List of McDonnell Douglas F-4 Phantom II variants

The McDonnell-Douglas F-4 Phantom II variants **were numerous versions and designations of the F-4 and are described below.**

Contents

Variants

XF4H-1

Two prototypes for the US Navy, first flown 1958.

F4H-1F (F-4A)

Two-seat all-weather carrier-based fighter for the US Navy, J79-GE-2 and -2A engines with 16,100 lbf (71.6 kN) of afterburner thrust each. Named **Phantom II** in 1959 and redesignated F-4A in 1962; 45 built.[1]

TF-4A

A small number of F-4As converted into two-seat training aircraft.

F4H-1 (F-4B)

Two-seat all-weather carrier-based fighter and ground-attack aircraft for the US Navy and Marine Corps. J79-GE-8A or -8B engines with 16,950 lbf (75.4 kN) of afterburner thrust each. Redesignated F-4B in 1962; 649 built.[2]

DF-4B

F-4Bs converted into drone control aircraft.

EF-4B

One F-4B converted into an ECM training aircraft.

NF-4B

The redesignation of one F-4B for testing purposes.

QF-4B

F-4Bs converted into unmanned supersonic target drones; 25 converted.

F4H-1P (RF-4B)

Tactical reconnaissance version of F-4B for US Marine Corps, nose stretched 4 ft 9 in (1.4 m), smaller AN/APQ-99 radar. Three camera bays typically carried KS-87 forward oblique/vertical camera on Station 1, KA-87 low-altitude camera on Station 2, and KA-55A or KA-91 high-altitude panoramic camera on Station 3. Also carried AN/APQ-102 reconnaissance SLAR, AN/AAD-4 infrared reconnaissance system, and ALQ-126 ECM suite. The KS-72 or KS-85 cameras were on rotating mounts and could be aimed in flight which improved upon the earlier RF-4C which could only be aligned on the ground.[3] In 1975, modernized under **Project SURE** (Sensor Update and Refurbishment Effort); 46 built. Retired in 1990. 4 lost in Vietnam.[4] First flown 12 March 1965.[5]

An EF-4C in 1972.

F-110A Spectre

The original US Air Force designation for the F-4C.

F-4C

Two-seat all-weather tactical fighter, ground-attack version for the US Air Force; supported a wide spectrum of weapons including AIM-4 Falcon, AGM-12 Bullpup, and nuclear weapons; wider main wheel tires resulted in distinctive wing bulges; J79-GE-15 engines with provision for cartridge start; boom refueling instead of Navy's probe and drogue refueling; AN/APQ-100 radar; duplicated flight controls in the rear cockpit. The aircraft exceeded Mach 2 during its first flight on 27 May 1963; 583 built.

EF-4C Wild Weasel IV

F-4Cs converted into Wild Weasel ECM aircraft. Equipped with AN/APR-25 RHAWS, AN/APR-26 missile launch warning system, ER-142 ECM receiver, and AN/ALQ-119 external ECM pod. Armed with AGM-45 Shrike anti-radiation missiles and cluster bombs but unable to carry the AGM-78 Standard ARM missile. A total of 36 were converted.[6] Many survivors were reverted to F-4C.

File:RF-4C Nevada ANG landing in Germany 1983.JPEG

A Kentucky ANG RF-4C showing camera installations and drag chute.

RF-4C

All-weather tactical reconnaissance version for the US Air Force, AN/APQ-99 (later AN/APQ-172) radar. Equipped similar to RF-4B but with a wider choice of camera fits, including a centerline pod for the gigantic HIAC-1 LOROP (Long Range Oblique Photography) camera, capable of taking high-resolution images of objects 100 miles (160 km) away. Many aircraft were refitted with a more spacious bulging streamlined nose. A sub-variant, to be designated **RF-4C(H)** was proposed as a night "hunter" aircraft using infrared equipment instead of cameras under Operation Shed Light. In the end none were converted. While usually unarmed, RF-4Cs retained the ability to carry a nuclear weapon on the centerline pylon. Additionally, the RF-4Cs of the Alabama, Nevada and RF-4 Fighter Weapons School were modified to carry the AIM-9 Air to Air Missile. These modernized RF-4Cs of the Alabama and Nevada Air National Guard extensively participated in the Gulf War; 503 built.

Two RF-4Cs shot down by USSR during Project Dark Gene whilst being flown by USAF pilots.[7]

YRF-110A (YRF-4C)

Two prototypes were used in the development of the RF-4C reconnaissance version.

A 301st TFW F-4D, 1985.

F-4D

F-4C with updated avionics, AN/APQ-109 radar. First flight June 1965. Three USAF pilots became aces in F-4Ds; 825 built.[8]

EF-4D Wild Weasel IV

F-4Ds converted into Wild Weasel ECM aircraft. Unlike the EF-4C, the EF-4D had the capability to use the larger AGM-78 Standard ARM. Only 2 converted.[9]

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The F-4E introduced the integral 20 mm Vulcan cannon.

F-4E

USAF version with an integral M61 Vulcan cannon in the elongated RF-4C nose, AN/APQ-120 radar with smaller cross-section to accommodate the cannon, J79-GE-17 engines with 17,900 lbf (79.379 kN) of afterburner thrust each. Late-series aircraft equipped with leading-edge slats to improve maneuverability at the expense of top speed under the **Agile Eagle** program. Starting with Block 53, aircraft added AGM-65 Maverick capability and smokeless J79-GE-17C or -17E engines. First flight 1 August 1965. The most numerous Phantom variant; 1,370 built.

F-4E Kurnass 2000

Two F-4E Kurnass 2000's.

Modernized Israeli F-4Es, AN/APG-76 radar, AGM-142 Popeye capability.

F-4E Peace Icarus 2000

Hellenic Air Force modernized F-4Es, AN/APG-65GY radar, AIM-120 AMRAAM capability, Litening targeting pod, modern A/G weapons capability.

F-4E-2020 Terminator

F-4E-2020 Terminator Specifications

Feature	Description
Name	F-4E-2020 Terminator

General Description	The latest in a long line of F-4 variants, modernized by Israel for the Turkish AF F-4Es. Referred to as the F-4E-2020 Terminator. First entered service on 27 January 2000 with deliveries to 111 and 171 Filo.[10][11]
Airframe Improvements	Small strakes above air intakes, new attachment fittings, stronger wing fold ribs, updated canopy sill bar, 20km of wiring replaced (reducing weight by 750 kg), most hydraulic and pneumatic lines and hoses replaced.[10]
Avionics	Updated suite including MFDs, Kaiser El-OP 976 wide-angle HUD, HOTAS system, Elta EL/M-2032 ISAR-capable SAR/GMTI multi-mode fire control radar, IAIC mission computer, GPS/INS navigation with mapping mode, dual MIL-STD-553B databus, Astronautics Central Air Data Computer, UHF and IFF packages, AVTR, Elta EL/L-8222 active ECM pod, Mikes (Aselsan) AN/ALQ-178V3 passive embedded SPEWS, and RWR.[10][12]
Weapon Systems	AGM-142 Popeye/Have Nap integration, Litening-II targeting pods, capability to launch AGM-65D/G Maverick, AGM-88 HARM, GBU-8 HOBOS, AGM-142 Popeye missile, AIM-120 AMRAAM missile, GBU-10/12 Paveway II LGBs, general purpose and cluster bombs. Air-to-air capability with AIM-7 Sparrow and AIM-9 Sidewinder missiles. Option to install Pave Spike targeting pods and various sized rocket pods.[10][12]
Alternative Features	AN/APG-76 radar, EL/M-2032 fire control system, MIL-STD-1553B data bus, AN/ALQ-178(V)3 self-protection jammer, General Electric J79-GE-17 engines, wider view HUD, INS/GPS, MFD, Pave Spike targeting pods, rocket pods, water injection system, false radome.
Service Record	Will be in service until at least 2015. Displayed at the 1987 Paris Air Show. Unclear if it ever entered operational service with the Turkish Air Force or any other customer.[10][12]

QF-4E

Remote-controlled target drone.

F-4EJ

A left side view of Japanese F-4EJ (413) of 306 Sqn shortly after taking off from Komatsu Air Base during the joint US Japanese Exercise Cope North '86-3.**VIEW IMAGE**

Two-seat all-weather air defense fighter version of F-4E, initially lacked ground attack capability. Built under licence in Japan, by Mitsubishi Heavy Industries for the Japan Air Self-Defense Force; 140 built (138 by Mitsubishi).

F-4EJ Kai

Upgraded version of the F-4EJ with improved avionics, including AN/APG-66J pulse-doppler radar, and ground attack capability, including ASM-1 anti-ship missile.

EF-4EJ

Small number of F-4EJs were converted into ECM training aircraft.

F-4E(S)

Three Israeli F-4E modified for high-speed reconnaissance as a cheaper alternative to the ambitious F-4X. Fitted with a new nose containing the HIAC-1 LOROP long-range camera with a 66-in (168 cm) focal length as well as a vertical KS-87 camera. The aircraft had a false radome painted on the nose to resemble conventional F-4Es. The fate and service record of these aircraft is unknown.[13]

RF-4E

Unarmed reconnaissance version for export only. Retrofitted to carry weapons by most customers. Several Luftwaffe aircraft were modified for ELINT missions under **Peace Trout** program; 149 built.

RF-4EJ

Two RF-04E's of the JASDF.

Two-seat all-weather tactical reconnaissance version for the Japanese Air Self-Defense Force; 14 built.

RF-4EJ Kai

Upgraded version of the RF-4EJ with improved avionics, AN/APG-66J radar.

File:McDonnell Douglas YF-4E Phantom II USAF.jpg

The YF-4E

YF-4E

One of the original YRF-4C prototypes was converted into the YF-4E. The YF-4E was used in the development of the F-4E fighter as well as in fly-by-wire Precision Aircraft Control Technology (PACT) and Control Configured Vehicle (CCV) test programs. Three conversions.

F-4F

F-4E for German Luftwaffe with simplified equipment, no Sparrow capability; 175 built.

F-4F ICE

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Two F-4F ICE Phantoms of the Luftwaffen.

Upgraded F-4F with AN/APG-65 radar and AIM-120 AMRAAM capability.

TF-4F

German trainer aircraft, with pilot instructor aft station and appropriate controls.

F-4G

US Navy version, 12 F-4Bs were fitted with the AN/ASW-21 data link digital communications system for automatic carrier landings, one shot down by enemy ground fire, the surviving 11 returned to F-4B configuration.[14]

An F-4G Wild Weasel V.**VIEW IMAGE**

F-4G Wild Weasel V

F-4E converted to SEAD aircraft for the US Air Force. AN/APQ-120 radar, ability to carry AGM-45 Shrike, AGM-78 Standard, and AGM-88 HARM anti-radiation missiles. Widely used during the Gulf War, Operation Provide Comfort, and Operation Southern Watch; 116 converted initially, with a further 18 F-4E's converted as attrition replacements for a total of 134.

QF-4G

Remote-controlled target drone.

F-4H

Designation not used to avoid confusion with the pre-1962 F4H.[15]

A U.S. Navy F-4J, 1971.

F-4J

Improved F-4B version for US Navy and Marines, with emphasis on air-to-air combat capability improvement, which include: J79-GE-10 engines with 17,844 lbf (79.374 kN) of afterburner thrust each, AN/APG-59 pulse doppler radar coupled with the AN/AWG-10 Fire Control System for look-down shoot-down capability, larger main landing gear wheels resulting in wing bulges similar to F-4C, slatted tailplane, alierons drooped 16.5° when landing gear and flaps were deployed to decrease the landing speed, zero-zero ejection seats, expanded ground attack capability, no IRST sensor under the nose; Two pilots became aces in F-4Js. 522 built.

F-4J(UK)

Designation of 15 low airtime F-4J aircraft purchased by the Royal Air Force from the US Navy in 1984, upgraded to F-4S standard with some British equipment. Used until 1991 by No. 74 Squadron RAF only for UK air defense in lieu of Phantoms sent to Falklands.

DF-4J

One F-4J converted into a drone control aircraft.

EF-4J

Two F-4Js converted into ECM training aircraft.

YF-4J

Three F-4Bs were converted were into YF-4J prototypes. The YF-4Js were used in the development of the F-4J.

File:Phantom FG.1 of 892 NAS launching from HMS Ark Royal (R09) 1972.jpg

F-4K of 892 NAS launched from HMS *Ark Royal*, 1972.

F-4K

F-4J version for Fleet Air Arm of the Royal Navy to replace the De Havilland Sea Vixen.[16] Operated as the **Phantom FG1** (Fighter/Ground attack). Folding nose and extending nosewheel leg. Re-engined with the more powerful British Rolls-Royce Spey 202 turbofan engines which required an enlarged fuselage but gave more power taking off from smaller carriers and was already in use with Blackburn Buccaneer on RN carriers. Delivered from 1968, with cancellation of planned carriers order cut and 20 diverted to the Royal Air Force before going into service; 50 built. RN aircraft withdrawn by 1978 and passed to RAF.

YF-4K

Two prototypes, used in the development of the F-4K.

F-4L

Designation applied to several proposals for an advanced version, including **Model 98FOA** with RR Spey turbofan engines and AIM-54 Phoenix missiles.

F-4M

Tactical fighter, ground-attack, and reconnaissance aircraft developed from F-4K for the Royal Air Force, RAF designation **Phantom FGR.Mk.2**, ordered after cancellation of the Hawker Siddeley P.1154 supersonic V/STOL aircraft. RR Spey turbofan engines; 116 built. Replaced English Electric Canberra and Hawker Hunter. Replaced in turn by SEPECAT Jaguar in ground-attack mission; replaced English Electric Lightning in air defense role.

YF-4M

Two prototypes used in the development of the F-4M.

File:F-4N VMFA-531 CV-43 Apr80.jpg

A U.S. Marine Corps F-4N aboard USS *Coral Sea*, 1980.

F-4N

F-4B modernized under project **Bee Line**, the same aerodynamic improvements as F-4J, smokeless engines. First flight 4 June 1972; 228 converted.

QF-4N

F-4Ns converted into remote-controlled supersonic target drones.

F-4S

F-4J modernized with smokeless engines, reinforced airframe, leading-edge slats for improved maneuverability; 302 converted.

QF-4S

F-4S converted into supersonic target drones.

Proposals

Imagining an F4U-Terminator (based on the the F-4E-2020) Terminator in service of the Ukrainian Air Force.

F-4U Terminator

Active 2023 :Proposal to continue conversion of 65 Turkish Aircraft plus obtain

additional 55 aircraft from AMARG, upgrading components or choosing alternate components as necessary.

F-4E(F)

Proposed single-seat simplified version of F-4E for the German Luftwaffe; none built.

F-4T

Proposed air superiority-only fighter version; none built.

F-4VG

Proposed version with variable geometry wings; none built.

F-4X

Proposed high-performance reconnaissance version with HIAC-1 LOROP camera for Israel developed under the **Peace Jack** program in conjunction with General Dynamics. Water injection was projected to give the aircraft a top speed in excess of Mach 3 (over 2,000 mph (3,200 km/h) at high altitudes). The water would be contained in a pair of 2,500 US gal (9,600 l) conformal tanks on the sides of the fuselage spine. The US State Department became worried about developing an aircraft with performance similar to the SR-71 Blackbird and offensive capability beyond anything in domestic inventory for a foreign customer and forbade its export. The proposal was then modified to the **RF-4X** standard with the camera in the nose and removal of weapon carriage. However, the US Air Force withdrew from the project over concerns that a high-performance Phantom would jeopardize funding for the anticipated F-15 Eagle. Without United States financial support, Israel settled for the simpler, less expensive F-4E(S), which was given the nickname 'Shablool', or 'Snail'.[13]

Boeing Super Phantom

A 1984 joint venture between Boeing and Pratt & Whitney for a Phantom variant with Pratt & Whitney PW1120 turbofan engines, giving a significant performance gain over J79 Phantoms. The aircraft would also have an 1,100 US gal (4,230 L) conformal fuel tank under the fuselage.[17] Cancelled early in development.[1]

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4X-JPA, the Super Phantom prototype, on display at the Israeli Air Force Museum

IAI Super Phantom

A separate Israel Aircraft Industries project was proposed for a PW1120-powered Phantom,[18] and one prototype built.[19] IAI's F-4 "Super Phantom" or F-4-2000, which could exceed Mach 1 without afterburners, was displayed at the 1987 Paris Air Show. McDonnell Douglas scuttled the F-4-2000's development because it equaled the F/A-18C/D in performance and could endanger future F/A-18 sales.

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