-1B
HC-1 Det 31	UH-2C
HC-7 Det 110*	SH-3A
***Kearsarge* (CVS 33) with CVSG-53 (29 Mar 1969–4 Sep 1969)**	
VS-21	S-2E
VS-29	S-2E
HS-6	SH3A
VAW-111 Det 33	E-1B
HC-7 Det 111*	SH-3A
HC-7 Det 110*	SH-3A
***Oriskany* (CVA 34) with CVW-19 (14 Apr 1969–17 Nov 1969)**	
VF-191	F-8J
VF-194	F-8J
VA-23	A-4F
VA-192	A-4F
VA-195	A-4E
VAW-111 Det 34	E-1B
VFP-63 Det 34	RF-8G
VAQ-130 Det 34	EKA-3B
HC-1 Det 34	UH-2C
***Hancock* (CVA 19) with CVW-21 (2 Aug 1969–15 Apr 1970)**	
VF-24	F-8H
VF-211	F-8J
VA-55	A-4F
VA-164	A-4F
VA-212	A-4F
VAH-10 Det 19	KA-3B
VAW-111 Det 19	E-1B
VFP-63 Det 19	RF-8G
HC-1 Det 19	SH-3A
***Constellation* (CVA 64) with CVW-14 (11 Aug 1969–8 May 1970)**	
VF-142	F-4J
VF-143	F-4J
VA-27	A-7A
VA-85	A-6A, -6B
VA-97	A-7A
RVAH-7	RA-5C
VAW-113	E-2A
VAQ-133	EKA-3B, KA-3B
HC-1 Det 5	SH-3A
HC-7 Det 110*	SH-3A
***Coral Sea* (CVA 43) with CVW-15 (23 Sep 1969–1 Jul 1970)**	
VF-151	F-4B
VF-161	F-4B
VA-82	A-7A
VA-86	A-7A
VA-35	A-6A
VAW-116	E-2A
VAQ-135	KA-3B, EKA-3B
VFP-63 Det 43	RF-8G
HC-1 Det 9	UH-2C
***Ranger* (CVA 61) with CVW-2 (14 Oct 1969–1 Jun 1970)**	
VF-21	F-4J
VF-154	F-4J
VA-56	A-7B
VA-93	A-7B
VA-196	A-6A
RVAH-5	RA-5C
VAQ-134	EKA-3B, KA-3B
VAW-115	E-2A
HC-1 Det 8	SH-3A
VC-3 Det	147SK drones
1970 WestPac/Vietnam Deployments	
***Shangri-La* (CVS 38) with CVW-8 (5 Mar 1970–17 Dec 1970)**	
VA-12	A-4C
VA-152	A-4E
VA-172	A-4C
VF-111	F-8H
VF-162	F-8H
VAH-10 Det 38#	KA-3D
VFP-63 Det 38	RF-8G
VAW-121 Det 38	E-1B
HC-2 Det 38	UH-2C
***Bon Homme Richard* (CVA 31) with CVW-5 (2 Apr 1970–12 Nov 1970)**	
VF-51	F-8J
VF-53	F-8J
VA-22	A-4F
VA-94	A-4E
VA-144	A-4F
VFP-63 Det 31	RF-8G
VAQ-130 Det 31	EKA-3B
VAW-111 Det 14	E-1B
HC-1 Det 3	UH-2C
***America* (CVA 66) with CVW-9 (10 Apr 1970–21 Dec 1970)**	
VF-92	F-4J
VF-96	F-4J
VA-146	A-7E
VA-147	A-7E
VA-165	A-6A, -6B, -6C
RVAH-12	RA-5C

VAW-124	E-2A
VAQ-132	EKA-3B, KA-3B
HC-2 Det 66	UH-2C
HC-7 Det 110*	SH-3A
Oriskany **(CVA 34) with CVW-19 (14 May 1970–10 Dec 1970)**	
VF-191	F-8J
VF-194	F-8J
VA-153	A-7A
VA-155	A-7B
VAQ-130 Det 34	EKA-3B
VAW-111 Det 34	E-1B
VFP-63 Det 34	RF-8G
HC-1 Det 6	UH-2C
Hancock **(CVA 19) with CVW-21 (22 Oct 1970–3 Jun 1971)**	
VF-24	F-8J
VF-211	F-8J
VA-55	A-4F
VA-164	A-4F
VAQ-129 Det 62	EKA-3B
VAW-111 Det 19	E-1B
VFP-63 Det 19	RF-8G
VA-212	A-4F
HC-1 Det 7	UH-2C
HC-5 Det 103*	UH-2C
Ranger **(CVA 61) with CVW-2 (27 Oct 1970–17 Jun 1971)**	
VF-21	F-4J
VF-154	F-4J
VA-25	A-7E
VA-113	A-7E
VA-145	A-6A, -6C
RVAH-1	RA-5C
VAQ-134	KA-3B, EKA-3B
VAW-111 Det 7	E-1B
HC-1 Det 1	SH-3G
HC-7 Det 110*	SH-3A
Kitty Hawk **(CVA 63) with CVW-11 (6 Nov 1970–17 Jul 1971)**	
VF-114	F-4J
VF-213	F-4J
VA-192	A-7E
VA-195	A-7E
VA-52	A-6B
RVAH-6	RA-5C
VAQ-133	EKA-3B, KA-3B
VAW-114	E-2B
HC-1 Det 2	UH-2C
HC-7 Det 110*	SH-3A
1971 WestPac/Vietnam Deployments	
Midway **(CVA 41) with CVW-5 (16 Apr 1971–6 Nov 1971)**	
VF-151	F-4B
VF-161	F-4B
VA-56	A-7B
VA-93	A-7B
VA-115	A-6A, KA-6D
VAQ-130 Det 2	EKA-3B
VFP-63 Det 3	RF-8G
VAW-115	E-2B
HC-1 Det 8	SH-3G
HC-7 Det 110*	HH-3A
Oriskany **(CVA 34) with CVW 19 (14 May 1971–18 Dec 1971)**	
VF-191	F-8J
VF-194	F-8J
VA-153	A-7A
VA-155	A-7B
VA-215	A-7B
VAQ-130 Det 3	EKA-3B
VFP-63 Det 34	RF-8G
VAW-111 Det 1	E-1B
HC-1 Det 5	UH-2C
HC-7 Det 110*	SH-3A, -3G
Enterprise **(CVAN 65) with CVW-14 (11 Jun 1971–12 Feb 1972)**	
VF-143	F-4J
VF-142	F-4J
VA-97	A-7E
VA-27	A-7E
VA-196	A-6A, -6B, KA-6D
RVAH-5	RA-5C
VAW-113	E-2B
VAQ-130 Det 4	EKA-3B
HC-1 Det 4	SH-3G
Constellation **(CVA 64) with CVW-9 (1 Oct 1971–30 Jun 1972)**	
VF-92	F-4J
VF-96	F-4J
VA-146	A-7E
VA-147	A-7E
VA-165	A-6A, KA-6D
RVAH-11	RA-5C
VAQ-130 Det 1	EKA-3B
VAW-116	E-2B
HC-1 Det 3	SH-3G
Coral Sea **(CVA 43) with CVW-15 (12 Nov 1971–17 Jul 1972)**	
VF-51	F-4B
VF-111	F-4B
VA-22	A-7E

VA-94	A-7E
VMA(AW)-224	A-6A, KA-6D
VFP-63 Det 5	RF-8G
VAW-111 Det 4	E-1B
VAQ-135 Det 3	EKA-3B
HC-1 Det 6	SH-3G
HC-7 Det 110*	HH-3A
***Ticonderoga* (CVS 14) with CVSG-59 (11 Mar 1971–6 Jul 1971)**	
VS-33	S-2E
VS-37	S-2E
VS-38	S-2E
HS-4	SH-3D
HS-8	SH-3D
1972 WestPac/Vietnam Deployments	
***Hancock* (CVA 19) with CVW-21 (7 Jan 1972–3 Oct 1972)**	
VA-55	A-4F
VA-164	A-4F, TA-4F
VA-212	A-4F
VF-24	F-8J
VF-211	F-8J
VFP-63 Det 1	RF-8G
VAQ-135 Det 5	EKA-3B
VAW-111 Det 2	E-1B
HC-1 Det 7	SH-3G
***Kitty Hawk* (CVA 63) with CVW-11 (17 Feb 1972–28 Nov 1972)**	
VA-195	A-7E
VA-192	A-7E
VA-52	A-6A, -6B, KA-6D
VF-114	F-4J
VF-213	F-4J
RVAH-7	RA-5C
VAW-114	E-2B
VAQ-135 Det 1	EKA-3B
HC-1 Det 1	SH-3G
HC-7 Det*	HH-3A
***Midway* (CVA 41) with CVW-5 (10 Apr 1972–3 Mar 1973)**	
VF-151	F-4B
VF-161	F-4B
VA-56	A-7B
VA-93	A-7B
VA-115	A-6A, KA-6D
VAQ-130 Det 2	EKA-3B
VFP-63 Det 3	RF-8G
VAW-115	E-2B
HC-1 Det 2	SH-3G
HC-7 Det 110*	HH-3A

***Saratoga* (CV 60) with CVW-3 (11 Apr 1972–13 Feb 1973)**	
VF-31	F-4J
VF-103	F-4J
VA-75	A-6A, -6B, KA-6D
VA-37	A-7A
VA-105	A-7A
RVAH-1	RA-5C
VAW-123	E-2B
HS-7	SH-3D
HC-7 Det 110*	HH-3A
VMCJ-2 Det*	EA-6A
***Ticonderoga* (CVS 14) with CVSG-53 (17 May 1972–29 Jul 1972)**	
VS-21	S-2E
VS-29	S-2E
VS-35	S-2E
VS-38	S-2E
VAW-111 Det 3	E-1B
HS-4	SH-3D
HS-8	SH-3D
***America* (CVA 66) with CVW-8 (5 Jun 1972–24 Mar 1973)**	
VF-74	F-4J
VA-35	A-6A, -6C, KA-6D
VA-82	A-7C
VA-86	A-7C
RVAH-6	RA-5C
VAW-124	E-2B
VMFA-333	F-4J
VAQ-132	EA-6B
HC-2 Det 66	SH-3G
HC-7 Det 110*	HH-3A
***Oriskany* (CVA 34) with CVW-19 (5 Jun 1972–30 Mar 1973)**	
VF-191	F-8J
VF-194	F-8J
VA-153	A-7A
VA-155	A-7B
VA-215	A-7B
VFP-63 Det 4	RF-8G
VAQ-130 Det 3	EKA-3B
VAW-111 Det 6	E-1B
HC-1 Det 5	SH-3G
***Enterprise* (CVAN 65) with CVW-14 (12 Sep 1972–12 Jun 1973)**	
VF-143	F-4J
VF-142	F-4J
VA-27	A-7E
VA-97	A-7E
VA-196	A-6E, -6B, KA-6D

VAW-113	E-2B
VAQ-131	EA-6B
RVAH-13	RA-5C
HS-2 Det 1	SH-3G
Ranger **(CVA 61) with CVW-2 (16 Nov 1972–23 Jun 1973)**	
VF-21	F-4J
VF-154	F-4J
VA-25	A-7E
VA-113	A-7E
VA-145	A-6A, -6B, KA-6D
RVAH-5	RA-5C
VAW-111 Det 1	E-1B
VAQ-130 Det 4	EKA-3B
HC-1 Det 1	SH-3G
HC-7 Det 110*	HH-3A
VQ-1 Det*	EA-3B
1973 WestPac/Vietnam Deployments	
Constellation **(CVA 64) with CVW-9 (5 Jan 1973–11 Oct 1973)**	
VF-92	F-4J
VF-96	F-4J
VA-146	A-7E
VA-147	A-7E
VA-165	A-6A, KA-6D
HS-6 Det 1	SH-3G
VAQ-134	EA-6B
VAW-116	E-2B
RVAH-12	RA-5C
VQ-1 Det*	EA-3B
Hancock **(CVA 19) with CVW-21 (8 May 1973–8 Jan 1974)**	
VF-24	F-8J
VF-211	F-8J
VA-55	A-4F
VA-164	A-4F, TA-4F
VA-212	A-4F
VFP-63 Det 1	RF-8G
VAQ-135 Det 5‡	EKA-3B
VAW-111 Det 2	E-1B
HC-1 Det 3	SH-3G
HC-7 Det 110*	HH-3A
Coral Sea **(CVA 43) with CVW-15 (9 Mar 1973–8 Nov 1973)**	
VF-51	F-4B
VF-111	F-4B
VA-22	A-7E
VA-94	A-7E
VA-95	A-6A, -6B, KA-6D
VAQ-135 Det 3‡	EKA-3B
VAW-111 Det 4	E-1B
VFP-63 Det 5	RF-8G
HC-1 Det 6	SH-3G
HC-7 Det 110*	HH-3A
Midway **(CVA 41) with CVW-5 (11 Sep 1973–31 Dec 1973)[6]**	
VF-151	F-4N
VF-161	F-4N
VA-56	A-7A
VA-93	A-7A
VA-115	A-6A, -6B, KA-6D
VFP-63 Det 3	RF-8G
VAW-115	E-2B
HC-1 Det 2	SH-3G
VMCJ-1 Det 101	EA-6A
Oriskany **(CVA 34) with CVW-19 (18 Oct 1973–5 Jun 1974)**	
VF-191	F-8J
VF-194	F-8J
VA-153	A-7B
VA-155	A-7B
VA-215	A-7B
VFP-63 Det 4	RF-8G
VAW-111 Det 6§	E-1B
VAQ-130 Det 3	EKA-3B
HC-1 Det 1	SH-3G
Kitty Hawk **(CVA 63) with CVW-11 (23 Nov 1973–9 Jul 1974)**	
VF-114	F-4J
VF-213	F-4J
VA-192	A-7E
VA-195	A-7E
VA-52	A-6A, KA-6D
VAQ-136	EA-6B
RVAH-7	RA-5C
VAW-114	E-2B
VS-37	S-2G
VS-38	S-2G
HS-4	SH-3D
VQ-1 Det 63*	EA-3B
1974 WestPac/Vietnam Deployments	
Midway **(CVA 41) with CVW-5 (1 Jan–31 Dec 1974)[6]**	
VF-161	F-4N
VF-151	F-4N
VA-93	A-7A
VA-56	A-7A
VA-115	A-6A, -6B, KA-6D
VAW-115	E-2B
HC-1 Det 2	SH-3G
VMCJ-1 Det 101	EA-6A, RF-4B
VQ-1 Det*	EA-3B

Ranger (CVA 61) with CVW-2 (7 May 1974–18 Oct 1974)	
VA-25	A-7E
VA-113	A-7E
VA-145	A-6A, KA-6D
VF-21	F-4J
VF-154	F-4J
RVAH-13	RA-5C
VAW-112	E-2B
HC-1 Det 4	SH-3G
VQ-1 Det 61*	EA-3B
Constellation (CVA 64) with CVW-9 (21 Jun 1974–22 Dec 1974)	
VF-92	F-4J
VF-96	F-4J
VA-146	A-7E
VA-147	A-7E
VA-165	A-6A, KA-6D
RVAH-5	RA-5C
VAW-116	E-2B
VAQ-131	EA-6B
HS-6	SH-3A
VQ-1 Det 64*	EA-3B
Enterprise (CVAN 65) with CVW-14 (17 Sep 1974–20 May 1975)	
VF-1	F-14A
VF-2	F-14A
VA-27	A-7E
VA-97	A-7E
VA-196	A-6A, KA-6D
VAQ-137	EA-6B
HS-2	SH-3D
VAW-113	E-2B
RVAH-12	RA-5C
VQ-1 Det 65*	EA-3B
Coral Sea (CVA 43) with CVW-15 (5 Dec 1974–2 Jul 1975)	
VF-51	F-4N
VF-111	F-4N
VFP-63 Det 5	RF-8G
VA-22	A-7E
VA-94	A-7E
VA-95	A-6A, KA-6D
RVAW-110 Det 3	E-1B
HC-1 Det 2	SH-3G
1975 WestPac/Vietnam Deployments[5]	
Midway (CV 41) with CVW-5 (1 Jan–31 Dec 1975)[6]	
VF-161	F-4N
VF-151	F-4N
VA-93	A-7A
VA-56	A-7A
VA-115	A-6A, -6B, KA-6D
VAW-115	E-2B
HC-1 Det 2	SH-3G
VMFP-3 Det*	RF-4B
VMAQ-2 Det*	EA-6B
VMCJ-1 Det 101*	EA-6A, RF-4B
Hancock (CV 19) with CVW-21 (18 Mar 1975–20 Oct 1975)	
VA-55	A-4F
VA-164	A-4F, TA-4F
VA-212	A-4F
VF-24	F-8J
VF-211	F-8J
RVAW-110 Det 6	E-1B
HC-1 Det 1	SH-3G
VFP-63 Det 1	RF-8G
Kitty Hawk (CV 63) with CVW-11 (21 May 1975–15 Dec 1975)#	
VF-213	F-4J
VF-114	F-4J
VA-52	A-6E, KA-6D
VA-192	A-7E
VA-195	A-7E
VS-37	S-2G
VS-38	S-2G
VAQ-136	EA-6B
RVAH-6	RA-5C
HS-8	SH-3G
VAW-114	E-2B
VQ-1 Det 63*	EA-3
Oriskany (CV 34) with CVW-19 (16 Sep 1975–3 Mar 1976)	
VF-191	F-8J
VF-194	F-8J
VA-153	A-7B
VA-155	A-7B
VA-215	A-7B
VFP-63 Det 4	RF-8G
RVAW-110 Det 4	E-1B
HC-1 Det 4	SH-3G

Tail Codes	
Carrier Air Wings (CVW) from 1964 to 1975	
CVW-1	AB
CVW-2	NE
CVW-3	AC
CVW-5	NF
CVW-6	AE
CVW-7	AG

CVW-8	AJ
CVW-9	NG
CVW-10	AK
CVW-11	NH
CVW-14	NK
CVW-15	NL
CVW-16	AH
CVW-17	AA
CVW-19	NM
CVW-21	NP
RCVW-4	AD
RCVW-12	NJ
CVSG-50/RCVSG-50	AR
CVSG-51/RCVSG-51	RA
CVSG-52	AS
CVSG-53	NS
CVSG-54	AT
CVSG-55	NU
CVSG-56	AU
CVSG-57	NV
CVSG-58	AV
CVSG-59	NT
CVSG-60	AW
Various squadrons not part of the normal air wing composition but deployed on carriers from 1964 to 1975	
VAP-61	SS
VAP-62	GB
VFP-62	GA
VFP-63	PP
VAW-11	RR
VAW-12	GE
VAW-13	VR
VAW-33	GD
VAW-111	RR
VAH-1/RVAH-1	GH
VAH-3/RVAH-3	GJ
VAH-4	ZB
VAH-5/RVAH-5	GK
RVAH-6	GS
VAH-7/RVAH-7	GL
VAH-9/RVAH-9	GM
VAH-11	GN
RVAH-12	GP
RVAH-13	GR
RVAH-14	GQ
VAH-21	SL
VR-30	RW
VRC-40	CD
VRC-50	RG
VQ-1	PR
VQ-2	JQ
VSF-1	NA
VAQ-130	VR
HM-12	DH

Some of the squadrons, such as VAQ, VAW, and RVAH, lost their individually assigned tail codes in the late 1960s or early 1970s and are authorized to use those of their permanently assigned carrier air wing.

Tail codes for Marine Corps squadrons that deployed on board carriers are not included in the list.

Notes and explanations-specific entries:

˙ These squadron detachments were not on board the carrier for the entire deployment.

† This carrier returned from deployment prior to the beginning of combat operations in Vietnam during 1964.

‡ VAQ-135 Detachments 3 and 5 were transferred on 25 August 1973 to VAQ-130. VAQ-135 Det 3 became VAQ-130 Det 2 and VAQ-135 Det 5 became VAQ-130 Det 5.

§ VAW-111 Det 6 was transferred in March 1974 to RVAW-110 and became RVAW-110 Det 6.

‖ On 20 April 1967 VAW-111 was established and VAW-11 detachments became part of VAW-111. VAW-11 Det Q became VAW-111 Det 20.

This deployment involved an experiment with the composition of the carrier air wing in a multimission role. Several of the squadrons were shore-based in the Philippines during different periods of this deployment.

** On 1 October 1968 VAQ-13 and its detachments were redesignated VAQ-130.

Numbered Notes

1. VAW-13's records for 1966 do not specify the carriers they operated on board. However, the records indicate VAW-13 Det 1 (located at Cubi Point, P.I.) provided detachments in support of fleet strikes from the carriers on Yankee Station.

2. VAW-13 did not submit a Command History Report for 1967, consequently, it is not possible to verify all the squadron's detachments operating on board carriers on Yankee Station in 1967. VQ-1's Command History Report for 1967 did not identify the detachments or carriers they operated from in support of combat operations against Vietnam.

3. VAP-61's Command History Report for 1968 indicated continued support of 7th Fleet carriers on Yankee Station. However, the squadron's report does not identify the detachments deployed on board carriers in WESTPAC during 1968. HC-7 was established on 1 September 1967. In 1968 an HC-7 detachment was formed and given the mission of maintaining year-round combat configured helicopters on board carriers and other ships operating on Yankee Station for combat search and rescue missions. The 1968 HC-7 Command History Report does not identify all the specific ships that Detachment 110 operated on board. VQ-1 detachments continued to support carrier operations in Vietnam. However, the 1968 VQ-1 Command History Report does not mention any detachments that were on board carriers operating on Yankee Station.

4. VQ-1 and VAP-61 detachments provided support from DaNang Air Base, Republic of South Vietnam, for fleet carriers operating on Yankee Station in 1969.

5. On 30 June 1975, all carriers with the designation CVA or CVAN were changed to CV or CVN to reflect the multimission capability of the carrier.

6. *Midway* permanently home ported in WESTPAC.

Deployments for Patrol Squadrons and other Non-Carrier Based Squadrons in Vietnam (1964–1972)[1]

1964 Deployments				
Squadron	**To**	**In**	**Out**	**Aircraft**
VP-48	NS Sangley Point	May 1964	22 Sep 1964	SP-5B
VAP-61	(*See* detachments)	17 May 1964	*See* Note 2	RA-3B
Detachment Location:				
	NAS Cubi Point			
	RTAB Don Muang			
	FASU Da Nang/ RTNB			
	U-Tapao	17 May 1964	1 Jul 1971	
VW-1	(*See* detachments)	01 Oct 1964	*See* Note 2	EC-121K, C-121J, WC-121N
Detachment Location:				
	NS Sangley Point			
	NSAD Chu Lai	01 Oct 1964	01 Jul 1971	
VQ-1	(*See* detachments)	01 Oct 1964	*See* Note 2	EC-121M, E/RA-3B, C-121J, EP-3B
Detachment Location:				
	RTAB Don Muang			
	NAS Cubi Point			
	NAF Da Nang	01 Oct 1964	17 Feb 1973	
VP-17	NAF Naha	27 Apr 1964	30 Sep 1964	SP-2H
Detachment Location:				
	None			
VP-28	MCAS Iwakuni	16 May 1964	18 Oct 1964	SP-2H
Detachment Location:				
	NS Sangley Point	05 Aug 1964	30 Sep 1964	
VP-42	MCAS Iwakuni	11 Jul 1964	16 Nov 1964	SP-2E
Detachment Location:				
	NS Sangley Point	03 Sep 1964	18 Sep 1964	
	NAF Tan Son Nhut	18 Sep 1964	19 Sep 1964	
	NAS Cubi Point	06 Oct 1964	24 Oct 1964	
Special Det Deployment:				
	NAF Tan Son Nhut	Oct 1964	late Feb 1965	
VP-6	NAF Naha			
	MCAS Iwakuni	12 Aug 1964	25 Jan 1965	SP-2E
Detachment Location:				
	NAS Cubi Point	01 Sep 1964	28 Sep 1964	
VP-47	NS Sangley Point	17 Aug 1964	28 Feb 1965	SP-5B
Detachment Location:				
	AV-13	various	various	
VP-1	MCAS Iwakuni	07 Oct 1964	01 Apr 1965	SP-2H
Detachment Location:				
	NAF Tan Son Nhut			
	Da Nang			
VP-9	NAF Naha	12 Nov 1964	08 Jul 1965	P-3A
Detachment Location:				
	None			

1965 Deployments				
Squadron	**To**	**In**	**Out**	**Aircraft**
VQ-2	(*See* detachments)	01 Dec 1965	*See* Note 2	EA-3B
Detachment Location:				
	NAS Cubi Point			
	FASU Da Nang	01 Dec 1965	30 Sep 1969	
VP-2	MCAS Iwakuni	24 Jan 1965	16 Jul 1965	SP-2H
Detachment Location:				
	NAF Tan Son Nhut	15 Mar 1965	01 May 1965	
	various (Naha, Sangley Point, Iwo Jima, Bangkok, Tainan, Da Nang)			
VP-40	NS Sangley Point	27 Feb 1965	03 Sep 1965	SP-5B
Detachment Location:				
	AV-13	14 May 1965	20 May 1965	
	AV-7	29 May 1965	03 Aug 1965	
VP-4	MCAS Iwakuni	26 Mar 1965	28 Sep 1965	SP-2H
Detachment Location:				
	NAF Tan Son Nhut	19 Apr 1965	19 Apr 1965	
	NS Sangley Point	26 Mar 1965	20 Apr 1965	
	NAS Cubi Point	20 Apr 1965	26 Apr 1965	
VP-22	NS Sangley Point	23 Apr 1965	13 Dec 1965	P-3A
Detachment Location:				
	None			
VP-46	NAF Naha	07 Jun 1965	08 Jan 1966	P-3A
Detachment Location:				
	NS Sangley Point	07 Jun 1965	08 Jan 1966	
VP-17	MCAS Iwakuni	09 Jul 1965	06 Feb 1966	SP-2H
Detachment Location:				
	NAF Tan Son Nhut			
VP-50	NS Sangley Point	01 Sep 1965	14 Mar 1966	SP-5B
Detachment Location:				
	NAF Camh Ranh Bay			
	AV-12	various	various	
VP-42	MCAS Iwakuni	26 Sep 1965	05 Apr 1966	SP-2H
Detachment Location:				
	NAF Tan Son Nhut	08 Oct 1965	13 Feb 1966	
VP-48	(*See* detachment)			SP-5B
Detachment Location:				
	NS Sangley Point	Aug 1965	04 Sep 1966	
VP-28	NS Sangley Point	02 Nov 1965	02 Jun 1966	P-3A
Detachment Location:				
	None			
1966 Deployments				
Squadron	**To**	**In**	**Out**	**Aircraft**
VXN-8	(*See* detachment)			NC-121J
Detachment Location:				
	NAF Tan Son Nhut	Oct 1965	Dec 1965	
	NAF Tan Son Nhut	03 Jan 1966	01 Dec 1970	

HC-1	(*See* detachment)			UH-1B
Detachment Location:				
	Various in Mekong Delta	01 Jul 1966	01 Apr 1967	
VRC-50	(*See* detachments)	01 Oct 1966	*See* Note 2	C-1A, C-2A, CT-39E
Detachment Location:				
	NAS Cubi Point	*See* Note 2	*See* Note 2	
	Da Nang	01 Feb 1970	02 Jan 1971	
		15 Dec 1971	19 Feb 1973	
VAP-62	(*See* detachments)	31 Oct 1966	*See* Note 2	RA-3B
Detachment Location:				
	NAS Cubi Point			
	FASU Da Nang	31 Oct 1966	01 Feb 1969	
VP-47	NAF Naha	04 Jan 1966	30 Jun 1966	P-3B
Detachment Location:				
	NS Sangley Point (augmented occasionally)			
VP-1	MCAS Iwakuni	03 Feb 1966	01 Aug 1966	SP-2H
Detachment Location:				
	NAF Tan Son Nhut	13 Feb 1966	27 May 1966	
VP-40	NS Sangley Point	15 Mar 1966	03 Sep 1966	SP-5B
Detachment Location:				
	AV-13	10 Mar 1966	26 Mar 1966	
		03 Apr 1966	10 Apr 1966	
		14 May 1966	03 Jun 1966	
		10 Jul 1966	09 Aug 1966	
		15 Jul 1966	21 Jul 1966	
VP-2	MCAS Iwakuni	01 Apr 1966	01 Oct 1966	SP-2H
Detachment Location:				
	NAF Tan Son Nhut	25 May 1966	30 Sep 1966	
VP-8	NS Sangley Point	01 Jul 1966	02 Dec 1966	P-3A
Detachment Location:				
	None			
VP-9	NAF Naha	25 Jul 1966	10 Jan 1967	P-3B
Detachment Location:				
	NAF Sangley Point	25 Jun 1966	12 Dec 1966	
VP-19	MCAS Iwakuni	01 Aug 1966	31 Jan 1967	P-3A
Detachment Location:				
	Unknown			
VP-50	Cam Ranh Bay, AV-7	19 Aug 1966	06 Feb 1967	SP-5B
Detachment Location:				
	None			
VP-17	MCAS Iwakuni			SP-2H
	NS Sangley Point	01 Oct 1966	30 Mar 1967	
Detachment Location:				
	NAF Tan Son Nhut	01 Oct 1966	30 Mar 1967	
VP-16	NS Sangley Point	02 Dec 1966	02 Jun 1967	P-3A
Detachment Location:				
	NAF U-Tapao	18 Jan 1967	18 Feb 1967	

1967 Deployments				
Squadron	**To**	**In**	**Out**	**Aircraft**
VO-67	RTAB Nakhon Phanom	15 Nov 1967	01 Jul 1968	OP-2E
Detachment Location:				
	None			
HAL-3	Vung Tau	01 Apr 1967	01 May 1969	UH-1B/1C/1L/1M, HH-1K
	Binh Thuy	02 May 1969	16 Mar 1972	
Detachment Location:				
	various			
VR-1	(*See* detachment)	14 Jun 1967	*See* Note 2	C-130F
Detachment Location:				
	NAS Cubi Point	14 Jun 1967	23 Jun 1967	
VP-46	NAF Naha	14 Jan 1967	30 Jun 1967	P-3B
Detachment Location:				
	NS Sangley Point	05 Feb 1967	18 Feb 1967	
	RTNB U-Tapao	18 Feb 1967	30 Jun 1967	
VP-4	MCAS Iwakuni	31 Jan 1967	31 Jul 1967	P-3A
Detachment Location:				
	NS Sangley Point	*See* Note 2	*See* Note 2	
	NAF Naha	15 Jul 1967	20 Jul 1967	
VP-40	NS Sangley Point	24 Feb 1967	10 May 1967	SP-5B
Detachment Location:				
	AV-7	01 Mar 1967	30 Apr 1967	
VP-42	NS Sangley Point	31 Mar 1967	30 Sep 1967	SP-2H
Detachment Location:				
	NAF Cam Ranh Bay	02 Apr 1967	18 May 1967	
	NAF Tan Son Nhut	31 Mar 1967	30 Sep 1967	
VP-1	NS Sangley Point	06 May 1967	12 Nov 1967	SP-2H
Detachment Location:				
	NAF Cam Rahn Bay	15 May 1967	12 Nov 1967	
VP-5	NS Sangley Point	01 Jun 1967	03 Dec 1967	P-3A
Detachment Location:				
	None			
VP-47	NAF Naha	01 Jul 1967	04 Jan 1968	P-3B
Detachment Location:				
	RTNB U-Tapao	01 Jul 1967	04 Jan 1968	
	NS Sangley Point	(dates unknown)		
VP-48	MCAS Iwakuni	31 Jul 1967	31 Jan 1968	P-3A
Detachment Location:				
	NS Sangley Point	28 Dec 1967	08 Jan 1968	
VP-2	NS Sangley Point	01 Oct 1967	01 Apr 1968	SP-2H
Detachment Location:				
	NAF Tan Son Nhut	01 Oct 1967	Unknown	
	NAF Cam Ranh Bay	01 Feb 1968	30 Mar 1968	
VP-17	NS Sangley Point	09 Nov 1967	29 Apr 1968	SP-2H
Detachment Location:				
	NAF Cam Ranh Bay	09 Nov 1967	29 Apr 1968	
VP-26	NS Sangley Point	27 Nov 1967	07 Jun 1968	P-3B
Detachment Location:				
	RTNB U-Tapao	16 Dec 1967	02 Jun 1968	

1968 Deployments				
Squadron	**To**	**In**	**Out**	**Aircraft**
VAH-21	(*See* detachment)	01 Sep 1968	*See* Note 2	AP-2H
Detachment Location:				
	NAF Cam Ranh Bay	01 Sep 1968	16 Jul 1969	
VP-6	NAF Naha	01 Jan 1968	01 Jul 1968	P-3A
Detachment Location:				
	NS Sangley Point	21 Jan 1968	24 Jan 1968	
	NAF Cam Ranh Bay	13 May 1968	07 Jun 1968	
VP-19	MCAS Iwakuni	01 Feb 1968	31 Jul 1968	P-3B
Detachment Location:				
	NS Sangley Point	01 Apr 1968	14 Apr 1968	
	RTNB U-Tapao	01 Apr 1968	14 Apr 1968	
	NAF Cam Ranh Bay	15 Jun 1968	15 Jul 1968	
VP-42	NS Sangley Point	10 Mar 1968	03 Sep 1968	SP-2H
Detachment Location:				
	NAF Cam Ranh Bay	(dates unknown)		
VP-50	NS Sangley Point	01 May 1968	01 Nov 1968	P-3A
Detachment Location:				
	NAF Cam Ranh Bay	01 May 1968	01 Nov 1968	
VP-49	NS Sangley Point	01 Jun 1968	16 Dec 1968	P-3A
Detachment Location:				
	RTNB U-Tapao	01 Jun 1968	16 Dec 1968	
VP-22	NAF Naha	30 Jun 1968	11 Jan 1969	P-3A
Detachment Location:				
	NAF Cam Ranh Bay	16 Jul 1968	15 Aug 1968	
		20 Sep 1968	30 Sep 1968	
		01 Oct 1968	15 Oct 1968	
		15 Nov 1968	10 Dec 1968	
VP-4	MCAS Iwakuni	01 Aug 1968	29 Jan 1969	P-3A
Detachment Location:				
	NAF Cam Ranh Bay	15 Aug 1968	15 Sep 1968	
		15 Oct 1968	10 Nov 1968	
		16 Dec 1968	10 Jan 1969	
VP-1	NS Sangley Point	15 Aug 1968	25 Feb 1969	SP-2H
Detachment Location:				
	NAF Cam Ranh Bay	15 Aug 1968	25 Feb 1969	
VP-47	NS Sangley Point	01 Nov 1968	31 Mar 1969	P-3B
Detachment Location:				
	NAF Cam Ranh Bay	01 Nov 1968	31 Mar 1969	
VP-45	NS Sangley Point	16 Dec 1968	01 Jun 1969	P-3A
Detachment Location:				
	RTNB U-Tapao	16 Dec 1968	30 May 1969	
	NAF Cam Ranh Bay	18 Apr 1969	28 Apr 1969	

1969 Deployments				
Squadron	**To**	**In**	**Out**	**Aircraft**
VAL-4	Binh Thuy; Vung Tau	09 Apr 1969	31 Mar 1972	OV-10A, YOV-10D
Detachment Location:				
	None			
VC-5	(*See* detachment)	02 Oct 1969	*See* Note 2	C-1A, US-2C
Detachment Location:				
	FASU Da Nang	02 Oct 1969	31 Dec 1969	
VRC-30	(*See* detachment)	11 Oct 1969	*See* Note 2	C-1A
Detachment Location:				
	FASU Da Nang	11 Jan 1969	01 Feb 1973	
VP-28	NAF Naha	15 Jan 1969	15 Jul 1969	P-3A
Detachment Location:				
	NAF Cam Ranh Bay	17 Jan 1969	11 Feb 1969	
		29 Apr 1969	15 May 1969	
		13 Jun 1969	18 Jul 1969	
VP-40	MCAS Iwakuni	01 Feb 1969	01 Aug 1969	P-3B
Detachment Location:				
	NAF Cam Ranh Bay	(dates unknown)		
VP-2	NS Sangley Point	17 Feb 1969	17 Aug 1969	SP-2H
VP-9	NS Sangley Point	01 Apr 1969	01 Oct 1969	P-3B
Detachment Location:				
	NAF Cam Ranh Bay	01 Apr 1969	01 Oct 1969	
VP-6	NS Sangley Point	01 Jun 1969	15 Nov 1969	P-3A
Detachment Location:				
	RTNB U-Tapao	27 May 1969	15 Nov 1969	
VP-50	NAF Naha	15 Jul 1969	15 Jan 1970	P-3A
Detachment Location:				
	NAF Cam Ranh Bay	01 Aug 1969	15 Jan 1970	
VP-17	MCAS Iwakuni	01 Aug 1969	01 Feb 1970	P-3A
Detachment Location:				
	NAF Cam Ranh Bay	09 Aug 1969	11 Sep 1969	
		03 Nov 1969	15 Nov 1969	
		15 Dec 1969	22 Dec 1969	
VP-46	NS Sangley Point	01 Oct 1969	31 Mar 1970	P-3B
Detachment Location:				
	NAF Cam Ranh Bay	02 Oct 1969	31 Mar 1970	
VP-22	NS Sangley Point	15 Nov 1969	01 May 1970	P-3A
Detachment Location:				
	RTNB U-Tapao	30 Nov 1969	29 Apr 1970	
1970 Deployments				
Squadron	**To**	**In**	**Out**	**Aircraft**
HC-3	(*See* detachment)	15 May 1970	*See* Note 2	CH-46D
Detachment Location:				
	NAF Tan Son Nhut	15 May 1970	01 Dec 1970	
VP-47	NAF Naha	16 Jan 1970	13 Jul 1970	P-3B
Detachment Location:				
	RTNB U-Tapao	09 May 1970	13 Jul 1970	
	NAF Cam Ranh Bay	(dates unknown)		

VP-1	MCAS Iwakuni	01 Feb 1970	31 Jul 1970	P-3B
Detachment Location:				
	RTNB U-Tapao	01 Feb 1970	15 Apr 1970	
	NAF Tan Son Nhut	01 May 1970	27 Jul 1970	
	NAF Cam Ranh Bay	(dates unknown)		
VP-48	NS Sangley Point	01 Apr 1970	30 Sep 1970	P-3B
Detachment Location:				
	NAF Cam Ranh Bay	01 Apr 1970	30 Sep 1970	
VP-40	NS Sangley Point	01 May 1970	30 Oct 1970	P-3B
Detachment Location:				
	RTNB U-Tapao	29 Apr 1970	30 Oct 1970	
VP-6	NAF Naha	14 Jul 1970	15 Jan 1971	P-3A
Detachment Location:				
	None			
VP-19	MCAS Iwakuni	31 Jul 1970	30 Jan 1971	P-3B
Detachment Location:				
	NAF Cam Ranh Bay	10 Oct 1970	24 Oct 1970	
	NS Sangley Point	(dates unknown)		
	RTNB U-Tapao	(dates unknown)		
VP-50	NS Sangley Point	30 Sep 1970	31 Mar 1971	P-3A
Detachment Location:				
	NAF Cam Ranh Bay	30 Sep 1970	31 Mar 1971	
VP-17	NS Sangley Point	29 Oct 1970	29 Apr 1971	P-3A
Detachment Location:				
	RTNB U-Tapao	29 Oct 1970	29 Apr 1971	
1971 Deployments				
Squadron	**To**	**In**	**Out**	**Aircraft**
VP-22	NAF Naha	14 Jan 1971	14 Jul 1971	P-3A
Detachment Location:				
	NAF Cam Ranh Bay	25 Jan 1971	02 Feb 1971	
	RTNB U-Tapao	27 Mar 1971	03 Apr 1971	
VP-4	MCAS Iwakuni	01 Feb 1971	31 Jul 1971	P-3B
Detachment Location:				
	NAF Cam Ranh Bay	(dates unknown)		
VP-1	NS Sangley Point	01 Apr 1971	01 Jul 1971	P-3B
	NAS Cubi Point	01 Jul 1971	01 Oct 1971	
Detachment Location:				
	NAF Cam Ranh Bay	01 Apr 1971	01 Oct 1971	
VP-48	NS Sangley Point	01 May 1971	01 Jul 1971	P-3B
	NAS Cubi Point	01 Jul 1971	30 Sep 1971	
Detachment Location:				
	RTNB U-Tapao	01 May 1971	30 Sep 1971	
VP-40	NAF Naha	14 Jul 1971	13 Jan 1972	P-3B
Detachment Location:				
	NAS Guam	(dates unknown)		
VP-9	MCAS Iwakuni	29 Jul 1971	11 Feb 1972	P-3B
Detachment Location:				
	unknown			

VP-6	NAS Cubi Point	21 Sep 1971	12 Jan 1972	P-3A
Detachment Location:				
	NAF Cam Ranh Bay	21 Sep 1971	02 Dec 1971	
	NAS Cubi Point	12 Jan 1972	10 May 1972	
VP-19	NAS Cubi Point	01 Nov 1971	29 Apr 1972	P-3B
Detachment Location:				
	RTNB U-Tapao	01 Nov 1971	29 Apr 1972	
1972 Deployments				
Squadron	**To**	**In**	**Out**	**Aircraft**
VP-17	NAF Naha	13 Jan 1972	01 Aug 1972	P-3A
Detachment Location:				
	NAS Cubi Point	09 Apr 1972	23 Apr 1972	
VP-46	MCAS Iwakuni	01 Feb 1972	14 Aug 1972	P-3B
Detachment Location:				
	NAS Cubi Point	23 Feb 1972	01 Mar 1972	
		16 Mar 1972	01 Apr 1972	
VP-4	NAS Cubi Point	26 Mar 1972	01 Nov 1972	P-3A
Detachment Location:				
	RTNB U-Tapao	01 May 1972	01 Nov 1972	
VP-22	NAF Naha	21 Apr 1972	30 Nov 1972	P-3A
Detachment Location:				
	NAS Cubi Point	29 Apr 1972	16 May 1972	
VP-9	(*See* detachment)	05 May 1972	24 Jul 1972	P-3B
Detachment Location:				
	NAS Cubi Point	05 May 1972	24 Jul 1972	
VP-11	NAS Cubi Point	23 Jul 1972	10 Nov 1972	P-3B
Detachment Location:				
	RTNB U-Tapao	(dates unknown)		
VP-40	MCAS Iwakuni	01 Aug 1972	14 Jan 1973	P-3B
Detachment Location:				
	RTNB U-Tapao	16 Nov 1972	20 Dec 1972	
VP-1	NAS Cubi Point	01 Nov 1972	30 Apr 1973	P-3B
Detachment Location:				
	RTNB U-Tapao	01 Nov 1972	30 Apr 1973	
VP-6	NAF Naha	30 Nov 1972	28 May 1973	P-3A
Detachment Location:				
	RTNB U-Tapao	20 Dec 1972	01 Feb 1973	

Tail Codes for the VP and other Non-Carrier Based Squadrons deploying to Vietnam:	
HAL-3	(no assigned tail code)
HC-1	UP
HC-3	SA
VAH-21	SL
VAL-4	UM
VAP-61	SS
VAP-62	GB
VC-5	UE
VO-67	MR
VP-1	YB
VP-16	LF
VP-17	ZE
VP-19	PE
VP-11	LE
VP-2	YC
VP-22	QA
VP-28	QC
VP-4	YD
VP-40	QE
VP-42	RB
VP-45	LN
VP-46	RC
VP-47	RD
VP-48	SF
VP-49	LP
VP-5	LA
VP-50	SG
VP-6	PC
VP-8	LC
VP-9	PD
VQ-1	PR
VQ-2	JQ
VR-1	JK
VRC-30	RW
VRC-50	RG
VW-1	TE
VXN-8	JB

Tail Codes for the VP and other Non-Carrier Based Squadrons deploying to Vietnam:	
HAL-3	(no assigned tail code)
HC-1	UP
HC-3	SA
VAH-21	SL
VAL-4	UM
VAP-61	SS
VAP-62	GB
VC-5	UE
VO-67	MR
VP-1	YB
VP-16	LF
VP-17	ZE
VP-19	PE
VP-11	LE
VP-2	YC
VP-22	QA
VP-28	QC
VP-4	YD
VP-40	QE
VP-42	RB
VP-45	LN
VP-46	RC
VP-47	RD
VP-48	SF
VP-49	LP
VP-5	LA
VP-50	SG
VP-6	PC
VP-8	LC
VP-9	PD
VQ-1	PR
VQ-2	JQ
VR-1	JK
VRC-30	RW
VRC-50	RG
VW-1	TE
VXN-8	JB

Notes for VP and Non-Carrier Based Squadron Deployments to Vietnam (1964–1972):

1. Date In and Date Out are normally the dates the squadron arrived and departed from the air station or base it operated from during its deployment. Squadron detachment numbers or letters are not listed. There were numerous changes and rotation of patrol squadron aircraft and crews from the squadron's main base of operation during its deployment. A squadron's detachment was usually identified by using the name of the base from which the detachment operated. Some of the squadrons that deployed to Vietnam did not have or use detachments.

2. In some cases specific dates for the squadron or its detachments were not known or could not be determined from official sources.

Chapter 32

Grenada Combat Operations 25 October–2 November 1983

Operation Urgent Fury

The mission of Operation Urgent Fury, as stated by Adm. Wesley L. McDonald, while testifying before the Senate Committee on Armed Services on 3 November 1983, was to

> protect and/or evacuate American citizens, to provide stability for the area, and at the invitation of the Organization of Eastern Caribbean States, to help establish a government, which would be more democratic in nature than the existing government, which had taken over rather rigorously and had placed the country into complete isolation for a period of four days.

Adm. McDonald was Commander in Chief, U.S. Atlantic Command, during the Grenada operations. The following is a list of naval aviation forces (does not include all Marine Corps aviation) participating in the Grenada operations:

Carriers	
***Independence* (CV 62) with CVW-6 (Tail Code AE)**	
Squadron	**Aircraft**
VA-87	A-7E
VA-15	A-7E
VA-176	A-6E, KA-6D
VF-32	F-14A
VF-14	F-14A
VAW-122	E-2C
VAQ-131	EA-6B
VS-28	S-3A
HS-15	SH-3H
Amphibious Ships	
***Guam* (LPH 9) (HMM-261 Tail Code EM)**	
HMM-261	AH-1T, CH-53D
***Saipan* (LHA 2) [1–7 November 1983]**	
Saipan provided seaborne security, surveillance operations, communications, and medical support during the operation. It did not have a deployed Marine Corps squadron on board.	

Non-Carrier Based Squadrons		
Squadron	**Aircraft**	**Tail Code**
VP-10	P-3C	LD
VP-16	P-3C	LF
VP-23	P-3C	LJ
HSL-34 Dets	SH-2F	HX
HSL-32 Dets	SH-2F	HV
HSL-32 Detachments provided support for the Grenada operations from 30 October to 8 December, but were not involved in flying combat missions.		
VR-56	C-9B	JU
VR-58	C-9B	JV
VR-59	C-9B	RY
VRC-40	C-1A	JK

Transport squadrons were used to provide support for units operating in Grenada, but were not involved in flying combat missions.

Operations by CVW-6 Aircraft

CVW-6 aircraft embarked on *Independence* flew search and rescue (SAR), medical evacuation (MEDEVAC), combat air patrol (CAP), reconnaissance, close air support, and surface, sub-surface search coordination (SSSC) missions.

Attack squadrons conducted daily surgical bombing missions (close air support) to quell enemy resistance, as well as reconnaissance missions. Their activities during Operation Urgent Fury included:

- VA-15 flew 143 combat sorties.
- VA-176 flew 350 combat flight hours (the number of combat sorties is not listed).
- VA-87 flew close air support combat missions (the specific number of sorties was not identified).
- HS-15 flew combat SAR missions under enemy fire and also dropped leaflets over the central portion of the island. The squadron flew 97 sorties.

Fighter squadrons flew CAP, reconnaissance and photographic missions over the island using the Tactical Air Reconnaissance Pod System (TARPS). VF-32 aircraft participated in the TARPS evolution. Fighter squadron activities included: 256 combat sorties flown by VF-32 in 1983 (includes sorties in Grenada and Lebanon, with no break down on how many for each operation) and 82 combat sorties flown during Operation Urgent Fury by VF-14.

- VAQ-131 flew electronic surveillance missions (the specific number of combat sorties not identified).
- VS-28: Combat sorties unknown.
- VAW-122: Combat sorties unknown.

The Navy did not lose any aircraft or aviation personnel to combat action during Operation Urgent Fury. However, several Marine Corps and Army helicopters were shot down by antiaircraft batteries and personnel were lost to combat action.

Chapter 33

Squadrons Involved in Libyan Operations 24 March–15 April 1986

The time frames for squadron involvement in Operation Prairie Fire during March and Operation Eldorado Canyon during April 1986 are not listed. Some of the squadrons involved in the March operations were not present during the April operations, and vice versa.

Carrier-Based Squadrons	
America **(CV 66) with CVW-1 (Tail Code AB)**	
VA-34	A-6E, KA-6D
VA-46	A-7E
VA-72	A-7E
VF-33	F-14A
VF-102	F-14A
VS-32	S-3A
VAW-123	E-2C
HS-11	SH-3H
VMAQ-2 Det	EA-6B
VQ-2 Det	EA-3B
Coral Sea **(CV 43) with CVW-13 (Tail Code AK)**	
VFA-131	F/A-18A
VFA-132	F/A-18A
VA-55	A-6E, KA-6D
VAW-127	E-2C
VAQ-135	EA-6B
VQ-2 Det	EA-3B
VMFA-314	F/A-18A
VMFA-323	F/A-18A
HS-17	SH-3H
Saratoga **(CV 60) with CVW-17 (Tail Code AA)**	
VA-81	A-7E
VA-83	A-7E
VF-74	F-14A
VF-103	F-14A
VA-85	A-6E, KA-6D
VAQ-137	EA-6B
VAW-125	E-2C
VS-30	S-3A
HS-3	SH-3H
VQ-2 Det	EA-3B
Guadalcanal **(LPH 7) (HMM-263 Tail Code EG)**	
HMM-263	AH-1T, CH-53E, CH-46E

Note: Detachments (Dets) on board the carriers did not use the same tail code assigned to the air wing (CVW).

Non-Carrier Based Squadrons		
Squadron	**Tail Code**	**Aircraft**
HSL-32 Dets	HV	SH-2F
HSL-34 Dets	HX	SH-2F
HSL-36 Dets	HY	SH-2F
HSL-42 Dets	HN	SH-60B
VP-23	LJ	P-3C
VP-56	LQ	P-3C
HC-4	HC	CH-53E
HC-6 Det	HW	UH-46D, CH-46D
VR-22	JL	C-130F
VAQ-138 Det	*	EA-6B
VR-24	JM	C-2A
HC-8 Dets	BR	UH-46A, CH-46D
HS-1 Det	AR	SH-3
HC-9 Det	NW	HH-3A
VQ-2	JQ	EP-3A

* VAQ-138 was under the control of Commander Medium Attack Tactical Electronic Warfare Wing, U.S. Pacific Fleet and did not have a permanently assigned tail code until it became part of CVW-8 in June 1986.

Chapter 34

Operation Desert Shield and Desert Storm

Naval Aviation Units Involved in the Persian Gulf War 16 January–27 February 1991

Carrier and Carrier-Based Squadrons	
Saratoga **(CV 60) with CVW-17 (Tail Code AA) 7 Aug 1990–28 Mar 1991**	
Squadron	**Aircraft**
VF-74	F-14A+
VF-103	F-14A+
VFA-83	F/A-18C
VFA-81	F/A-18C
VA-35	A-6E KA-6D
VAW-125	E-2C
VAQ-132	EA-6B
HS-3	SH-3H
VS-30	S-3B
John F. Kennedy **(CV 67) with CVW-3 (Tail Code AC) 15 Aug 1990–28 Mar 1991**	
Squadron	**Aircraft**
VF-14	F-14A
VF-32	F-14A
VA-46	A-7E
VA-72	A-7E
VA-75	A-6E KA-6D
VAW-126	E-2C
HS-7	SH-3H
VAQ-130	EA-6B
VS-22	S-3B
Midway **(CV 41) with CVW-5 (Tail Code NF) 2 Oct 1990–17 Apr 1991**	
Squadron	**Aircraft**
VFA-195	F/A-18A
VFA-151	F/A-18A
VFA-192	F/A-18A
VA-185	A-6E KA-6D
VA-115	A-6E KA-6D
VAW-115	E-2C
VAQ-136	EA-6B
HS-12	SH-3H
VRC-50 Det	C-2A
Ranger **(CV 61) with CVW-2 (Tail Code NE) 8 Dec 1990–8 Jun 1991**	
Squadron	**Aircraft**
VF-1	F-14A
VF-2	F-14A
VA-155	A-6E
VA-145	A-6E
VAW-116	E-2C
VAQ-131	EA-6B
HS-14	SH-3H
VS-38	S-3A
VRC-30 Det	C-2A
America **(CV 66) with CVW-1 (Tail Code AB) 28 Dec 1990–18 Apr 1991**	
Squadron	**Aircraft**
VF-102	F-14A
VF-33	F-14A
VFA-82	F/A-18C
VFA-86	F/A-18C
VA-85	A-6E KA-6D
VAW-123	E-2C
HS-11	SH-3H
VAQ-137	EA-6B
VS-32	S-3B
Theodore Roosevelt **(CVN 71) with CVW-8 (Tail Code AJ) 28 Dec 1990–28 Jun 1991**	
Squadron	**Aircraft**
VF-41	F-14A
VF-84	F-14A
VFA-15	F/A-18A
VFA-87	F/A-18A
VA-65	A-6E
VA-36	A-6E
VAW-124	E-2C
HS-9	SH-3H
VAQ-141	EA-6B
VS-24	S-3B
VRC-40 Det	C-2A

Non-Carrier Based Navy Squadrons		
Squadron	**Tail Code**	**Aircraft**
HC-1	UP	SH-3G, SH-3H, CH-53E
HC-2	SA	SH-3G, CH-53E
HC-4	HC	CH-53E
HC-5	RB	HH-46D
HC-6	HW	CH-46D, HH-46D, UH-46D
HC-8	BR	CH-46D, HH-46D, UH-46D

Squadron	Tail Code	Aircraft
HC-11	VR	CH-46D, HH-46D, UH-46D
HCS-4*	NW	HH-60H
HCS-5*	NW	HH-60H
HM-14	BJ	MH-53E
HM-15	TB	MH-53E
HS-75*	NW	SH-3H
HSL-32	HV	SH-2F
HSL-33	TF	SH-2F
HSL-34	HX	SH-2F
HSL-35	TG	SH-2F
HSL-36	HY	SH-2F
HSL-37	TH	SH-2F
HSL-42	HN	SH-60B
HSL-43	TT	SH-60B
HSL-44	HP	SH-60B
HSL-45	TZ	SH-60B
HSL-46	HQ	SH-60B
HSL-47	TY	SH-60B
HSL-48	HR	SH-60B
HSL-49	TX	SH-60B
VC-6	JG	Pioneer RPV
VP-1	YB	P-3C
VP-4	YD	P-3C
VP-5	LA	P-3C
VP-8	LC	P-3C
VP-11	LE	P-3C
VP-19	PE	P-3C
VP-23	LJ	P-3C
VP-40	QE	P-3C
VP-45	LN	P-3C
VP-46	RC	P-3C
VP-91*	PM	P-3C
VP-MAU*	LB	P-3C
VPU-1	OB	P-3
VPU-2	SP	P-3
VQ-1	PR	EP-3E, UP-3A, P-3B
VQ-2	JQ	EP-3E, EA-3B, UP-3A
VQ-4	HL	TC-130Q
VR-22	JL	C-130F, KC-130F
VR-24	JM	C-2A, CT-39G
VR-51*	RV	C-9B
VR-52*	JT	DC-9
VR-55*	RU	C-9B
VR-56*	JU	C-9B
VR-57*	RX	C-9B
VR-58*	JV	C-9B
VR-59*	RY	C-9B
VR-60*	RT	DC-9
VR-61*	RS	DC-9
VR-62*	JW	DC-9
VRC-30	RW	C-2A
VRC-40	JK	C-2A
VRC-50	RG	C-2A, US-3A, C-130F

* Naval Air Reserve unit.

Marine Corps Squadrons		
Squadron	**Tail Code**	**Aircraft**
HMA-773†	MP	AH-1J
HMA-775†	WR	AH-1J
HMH-362	YL	CH-53D
HMH-461	CJ	CH-53E
HMH-462	YF	CH-53E
HMH-465	YJ	CH-53E
HMH-466	YK	CH-53E
HMH-772 Det A†	MT	RH-53D
HML-767†	MM	UH-1N
HMLA-169	TV	UH-1N, AH-1W
HMLA-269	HF	UH-1N, AH-1W, AH-1T
HMLA-367	VT	UH-1N, AH-1W
HMLA-369	SM	UH-1N, AH-1W
HMM-161	YR	CH-46E
HMM-164(C)	YT	CH-46E, CH-53E, UH-1N, AH-1W
HMM-165	YW	CH-46E
HMM-261	TV	CH-46E
HMM-263	EG	CH-46E
HMM-265	EP	CH-46E
HMM-266	ES	CH-46E
HMM-268(C)	YQ	CH-46E, CH-53E, UH-1N, AH-1W
HMM-365	YM	CH-46E
HMM-774†	MQ	CH-46E
VMA-231	CG	AV-8B
VMA-311	WL	AV-8B
VMA-331	VL	AV-8B
VMA-513 Det B	WF	AV-8B
VMA-542	CR	AV-8B
VMA(AW)-224	WK	A-6E
VMA(AW)-533	ED	A-6E
VMFA-212	WD	F/A-18C
VMFA-232	WT	F/A-18C
VMFA-235	DB	F/A-18C
VMFA-314	VW	F/A-18A

Squadron	Tail Code	Aircraft
VMFA-451	VM	F/A-18A
VMFA(AW)-121	VK	F/A-18D
VMGR-252	BH	KC-130F, KC-130R
VMGR-352	QB	KC-130R
VMGR-452†	NY	KC-130T
VMO-1	ER	OV-10A, OV-10D+
VMO-2	UU	OV-10A, OV-10D, OV-10D+

† Marine Corps Reserve Unit

Brief Chronology Of Operation Desert Shield
(August–December 1990)

2 Aug—Iraq invaded Kuwait. At the time, eight U.S. Navy Middle East Force ships were in the Persian Gulf. The carrier battle group of *Independence* (CV 62), with CVW-14 on board, was in the Indian Ocean and *Dwight D. Eisenhower* (CVN 69), with CVW-7, was in the Mediterranean.

2 Aug—The *Independence* battle group was directed to proceed to the northern Arabian Sea in support of Operation Desert Shield.

5 Aug—*Independence*'s battle group arrived on station in the Gulf of Oman.

7 Aug—*Saratoga* (CV 60) left the United States for a previously scheduled deployment to the eastern Mediterranean with CVW-17 on board.

7 Aug—*Dwight D. Eisenhower* and her battle group transited the Suez Canal and entered the Red Sea on 8 August.

15 Aug—Leading a carrier battle group, *John F. Kennedy* (CV 67) deployed from her homeport, Norfolk, Va., with CVW-3 on board. The battle group would be available for potential relief of the *Dwight D. Eisenhower* battle group or additional tasking to be determined by the situation in the Middle East.

16 Aug—Consistent with UN Security Council Resolution 661, a multinational maritime intercept operation involving naval aviation forces began intercepting ships going to or from Iraq and Kuwait.

22 Aug—*Saratoga* transited the Suez Canal to take up her station in the Red Sea where she would relieve *Dwight D. Eisenhower* who would then proceed home.

30 Aug—*John F. Kennedy*'s battle group transited the Strait of Gibraltar en route to the Mediterranean Sea.

3 Sep—*Dwight D. Eisenhower* transited the Strait of Gibraltar en route to homeport.

6 Sep—Amphibious assault ship *Nassau* (LHA 4) transited the Suez Canal.

7 Sep—Amphibious assault ships *Iwo Jima* (LPH 1) and *Guam* (LPH 9) transited the Suez Canal.

14 Sep—*Nassau* arrived in the Gulf of Oman.

14 Sep—*John F. Kennedy*'s battle group transited the Suez Canal into the Red Sea.

16 Sep—*Iwo Jima* and *Guam* arrived in the Gulf of Oman.

1 Oct—*Independence* transited the Strait of Hormuz en route to the Persian Gulf.

3 Oct—*Independence* conducted flight operations in the Persian Gulf. She was the first carrier to do so since 1974 when *Constellation* (CV 64) operated there.

4 Oct—*Independence* left the gulf after spending three days in its relatively confined and shallow waters. A Pentagon spokesman said the aircraft carrier had successfully completed its mission, which was "to demonstrate to our friends and allies in the region that it is possible to put a carrier in the Gulf and carry out operations."

8 Oct—The two U.S. Marine Corps UH-1N Huey helicopters based on the amphibious assault ship *Okinawa* (LPH 3) in the Gulf of Oman disappeared with eight men on board during "routine night training operations." No survivors were found.

28 Oct—U.S. Marines from the amphibious transport ship *Ogden* (LPD 5) boarded the Iraqi vessel *Amuriyah*, bound for Iraq through the gulf. The vessel refused to halt despite summons from U.S. and Australian ships. The allied ships fired shots across *Amuriyah*'s bow and warplanes from *Independence* buzzed low in warning passes. The Marine boarding party found no banned cargo and the Iraqi craft was allowed to proceed.

1 Nov—*Midway* (CV 41), with CVW-5 on board, replaced *Independence* in the northern Arabian Sea.

8 Nov—President George H. W. Bush announced a decision to double the number of carrier battle groups deployed in support of Operation Desert Shield. *Ranger* (CV 61) with CVW-2, *America* (CV 66) with CVW-1, and *Theodore Roosevelt* (CVN 71) with CVW-8 were scheduled to be on station by 15 January 1991. The three were to join *Saratoga*, *John F. Kennedy*, and *Midway*, which had replaced *Independence*.

15 Nov—U.S. and Saudi forces began Imminent Thunder, an eight-day combined amphibious landing exercise in northeastern Saudi Arabia, which involved about 1,000 U.S. Marines, 16 warships, and more than 1,100 aircraft. Close air support was provided by Marine aircraft as well as planes from the carrier *Midway*, which had entered the gulf from the northern Arabian Sea for the exercise.

29 Nov—The UN Security Council approved a resolution authorizing the use of military force unless Iraq vacated Kuwait by 15 January 1991.

8 Dec—*Ranger*, with CVW-2 on board, departed San Diego, Calif., on an unscheduled deployment in support of Desert Shield.

20 Dec—*Independence* returned to San Diego homeport from her Persian Gulf deployment.

21 Dec—An Israeli-chartered liberty ferry shuttling 102 crewmembers from the Israeli port of Haifa back to *Saratoga* capsized and sank off the coast of Israel. Israeli military and police officers rushed out in boats and helicopters to pull sailors from the water. Helicopters flew injured men to two hospitals in Haifa. Twenty U.S. sailors died. In addition, one crewmember was missing and presumed drowned.

28 Dec—*America*, with CVW-1 on board, and *Theodore Roosevelt*, with CVW-8, departed Norfolk, Va., on deployment in support of Desert Shield.

Brief Chronology Of Operation Desert Storm
(January–August 1991)

1 Jan—HC-4 relocated its detachment from Jeddah, Saudi Arabia, to Hurghada, Egypt, constructed an airhead operating site within 48 hours, and began transporting passengers, cargo, and mail to the Red Sea carrier battle groups.

6 Jan—*Saratoga* (CV 60) transited the Suez Canal en route to the Red Sea.

9 Jan—*America* (CV 66) transited the Strait of Gibraltar and arrived in the Mediterranean Sea.

12 Jan—Congress voted 52-to-47 in the Senate and 250-to-183 in the House on a joint resolution that gave President Bush the authority to go to war against Iraq.

12 Jan—*Ranger* (CV 61) carrier battle group arrived on station in the north Arabian Sea.

12 Jan—Amphibious Group 3 (with 5th Marine Expeditionary Brigade embarked) arrived on station in the Arabian Sea. Eighteen ships, including *Okinawa* (LPH 3), *Tarawa* (LHA 1), *Tripoli* (LPH 10), and *New Orleans* (LPH 11) were to join the 13-ship amphibious group, to comprise the largest amphibious task force since the Korean War.

12 Jan—*Midway* (CV 41) carrier battle group reentered the Persian Gulf.

14 Jan—*Theodore Roosevelt* (CVN 71) carrier battle group passed through the Suez Canal and assumed battle station in the Red Sea.

15 Jan—*America* carrier battle group transited the Suez Canal and arrived on station in the Red Sea.

15 Jan—*Ranger*, with CVW-2 onboard, and her carrier battle group transited to station in the Persian Gulf.

16 Jan—*Theodore Roosevelt* transited the Bab el-Mandeb Strait from the Red Sea to the Gulf of Aden.

16 Jan—At 1650 EST, a squadron of fighter-bombers took off from an air base in central Saudi Arabia. Targets in Iraq and Kuwait began being hit before 1900 EST. (It was the night of January 17 in the Middle East.) At the time, six Navy carrier battle groups, two battleships, and a 31-ship amphibious task force were operating in the Red Sea, Persian Gulf, and Arabian Sea areas. The Navy had more than 100 ships in the area and 75,000 Navy personnel afloat and ashore, while more than 67,000 Marines ashore comprised a Marine Expeditionary Force and nearly 18,000 Marines embarked on board naval vessels brought the Marine Corps presence to nearly 85,000.

16 Jan—President Bush addressed the nation at 2100 EST and announced that the liberation of Kuwait, Operation Desert Storm, had begun.

17 Jan—More than 100 Tomahawk cruise missiles were launched at preprogrammed targets by nine U.S. Navy ships in the Mediterranean, Persian Gulf, and Red Sea. This was the start of Operation Desert Storm and marked the first combat launch of the Tomahawk missile. Next, the Navy launched 228 combat sorties from six aircraft carriers. *John F. Kennedy* (CV 67), *Saratoga*, and *America* were in the Red Sea; *Midway* and *Ranger* were in the Persian Gulf; and *Theodore Roosevelt* was en route to the Persian Gulf.

17 Jan—An F/A-18C from *Saratoga*'s VFA-81 was shot down by an Iraqi surface-to-air missile. Pilot Lt. Cmdr. Michael Speicher became the first American casualty of the Persian Gulf War.

17 Jan—At 1915 EST (0215 local time), an estimated eight Iraqi Scud missiles attacked the Israeli cities of Haifa and Tel Aviv, causing property damage. The Pentagon announced that stationary Scud sites in Iraq had been destroyed and the mobile sites were being sought out. The United States was also preparing to send additional Patriot antimissile missiles to Israel.

17 Jan—F/A-18Cs piloted by Lt. Cmdr. Mark Fox and Lt. Nick Mongillo of VFA-81, assigned to *Saratoga*, each shot down a MiG-21. They were the first-ever aerial victories for the Hornet.

18 Jan—Navy lost two additional aircraft, both A-6s. The crewmen, Lts. Jeffrey Zaun and Robert Wetzel of *Saratoga*'s VA-35 and Lts. Charles Turner and William Costen of *Ranger*'s VA-155 were first reported missing and later as prisoners of war.

18 Jan—A Marine Corps OV-10A observation aircraft was shot down by Iraqi forces. Lt. Col. Clifford M. Acree and CWO4 Guy L. Hunter Jr. of VMO-2 were both captured.

18 Jan—*Nicholas*'s (FFG 47) HSL-44 (Det 8) SH-60Bs provided air targeting while a Kuwaiti patrol boat, two Army helicopter gunships, and *Nicholas* engaged and neutralized Iraqi forces on nine oil platforms in the Durrah oil field. The Iraqi forces were manning antiaircraft artillery sites on the platforms. This was the first combined helicopter, missile, and surface-ship gun engagement of the war and resulted in the destruction of the positions and capture of the first Iraqi prisoners of wars.

19 Jan—*Theodore Roosevelt* and her battle group transited the Strait of Hormuz and entered the Persian Gulf.

19 Jan—The first combat use of the Standoff Land Attack Missile occurred with launches from A-6 Intruders and A-7 Corsair IIs based on *John F. Kennedy* and *Saratoga*.

20 Jan—Iraqi television broadcast what it claimed were interviews with three U.S. and four allied military airmen shot down in the war in the Persian Gulf. The U.S. State Department called the Iraqi charge d'affaires in Washington to protest that the broadcast was contrary to the Third Geneva Convention governing treatment of prisoners of war and to demand that any prisoners be given immediate access to representatives of the International Committee of the Red Cross, the internationally recognized overseer of the convention. The tapes were shown on U.S. television the following day.

20 Jan—Department of Defense announced that an Iraqi artillery battery was destroyed by USN A-6 and USAF A-10 aircraft.

21 Jan—President Bush signed an executive order designating the Arabian Peninsula areas, airspace, and adjacent waters as a combat zone.

21 Jan—An F-14 was downed by a surface-to-air missile over Iraq. Pilot Lt. Devon Jones and radar intercept officer Lt. Lawrence Slade of *Saratoga*'s VF-103 were reported missing. Jones was recovered the next day.

21 Jan—*Theodore Roosevelt* carrier battle group arrived on station in the Persian Gulf.

23 Jan—Navy A-6s disabled an *al-Qaddisiya*-class Iraqi tanker that had been collecting and reporting intelligence data. The A-6s also attacked and sank a *Winchester*-class hovercraft (being refueled by the tanker) and a Zhuk-class patrol boat.

24 Jan—Navy A-6s attacked and destroyed an Iraqi Spasilac minelayer. An A-6 sank an Iraqi Zhuk-class patrol boat and another Iraqi minesweeper hit an Iraqi mine while attempting to evade the attack. A-6s and F/A-18s attacked the Umm Qasr Naval Base.

24 Jan—The first Kuwaiti territory, the island of Jazirat Qurah, was reclaimed.

28 Jan—Navy A-6s attacked Iraqi ships at Bubiyan Channel, at Umm Qasr Naval Base, and in Kuwait harbor.

28 Jan—Capt. Michael Berryman of VMA-311 was captured by Iraqi forces after his AV-8B Harrier was shot down.

30 Jan—Navy A-6s attacked three Iraqi landing craft in the vicinity of Shatt al-Arab Channel.

30 Jan—All 18 F/A-18s on board *Saratoga* delivered 100,000 pounds of MK 83 1,000-pound bombs on Iraqi positions in Kuwait. This was the largest amount by weight carried in a single mission.

1 Feb—VAW-123 coordinated aircraft on the first of 11 Scud missile patrols flown from 1–7 February. On 3 February, *America* confirmed the destruction of two Scud-related vehicles.

2 Feb—A Navy A-6 with crew Lt. Cmdr. Barry Cooke and Lt. Patrick Kelly Connor, from *Theodore Roosevelt*'s VA-36, were shot down by antiaircraft fire. The crewmen were reported missing in what was the carrier's first combat loss of the war.

5 Feb—A Navy F/A-18A crashed while returning from a combat mission. The pilot, Lt. Robert Dwyer of VFA-87 from *Theodore Roosevelt*, was killed.

6 Feb—A VF-1 F-14A off *Ranger,* piloted by Lt. Stuart Broce, with Cmdr. Ron McElraft as radar intercept officer, downed a Mi-8 Hip helicopter with an AIM-9M Sidewinder missile.

7 Feb—A-6s attacked and heavily damaged two Iraqi patrol boats in the northern Persian Gulf near al-Faw Peninsula.

8 Feb—A-6s attacked and neutralized an Iraqi training frigate collocated with a TMC-45–class patrol boat (Exocet-capable craft) at Cor al-Zubayr.

9 Feb—Capt. Russell Sanborn was captured by Iraqi forces after his VMA-231 AV-8B was shot down.

14 Feb—*America* carrier battle group transited Strait of Hormuz en route to operations in the Persian Gulf.

15 Feb—*America* became the first and only carrier to conduct strikes from both sides of the Arabian Peninsula.

18 Feb—An Iraqi mine blasted a 20-by-30 foot hole in the forward section of the 18,000-ton helicopter carrier *Tripoli* during mine clearance operations in the northern Persian Gulf. After continuing her duty for five days, the flagship of the minesweeping operation sailed to a shipyard drydock in Bahrain for a month of repairs.

20 Feb—*America*'s VS-32 became the first S-3 squadron to engage, bomb, and destroy a hostile vessel—an Iraqi gunboat.

20–24 Feb—Using AV-8B Harriers, the VMA-331 Bumblebees flew 243 sorties along the Iraqi border and throughout Kuwait.

23 Feb—*America*, *Midway*, *Theodore Roosevelt*, and *Ranger* were in the Persian Gulf. *John F. Kennedy* and *Saratoga* were operating from the Red Sea.

23 Feb—Aircraft from *America* destroyed a Silkworm antiship missile battery after Iraq unsuccessfully fired a missile at *Missouri* (BB 63).

23 Feb—A VMA-542 AV-8B Harrier was shot down by Iraqi forces. Capt. James Wilbourn was killed in action.

24 Feb—Operation Desert Sabre, the ground offensive against Iraq, began. General Norman Schwarzkopf's plan was based on the classic principles of deception, concentration of force, and speed.

25 Feb—Two Marine Corps aircraft were shot down by Iraqi forces. Capt. Scott Walsh was rescued after his VMA-542 AV-8B was lost and Maj. Joseph Small was captured and Capt. David Spellacy was killed when their OV-10A went down.

26 Feb—A-6Es from *Ranger*'s VA-155 bombed Iraqi troops fleeing Kuwait City to Basra in bumper-to-bumper convoys along two multi-lane highways. Numerous tanks, armored vehicles, jeeps, cars, and tractor-trailers were destroyed.

27 Feb—At 2100 EST, President Bush declared that Kuwait had been liberated and the Persian Gulf War over. At midnight EST, all U.S. and coalition forces would suspend further offensive combat operations.

27 Feb—Forty Iraqi soldiers surrendered to battleship *Wisconsin*'s (BB 64) remotely piloted vehicle when it flew over their position.

27 Feb—Capt. Reginald Underwood was killed when his VMA-331 AV-8B was shot down by Iraqi forces.

3 Mar—CH-46 helicopters with loudspeakers rounded up surrendering Iraqi troops on Faylaka Island. The enemy prisoners of war were ferried by helicopter to *Ogden* (LPD 5) for further transport to Saudi POW facilities.

4 Mar—Iraq released POWs including the Navy's Lts. Jeffrey Zaun, Robert Wetzel, and Lawrence Slade. They were turned over to U.S. officials by the International Committee of the Red Cross near the Jordanian border station of Ruwayshid.

4 Mar—*America* departed the Persian Gulf and returned to the Red Sea after conducting 3,008 combat sorties during the war.

6 Mar—*New Orleans*, with a mine countermeasures squadron on board and four minecountermeasures ships, led minesweeping activities.

6 Mar—President Bush reported to a joint session of Congress, "Aggression is defeated. The war is over."

8 Mar—The first Navy personnel from the Persian Gulf theater arrived in CONUS.

9 Mar—*America* arrived on station in the Red Sea.

11 Mar—*Saratoga* and *Midway* carrier battle groups departed the Persian Gulf area for their respective homeports. *Saratoga* transited the Suez Canal en route to Mayport, Fla.; *Midway* departed the Persian Gulf en route to Yokosuka, Japan.

12 Mar—*John F. Kennedy* transited the Suez Canal en route to the Mediterranean.

13 Mar—President Bush established the Southwest Asia Service Medal by executive order. It was awarded to U.S. military personnel who served in the Persian Gulf area during the operations.

16–22 Mar—*America* conducted a port visit to Hurghada, Egypt, making the first port call of the deployment after 78 consecutive days at sea.

17 Mar—Crew of *Tripoli* awarded Combat Action Ribbon for being endangered by enemy mine attack on February 18.

28 Mar—*John F. Kennedy* and *Saratoga*, leading their carrier battle groups, arrived at their homeports of Norfolk, Va., and Mayport, Fla., respectively. They were the first carrier battle groups involved in the Persian Gulf War to return to CONUS.

1 Apr—*Theodore Roosevelt* transited the Strait of Bab el-Mandeb and began three weeks of Red Sea operations.

3 Apr—America transited the Suez Canal and returned to the Mediterranean.

6 Apr—Iraq accepted United Nations terms for formal ceasefire in the Persian Gulf War.

8 Apr—*America* transited the Strait of Gibraltar and returned to the Atlantic.

8 Apr—Having left from both NAS Sigonella, Sicily, and Hurghada, Egypt, for Diyarbakir, Turkey, on 6 April, HC-4 detachments flew Secretary of State James Baker and his party of 60 along the border between Turkey and civil war–torn Iraq to a remote Kurdish refugee camp. A popular uprising in Kurdistan had taken place in March against Saddam Hussein, but the Iraqi forces quickly recaptured the main towns and cities of Kurdistan. The Iranians had allowed the Kurds to flee into their country, but the Turks had not, and the Kurds were stranded in the mountains in the cold.

9 Apr—HC-4 returned to Incirlik, Turkey, to become the primary and first heavy-lift helicopter combat logistics support asset for Operation Provide Comfort. The squadron delivered massive amounts of relief aid to Kurdish refugees and flew needy people to safe havens.

9 Apr—UN Security Council approved Resolution 689 establishing a United Nations-Iraq-Kuwait Observer Mission to monitor permanent ceasefire.

11 Apr—The Persian Gulf War came to its official conclusion at 1000 EDT as UN Security Council Resolution No. 687, establishing a permanent ceasefire in the Persian Gulf War, went into effect.

17 Apr—*Midway* returned from the Persian Gulf War to her homeport of Yokosuka, Japan.

17 Apr—Secretary of Defense Dick Cheney signed an order directing military commanders to begin implementing the president's plan, announced the previous day at a press conference, which called for the establishment of several encampments in northern Iraq. U.S., British, French, and Turkish military personnel had been delivering relief supplies to the refugees. The U.S. Sixth Fleet's 24th Marine Expeditionary Unit commenced operations 17 hours after arrival at the Humanitarian Service Support Base at Silopi, Iraq. A forward humanitarian service support base was also established at Diyarbakir, Turkey.

18 Apr—*America* returned from the Persian Gulf War to Norfolk, Va.

20 Apr—*Theodore Roosevelt* transited the Suez Canal and began support of Operation Provide Comfort, the allied nations' effort to aid Kurdish refugees in the aftermath of the Persian Gulf War.

20 Apr—*Theodore Roosevelt* joined the U.S. naval forces, including *Guadalcanal* (LPH 7), positioned off Turkey to support an estimated 7,000 American ground troops participating in Operation Provide Comfort.

7–8 May—Two A-6E Intruders on a reconnaissance mission over northern Iraq were attacked by Iraqi artillery units. These were the first confirmed incidents of hostile fire since allied forces began occupying a designated security zone for Kurdish refugees. The planes were unscathed, continued their mission, and returned safely to *Theodore Roosevelt*, positioned off the coast of Turkey to support U.S. military operations in northern Iraq.

23 May—The Commander of the Naval Forces in the Middle East declared the Kuwaiti port of Ash-Shuwaikh free of ordnance and Iraqi mines, making it the fifth and final in a series of port clearing missions by allied forces.

3**0 May**—*Forrestal* (CV 59), leading a carrier battle group, departed from its homeport of Mayport, Fla., for a scheduled deployment to the Mediterranean Sea to relieve the *Theodore Roosevelt* battle group on station in the eastern Mediterranean in support of Operation Provide Comfort.

6 Jun—*America* was among the ten U.S. Navy ships that, returning from the Persian Gulf, sailed into New York Harbor as part of the city's fourth annual Fleet Week celebration.

10 Jun—A traditional New York ticker tape "Parade of Heroes" to salute all the men and women who served during Desert Storm culminated the city's Fleet Week.

18 Jun—*Tripoli* turned over her duties as flagship for Commander, U.S. Mine Countermeasures Group, to *Texas* (CGN 39). The group had located and destroyed nearly 1,200 mines in the Persian Gulf.

23 Jun—*Tripoli* transited the Strait of Hormuz en route to San Diego, Calif., her homeport, completing a tour in the Persian Gulf, which began on 1 December 1990.

28 Jun—*Theodore Roosevelt* battle group returned to Norfolk, Va. She was the last carrier involved in the Persian Gulf War to return to homeport.

13 Jul—*Nimitz* (CVN 68) carrier battle group turned over operations in the Persian Gulf to *Abraham Lincoln* (CVN 72) carrier battle group and transited the Strait of Hormuz.

27 Aug—The last U.S. Navy participants of the Persian Gulf War arrived home, including *New Orleans*, with HMM-268 embarked.

Chapter 35

Operation Desert Fox 16–20 December 1998

From 16 to 20 December 1998 the coalition launched Operation Desert Fox—strikes against Iraq in response to Saddam Hussein's failure to comply with UN resolutions to allow international inspections of sites suspected of housing Iraqi weapons of mass destruction programs. The Iraqi air defenses included 310 combat aircraft—operational strength varied—approximately 100 ground radars, and mobile and fixed antiaircraft guns and surface-to-air missiles.

Lts. Lyndsi N. Bates and Carol E. Watts of VFA-37 and Kendra Williams of VFA-105 became the first Navy female fighter/strike pilots to fly into battle from a carrier. Allied aircraft flew more than 650 strike and strike support sorties. Ten vessels fired 330 BGM/UGM-109 Tomahawk Land Attack Missiles, and Air Force Boeing B-52H Stratofortresses launched more than 90 AGM-86C Conventional Air-Launched Cruise Missiles. These attacks eviscerated Iraqi air defense and early warning systems, airfields, command and control, communications, presidential sites (palaces), and facilities housing Special Republican Guard and Republican Guard security details. The campaign continued the ongoing disruption of the weapons of mass destruction program caused by sanctions, inspections, and air and missile strikes; temporarily crippled the Republican Guard infrastructure; and impeded a plan to convert Aero L-29 Delphin trainers into unmanned aerial vehicles capable of carrying biological or nerve agents. The allies did not lose any aircraft.

Carrier Based Squadrons		
Squadron	**Aircraft**	**Tail Code**
***Enterprise* (CVN 65)**		**AC (CVW-3)**
VF-32	F-14B	
VFA-37	F/A-18C	
VFA-105	F/A-18C	
VMFA-312	F/A-18C	
VAW-126	E-2C	
VAQ-130	EA-6B	
VQ-6 Det A	ES-3A	
VRC-40 Det 4	C-2A	
VS-22	S-3B	
HS-7	SH-60F/HH-60H	
Carl Vinson* (CVN 70)		**NH (CVW-11)**
VF-213	F-14D	
VFA-22	F/A-18C	
VFA-94	F/A-18C	
VFA-97	F/A-18C	
VAW-117	E-2C	
VAQ-135	EA-6B	
VQ-5 Det C	ES-3A	
VRC-30 Det 2	C-2A	
VS-29	S-3B	
HS-6	SH-60F/HH-60H	
Non-Carrier Based Squadrons		
Squadron	**Aircraft**	**Tail Code**
HC-2 Det†	UH-3H	HU
HC-4 Det	MH-53E	HC
HC-6 Det	CH-46D/HH-46D	HW
HC-11 Det	CH-46D/HH-46D	VR
HSL-37 Det	SH-60B	TH
HSL-42 Det	SH-60B	HN
HSL-43 Det	SH-60B	TT
HSL-44 Dets	SH-60B	HP
HSL-45 Det	SH-60B	TZ
HSL-46 Det	SH-60B	HQ
HSL-47 Dets	SH-60B	TY
HSL-48 Dets	SH-60B	HR
VAQ-128 Det	EA-6B	8K
VP-4 Det	P-3C	YD
VP-9 Det	P-3C	PD
VQ-1 Det	EP-3E	PR
***Belleau Wood* Amphibious Ready Group**		
***Belleau Wood* (LHA 3)** **Staging platform for combat search and rescue**		
***Dubuque* (LPD 8)**		
***Germantown* (LSD 42)**		
31st Marine Expeditionary Unit Predominately landed at Camp Doha, Kuwait, on 18 December		
HC-5 Det 6‡	HH-46D	RB
VMA-311 Det	AV-8B	EP
HMLA-169 Det	UH-1N/AH-1W	EP
HMM-265	CH-46E	EP
HMH-465 Det	CH-53E	EP

* Launched her first strikes on 19 December.

† Permanently deployed to Manama, Bahrain.

‡ While on deployment, HC squadron detachments served under the command of the amphibious assault carriers rather than their embarked Marine helicopter squadrons, and therefore retained their own squadron tail codes.

Chapter 36

Operation Enduring Freedom Phase I 7 October–30 November 2001

On 7 October 2001, aircraft flying from *Carl Vinson* (CVN 70) and *Enterprise* (CVN 65) took part in the first coalition strikes of the Global War on Terrorism against al-Qaeda terrorists and Taliban Islamic extremists within Afghanistan. Waves of about 25 Navy and 15 Air Force jets and approximately 50 BGM-109 Tomahawk Land Attack Missiles struck 40 target areas including aircraft on the ground, airfields, antiaircraft and surface-to-air missile batteries and radar sites, command and control nodes, and terrorist training camps. Critics questioned the raids on the camps because al-Qaeda had largely abandoned the facilities, but the assaults destroyed terrorist infrastructure.

EA-6B Prowlers suppressed Taliban and al-Qaeda air defense electronic emissions and jammed their ground communications. The Taliban refused to give battle in the air, but Navy fighters escorted Air Force bombers until air supremacy was attained. Strike jets flew time-staggered missions supported by S-3B Vikings and Air Force and British tankers, which refueled them. P-3C Orions and EP-3E Aries IIs flew intelligence, surveillance, and reconnaissance patrols. Strike aircraft then flew close air support missions for coalition special operations teams and allied Northern Alliance (the United Islamic Front for the Salvation of Afghanistan) tribesmen, and a confederation of primarily Pashtun tribesmen known as the Eastern Alliance. Enemy antiaircraft fire and surface-to-air missiles failed to shoot down a single aircraft. The attacks devastated al-Qaeda and Taliban command and control, communication, computer, and intelligence capabilities; but terrorist leader Osama bin Laden and professed Taliban head of state Mullah Muhammad A. Umar subsequently escaped.

Carrier Based Squadrons		
Squadron	**Aircraft**	**Tail Code**
***Carl Vinson* (CVN 70)**		**NH (CVW-11)**
VF-213	F-14D	
VFA-22	F/A-18C	
VFA-94	F/A-18C	
VFA-97	F/A-18C	
VAW-117	E-2C	
VAQ-135	EA-6B	
VRC-30 Det 3	C-2A	
VS-29	S-3B	
HS-6	SH-60F/HH-60H	
***Enterprise* (CVN 65)**		**AJ (CVW-8)**
VF-14	F-14B	
VF-41	F-14B	
VFA-15	F/A-18C	
VFA-87	F/A-18C	
VAW-124	E-2C	
VAQ-141	EA-6B	
VRC-40 Det 5	C-2A	
VS-24	S-3B	
HS-3	SH-60F/HH-60H	
Kitty Hawk* (CV 63)		**NF (CVW-5)**
VFA-27	F/A-18C	
VFA-192	F/A-18C	
VFA-195	F/A-18C	
VS-21	S-3B	
VRC-30 Det 5	C-2A	
HS-14	SH-60F/HH-60H	
2nd Bn 160th SOAR	MH-60L/MH-47E	
***Theodore Roosevelt* (CVN 71)**		**AB (CVW-1)**
VF-102	F-14B	
VFA-82	F/A-18C	
VFA-86	F/A-18C	
VMFA-251 (DW)†	F/A-18C	
VAW-123	E-2C	
VAQ-137	EA-6B	
VS-32	S-3B	
VRC-40 Det 2	C-2A	
HS-11	SH-60F/HH-60H	

Non-Carrier Based Squadrons		
Squadron	**Aircraft**	**Tail Code**
HC-2 Det‡	UH-3H	HU
HC-5 Det	HH-46D	RB
HC-6 Det	HH-46D/UH-46D	HW
HC-8 Dets	CH-46D/HH-46D/UH-46D	BR
HC-11 Dets	CH-46D/HH-46D/UH-46D	VR
HM-14 Det‡	MH-53E	BJ
HSL-42 Dets	SH-60B	HN
HSL-43 Det	SH-60B	TT
HSL-44 Dets	SH-60B	HP
HSL-45 Det	SH-60B	TZ

Squadron	Aircraft	Tail Code
HSL-46 Dets	SH-60B	HQ
HSL-47 Det	SH-60B	TY
HSL-48 Dets	SH-60B	HR
HSL-51 Det	SH-60B	TA
VAQ-133 Det	EA-6B	8K
VAQ-142 Det	EA-6B	8K
VP-4 Det	P-3C	YD
VP-9 Dets	P-3C	PD
VQ-1 Det	EP-3E	PR
VR-48 Det	C-20G	JR
***Bataan* Amphibious Ready Group**		
***Bataan* (LHD 5)**		
***Shreveport* (LPD 12)**		
***Whidbey Island* (LSD 41)**		
26th MEU§		
HC-6 Det 1‖	HH-46D/UH-46D	HW
VMA-223	AV-8B	WP
HMLA-269‡	UH-1N/AH-1W	HF
HMM-365	CH-46D	YM
HMH-464 Det	CH-53E	EN
***Peleliu* Amphibious Ready Group**		
***Peleliu* (LHA 5)**		
***Dubuque* (LPD 8)**		
***Comstock* (LSD 45)**		
15th MEU§		
HC-11 Det 6	HH-46D	VR
VMA-311	AV-8B	WL
HMLA-169 Det	UH-1N/AH-1W	SN
HMM-163	CH-46E	YP
HMH-361 Det	CH-53E	YN
20th SOS Det#	MH-53M	

˙ Served as an afloat forward staging base for Task Force Sword, USA, including Special Forces Operational Detachment Delta and the 2d Battalion, 160th Special Operations Aviation Regiment.

† While on deployment, VMFA-251 used the tail code of the air wing. The squadron's original tail code is noted in parentheses.

‡ Permanently deployed to Manama, Bahrain.

§ Marine Expeditionary Unit

‖ While on deployment, HC squadron detachments served under the command of the amphibious assault carriers rather than their embarked Marine helicopter squadrons, and therefore retained their own squadron tail codes.

USAF Special Operations Squadron, embarked 5–9 October 2001.

Chapter 37

Operation Iraqi Freedom Phase I 19 March–1 May 2003

On 19 March 2003 the coalition began Operation Iraqi Freedom, the principal objectives of which included the end of the regime of Saddam Hussein and the elimination of suspected Iraqi weapons of mass destruction. Enemy aerial opposition proved minimal at 325 combat aircraft, but they deployed numerous surface-to-air missiles and more than 6,000 mobile and fixed antiaircraft guns. The allies also contended with a strong *shamal* (sandstorm) that swept across portions of southern Iraq.

On 20 March, two Air Force Lockheed F-117A Nighthawks and other coalition aircraft and 24 BGM-109 Tomahawk Land Attack Missiles (TLAMs) struck the Dora Farms complex near Baghdad. The CIA had uncovered intelligence that indicated a meeting of Hussein and his senior Iraqi leadership, but the dictator survived. Following the raid, an additional 537 strike sorties and 34 TLAM launches shaped the battlespace.

On 21 March the coalition initiated strategic air operations. Aircraft flew more than 1,700 sorties—832 strike—that day, and aircraft, ships, and submarines let loose a staggering barrage of 381 TLAMs and 124 AGM-86C Conventional Air-Launched Cruise Missiles against Iraqi command and control, communications, computers, and intelligence, airfields, and air defense facilities.

EA-6B Prowlers suppressed Iraqi air defenses through the use of electronic warfare and AGM-88 High-speed Anti-Radiation Missiles. A P-3C Orion of VP-46, SH-60F and HH-60H Seahawks of HS-2, and SH-60Bs of HSL-47 and -48 supported special operations forces that secured the Rumaylah oil fields before their Iraqi garrisons set the platforms afire. The enemy set other gas oil separation plants ablaze and the smoke hindered low-flying aircraft.

The allies recorded the largest use of precision guided munitions to date, the first drop of a Joint Direct Attack Munition by an F-14D Tomcat, and the initial operations of F/A-18E Super Hornets for aerial refueling. In addition, the Marines operated RQ-2A/B Pioneer and RQ-14A Dragon Eye unmanned aerial vehicles. Naval aircraft combat losses comprised one F/A-18C of VFA-195 on 2 April and one AH-1W of MAG-39 on 14 April. The operational losses consisted of: one CH-46E of HMM-268 on 21 March; one UH-1N of HMLA-169 on 30 March; one S-3B of VS-38, one AV-8B of VMA-231, and one F-14A of VF-154 on 1 April; one AH-1W of HMLA-267 on 4 April; one SA.330 from combat store ship *Spica* (T-AFS 9) on 7 April; one CH-46E of HMM-264 on 22 April; and one CH-53E of HMH-465 on 30 April.

Carrier Based Squadrons		
Squadron	**Aircraft**	**Tail Code**
***Abraham Lincoln* (CVN 72)**		**NK (CVW-14)**
VF-31	F-14D	
VFA-25	F/A-18C	
VFA-113	F/A-18C	
VFA-115	F/A-18E	
VAW-113	E-2C	
VAQ-139	EA-6B	
VRC-30 Det 1	C-2A	
VS-35	S-3B	
HS-4	SH-60F/HH-60H	
***Constellation* (CV 64)**		**NE (CVW-2)**
VF-2	F-14D	
VFA-137	F/A-18C	
VFA-151	F/A-18C	
VMFA-323 (WS)*	F/A-18C	
VAW-116	E-2C	
VAQ-131	EA-6B	

Squadron	Aircraft	Tail Code
VRC-30 Det 2	C-2A	
VS-38	S-3B	
HS-2	SH-60F/HH-60H	
HSL-47 Det 4	SH-60B	
***Harry S. Truman* (CVN 75)**		**AC (CVW-3)**
VF-32	F-14B	
VFA-37	F/A-18C	
VFA-105	F/A-18C	
VMFA-115 (VE)*	F/A-18A+	
VAW-126	E-2C	
VAQ-130	EA-6B	
VRC-40 Det 1	C-2A	
VS-22	S-3B	
HS-7	SH-60F/HH-60H	
***Kitty Hawk* (CV 63)**		**NF (CVW-5)**
VF-154	F-14A	
VFA-14	F/A-18C	
VFA-27	F/A-18C	

Squadron	Aircraft	Tail Code
VFA-195	F/A-18C	
VAW-115	E-2C	
VAQ-135	EA-6B	
VRC-30 Det 5	C-2A	
VS-21	S-3B	
HS-14	SH-60F/HH-60H	
***Nimitz* (CVN 68)**		**NH (CVW-11)**
VFA-14	F/A-18E	
VFA-41	F/A-18F	
VFA-94	F/A-18C	
VFA-97	F/A-18A	
VAW-117	E-2C	
VAQ-135	EA-6B	
VRC-30 Det 3	C-2A	
VS-29	S-3B	
HS-6	SH-60F/HH-60H	
***Theodore Roosevelt* (CVN 71)**		**AJ (CVW-8)**
VF-213	F-14D	
VFA-15	F/A-18C	
VFA-87	F/A-18C	
VFA-201†	F/A-18A	
VAW-124	E-2C	
VAQ-141	EA-6B	
VRC-40 Det 5	C-2A	
VS-24	S-3B	
HS-3	SH-60F/HH-60H	

Non-Carrier Based Squadrons		
Squadron	**Aircraft**	**Tail Code**
HC-2 Det‡	UH-3H	HU
HC-4 Det§	MH-53E	HC
HC-5 Dets	MH-60S	RB
HC-11 Dets	CH-46D/HH-46D/UH-46D	VR
HM-14 Det‡	MH-53E	BJ
HM-15 Det‖	MH-53E	TB
HSL-37 Dets	SH-60B	TH
HSL-42 Dets	SH-60B	HN
HSL-43 Dets	SH-60B	TT
HSL-44 Dets	SH-60B	HP
HSL-45 Dets	SH-60B	TZ
HSL-46 Dets	SH-60B	HQ
HSL-47 Dets	SH-60B	TY
HSL-48 Dets	SH-60B	HR
HSL-49 Dets	SH-60B	TX
HSL-51 Dets	SH-60B	TA
VAQ-134 Det	EA-6B	8K
VP-46 Dets	P-3C	RC
VQ-1 Det	EP-3E	PR
VR-48 Det	C-20G	JR

Squadron	Aircraft	Tail Code
VR-51 Det	C-20G	RV
VR-52	DC-9	JT
VR-54	C-130T	CW
VR-57	C-9B/DC-9	RX
VR-61	DC-9	RS
VR-62	C-130T	JW
Coast Guard Det#	HH-65A	CG 6502
HMLA-169	UH-1N/AH-1W	SN
HMLA-369	UH-1N/AH-1W	SM
HMM-163	CH-46E	YP
HMM-262	CH-46E	ET
HMM-264	CH-46E	EH
HMM-268	CH-46E	YQ
HMM-364	CH-46E	PF
HMH-462	CH-53E	YF
VMA-214	AV-8B	WE
VMFA-232	F/A-18C	WT
VMFA-251	F/A-18C	DW
VMFA(AW)-121	F/A-18D	VK
VMFA(AW)-225	F/A-18D	CE
VMFA(AW)-533	F/A-18D	ED
VMAQ-1 Det	EA-6B	CB
VMAQ-2 Det	EA-6B	CY
VMGR-234 Det	KC-130T	QH
VMGR-352 (-)	KC-130F/R	QB
VMGR-452 Det	KC-130T	NY
VMU-1	RQ-2A/B	FZ
VMU-2	RQ-2A/B	FF
***Bataan* (LHD 5)**		
HC-6 Det 3**	MH-60S	HW
VMA-223 (-)	AV-8B	WP
VMA-542	AV-8B	WH
***Bonhomme Richard* (LHD 6)**		
HC-11 Det 4	CH-46	VR
VMA-211 (-)	AV-8B	CF
VMA-311 (-)	AV-8B	WL
HMH-465 Det	CH-53E	YJ
***Boxer* (LHD 4)**		
HC-11 Det 6	CH-46	VR
HMM-165	CH-46E	YW
HMH-465	CH-53E	YN
***Kearsarge* (LHD 3)**		
HC-8 Det 6	CH-46	BR
HMLA-269 Det	AH-1W	HF
HMM-365 (-)	CH-46E	YM
HMH-464	CH-53E	EN
***Nassau* (LHA 4)**		
HC-6 Det 7	HH-46D	HW
VMA-231 Det	AV-8B	EG

Squadron	Aircraft	Tail Code
HMLA-269 Det	UH-1N/AH-1W	EG
HMM-263	CH-46E	EG
HMH-772 Det	CH-53E	EG
***Saipan* (LHA 2)**		
HC-6 Det 2	MH-60S	HW
HMLA-167 Det††	UH-1N/AH-1W	HF
HMLA-269 (-)	UH-1N/AH-1W	HF
HMM-162	CH-46E	YS
***Tarawa* (LHA 1)**		
HC-11 Det 7	CH-46	VR
VMA-311 Det	AV-8B	YR
HMLA-267 Det	UH-1N/AH-1W	YR
HMM-161	CH-46E	YR
HMH-361 Det	CH-53E	YR

Aviation-capable dock landings ships and amphibious transport docks comprised: *Anchorage* (LSD 36), *Ashland* (LSD 48), *Comstock* (LSD 45), *Duluth* (LPD 6), *Dubuque* (LPD 8), *Gunston Hall* (LSD 44), *Pearl Harbor* (LSD 52), *Ponce* (LPD 15), *Rushmore* (LSD 47), *Tortuga* (LSD 46)

[·] While on deployment, VMFA squadrons used the tail codes of their air wings. Their original tail codes are noted in parentheses.

[†] Naval Air Reserve squadron.

[‡] Permanently deployed to Manama, Bahrain.

[§] Permanently deployed to Fujairah, U.A.E.

[‖] HM-15 Det 2 relieved HM-14 Det 1 permanently deployed to Manama, Bahrain.

[#] Deployed from CGAS Barbers Point, Hawaii, on board cutter *Boutwell* (WHEC 719).

[¨] While on deployment, HC squadron detachments served under the command of amphibious assault carriers rather than their embarked Marine helicopter squadrons, and therefore retained their own squadron tail codes.

[††] The detachment from HMLA-167 reinforced HMLA-269 to make up for the aircraft assigned to the already deployed HMLA-269 Det attached to HMM-263 on board *Nassau* (LHA 4).

Chapter 38

Navy and Marine Corps Shoot Downs Since 1950

The following list of enemy aircraft shot down since 1950 covers only those that are confirmed. There are a number of cases in which adequate information or verification was not available or could not be substantiated. These shoot downs, usually identified as "probables," are not placed on this list. The Navy Department does not have a written policy regarding the requirements for the verification of a shoot down. It is generally accepted or believed that when an aerial engagement occurs, the pilot, NFO (RIO), or other witness must actually see the enemy aircraft crash, explode, or the pilot ejecting from the aircraft. The Navy has used gun camera footage since WWII. However, during the 1980s the Navy began using modern equipment more extensively, such as heads-up displays and gun camera footage, to document and verify shoot downs.

Aircraft Shot Down During the Korean War by USN/USMC Pilots

Date	Enemy Aircraft	Squadron	Aircraft	Weapon	Carrier	Service	Pilot	RIO/NFO
03 Jul 1950	YAK-9	VF-51	F9F-3	Guns	CV-45	USN	Lt. j.g. Leonard H. Plog	
03 Jul 1950	YAK-9	VF-51	F9F-3	Guns	CV-45	USN	Ens. Eldon W. Brown	
04 Sep 1950	IL-4	VF-53	F4U-4B	Guns	CV-45	USN	Ens. Edward V. Laney Jr.	
09 Nov 1950	MiG-15	VF-111	F9F-2B	Guns	CV-47	USN	Lt. Cmdr. William T. Amen	
18 Nov 1950	MiG-15‡	VF-52	F9F-3	Guns	CV-45	USN	Lt. Cmdr. William E. Lamb (shared with Lt. Parker)	
18 Nov 1950	MiG-15‡	VF-52	F9F-3	Guns	CV-45	USN	Lt. Robert E. Parker (shared with Lt. Cmdr. Lamb)	
18 Nov 1950	MiG-15	VF-31	F9F-2	Guns	CV-32	USN	Ens. Frederick C. Weber	
22 Dec 1950	MiG-15	5th A.F.	F-86	Guns	*	USN	Lt. Cmdr. Paul E. Pugh	
21 Apr 1951	YAK-9	VMF-312	F4U-4	Guns	CVL-29	USMC	Lt. Harold D. Daigh	
21 Apr 1951	2 YAKs	VMF-312	F4U-4	Guns	CVL-29	USMC	Capt. Phillip C. DeLong	
01 Jun 1951	MiG-15	5th A.F.	F-86D	Guns	*	USN	Lt. Simpson Evans Jr.	
01 Jul 1951	PO-2	VMF(N)-513	F7F-3N	Guns	*	USMC	Capt. Edwin B. Long	WO Robert C. Buckingham
12 Jul 1951	PO-2	VMF(N)-513	F4U-5NL	Guns	*	USMC	Capt. Donald L. Fenton	
23 Sep 1951	PO-2	VMF(N)-513	F7F-3N	Guns	*	USMC	Maj. Eugene A. Van Gundy	MSgt. Thomas H. Ullom
23 Oct 1951	MiG	5th A.F.	F-84E	Guns	*	USN	Lt. Walter M. Schirra Jr.	
04 Nov 1951	MiG-15	5th A.F.	F-86	Guns	*	USMC	Maj. William F. Guss	
05 Mar 1952	MiG-15	5th A.F.	F-86	Guns	*	USMC	Capt. Vincent J. Marzello	
16 Mar 1952	MiG-15	5th A.F.	F-86	Guns	*	USMC	Lt. Col. John S. Payne	
07 Jun 1952	YAK-9	VMF(N)-513	F4U-5NL	Guns	*	USMC	Lt. John W. Andre	
10 Sep 1952	MiG	VMA-312	F4U-4B	Guns	CVE-118	USMC	Capt. Jesse G. Folmar	
15 Sep 1952	MiG-15	5th A.F.	F-86	Guns	*	USMC	Maj. Alexander J. Gillis	
28 Sep 1952	2 MiG-15s	5th A.F.	F-86	Guns	*	USMC	Maj. Alexander J. Gillis	
03 Nov 1952	YAK-15	VMF(N)-513	F3D-2	Guns	*	USMC	Maj. William T. Stratton Jr.	MSgt. Hans C. Hoglind

Aircraft Shot Down During the Korean War by USN/USMC Pilots								
Date	Enemy Aircraft	Squadron	Aircraft	Weapon	Carrier	Service	Pilot	RIO/NFO
08 Nov 1952	MiG	VMF(N)-513	F3D-2	Guns	*	USMC	Capt. Oliver R. Davis	WO Dramus F. Fessler
18 Nov 1952	MiG-15	VF-781	F9F-5	Guns	CVA-34	USN	Lt. Elmer Royce Williams	
18 Nov 1952	MiG-15	VF-781	F9F-5	Guns	CVA-34	USN	Lt. j.g. John D. Middleton	
10 Dec 1952	PO-2	VMF(N)-513	F3D-2	Guns	*	USMC	Lt. Joseph A. Corvi	MSgt. Don R. George
12 Jan 1953	MiG	VMF(N)-513	F3D-2	Guns	*	USMC	Maj. Elswin P. Dunn	MSgt. Lawrence J. Fortin
20 Jan 1953	MiG-15	5th A.F.	F-86	Guns	*	USMC	Capt. Robert Wade	
28 Jan 1953	MiG	VMF(N)-513	F3D-2	Guns	*	USMC	Capt. James R. Weaver	MSgt. Robert P. Becker
31 Jan 1953	MiG	VMF(N)-513	F3D-2	Guns	*	USMC	Lt. Col. Robert F. Conley	MSgt. James N. Scott
07 Apr 1953	MiG-15	5th A.F.	F-86	Guns	*	USMC	Maj. Roy L. Reed	
12 Apr 1953	MiG-15	5th A.F.	F-86	Guns	*	USMC	Maj. Roy L. Reed	
16 May 1953	MiG-15	5th A.F.	F-86F	Guns	*	USMC	Maj. John F. Bolt	
17 May 1953	MiG-15‡	5th A.F.	F-86	Guns	*	USMC	Capt. Dewey F. Durnford (credit for half kill)	
18 May 1953	MiG-15	5th A.F.	F-86	Guns	*	USMC	Capt. Harvey L. Jensen	
16 Jun 1953	PO-2	VMC-1	AD-4	Guns	*	USMC	Maj. George H. Linnemeier	CWO Vernon S. Kramer
22 Jun 1953	MiG-15	5th A.F.	F-86F	Guns	*	USMC	Maj. John F. Bolt	
24 Jun 1953	MiG-15	5th A.F.	F-86F	Guns	*	USMC	Maj. John F. Bolt	
30 Jun 1953	MiG-15	5th A.F.	F-86F	Guns	*	USMC	Maj. John F. Bolt	
30 Jun 1953	2 YAK-18s	VC-3 Det D†	F4U-5N	Guns	CV-37†	USN	Lt. Guy P. Bordelon Jr.	
05 Jul 1953	2 PO-2s	VC-3 Det D†	F4U-5N	Guns	CV-37†	USN	Lt. Guy P. Bordelon Jr.	
11 Jul 1953	2 MiG-15s	5th A.F.	F-86F	Guns	*	USMC	Maj. John F. Bolt	
12 Jul 1953	MiG-15	5th A.F.	F-86F	Guns	*	USMC	Maj. John H. Glenn Jr.	
16 Jul 1953	PO-2	VC-3 Det D†	F4U-5N	Guns	CV-37†	USN	Lt. Guy P. Bordelon Jr.	
19 Jul 1953	MiG-15	5th A.F.	F-86F	Guns	*	USMC	Maj. John H. Glenn Jr.	
20 Jul 1953	2 MiG-15s	5th A.F.	F-86	Guns	*	USMC	Maj. Thomas M. Sellers	
22 Jul 1953	MiG-15	5th A.F.	F-86F	Guns	*	USMC	Maj. John H. Glenn Jr.	

* Shore based or exchange duty with the 5th Air Force in Korea.

† Temporary additional duty (TAD) from *Princeton* to U.S. 5th Air Force in Korea (Navy and Marine Corps pilots had exchange duty with the 5th Air Force).

‡ The credit for the shoot down of this aircraft is shared with another pilot so the person is credited for only a half a shoot down.

Aircraft Shot Down During the Post-Korean War Period by USN/USMC Pilots							
Date	Enemy Aircraft	Squadron	Aircraft	Weapon	Carrier	Service	Pilot
26 Jul 1954	LA-7	VF-54*	AD-4	Guns	CV-47	USN	Lt. Roy M. Tatham
26 Jul 1954	LA-7	VF-54*	AD-4	Guns	CV-47	USN	Ens. Richard R. Crooks
26 Jul 1954	LA-7	VF-54†	AD-4	Guns	CV-47	USN	Lt. Cmdr. Paul J. Wahlstrom
26 Jul 1954	LA-7	VF-54†	AD-4	Guns	CV-47	USN	Lt. j.g. Richard S. Ribble
26 Jul 1954	LA-7	VF-54†	AD-4	Guns	CV-47	USN	Lt. j.g. John L. Damian
26 Jul 1954	LA-7	VF-54†	AD-4	Guns	CV-47	USN	Lt. j.g. John M. Rochford
26 Jul 1954	LA-7	VC-3†	F4U-5N	Guns	CV-47	USN	Lt. Cmdr. Edgar B. Salsig

* The credit for the shoot down of this aircraft is shared with another pilot so the person is credited for only a half a shoot down.
† The credit for the shoot down of this aircraft is shared other pilots, so the person is credited for only a fraction of a shoot down.

Aircraft Shot Down During the Vietnam War by USN/USMC Pilots								
Date	Enemy Aircraft	Squadron	Aircraft	Weapon	Carrier or Unit	Service	Pilot	RIO/NFO
17 Jun 1965	MiG-17	VF-21	F-4B	AIM-7	CVA-41	USN	Cmdr. Louis Page	Lt. John C. Smith Jr.
17 Jun 1965	MiG-17	VF-21	F-4B	AIM-7	CVA-41	USN	Lt. Jack E. D. Batson Jr.	Lt. Cmdr. Robert B. Doremus
20 Jun 1965	MiG-17	VA-25	A-1H	Guns	CVA-41	USN	Lt. Clinton B. Johnson*	
20 Jun 1965	MiG-17	VA-25	A-1H	Guns	CVA-41	USN	Lt. j.g. Charles W. Hartman III*	
12 Jun 1966	MiG-17	VF-211	F-8E	AIM-9D	CVA-19	USN	Cmdr. Harold L. Marr	
21 Jun 1966	MiG-17	VF-211	F-8E	Guns	CVA-19	USN	Lt. Eugene J. Chancy	
21 Jun 1966	MiG-17	VF-211	F-8E	AIM-9D	CVA-19	USN	Lt. j.g. Phillip V. Vampatella	
13 Jul 1966	MiG-17	VF-161	F-4B	AIM-9D	CVA-64	USN	Lt. William M. McGuigan	Lt. j.g. Robert M. Fowler
09 Oct 1966	MiG-21	VF-162	F-8E	AIM-9	CVA-34	USN	Cmdr. Richard M. Bellinger	
09 Oct 1966	MiG-17	VA-176	A-1H	Guns	CVS-11	USN	Lt. j.g. William T. Patton	
20 Dec 1966	An-2	VF-114	F-4B	AIM-7E	CVA-63	USN	Lt. Hugh D. Wisely	Lt. j.g. David L. Jordan
20 Dec 1966	An-2	VF-213	F-4B	AIM-7E	CVA-63	USN	Lt. David A. McRae	Ens. David N. Nichols
24 Apr 1967	MiG-17	VF-114	F-4B	AIM-9D	CVA-63	USN	Lt. Hugh D. Wisely	Lt. j.g. Gareth L. Anderson
24 Apr 1967	MiG-17	VF-114	F-4B	AIM-9B	CVA-63	USN	Lt. Cmdr. Charles E. Southwick	Ens. James W. Laing
01 May 1967	MiG-17	VF-211	F-8E	AIM-9D	CVA-31	USN	Lt. Cmdr. Marshall O. Wright	
01 May 1967	MiG-17	VA-76	A-4C	Zuni	CVA-31	USN	Lt. Cmdr. Theodore R. Swartz	
19 May 1967	MiG-17	VF-211	F-8E	AIM-9D	CVA-31	USN	Cmdr. Paul H. Speer	
19 May 1967	MiG-17	VF-211	F-8E	AIM-9D	CVA-31	USN	Lt. j.g. Joseph M. Shea	
19 May 1967	MiG-17	VF-24	F-8C	AIM-9D	CVA-31	USN	Lt. Cmdr. Bobby C. Lee	
19 May 1967	MiG-17	VF-24	F-8C	AIM-9D	CVA-31	USN	Lt. Phillip R. Wood	
21 Jul 1967	MiG-17	VF-24	F-8C	AIM-9D	CVA-31	USN	Cmdr. Marion H. Isaacks	
21 Jul 1967	MiG-17	VF-24	F-8C	†	CVA-31	USN	Lt. Cmdr. Robert L. Kirkwood	
21 Jul 1967	MiG-17	VF-211	F-8E	‡	CVA-31	USN	Lt. Cmdr. Ray G. Hubbard Jr.	
10 Aug 1967	MiG-21	VF-142	F-4B	AIM-9	CVA-64	USN	Lt. j.g. Guy H. Freeborn	Ens. Robert J. Elliot
10 Aug 1967	MiG-21	VF-142	F-4B	AIM-9	CVA-64	USN	Lt. Cmdr. Robert C. Davis	Lt. Cmdr. Gayle O. Elie
26 Oct 1967	MiG-21	VF-143	F-4B	AIM-7	CVA-64	USN	Lt. j.g. Robert P. Hickey Jr.	Lt. j.g. Jeremy G. Morris
30 Oct 1967	MiG-17	VF-142	F-4B	AIM-7E	CVA-64	USN	Lt. Cmdr. Eugene P. Lund	Lt. j.g. James R. Borst
14 Dec 1967	MiG-17	VF-162	F-8E	AIM-9D	CVA-34	USN	Lt. Richard E. Wyman	
17 Dec 1967	MiG-17	13 TFS	F-4D	AIM-4	432 TRW	USAF	1st Lt. John D. Ryan Jr.	Capt. Doyle D. Baker, USMC
26 Jun 1968	MiG-21	VF-51	F-8H	AIM-9	CVA-31	USN	Cmdr. Lowell R. Myers	
09 Jul 1968	MiG-17	VF-191	F-8E	†	CVA-14	USN	Lt. Cmdr. John B. Nichols III	
10 Jul 1968	MiG-21	VF-33	F-4J	AIM-9	CVA-66	USN	Lt. Roy Cash Jr.	Lt. Joseph E. Kain Jr.
29 Jul 1968	MiG-17	VF-53	F-8E	AIM-9	CVA-31	USN	Cmdr. Guy Cane	
01 Aug 1968	MiG-21	VF-51	F-8H	AIM-9	CVA-31	USN	Lt. Norman K. McCoy	
19 Sep 1968	MiG-21	VF-111	F-8C	AIM-9	CVS-11	USN	Lt. Anthony J. Nargi	
28 Mar 1970	MiG-21	VF-142	F-4J	AIM-9	CVA-64	USN	Lt. Jerome E. Beaulier	Lt. Steven J. Barkley
19 Jan 1972	MiG-21	VF-96	F-4J	AIM-9	CVA-64	USN	Lt. Randall H. Cunningham	Lt. j.g. William P. Driscoll

Aircraft Shot Down During the Vietnam War by USN/USMC Pilots								
Date	Enemy Aircraft	Squadron	Aircraft	Weapon	Carrier or Unit	Service	Pilot	RIO/NFO
06 Mar 1972	MiG-17	VF-111	F-4B	AIM-9	CVA-43	USN	Lt. Gary L. Weigand	Lt. j.g. William Freckleton
06 May 1972	MiG-17	VF-51	F-4B	AIM-9	CVA-43	USN	Lt. Cmdr. Jerry B. Houston	Lt. Kevin T. Moore
06 May 1972	MiG-21	VF-114	F-4J	AIM-9	CVA-63	USN	Lt. Robert G. Hughes	Lt. j.g. Adolph J. Cruz
06 May 1972	MiG-21	VF-114	F-4J	AIM-9	CVA-63	USN	Lt. Cmdr. Kenneth W. Pettigrew	Lt. j.g. Michael J. McCabe
08 May 1972	MiG-17	VF-96	F-4J	AIM-9	CVA-64	USN	Lt. Randall H. Cunningham	Lt. j.g. William P. Driscoll
10 May 1972	MiG-21	VF-92	F-4J	AIM-9	CVA-64	USN	Lt. Curt Dose	Lt. Cmdr. James McDevitt
10 May 1972	2 MiG-17s	VF-96	F-4J	AIM-9	CVA-64	USN	Lt. Matthew J. Connelly III	Lt. Thomas J. J. Blonski
10 May 1972	MiG-17	VF-51	F-4B	AIM-9	CVA-43	USN	Lt. Kenneth L. Cannon	Lt. Roy A. Morris Jr.
10 May 1972	3 MiG-17s	VF-96	F-4J	AIM-9	CVA-64	USN	Lt. Randall H. Cunningham	Lt. j.g. William P. Driscoll
10 May 1972	MiG-17	VF-96	F-4J	AIM-9	CVA-64	USN	Lt. Steven C. Shoemaker	Lt. j.g. Keith V. Crenswhaw
18 May 1972	MiG-19	VF-161	F-4B	AIM-9	CVA-41	USN	Lt. Henry A. Bartholomay	Lt. Oran R. Brown
18 May 1972	MiG-19	VF-161	F-4B	AIM-9	CVA-41	USN	Lt. Patrick E. Arwood	Lt. James M. Bell
23 May 1972	2 MiG-17s	VF-161	F-4B	AIM-9	CVA-41	USN	Lt. Cmdr. Ronald E. McKeown	Lt. John C. Ensch
11 Jun 1972	MiG-17	VF-51	F-4B	AIM-9	CVA-43	USN	Cmdr. Foster S. Teague	Lt. Ralph M. Howell
11 Jun 1972	MiG-17	VF-51	F-4B	AIM-9	CVA-43	USN	Lt. Winston W. Copeland	Lt. Donald R. Bouchoux
21 Jun 1972	MiG-21	VF-31	F-4J	AIM-9	CVA-60	USN	Cmdr. Samuel C. Flynn Jr.	Lt. William H. John
10 Aug 1972	MiG-21	VF-103	F-4J	AIM-7E	CVA-60	USN	Lt. Cmdr. Robert E. Tucker Jr.	Lt. j.g. Stanley B. Edens
12 Aug 1972	MiG-21	58 TFS	F-4E	AIM-7	432 TRW	USMC	Capt. Lawrence G. Richard	Lt. Cmdr. Michael J. Ettel, USN
11 Sep 1972	MiG-21	VMFA-333	F-4J	AIM-9	CVA-66	USMC	Maj. Lee T. Lassiter	Capt. John D. Cummings
28 Dec 1972	MiG-21	VF-142	F-4J	AIM-9	CVAN-65	USN	Lt. j.g. Scott H. Davis	Lt. j.g. Geoffrey H. Ulrich
12 Jan 1973	MiG-17	VF-161	F-4B	AIM-9	CVA-41	USN	Lt. Victor T. Kovaleski	Lt. James A. Wise

* These two pilots shared the credit for the shoot down of the MiG-17 and each was credited for only a half a shoot down.

† Shoot down involved use of AIM-9 missile and guns.

‡ Shoot down involved use of guns and Zuni rockets.

Aircraft Shot Down During the Libyan Incidents of the 1980s								
Date	Enemy Aircraft	Squadron	Aircraft	Weapon	Carrier	Service	Pilot	RIO/NFO
19 Aug 1981	Su-22	VF-41	F-14A	AIM-9L	CVN-68	USN	Cmdr. Henry M. Kleeman	Lt. David J. Venlet
19 Aug 1981	Su-22	VF-41	F-14A	AIM-9L	CVN-68	USN	Lt. Lawrence M. Muczynski	Lt. James Anderson
04 Jan 1989	MiG-23	VF-32	F-14A	AIM-7	CV-67	USN	Lt. Herman C. Cook III	Lt. Cmdr. Steven P. Collins
04 Jan 1989	MiG-23	VF-32	F-14A	AIM-9	CV-67	USN	Cmdr. Joseph B. Connelly	Cmdr. Leo F. Enwright Jr.

Aircraft Shot Down During the Persian Gulf War								
Date	Enemy Aircraft	Squadron	Aircraft	Weapon	Carrier	Service	Pilot	RIO/NFO
17 Jan 1991	MiG-21	VFA-81	F/A-18C	AIM-9M and -7	CV-60	USN	Lt. Cmdr. Mark I. Fox	
17 Jan 1991	MiG-21	VFA-81	F/A-18C	AIM-9M and -7	CV-60	USN	Lt. Nicolas Mongillo	
06 Feb 1991	Mi-8	VF-1	F-14A	AIM-9M	CV-61	USN	Lt. Donald S. Broce	Cmdr. Ronald D. McElraft

Aircraft Carrier Names and Designations	
CVS-11	*Intrepid*
CVA-14	*Ticonderoga*
CVA-19	*Hancock*
CVL-29	*Bataan*
CVA-31	*Bon Homme Richard*
CV-32	*Leyte*
CVA-34	*Oriskany*
CV-37	*Princeton*
CVA-41	*Midway*
CVA-43	*Coral Sea*
CV-45	*Valley Forge*
CV-47	*Philippine Sea*
CVA-60	*Saratoga*
CV-61	*Ranger*
CVA-63	*Kitty Hawk*
CVA-64	*Constellation*
CVAN-65	*Enterprise*
CVA-66	*America*
CV-67	*John F. Kennedy*
CVN-68	*Nimitz*
CVE-118	*Sicily*

Acronyms:
TRW—Tactical Reconnaissance Wing
TFS—Tactical Fighter Squadron
NFO—Naval Flight Officer
RIO—Radar Intercept Officer

Chapter 39

Cold War Incidents Involving U.S. Navy Aircraft

From 1945 to 1969, U.S. Navy aircraft were involved in a number of aerial incidents with forces of the Soviet Union, People's Republic of China, Democratic People's Republic of Korea (North Korea), and the Czechoslovak Republic (Czechoslovakia). These incidents resulted in the loss of eight Navy and one Coast Guard aircraft; 81 Navy, Marine Corps, and Coast Guard aviators and crewman; and several aircraft damaged and crewmen wounded and injured. The list below, compiled from official and unofficial sources, does not include aircraft lost in direct action in the Korean and Vietnam Wars, nor aircraft shot down by Chinese forces in the vicinity of Vietnam in connection with that war.

Date	Aircraft	Squadron	Remarks
15 Nov 1945	PBM-5		On a routine patrol mission, this Mariner was attacked by a Soviet fighter 25 miles south of Dairen (Port Arthur), Manchuria, while investigating six Soviet transport ships and a beached seaplane in the Gulf of Chihli in the Yellow Sea. No damage inflicted.
20 Feb 1946	PBM-5	VP-26	Based from Tsingtao, China, during a training mission, this aircraft made an unauthorized flight over Dairen (Port Arthur), Manchuria. As a result, it was fired upon by Soviet fighters for 20 minutes. No damage inflicted.
8 Apr 1950	PB4Y-2	VP-26, Det A	Based from Port Lyautey, French Morocco, while on a patrol mission launched from Wiesbaden, West Germany, this Privateer (BuNo 59645) was lost when attacked by Soviet aircraft over the Baltic Sea off the coast of Lepija, Latvia. Wreckage was recovered, but unconfirmed reports stated that the ten missing crewmembers were taken prisoner.
6 Nov 1951	P2V-3W	VP-6	While conducting a weather reconnaissance mission under United Nations Command, this Neptune (BuNo 124284) was shot down by Soviet aircraft over the Sea of Japan off Vladivostok, Siberia. Ten crewmembers reported as missing.
16 Jul 1952	PBM-5S	VP-892	Aircraft attacked by MiG-15 off the coast of Korea. No damage inflicted.
31 Jul 1952	PBM-5S2	VP-731	While conducting a patrol mission, this Mariner (BuNo 59277) based from Iwakuni, Japan, was attacked by two Chinese MiG-15s over the Yellow Sea, resulting in two crewmembers killed and two more seriously wounded. The PBM suffered extensive damage, but was able to make it safely to Paengyong-do, Korea.
20 Sep 1952	P4Y-2S	VP-28	Aircraft attacked by two Chinese MiG-15s off the coast of China, but able to return safely to Naha, Okinawa.
23 Nov 1952	P4Y-2S	VP-28	Attacked without result by a Chinese MiG-15 off Shanghai, China.

Date	Aircraft	Squadron	Remarks
18 Jan 1953	P2V-5	VP-22	This Neptune (BuNo 127744) was shot down by Chinese antiaircraft fire near Swatow, and ditched in the Formosa Strait. Eleven of 13 crewmen were rescued by a Coast Guard PBM-5 under fire from shore batteries on Nan Ao Tao island. Attempting to takeoff in 8- to 12-foot swells, the PBM crashed. Ten survivors out of 19 total (including five from the P2V) were rescued by *Halsey Powell* (DD 686). During the search effort, a PBM-5 from VP-40 received fire from a small-caliber machine gun, and *Gregory* (DD 802) received fire from shore batteries.
19–28 Jun 1953	PBM-5S2, P2V-5(2)	VP-46, VP-1	Fired upon, in separate incidents, by surface ships in the Formosa Strait. No damage inflicted.
8 Jul 1953	P2V-5	VP-1	Fired upon by Chinese antiaircraft artillery (AAA) near Nantien, China. No damage inflicted.
21 Jul 1953	P2V-5	VP-1	Fired upon by Chinese AAA near Amoy Island in the Formosa Strait. No damage inflicted.
2 Oct 1953	PBM-5		Damaged during attack by two Chinese MiGs over the Yellow Sea.
12 Mar 1954	AD-4, AD-4N		Two ADs of VA-145 and VC-35 Det F launched from *Randolph* (CVA 15), on a simulated strike mission against a West German airfield, were attacked over or near the Czech border by a Czech MiG-15. The VA-145 AD sustained tail damage.
9 Apr 1954	P2V-5	VP-2	This Neptune was attacked by a Chinese MiG-15 while on patrol over the Yellow Sea. The MiG made three firing passes and the Neptune's crew returned fire. There was no apparent damage to either aircraft resulting from the encounter.
26 Jul 1954	AD-4, F4U-5N	VF-54, VC-3	While searching for survivors from a Cathay Pacific airliner shot down by Chinese fighters on 22 July, two AD-4s launched from *Philippine Sea* (CVA 47) were attacked by two Chinese LA-7 fighters. During the engagement, the two LA-7s were downed by six ADs and one F4U-5N that came to assist. The ADs encountered fire from a Chinese gunboat, but no damage was sustained in either situation.
4 Sep 1954	P2V-5	VP-19	Operating from NAS Atsugi, Japan, this Neptune ditched in the Sea of Japan, 40 miles off the coast of Siberia after an attack by two Soviet MiG-15s. One crewmen was lost, and the other nine were rescued by a USAF SA-16 amphibian.
Feb 1955	P2V		Aircraft sustained slight wing damage after it was fired on by Chinese AAA while over the Formosa Strait.

Date	Aircraft	Squadron	Remarks
9 Feb 1955	AD-5W	VC-11, Det H	While flying an antisubmarine patrol mission from *Wasp* (CVA 18) covering the evacuation of Chinese Nationalists from the Tachen Islands, this aircraft ditched after sustaining damage from antiaircraft fire when it overflew Chinese territory. The three-man crew was rescued by Nationalist Chinese patrol boats.
22 Jun 1955	P2V-5	VP-9	While flying a patrol mission from Kodiak, Alaska, this Neptune (BuNo 131515) crash-landed on St. Lawrence Island in the Bering Sea after an engine was set afire during an attack by two Soviet MiG-15s. Of the 11 crewmen, four sustained injuries due to gunfire and six were injured during the landing. (This was the only incident in which the Soviet Union admitted any responsibility.)
22 Aug 1956	P4M-1Q	VQ-1	While on a patrol mission from Iwakuni, Japan, this Mercator (BuNo 124362) disappeared at night after reporting an attack by hostile aircraft 32 miles off the coast of China (near Wenchow) and 180 miles north of Formosa. There were no survivors of the 16-man crew. Wreckage and one body were recovered by *Dennis J. Buckley* (DDR 808).
12 Jun 1957	AD-6	VA-145	Four AD-6s launched from *Hornet* (CVA 12) overflew the coast of China and encountered fire from Chinese AAA. One Skyraider sustained slight damage.
16 Jun 1959	P4M-1Q	VQ-1	While flying a patrol mission over the Sea of Japan, this Mercator (BuNo 122209) was attacked 50 miles east of the Korean DMZ by two North Korean MiGs. During the attack, the aircraft sustained serious damage to the starboard engines and the tailgunner was seriously wounded. The P4M made it safely to Miho AFB, Japan.
15 Apr 1969	EC-121M	VQ-1	While flying a patrol mission over the Sea of Japan this Warning Star (BuNo 135749) was attacked 90 miles off the coast of Korea by North Korean fighters. All 31 crewmen were lost during the attack. Two bodies and some wreckage were recovered by search vessels.
1 Apr 2001	EP-3E	VQ-1	While flying a routine surveillance mission in international airspace over the South China Sea, this Aeries II (BuNo 156511) was disabled in a midair collision with a Chinese J-8 fighter. Lt. Shane Osborn, mission commander, recovered and executed an emergency landing at the nearest airfield, Lingshui, a Chinese air base on Hainan Island. The 24 crew members were detained by the Chinese and eventually released. The EP-3E was also eventually returned to the United States.