AN 01-245FBA-1

Pilot's Handbook

for

NAVY MODEL

F2H-1

AIRCRAFT

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PUBLISHED UNDER AUTHORITY OF THE SECRETARY OF THE AIR FORCE
AND THE CHIEF OF THE BUREAU OF AERONAUTICS

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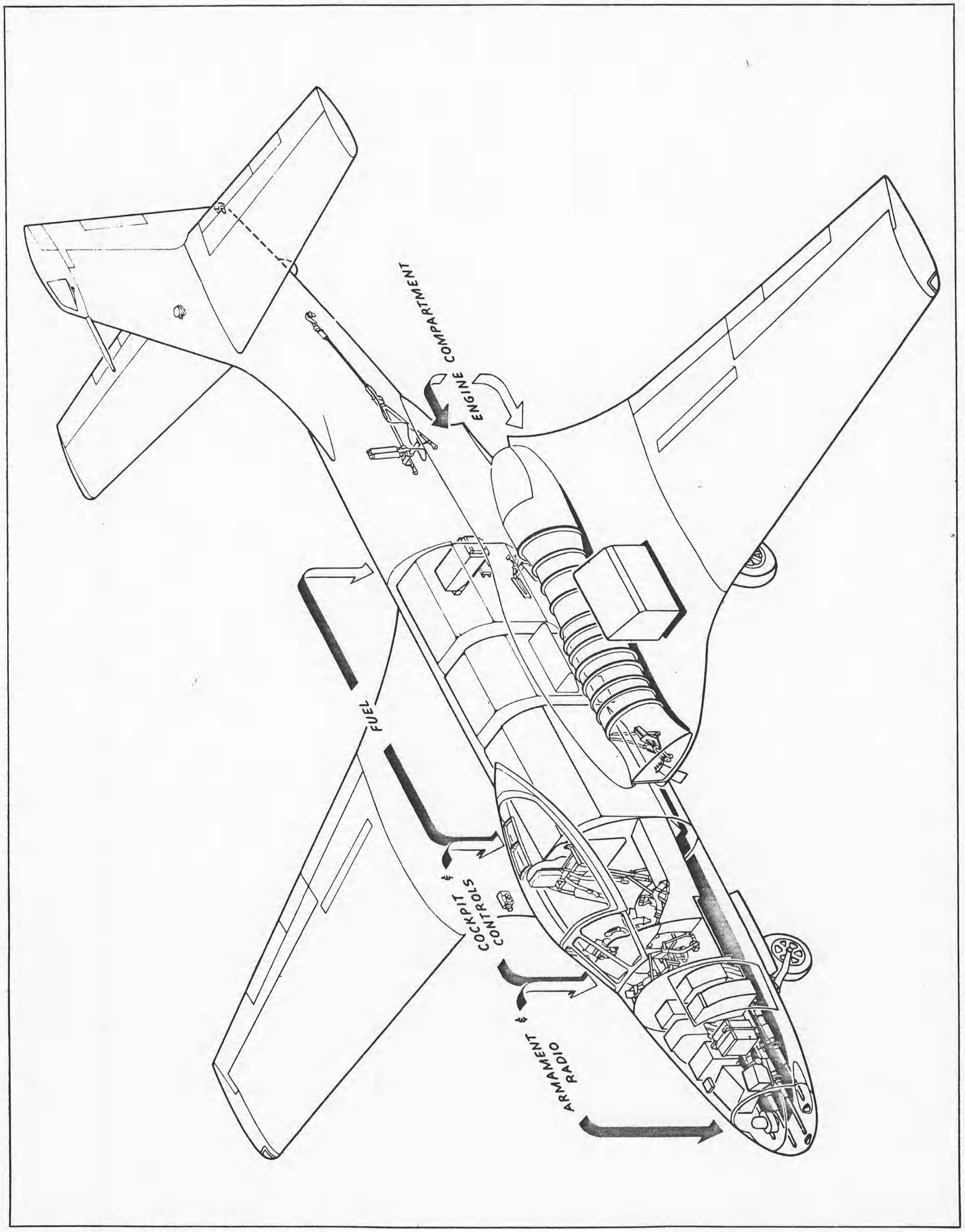
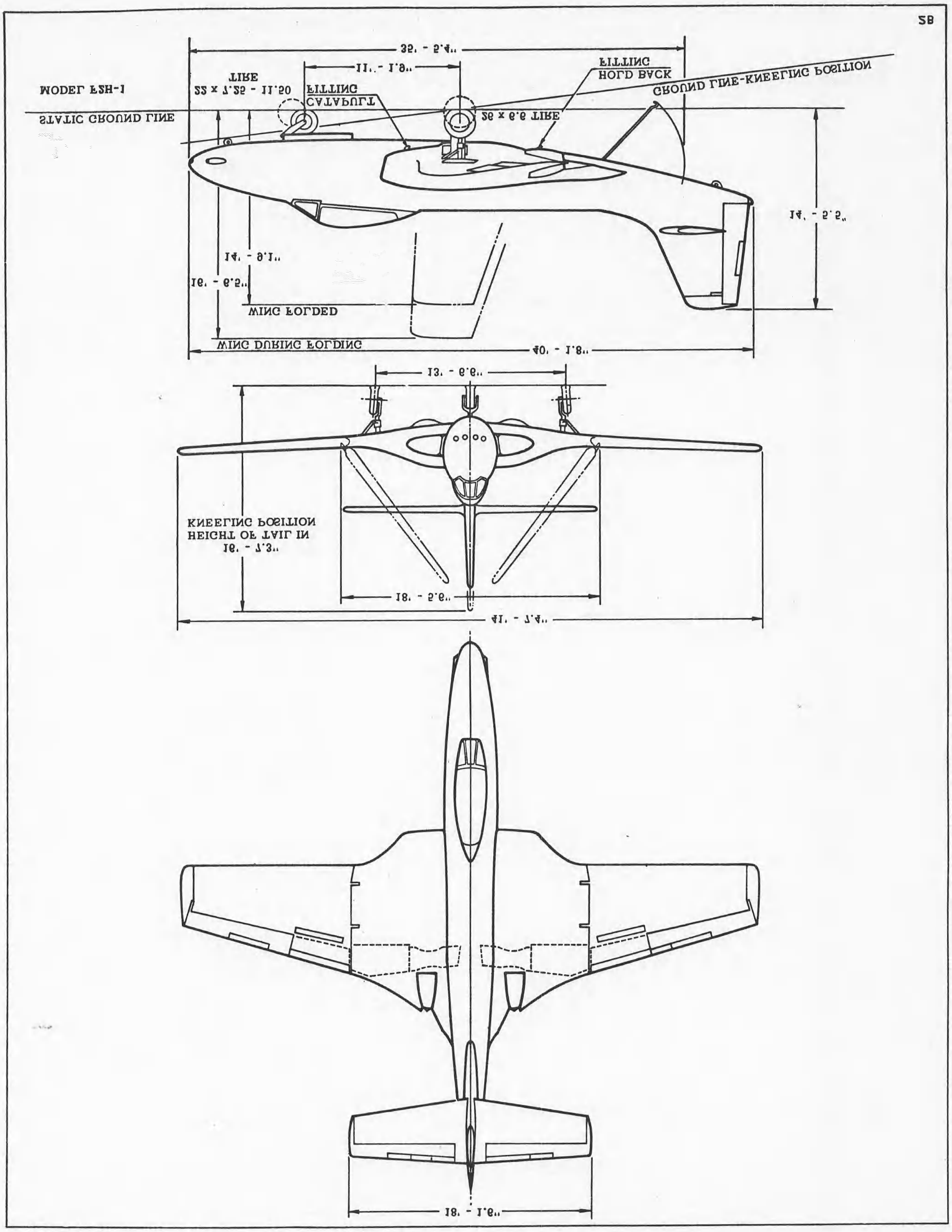
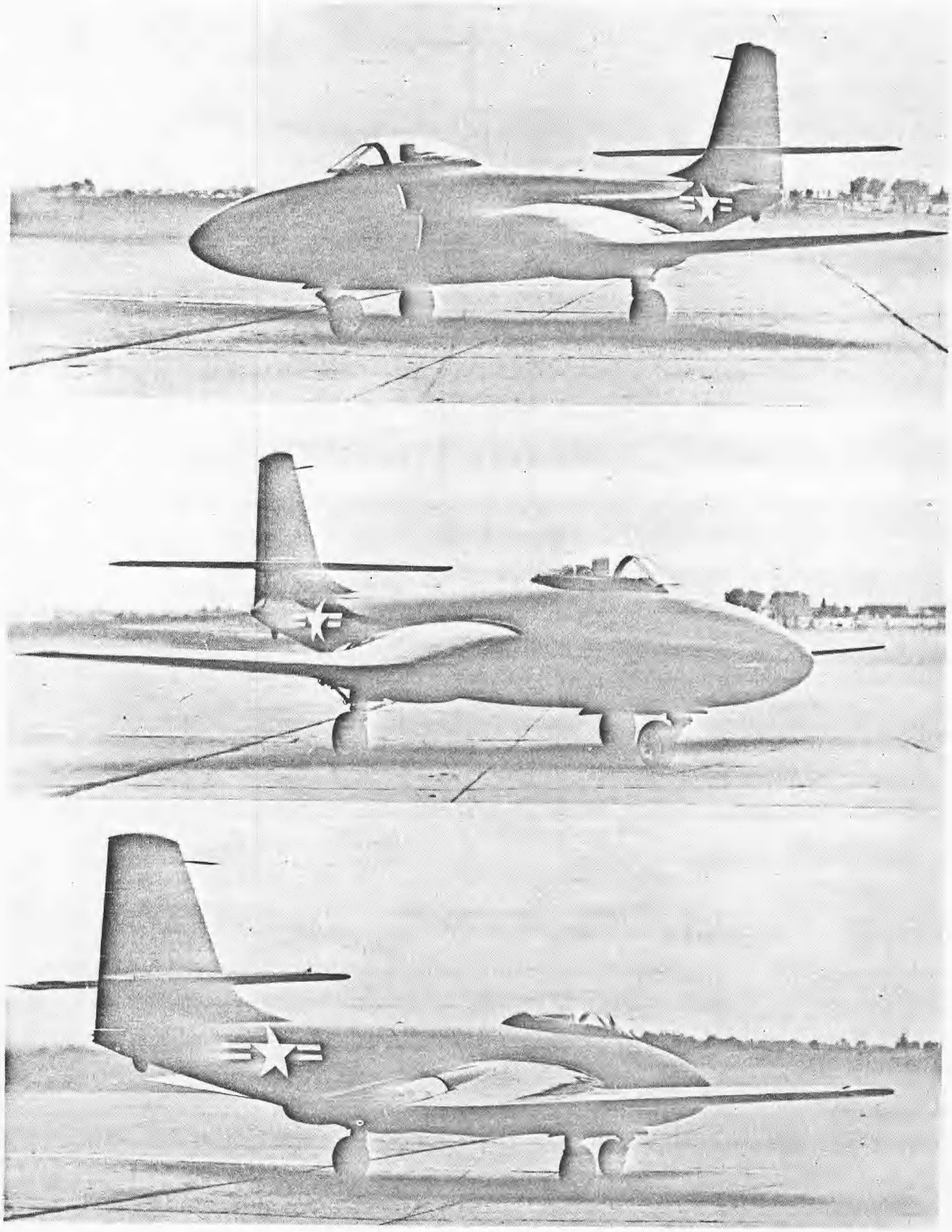


Fuselage Contents Arrangement

Three View ESH-1





F2H-1 Airplane

SECTION I
DESCRIPTION

1-1. DESCRIPTION. The Model F2H-1 is a single place, two engine, jet propelled, carrier based fighter airplane. The airplane is propelled by two Westinghouse, Model J-34, turbo-jet engines. The airplane in the normal gross weight fighter condition (approximately 14400 lbs.) is loaded with 3348 pounds (558 gallons) of fuel, contained in three self-sealing fuselage tanks. The airplane in the overload gross weight fighter condition (approximately 16300 lbs.) is loaded with 5262 pounds (877 gallons) of fuel, contained in the three fuselage tanks and two self-sealing center section wing tanks. The fuselage tanks, when completely filled contain 4734 pounds (789 gallons), and the wing tanks 264 pounds (44 gallons) each.

1-2. BUBBLE CANOPY. The bubble canopy may be opened in flight and can withstand a 40g ditching load when locked in the full open position.

1-3. KNEELING DOLLY. Provisions are made for the installation of a kneeling dolly in the lower surface of the fuselage nose section. When the dolly is installed, the nose of the airplane can be lowered, enabling spotting of more aircraft aboard a carrier. For electrical control, see Paragraph 1-39.

1-4. LANDING GEAR. A tricycle type, electrically operated landing gear is provided. The main gear shock struts are the conventional oleo pneumatic type. The main wheels are equipped with hydraulically operated, single disc type brakes. The main gear retracts outboard into the outer wing panel. The nose gear shock strut is a levered suspension type with an oleo pneumatic strut incorporated. The nose gear is free swiveling through 360° and not steerable from the cockpit. It retracts aft into the nose wheel well without twisting. For electrical control, see Paragraph 1-38.

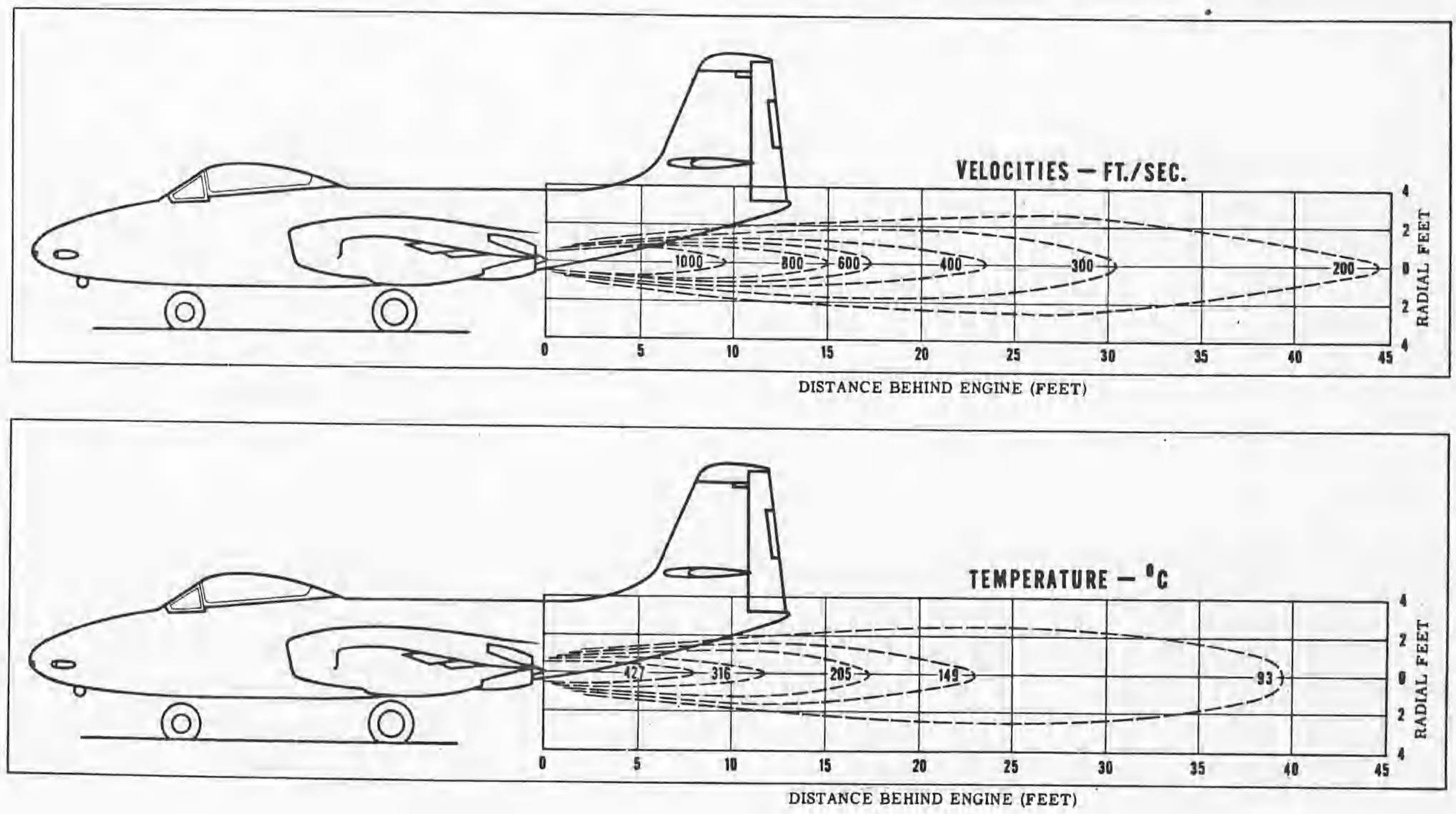


Figure 1-1. Jet Temperatures and Velocities.

WARNING

Caution should be exercised in the areas forward and aft of the turbo-jet engine to remain a safe distance from the inlet air duct and the exhaust nozzle. Serious damage or injury may result when the entire inlet air duct is obstructed, and a seal is formed over the leading edge of the duct. In addition, attention is invited to the ground safety placards installed on the airplane in areas considered dangerous to personal safety.

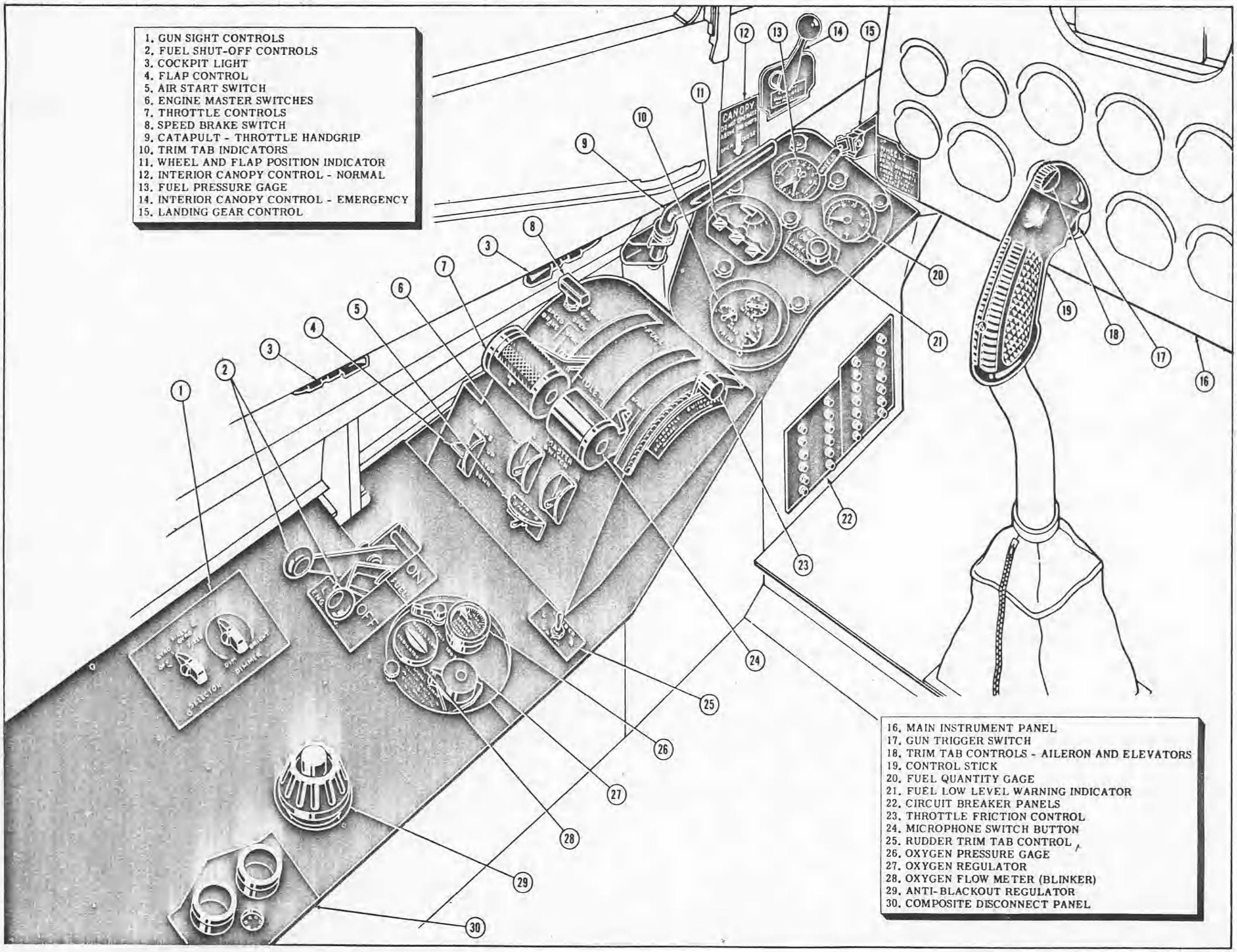


Figure 1-2. Cockpit Left Side

Effective F2H-1 Airplane Nos. 122530 thru 123015 Prior to incorporation of ASC No. 81, 111, 116

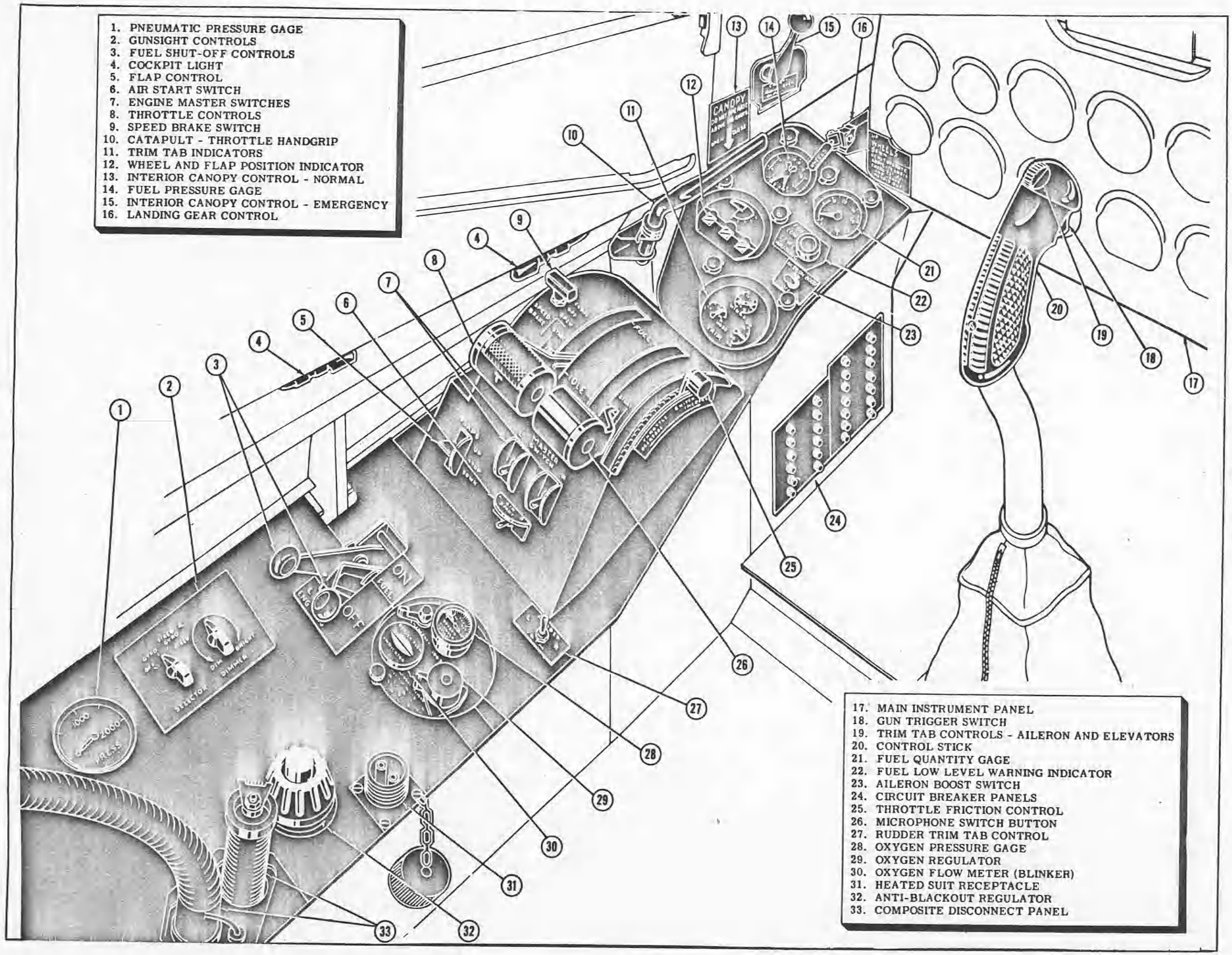


Figure 1-3. Cockpit Left Side

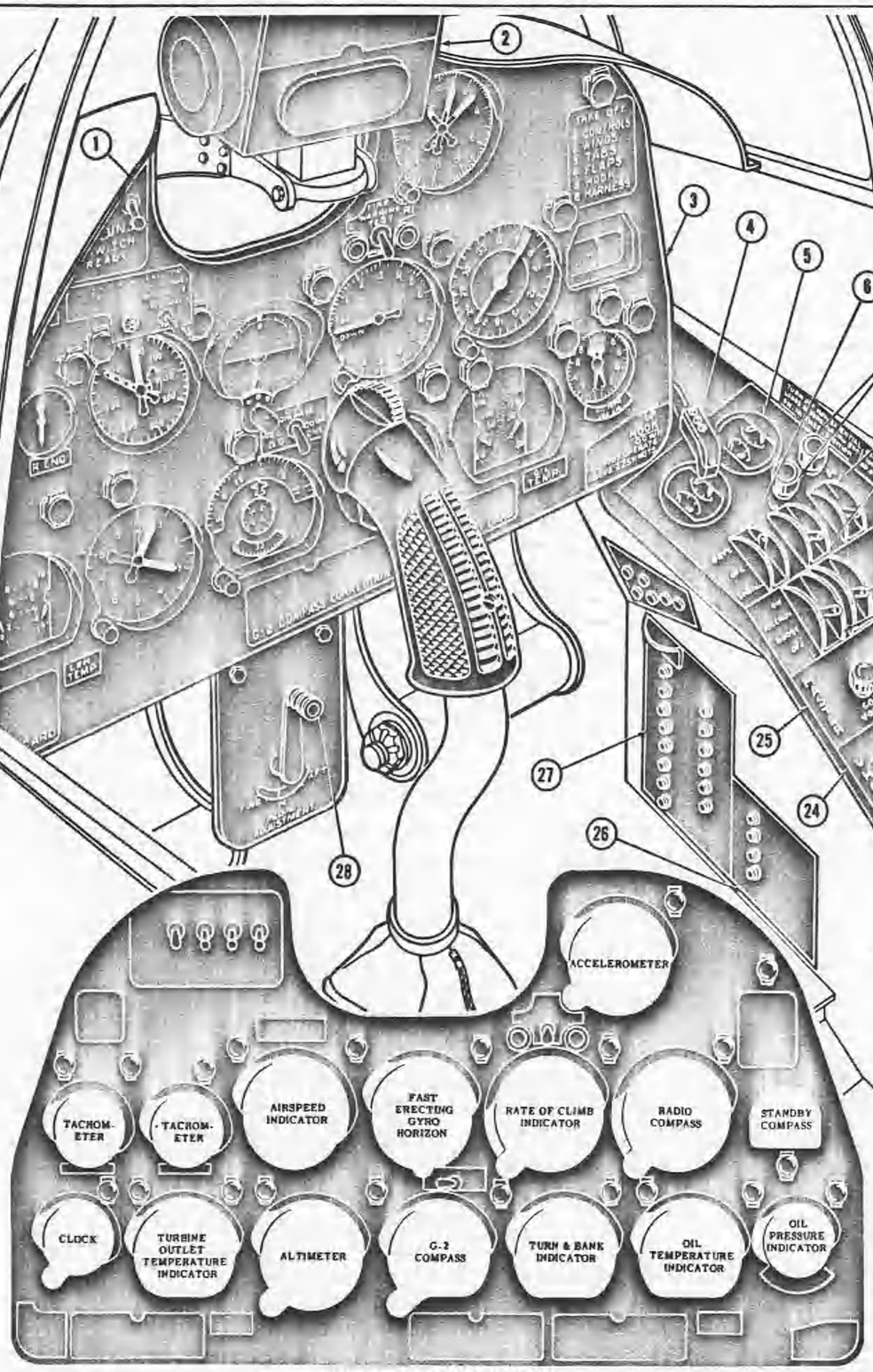
Effective F2H-1 Airplane Nos. 122530 thru 123015 after incorporation of ASC No. 81, 111, 116.

1. GUN SWITCH PANEL
2. MARK 8 GUN SIGHT
3. MAIN INSTRUMENT PANEL
4. ARRESTING GEAR & CRASH BARRIER CONTROL
5. VOLT-AMMETERS
6. BATTERY SWITCH
7. GENERATOR WARNING LIGHTS
8. GENERATOR SWITCHES
9. PITOT HEATER SWITCH
10. AILERON BOOST SWITCHES
11. EMERGENCY VENTILATING CONTROL
12. FOOT HEATER CONTROL
13. CABIN ALTIMETER
14. KNEE CHART BOARD CASE
15. CABIN TEMPERATURE CONTROL PANEL
16. KNEELING SWITCH
17. WING PIN LOCK HANDLE
18. WING FOLD SWITCH
19. EXTERIOR LIGHT CONTROL PANEL
20. INTERIOR LIGHT CONTROL PANEL
21. IFF RADAR CONTROL PANEL (C-119A/APX)
22. NAVIGATION RADIO CONTROL PANEL (C-116/ARR-2A)
23. RADIO COMPASS CONTROL PANEL (C-149/ARN-6)
24. VHF RADIO CONTROL PANEL (C-115/ARC-1)
25. RADIO COMPASS CONTROL PANEL (C-127/ARC)
26. RADIO CIRCUIT BREAKER PANEL
27. CIRCUIT BREAKER PANEL
28. RUDDER PEDAL ADJUSTMENT HANDLE

SEE NOTE △1

Note

△1 MOVED TO LEFT HAND CONSOLE AFTER INCORPORATION OF A.S.C. 111.



MAIN INSTRUMENT PANEL

AN/APX-6 RADAR IDENTIFICATION SET REPLACES NO. 21 WHEN A.S.C. 74 HAS BEEN INCORPORATED

Figure 1-4. Cockpit Right Side

Effective F2H-1 Airplane Nos. 122530 thru 123015

1-5. BRAKE SYSTEM. The brake system consists of two 'air-boost' type master cylinders connected by rigid and flexible hydraulic lines to single disc brake assemblies mounted on the main landing gears. Air under pressure from the compressed air system is piped to the master cylinder to provide a pneumatic boost when the brakes are applied. The master cylinders are connected by linkage to the rudder pedals and are operated by toe pressure on the pedals. Since the master cylinders are connected individually to the left and right brake units, the two brakes are independent systems and may be applied individually or simultaneously.

Note

If brakes lose effectiveness while full pedal force is being applied, release toe pressure and then repump the brake pedals. This may be necessary because of pressure locked in the master cylinder by the pressure in the cylinder limit valve. This pressure must be released before more fluid can be pumped to the brakes.

1-6. POWER PLANT.

1-7. GENERAL. Two Westinghouse J-34 turbo-jet engines are installed in the wings, outboard of the fuselage. Air for combustion and cooling is supplied via an intake duct in the leading edge of each wing. Each duct is provided with a butterfly type valve to close the duct when the engine is not operating. A throttle control, an air start switch, and an engine master switch constitute the power plant controls.

1-8. POWER PLANT CONTROLS.

1-9. THROTTLE CONTROL. The throttle control is conventional for governor controlled engines. The controls, one for each engine, are located in a quadrant on the left side of the cockpit, adjacent to the pilot's seat.

Figure 1-5. Throttle Controls

The throttles read "OFF", "START", "IDLE", and "FULL". The governor maintains any desired engine rpm between the "IDLE" and "FULL" positions.

1-10. INLET AIR DUCT CONTROL. Butterfly valves in the inlet air ducts are electrically controlled by limit switches located in the throttle quadrant and actuated by the throttle levers. When the throttles are cracked past the "OFF" position, and master switch "ON", the limit switches automatically open the butterfly valves in the intake ducts. Closing the throttle does not automatically close the valves. The engine master switch must be in the "OFF" position and throttle closed before the butterfly valve will close.

1-11. STARTING AND IGNITION: The engines are brought up to starting speed by energizing the electric starter. The starter switches, one for each engine, are located in the throttle quadrant and actuated by the throttle levers. The starting and ignition systems are integral. The ignition system for each engine consists of two spark plugs and two ignition coils which are used for initial combustion. Thereafter, combustion is self-supporting and the spark plugs cut out automatically when the timer cycle is complete. Attempts to start the engines should not be made if ambient temperature is below -40°C (-40°F).

1-12. AIR START SWITCH. An air start switch which supplies power to the ignition coil directly from the battery and operates independently of the starter switch is provided. This switch enables the engine to be started in flight by means of engine windmill rpm and a spark from the ignition coil (with air ducts and throttles "OPEN") without "draining juice" from the battery for the starter motor. The switch is located on the throttle quadrant, inboard of the flap switch, and has "L" and "R" positions.

Figure 1-6. Air Start Switch

1-13. FLIGHT CONTROLS. The ailerons and elevators are controlled in the conventional manner by the

control stick. The rudder is conventionally controlled by means of rudder pedals. Trim tabs on the ailerons, elevators and rudder are electrically operated. For rudder pedal adjustment, see Paragraph 1-50.

1-14. AILERON BOOST SYSTEM. A hydraulic aileron boost system is installed to assist in the operation of the ailerons. A separate system for each aileron is provided. The cockpit controls for the boost system are two circuit breaker type toggle switches with 'ON' and 'OFF' positions located on the right-hand console forward of the radio panels. The switches are moved to the left-hand console by ASC No. 111. In case of boost system failure, resulting in excessive stick forces in any one direction, immediately turn 'OFF' both boost systems. (See Paragraph 1-17.) Each hydraulic pump is operated by an electric motor which draws approximately 70 amperes at full load. This high amperage is required because of the excessive air loads imposed

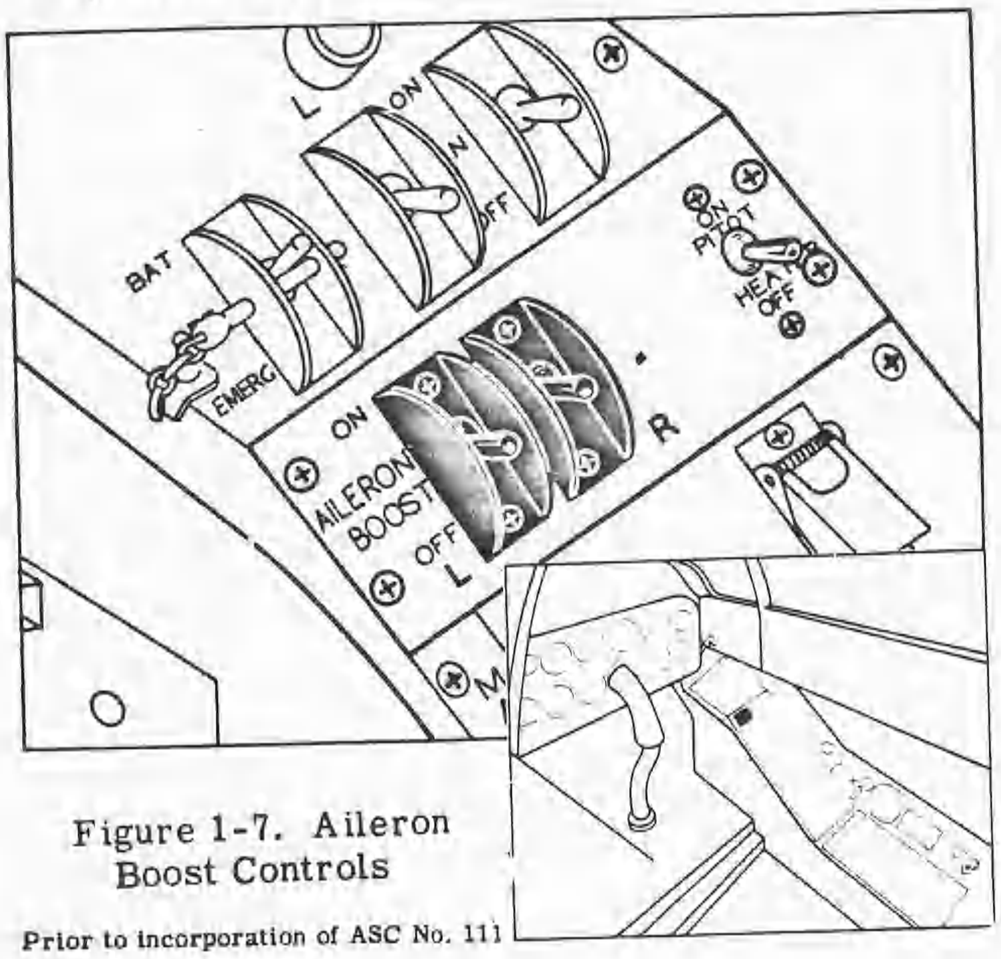


Figure 1-7. Aileron Boost Controls

Prior to incorporation of ASC No. 111

on the ailerons.

1-15. TAB CONTROLS.

1-16. AILERON BALANCE TABS. Each aileron is equipped with a balance tab, adjustable on the ground only.

1-17. AILERON TRIM TAB. The left aileron is equipped with an electrically controlled trim tab. The trim tab control is a four way slide switch located on the control stick handgrip. The switch is a combination aileron and elevator trim tab switch. For aileron trim, the switch reads 'LT. WING DOWN', and 'RT. WING DOWN'. A trim tab indicator is located on the left-hand console. In case of single boost system malfunction and airplane cannot be trimmed out, turn off the opposite system. This condition ordinarily occurs only when right boost system fails.

1-18. ELEVATOR TRIM TABS. Each elevator is equipped with an electrically controlled trim tab. The trim tab switch is located on the control stick handgrip, integral with the aileron trim tab switch, and has 'NOSE DOWN' and 'NOSE UP' positions. The elevators are also equipped with spring tabs. A trim tab indicator is located on the left-hand console.

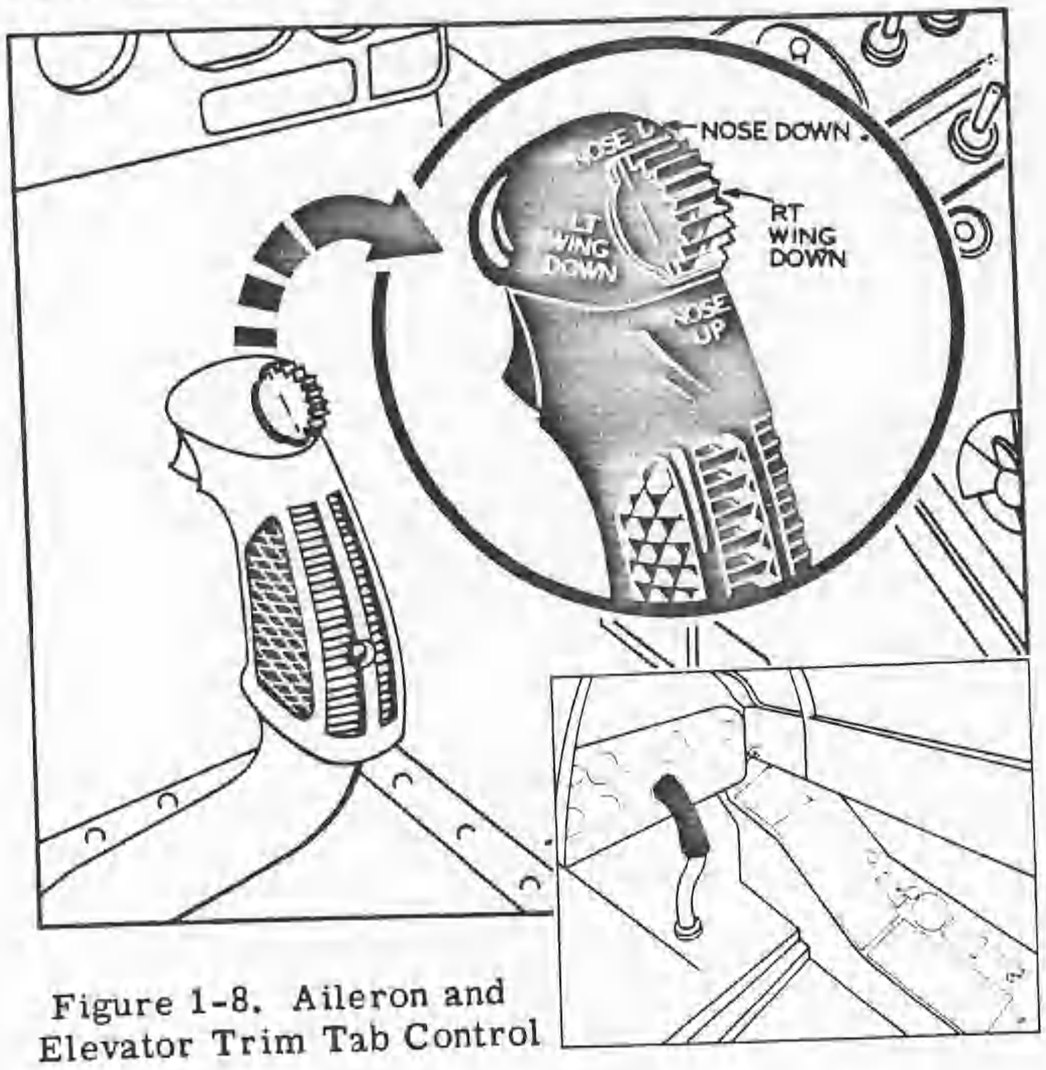


Figure 1-8. Aileron and Elevator Trim Tab Control

1-19. RUDDER TRIM TABS. A combination trim and antibalance tab is installed on the rudder. The trim tab is electrically controlled by a toggle switch on the left-hand console, aft of the throttle quadrant. The switch has 'NOSE LEFT' and 'NOSE RIGHT' positions.

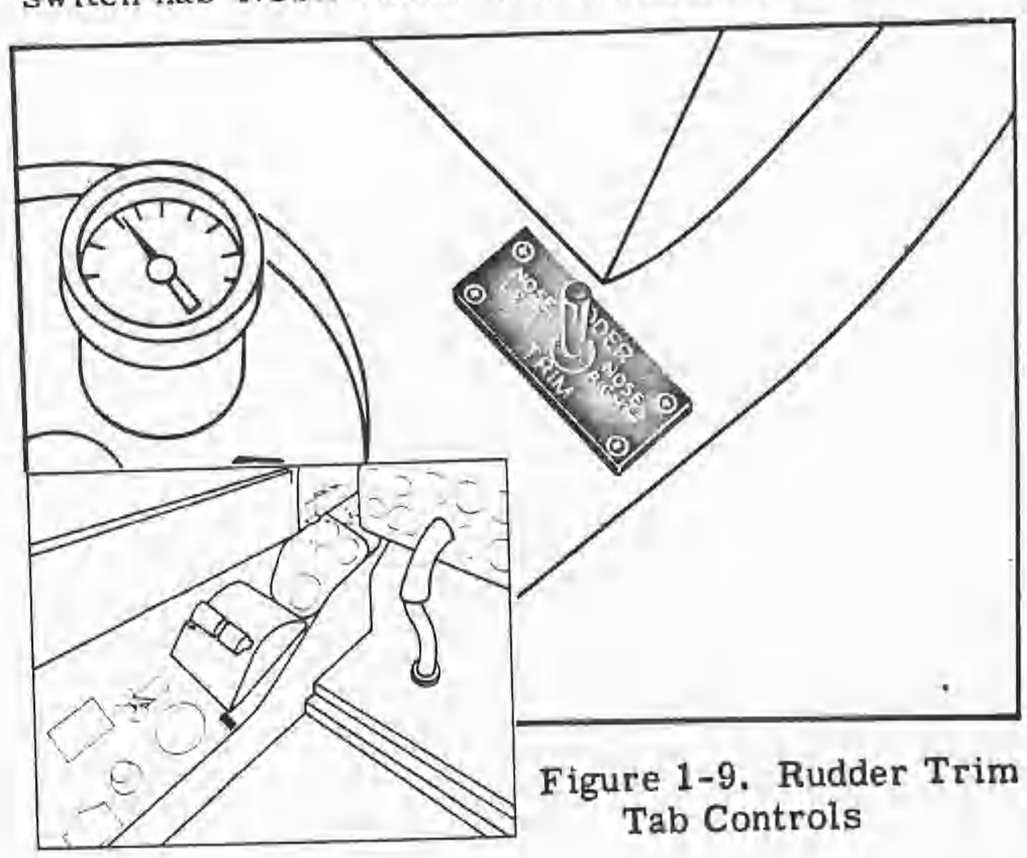


Figure 1-9. Rudder Trim Tab Controls

1-20. FLAPS. The airplane is provided with electrically actuated landing flaps and speed brakes.

1-21. LANDING FLAPS. The landing flaps are a conventional split type divided into four parts, and are attached to the outer and center wing panels. The flaps are electrically controlled by a flap shaped toggle switch, located on the throttle quadrant. The switch has "UP", "DOWN", and "STOP" positions. The flaps may be operated to intermediate positions by stopping the action at the desired position as indicated on the flap position indicator, located on the left-hand con-

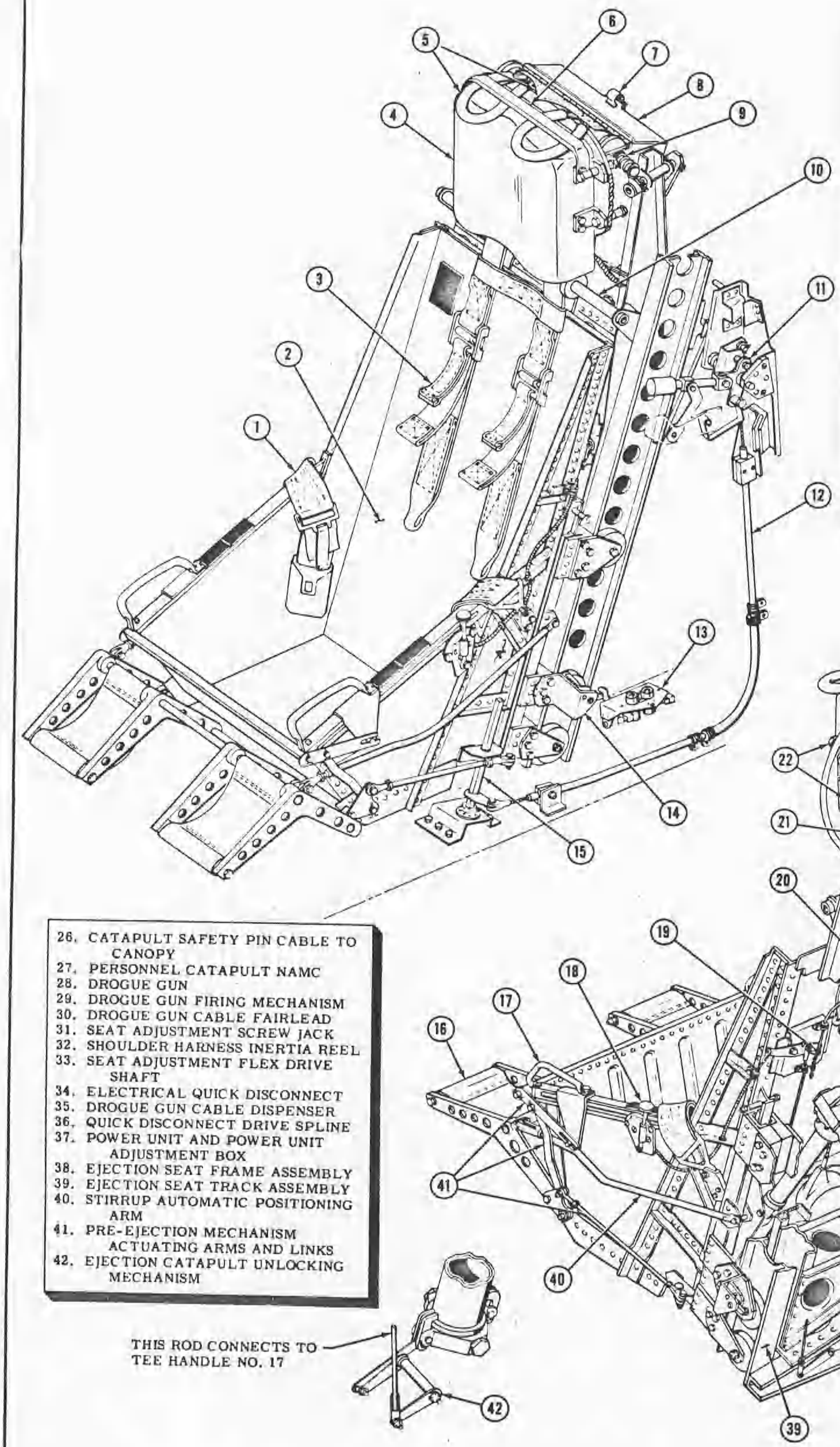


Figure 1-26. Ejection Seat

Two handles are located at the forward edge on each side of the bucket and are used to raise the knee braces and operate the pre-ejection mechanism.

The pilot's armor plate and headrest assembly are located at the top of the frame. The headrest assembly consists of a sponge rubber cushion, face curtain, firing mechanism and drogue chute box. The headrest cushion remains fixed with reference to the gun sight and is not adjustable with the seat; however, provisions are made for fore and aft ground adjustment.

The face curtain roller is located directly aft and at the top of the armor plate. Two face curtain handles, covered with soft rubber tube, extend forward over the top of the armor plate and are secured by a spring clip which holds the curtain against the top of the headrest. The curtain is released by a pull on the handles. The drogue parachute box is located just aft and below the face curtain roller. It contains the drogue parachute and is normally held closed by a spring clip.

1-56. NORMAL OPERATION. The switch located on seat bucket is a three position momentary type, normally 'OFF'. 'UP' position of the switch raises the seat; 'DOWN' position lowers seat. The seat is locked in position when the switch is off and travels only while the switch is held on. Ejection may take place from any position of seat adjustment.

1-57. EJECTION OPERATION. For ejection operation see Paragraph 3-19

1-58. SAFETY BELT AND SHOULDER HARNESS. Conventional lap and shoulder type safety belts are provided, integral with the pilot's seat. The belt equipment is capable of withstanding a 40g acceleration.

1-59. SHOULDER STRAP RELEASE. The shoulder harness consists of two straps connected to the cable of the inertia type reel. The reel is attached to the aft side of the pilot's seat. The straps run upward behind the seat and over a guide tube attached to the seat. The free ends of the shoulder straps are equipped with metal loops which connect to the buckle of the lap belt. Release of the lap belt buckle also releases the shoulder straps. A manual control handle on the left side of the seat provides for locking or unlocking the inertia reel. In the 'UNLOCKED' position, the reel lets out cable, permitting the pilot to lean forward at will. As pilot leans back, the reel winds in cable and takes the slack out of the shoulder straps. In the unlocked position, the reel will automatically lock when a decelerative force of two to three g is imposed. In the 'LOCKED' position, the reel takes in cable as pilot leans back, holding pilot firmly against back of seat.

1-60. PARARAFT KIT. A Model PK2 seat type pararaft kit is provided.

1-61. COCKPIT PRESSURIZATION AND VENTILATION. See Section IV.

1-62. RELIEF TUBE. The pilot's relief tube is located on the forward side of the control stick. The horn contains an integral control valve to prevent loss of pressure. This valve must be pressed to release, prior to use, in order to prevent overflow into cockpit.

1-63. ASH TRAY. An ash tray is provided in the cockpit, adjacent to the pilot's seat.

1-64. ELECTRICAL CANOPY CONTROL. The sliding cockpit enclosure is electrically operated from the inside and outside of the cockpit. The electrical mechanism is actuated by two toggle switches (one interior and one exterior) connected in parallel and independent of the battery switch. The switch for interior operation is located on the left side of the cockpit, and has momentary 'OPEN' and 'CLOSE' positions. The exterior toggle switch is located in the first recessed step, on the left side of the fuselage, and has momentary 'OPEN' and 'CLOSE' positions.

CAUTION

To insure proper engaging of canopy latch, do not attempt to close canopy from a position of less than six inches open.

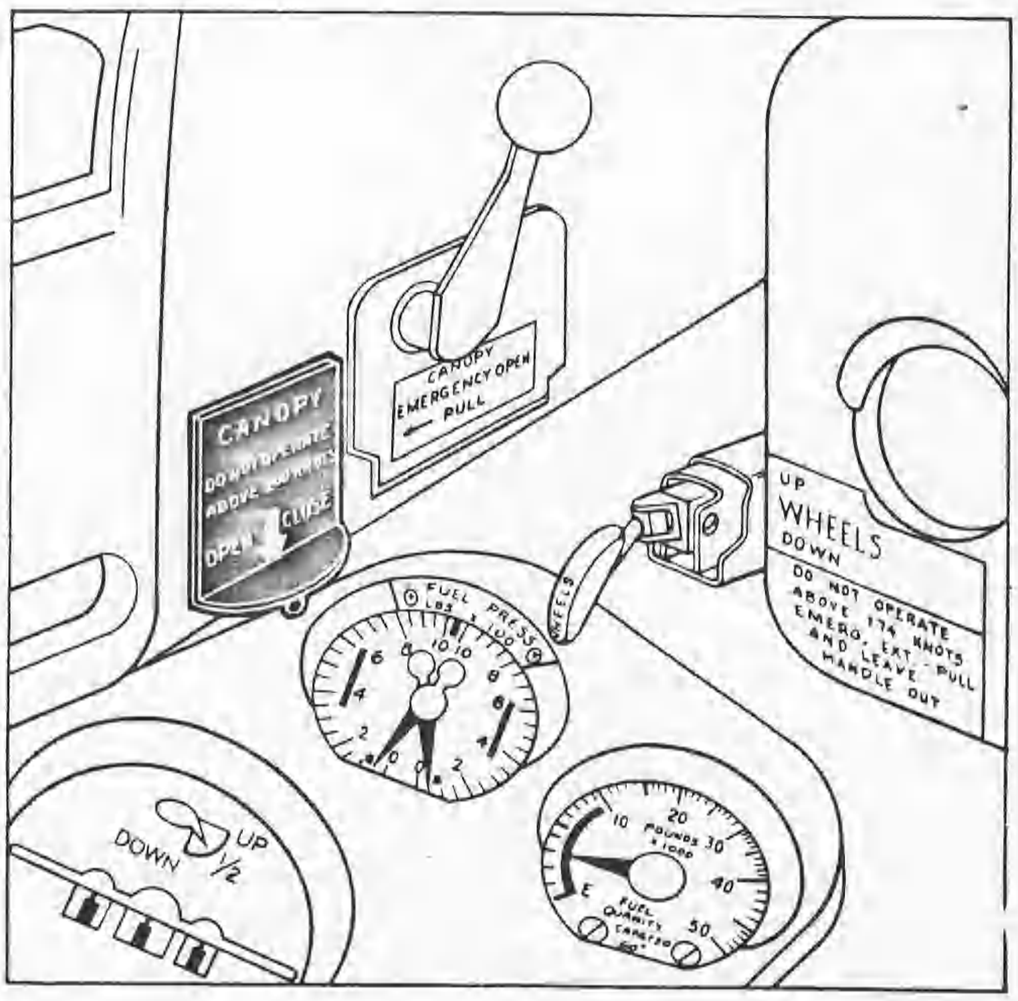


Figure 1-27. Normal Canopy Control-Interior

CAUTION

Do not open canopy while the cockpit is pressurized.

1-65. ANTI-BLACKOUT SYSTEM. See Section IV.

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