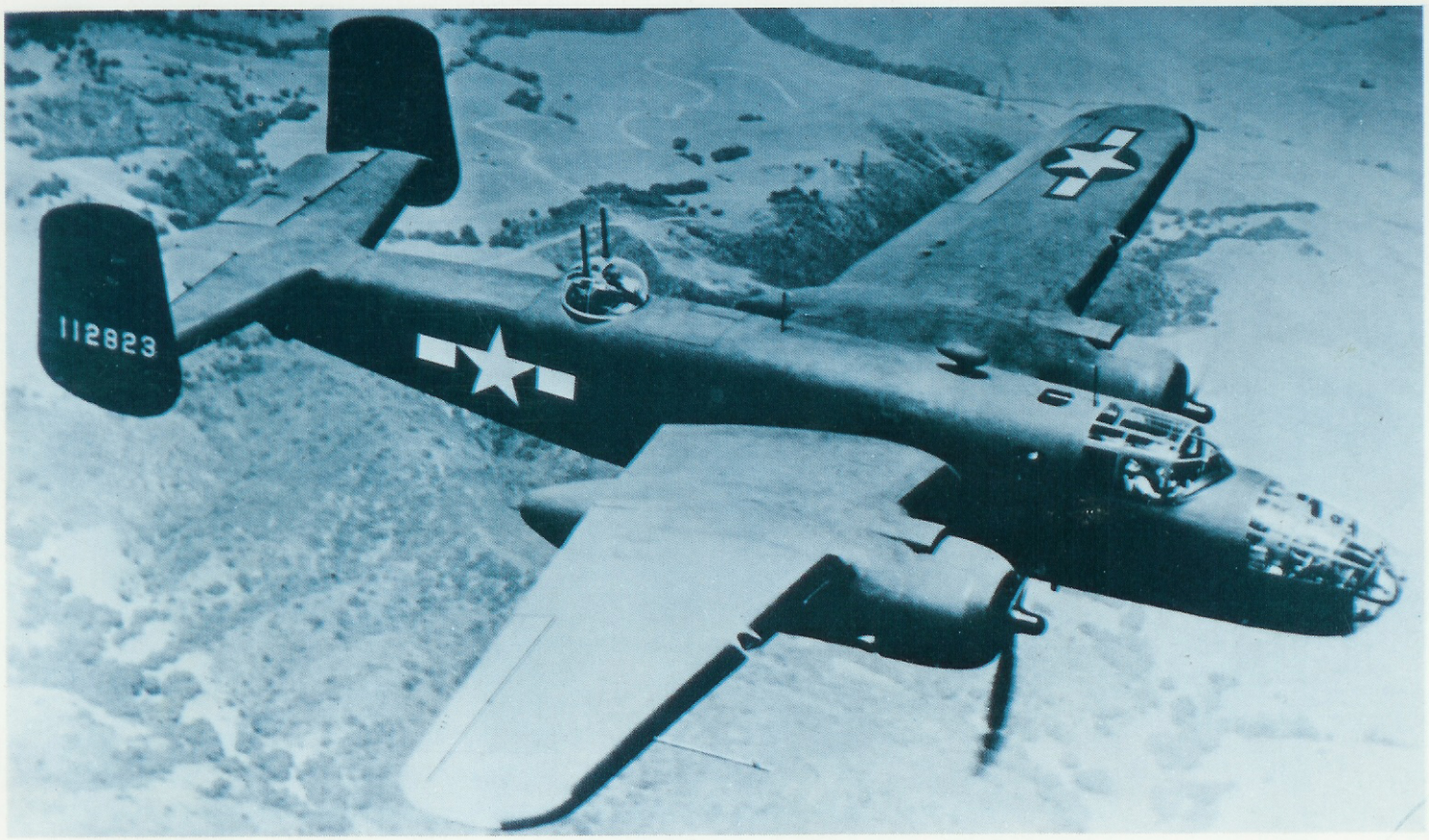
PILOT'S MANUAL

for

B-25

MITCHELL



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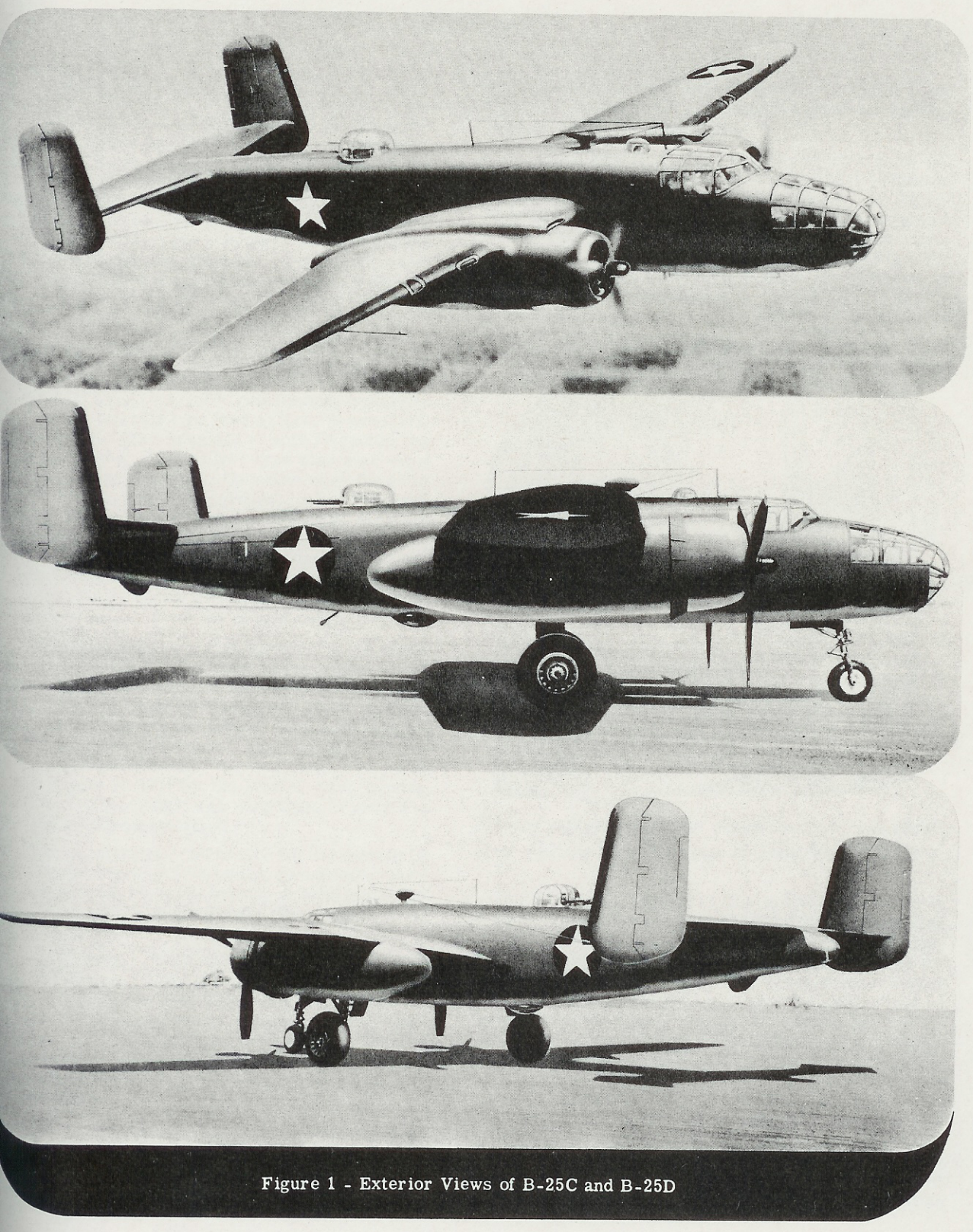


Figure 1 - Exterior Views of B-25C and B-25D

SECTION I

DESCRIPTION

1. AIRPLANE

a. General. - The model B-25C and B-25D bombardment airplanes are mid-wing, land monoplanes, each powered by two Wright Cyclone R-2600-13 engines. Propellers are the three blade type, hydromatic, and full-feathering. Hydraulically operated tricycle landing gear, wing flaps, engine cowl flaps, bomb bay doors, and brakes are provided. The crew consists of the pilot, copilot, bombardier, radio operator, and photographer. The approximate over-all dimensions are:

Span	67 ft 6 in.
Length	53 ft
Height	15 ft 9 in

b. Landing Gear. - A fully retractable, hydraulically operated, tricycle type landing gear is provided. Doors cover the gear openings in both retracted and extended positions. The swivel type nose gear strut has a centering device which operates when the strut is fully extended (wheel off ground). An emergency air brake system is provided and consists of an air pressure storage tank in the navigator's compartment, an automatic transfer valve for each wheel, and an air valve controlled by a lever, accessible to pilot and copilot. The air pressure tank is provided with a gage and can be recharged from the ground only.

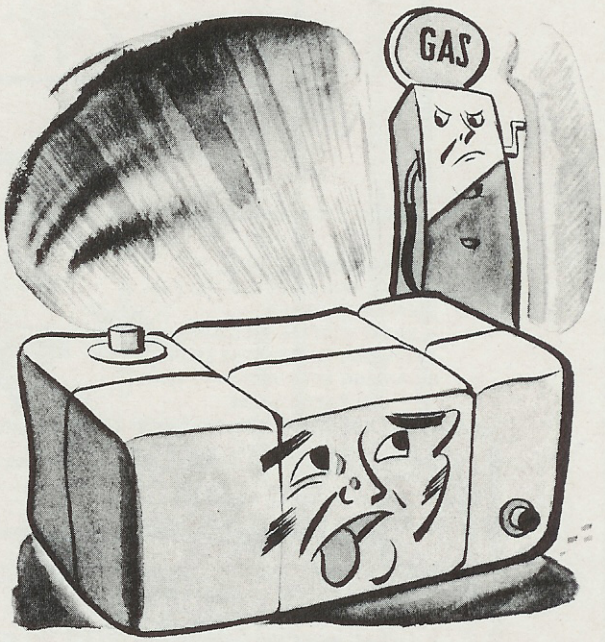
c. Indicators. - When either throttle is retarded for landing and the landing gear is not locked down, a warning horn will sound to warn of an unsafe landing condition. A release switch (figure 16-94) is provided to render the horn inoperative during one-engine or closed-throttle maneuvers. Opening the throttle automatically reinstates the warning horn. A position indicator (figure 16-111) for the landing gear, landing gear down-position locks, and wing flaps is provided on the pilot's instrument panel.

d. Hydraulic System. - Pressure for the system is supplied by two engine-driven pumps connected in parallel, one mounted on each engine. A hand pump for emergency operation is provided. (See figures 2, 3, and 4.)

e. Fuel System. - Each engine is provided with an independent system. The four main fuel tanks have a capacity of 658 U.S. gallons (548 Imperial gallons). A droppable bomb bay tank with a capacity of 418.8 U.S. gallons (348.9 Imperial gallons) is provided and is usable only as a reserve tank. Its fuel can be transferred only into the wing fuel compartments. (See figures 5 and 6.)

f. Fuel Transfer System. - (Applicable to B-25C airplanes, serial Nos. AC-41-12817 and higher, only, and B-25D airplanes, serial Nos. AC-41-29848 and higher only.) A fuel transfer system with electrically operated auxiliary transfer pumps and a manually controlled cross-feed shut-off valve is provided. (See figures 5 and 6.) No provision is made for returning fuel to the bomb bay tank.

g. Fuel Transfer System. - (Applicable to B-25C airplanes, serial Nos. AC-41-12434-12816 inclusive, only, and B-25D airplanes, serial Nos. AC-41-29648-29847 inclusive.) These earlier airplane models have a fuel transfer system with manually controlled selector valves and an electrically operated reversible pump. Fuel may be returned from the front wings to the bomb bay droppable tank. (See figures 5 and 6.)



Do not allow one fuel tank to run completely dry before switching to another tank!

h. Electrical System. - The electrical system is a 24-volt, single wire circuit. Two 24-volt batteries are provided, one inside each engine nacelle, immediately aft of the fire wall. Either battery operates the system, including starters. The batteries are charged by engine-driven 30-volt, 200-ampere generators. A generator control panel located at the right rear of the navigator's compartment controls the charging voltage of the generators.

i. Interphone System. - The RC-36 interphone system installed in these airplanes consists of a type BC-347 amplifier, one BC-366 jack box for each station, and one T-30 throat microphone for each crew member. The power for this equipment is furnished by a PE-86 dynamotor. For detailed radio operating instructions, refer to section V.

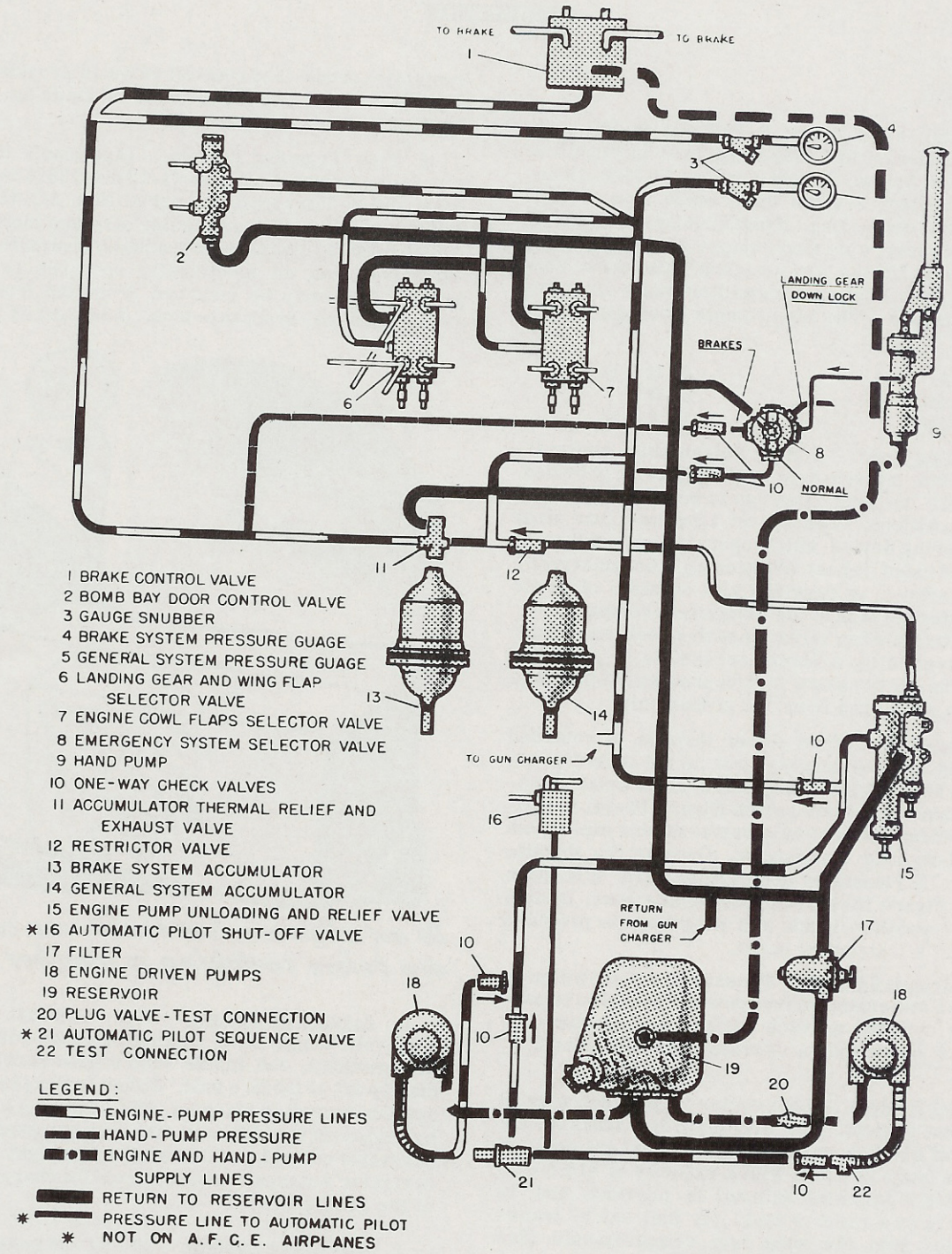


Figure 2 - Hydraulic System Lines Diagram (Power Lines System)

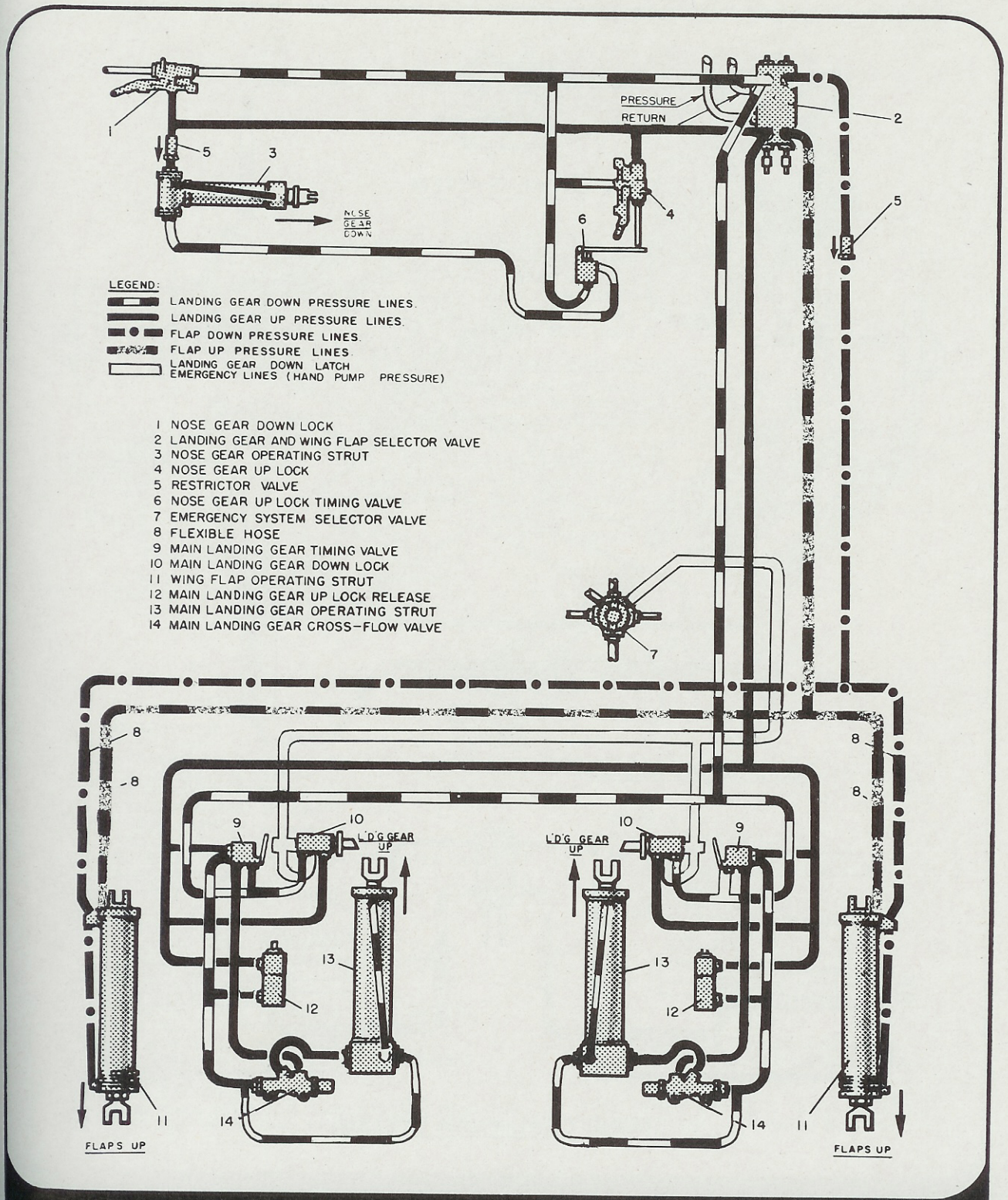


Figure 3 - Hydraulic System Lines Diagram (Landing Gear and Wing Flaps System)

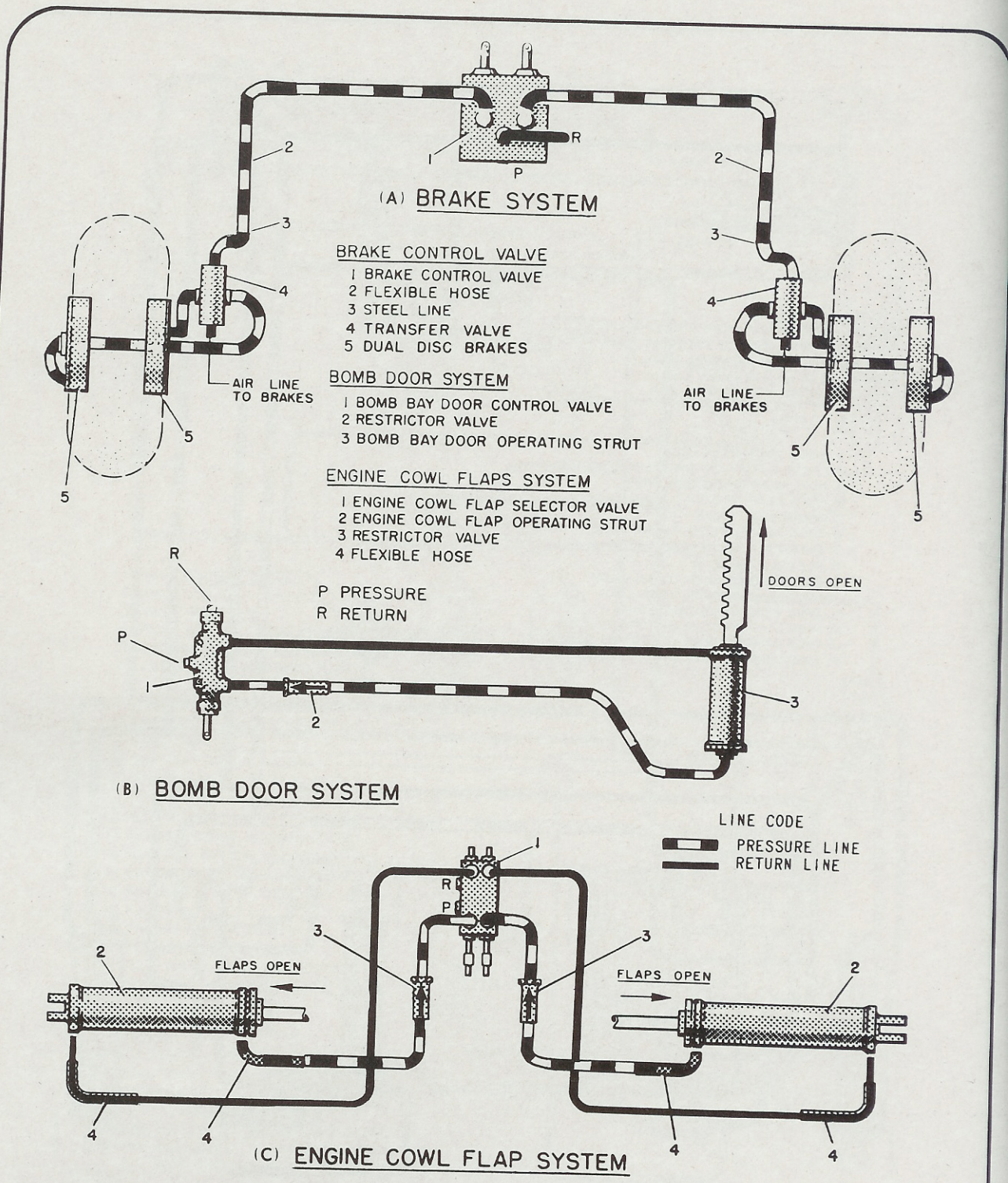
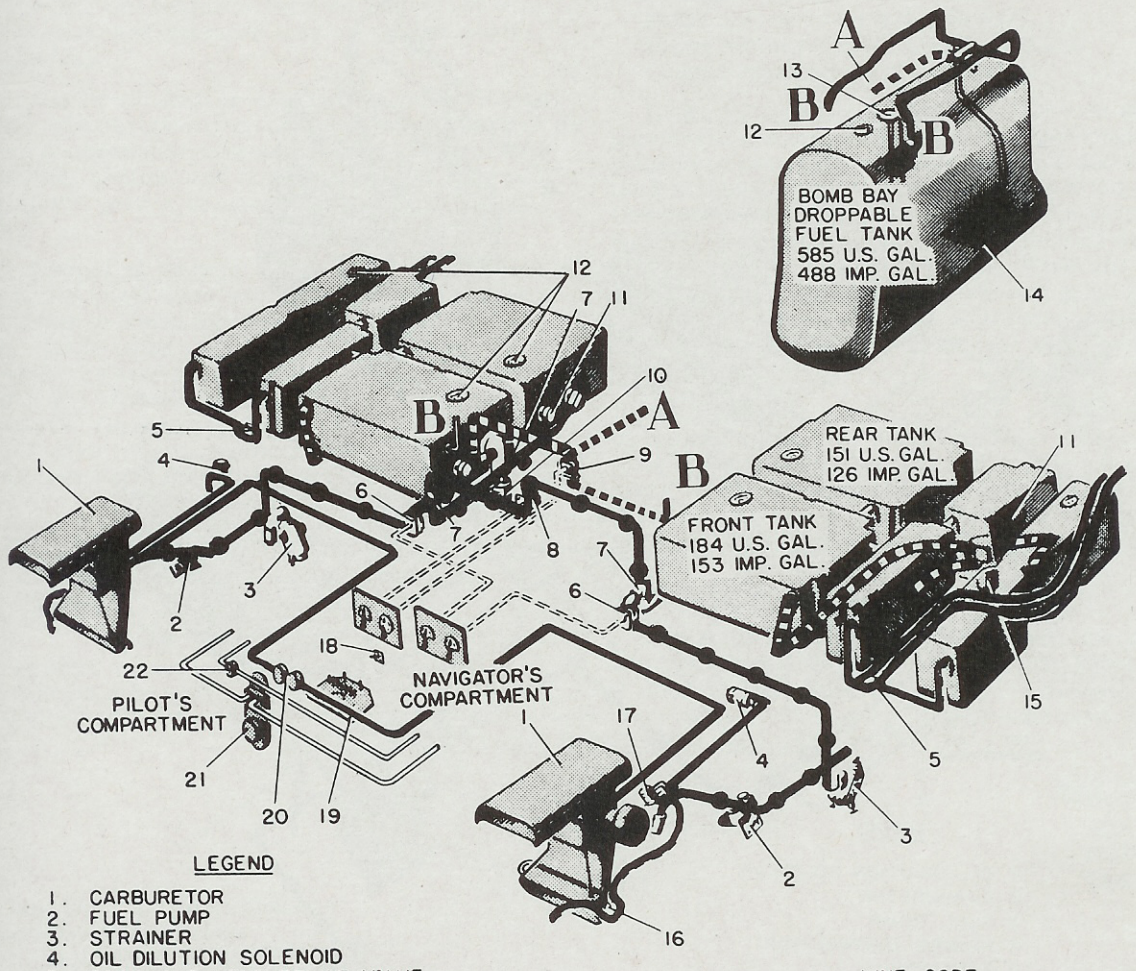


Figure 4 - Hydraulic System Lines Diagram (Engine Cowl Flap, Bomb Door, and Brake System)



LEGEND

1. CARBURETOR
2. FUEL PUMP
3. STRAINER
4. OIL DILUTION SOLENOID
5. DRAIN AND VENT RELIEF VALVE
6. EMERGENCY FUEL SHUT-OFF VALVE
7. CHECK VALVE
8. CROSS-FEED SHUT-OFF VALVE
9. BOMB BAY DROPPABLE TANK TRANSFER VALVE
10. BOOSTER PUMP
11. LIQUIDOMETER FUEL GAUGE UNIT
12. FILLER CAP
13. BOMB BAY TANK FUEL GAUGE
14. BOMB BAY TANK TRANSFER PUMP
15. AUXILIARY WING TANKS TRANSFER PUMP
16. PRIMER DISTRIBUTOR
17. PRIMER SOLENOID
18. BOMB BAY TANK TRANSFER PUMP SWITCH
19. CONTROL PEDESTAL SWITCH PANEL
    BOOSTER PUMP SWITCHES
    AUXILIARY TRANSFER PUMP SWITCHES
    PRIMER SWITCH
20. FUEL PRESSURE GAUGES
21. MAIN TANK SELECTIVE LIQUIDOMETER INDICATOR
22. AUXILIARY WING TANK LIQUIDOMETER INDICATOR

LINE CODE

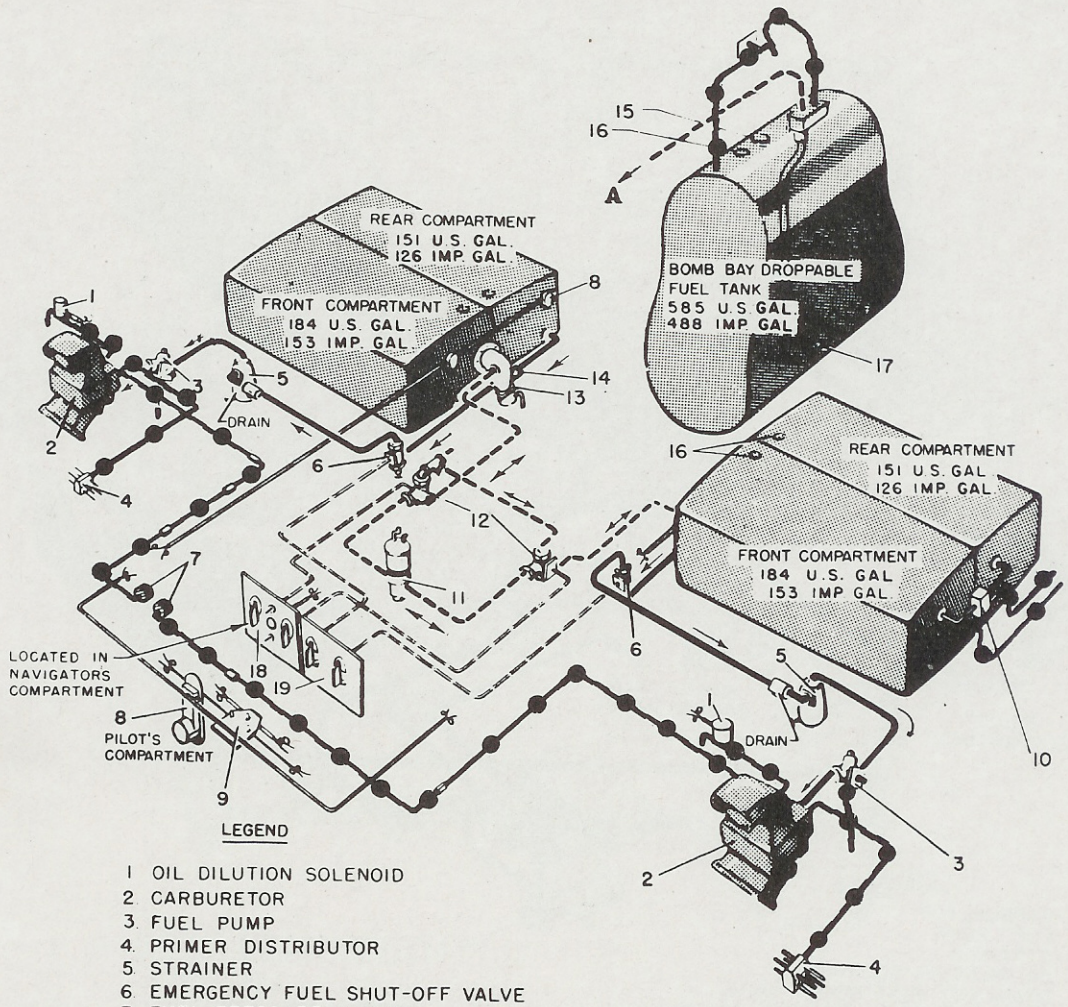
- MAIN LINES
- TRANSFER LINES
- VENT AND DRAIN LINES, PRIMER AND OIL DILUTION LINES.
- CONTROL RODS
- ELECTRICAL CONDUIT

NOTE

TOTAL CAPACITY OF SIX AUXILIARY WING TANKS IS APPROXIMATELY 300 U.S. GAL. (250 IMP. GAL.).

FUEL HOSES AND FUEL TANKS (EXCEPT BOMB BAY TANK) ARE SELF-SEALING.

Figure 5 - Fuel System Diagram (Applicable to B-25C Airplanes, Serial Nos. AC-41-12817 and Subsequent, and B-25D Airplanes, Serial Nos. AC-41-29848 and Subsequent)



LEGEND

1. OIL DILUTION SOLENOID
2. CARBURETOR
3. FUEL PUMP
4. PRIMER DISTRIBUTOR
5. STRAINER
6. EMERGENCY FUEL SHUT-OFF VALVE
7. FUEL PRESSURE GAUGES
8. LIQUIDOMETER FUEL GAUGE UNITS
9. CONTROL PEDESTAL SWITCH PANEL
   BOOSTER PUMP SWITCHES
   PRIMER SWITCH
10. DRAIN AND VENT VALVE
11. TRANSFER PUMP
12. TRANSFER VALVE
13. BOOSTER PUMP
14. CHECK VALVE
15. FUEL GAUGE (FLOAT TYPE)
16. FILLER FLANGE
17. SUMP
18. FUEL TRANSFER CONTROLS
    PUMP SWITCH
    DIRECTIONAL FLOW SWITCH
    PUMP OPERATING LIGHT
19. EMERGENCY SHUT-OFF VALVE CONTROLS

LINE CODE

- MAIN LINES
- TRANSFER LINES
- VENT, DRAIN & OTHER LINES
- CONTROL RODS
- ELECTRICAL WIRING AND CONDUIT

NOTE:

FUEL CAPACITY ON SOME AIRPLANES IS { 12 U.S. GAL. LESS / 10 IMP. GAL. LESS

FUEL TANKS AND HOSE ARE SELF SEALING

Figure 6 - Fuel System Diagram (Applicable to B-25C Airplanes, Serial Nos. AC-41-12434-12816 Inclusive, only, and B-25D Airplanes, Serial Nos. AC-41-29648-29847 Inclusive, only)

i. Heating and Ventilating System.

(1) A hot air heater is located in the left wing center section, and operates only on the left engine. (See figure 7.)

(2) The flow of cold or warm air is controlled by the pilot. The navigator regulates the temperature of the air. Controllable cold air scoops are provided for the pilot, copilot, and bombardier. Do not open bombardier's, pilot's, or side escape hatches for ventilation.

(3) Defrosting System. - The pilot's windshield sections, the bomb sight window and bomb sight may be defrosted by warm air from the airplane heating system. Each outlet is controllable, except bomb sight window, which receives heat whenever heating system is on. A door is provided for cleaning bomb sight window. On airplanes equipped with the type A-3 automatic pilot, pilot's windshield also receives heat whenever system is on.

k. Oxygen Equipment. - Three low pressure G-1 oxygen bottles are installed in each nacelle. Eight type A-9 regulators (figure 8) are provided at the following stations:

Bombardier at bomb sight seat and riding seat.
Pilot on left side wall.
Copilot on right side wall.
Navigator on right side wall.
Radio operator on right side wall.
Upper turret operator on left side wall.
Camera operator on aft bulkhead.

l. Ice Eliminating Equipment. - De-icer shoes for the control surfaces and anti-icer slinger rings for the propellers are provided. (See figures 9 and 10.) The fluid capacity of the anti-icer tank is 4.5 U.S. gallons (3.8 Imperial gallons). Tank is located in rear of navigator's compartment. Fill with 85 percent denatured alcohol and 15 percent glycerine. When the de-icer shoes are not in operation, a vacuum pump prevents raising of the de-icer shoes. A pressure gage for the de-icer system is located in the rear of the navigator's compartment.

m. Protective Armor. - Armor plate is provided on the seat and back of the bombardier's seat. Armor plate is attached to the rear of pilot's and copilot's seats. An armor plate bulkhead is provided aft of turret gun. The armor plate door should be kept closed in flight. (See figure 11).

2. POWER PLANT.

The B-25C and B-25D airplanes are equipped with two 14-cylinder, double row, two-speed supercharged R-2600-13 air-cooled engines.

ENGINE LIMITATIONS B-25C and D AIRPLANES

Take-off	Low Blower	High Blower
RPM	2600 (for one minute)	DO
MP	44	NOT
Mixture	Full Rich	USE
Cowl Flaps and Oil Cooler Shutters	Open	
Cylinder Head Temperature (260° C (500° F) (5 minutes)		
Oil Temperature - 95° C (203° F)		

Climb	Below 11,000 ft	Above 11,000 ft
RPM	2400	2400
MP	38	39
Mixture	Full Rich	Full Rich
Cowl Flaps and Oil Cooler Shutters	Open	
Cylinder Head Temperature - 260° C (500° F) (5 minutes)		
Oil Temperature - 95° C (203° F)		

High Speed	Below 11,000 ft	Above 11,000 ft
RPM	2400	2400
MP	38	39
Mixture	Full Rich	Full Rich
Cowl Flaps - Closed (Slightly open on warm days)		
Oil Cooler Shutters - Adjust to 60° C - 85° C (140° F - 185° F) Oil Temperature		
Cylinder Head Temperature - 218° C (428° F)		
Oil Temperature - 85° C (185° F)		

Cruising	Below 13,000 ft	Above 13,000 ft
RPM	2100	2100
MP	29.5 to 31.5 Max.	29.0 to 31.5 Max.
Mixture	Full Rich	Full Rich
Cylinder Head Temperature - 205° C (396° F)		

Cruising - Desired	Below 16,000 ft	Above 16,000 ft
RPM	2000	2000
MP	27	27
Mixture	Full Rich	Full Rich
Cylinder Head Temperature - 205° C (396° F)		
Cruising - Long Range	**Below 13,000 ft**	**Above 13,000 ft**
RPM	1550	1550
MP	27.5	26.5
Mixture	Cruising Lean	Cruising Lean
Cylinder Head Temperature - 205° C (396° F)		
Oil Pressure - 80° C to 90° C (176° F - 194° F)	Idle 25 Minimum	
Fuel Pressure - 6-7 lb/sq in.		

3. SUPERCHARGERS.

Two-speed turbo superchargers with a low blower ratio of 7.06:1 and a high blower ratio of 10.06:1 are provided. Type AF regulators are used.

4. PROPELLERS.

Two three-blade, hydromatic, full-feathering propellers with a diameter of 12 ft 7 in. are provided. A reserve oil supply is always available for feathering the propellers regardless of the exhaustion of the engine oil supply. The propeller pitch settings are 23 degrees and 90 degrees high.

5. OIL SYSTEM.

Each engine is provided with an independent oil system consisting of an oil tank, two automatic temperature regulators, an engine-driven pump, an oil dilution system, and pressure and temperature indicators. B-25C airplanes, serial Nos. AC-41-12817 and higher, and B-25D airplanes, serial Nos. AC-41-29848 and higher, are provided with self-sealing oil tanks and supply lines. Each oil compartment has a capacity of 37.5 U. S. gallons (31.2 Imperial gallons). (See figure 12.)

6. EMERGENCY EQUIPMENT. (See figures 46, 47, and 48, section X, Emergency Operations and Instructions.)

7. AUTOMATIC FLIGHT CONTROL SYSTEMS.

a. B - 25C Airplane. - Automatic flight control equipment is installed on all B-25C airplanes except serial Nos. AC-41-12457, -12459, -12461, -12463, -12465, -12467, -12469, -12471, -12473, -12475, -12477, -12479, -12517 and higher, which have the type A-3 automatic pilot installed.

b. B- 25D Airplane. - Automatic flight control equipment is installed on all B-25D airplanes except serial Nos. AC-41-29848 and higher, which have the type A-3 automatic pilot installed.

8. MOVEMENT OF FLIGHT PERSONNEL. - (See figure 48, section X, Emergency Operations and Instructions.)

9. MOORING.

a. Block main landing gear wheels, engage parking brakes, lock surface controls, and install hydraulic control locking plate. Also see that nose wheel tow pin is engaged.

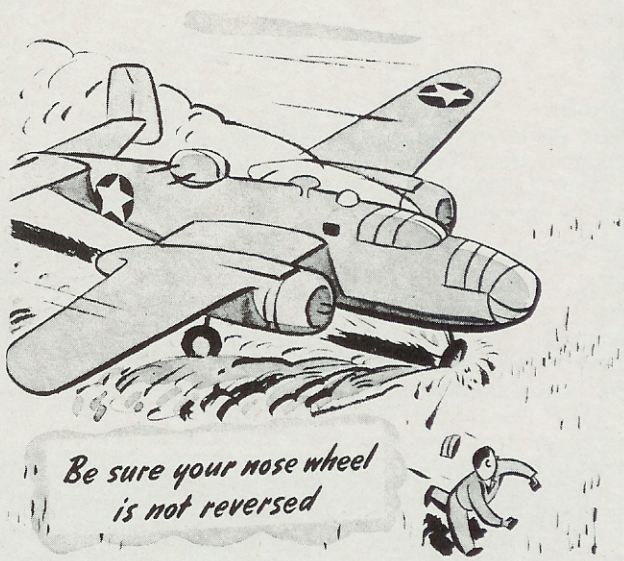
b. Install the four wing mooring shackles, the one in the fuselage and the one on the underside of the tail skid. Type D-1 mooring kit will be used. (See figure 15.)

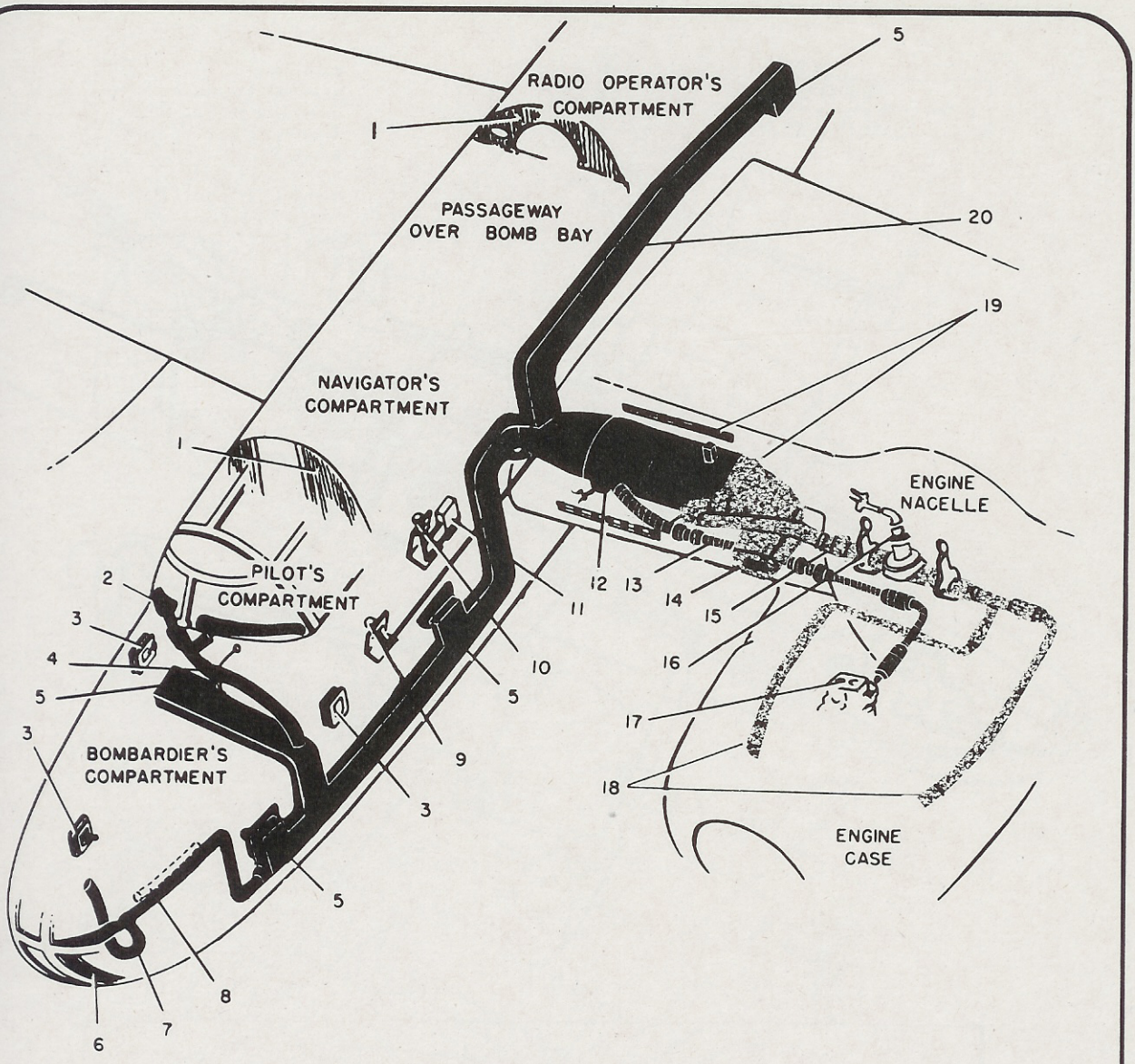
10. FLYING CHARACTERISTICS.

a. The general flying characteristics of the B-25C and B-25D airplanes are conventional for bi-motored bombardment airplanes.

b. Taxying Instructions.

(1) While taxying, the airplane should be turned by a gentle use of the brakes and engines, to avoid pivoting on one wheel. The minimum radius of turn of the inside wheel can be approximately ten feet (3 meters).

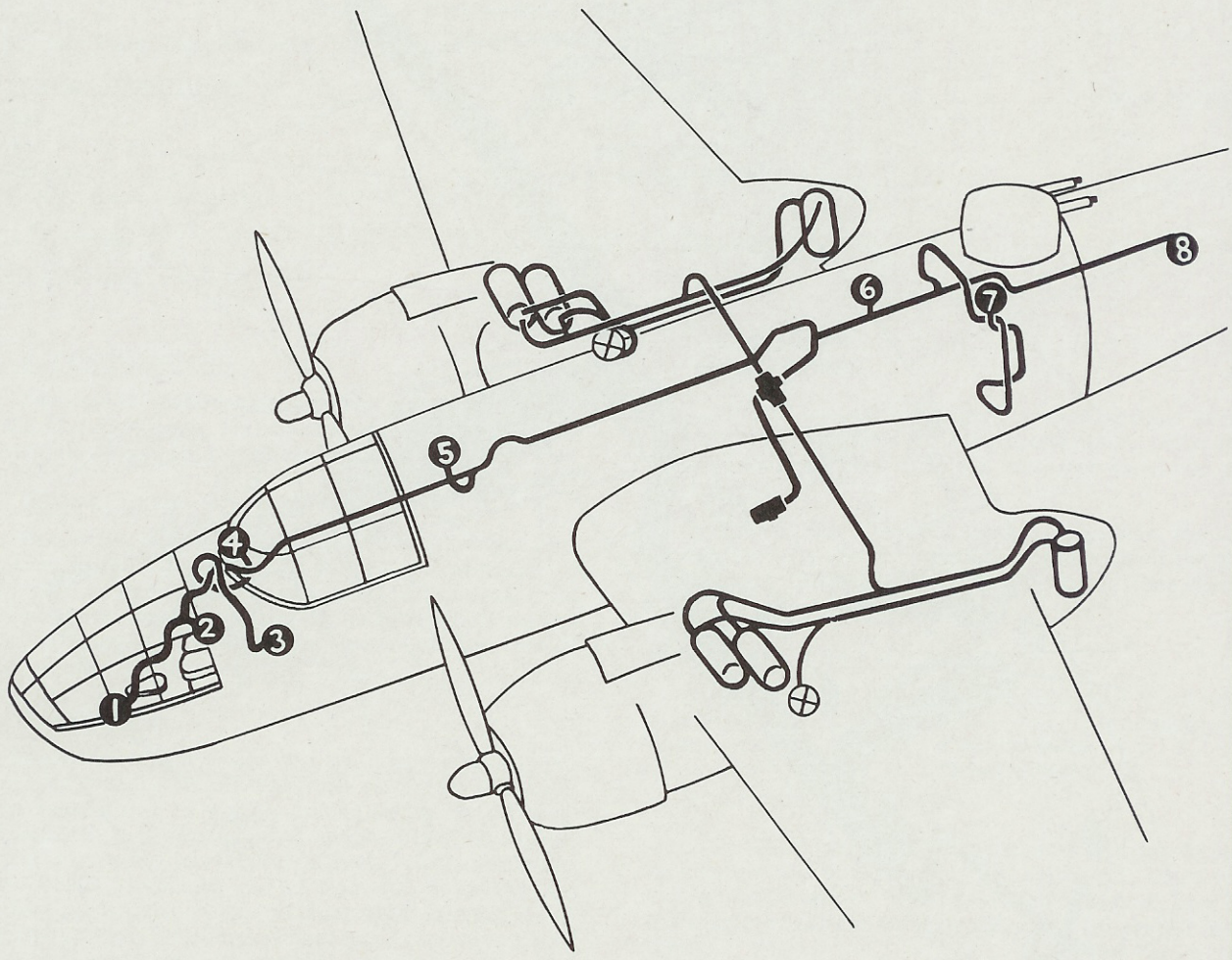




LEGEND

1 CURTAIN (ANTI-HEAT INFILTERATION)
2 WINDSHIELD DEFROSTER
3 VENTILATOR
4 PILOT'S AIR OUTLET CONTROL
5 CABIN AIR OUTLET
6 BOMB SIGHT WINDOW DEFROSTER
7 BOMB SIGHT DEFROSTER TUBE
8 BOMB SIGHT DEFROSTER TUBE (STOWED POSITION)
9 PILOT'S AIR FLOW CONTROL
10 AIR TEMPERATURE CONTROL
11 HEATER SWITCH BOX
12 HEATER UNIT
13 EXHAUST LINE
14 AIR INTAKE
15 ONE-WAY CHECK VALVE
16 SOLENOID
17 CARBURETOR
18 FUEL AIR MIXTURE LINES
19 OVERHEAT FUSES SURROUNDING HEATER
20 AIR DUCT

Figure 7 - Heating and Ventilating System Diagram



OXYGEN REGULATORS

AC94-40319 (TYPE-A9)

1 BOMBARDIER-BOMB SIGHT SEAT	3 PILOT	6 RADIO OPERATOR
	4 CO-PILOT	7 UPPER TURRET OPERATOR
2 BOMBARDIER-RIDING SEAT	5 NAVIGATOR	8 CAMERA OPERATOR

Figure 8 - Oxygen System Diagram

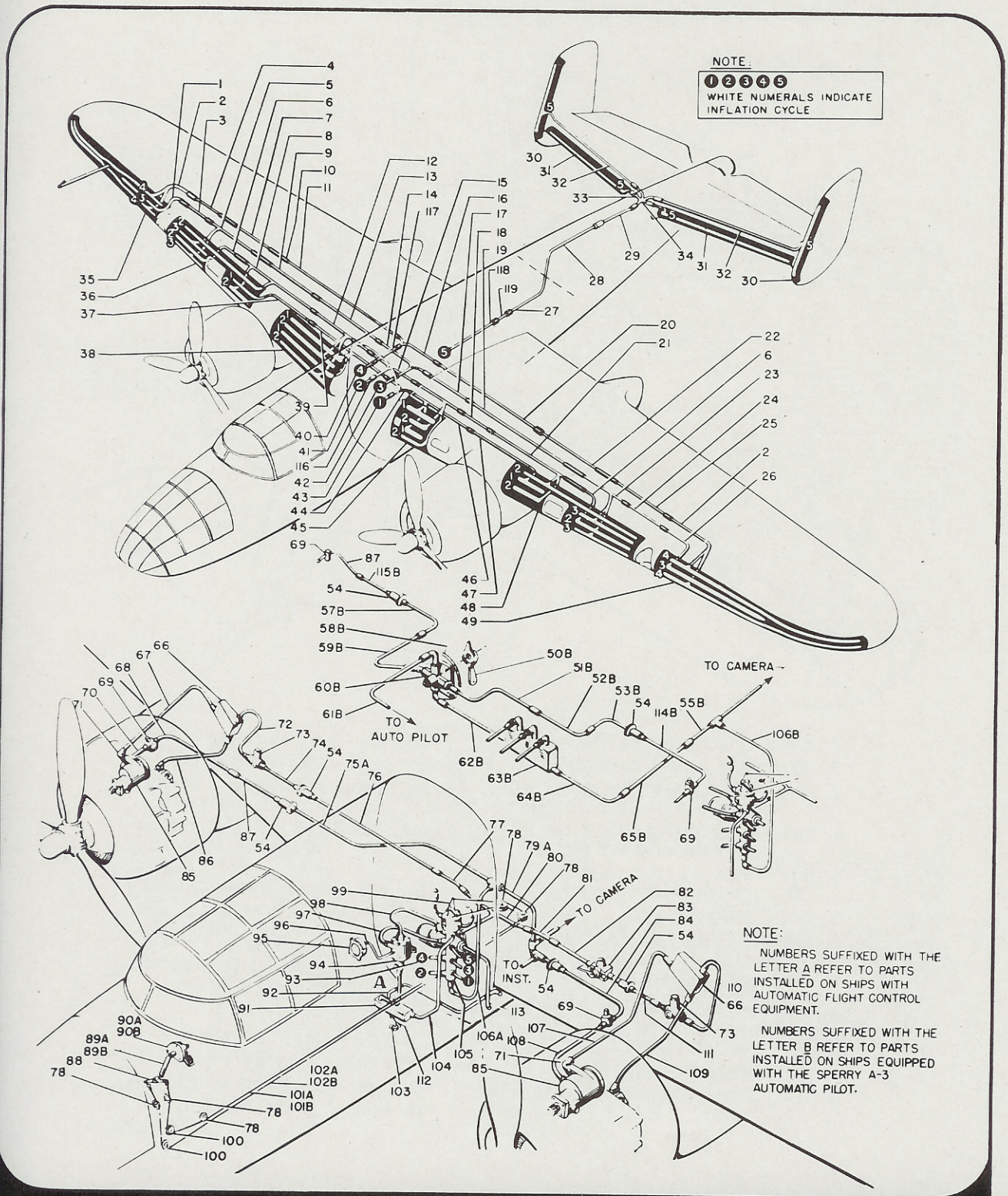
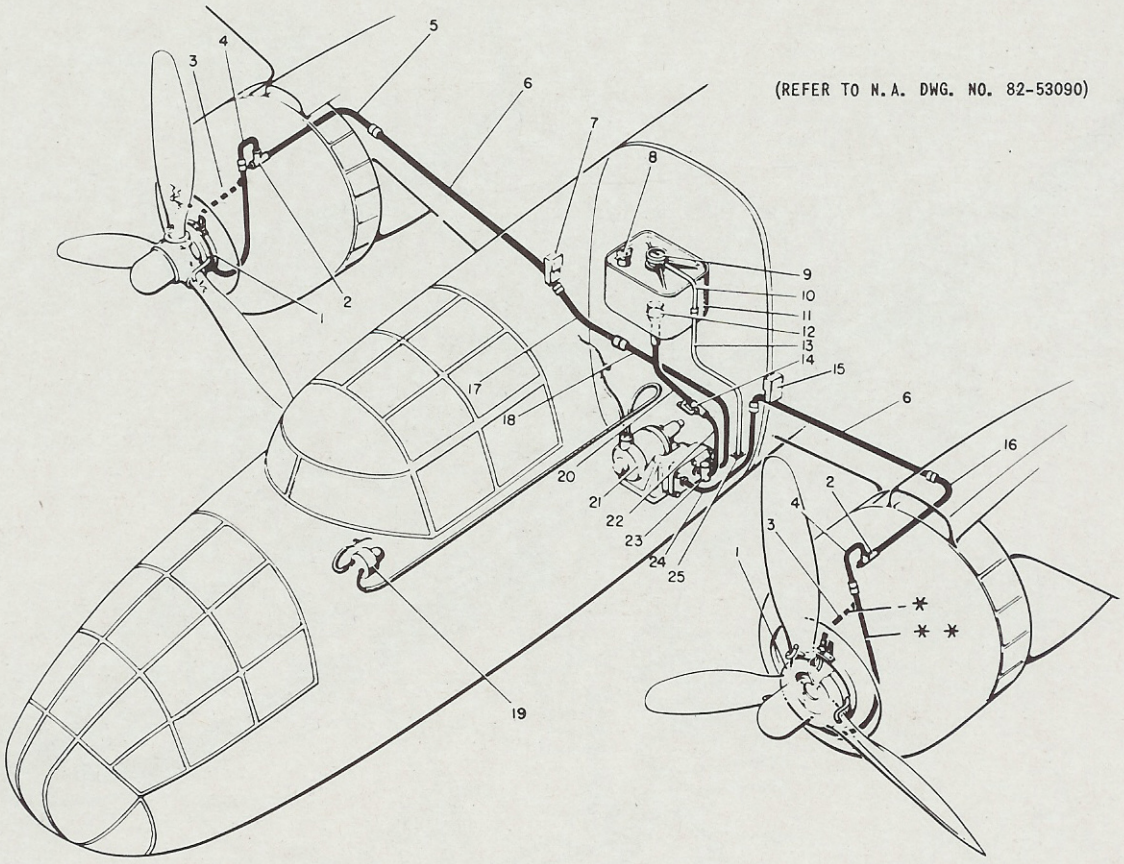


Figure 9 - De-icer System Diagram



1. SLINGER RING (HAMILTON STANDARD)
2. CHECK VALVE - ANTI-DRAIN (PARKER)
3. LINE - NACELLE CHECK VALVE TO SLINGER RING 2ND SECTION
4. LINE - NACELLE CHECK VALVE TO SLINGER RING 1ST SECTION
5. LINE - WING STA. 96 TO NACELLE CHECK VALVE RIGHT
6. LINE - WING STA. 27-96
7. SUPPORT - WING CENTERSECTION LINE LEFT
8. CAP - RESERVOIR FILLER
9. FLANGE - FLUID GAGE DIAL RETAINING
10. LINE ASSEMBLY - TANK DRAIN 1ST SECTION
11. TANK ASSEMBLY - SUPPLY
12. FLOAT ASSEMBLY - SUPPLY TANK FLUID GAGE
13. LINE - TANK DRAIN 2ND SECTION
14. VALVE - SHUT-OFF (PARKER)
15. SUPPORT ASSEMBLY WING CENTER-SECTION LINE RIGHT
16. LINE ASSEMBLY WING STATION 96 TO NACELLE CHECK VALVE LEFT
17. LINE - UNION TO WING BLOCK RIGHT
18. LINE - FLUID PUMP TO UNION RIGHT
19. RHEOSTAT, ANTI-ICER (OHMITE)
20. LINE - TANK TO VALVE
21. PUMP (ECLIPSE)
22. LINE - VALVE TO FLUID PUMP
23. FILTER (ECLIPSE)
24. LINE - FLUID PUMP TO UNION LEFT
25. DRAIN - SUPPLY TANK FLUID

Figure 10 - Anti-icer System Diagram

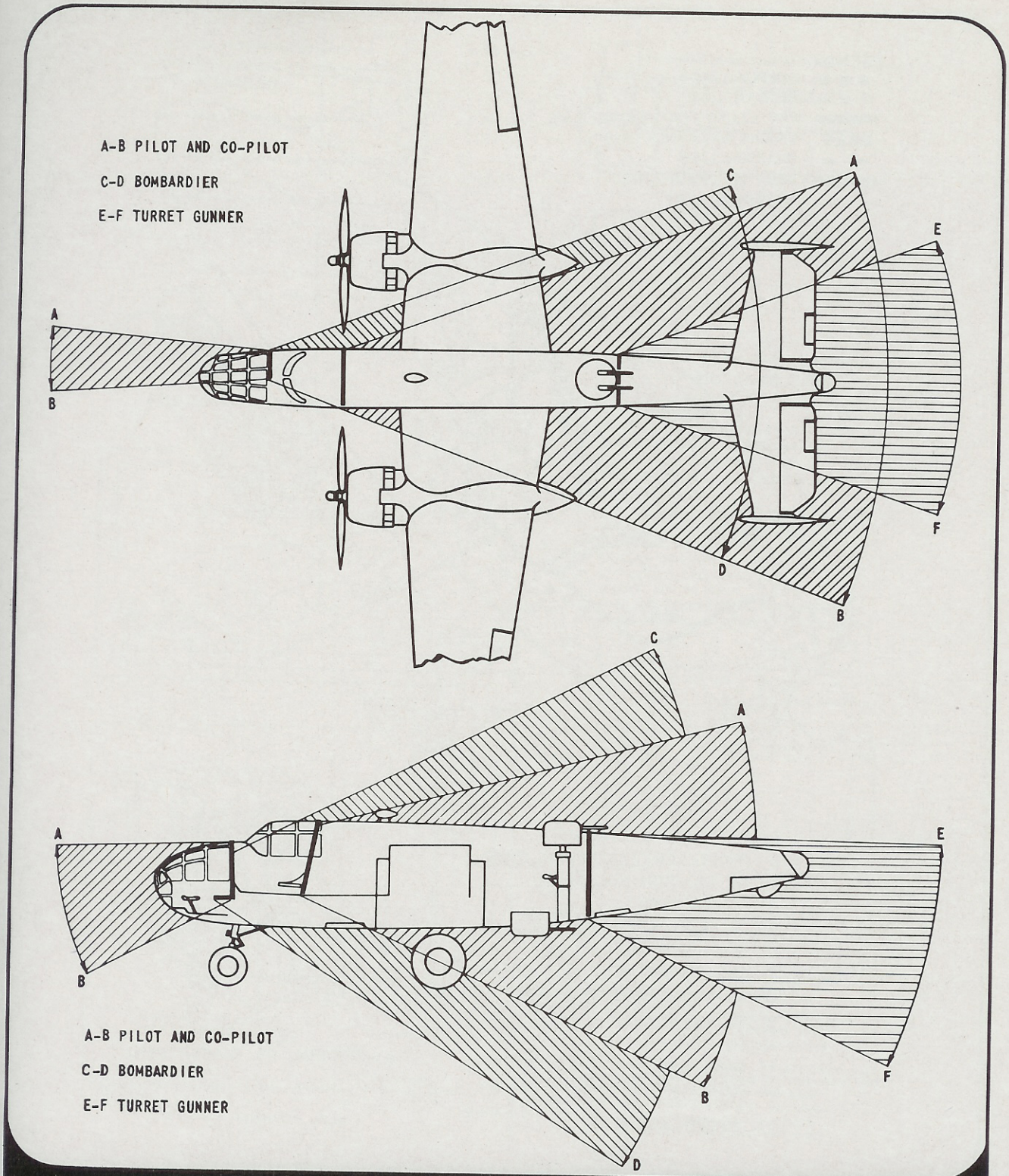


Figure 11 - Angles of Armor Protection

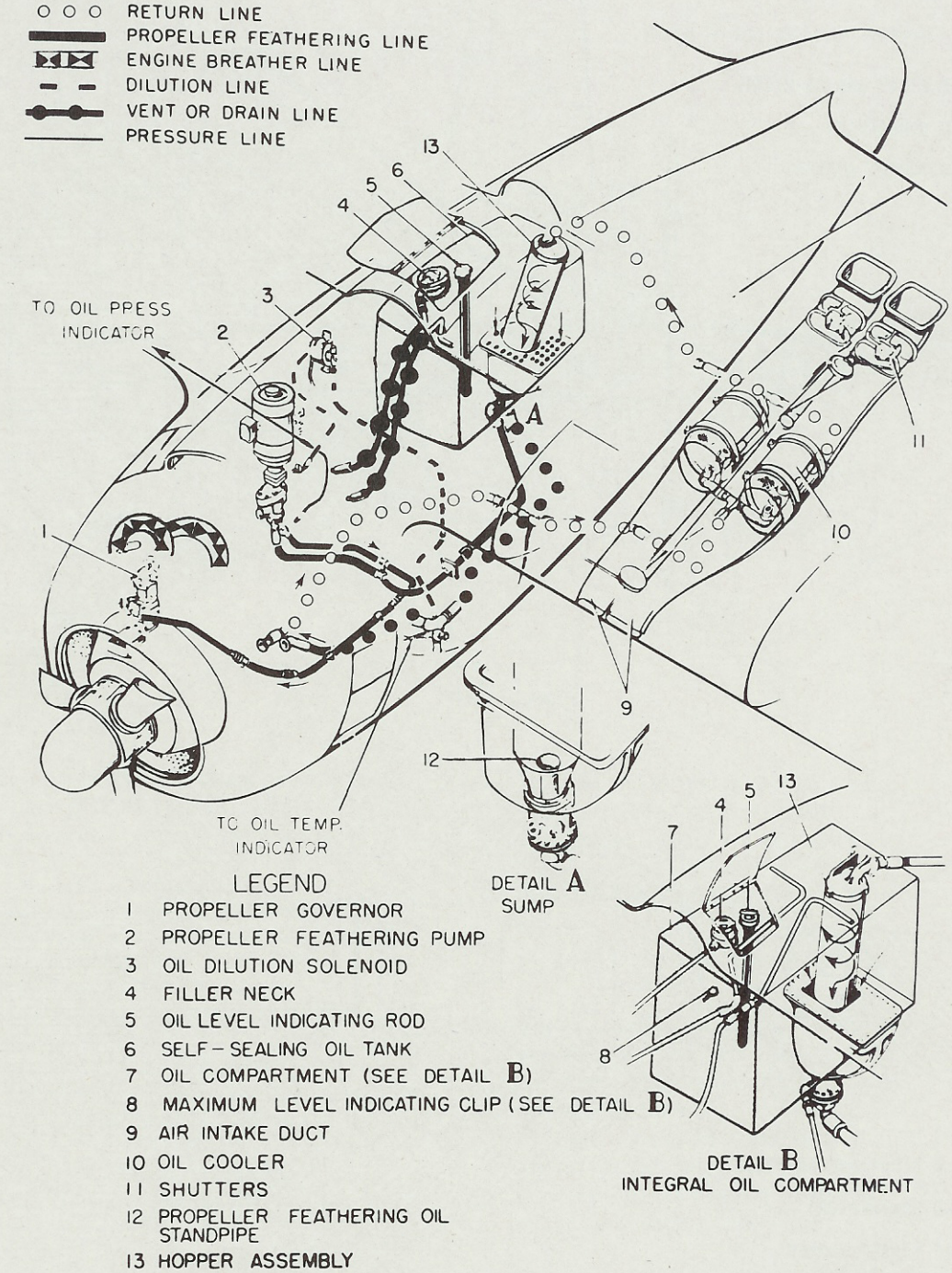


Figure 12 - Oil System Diagram

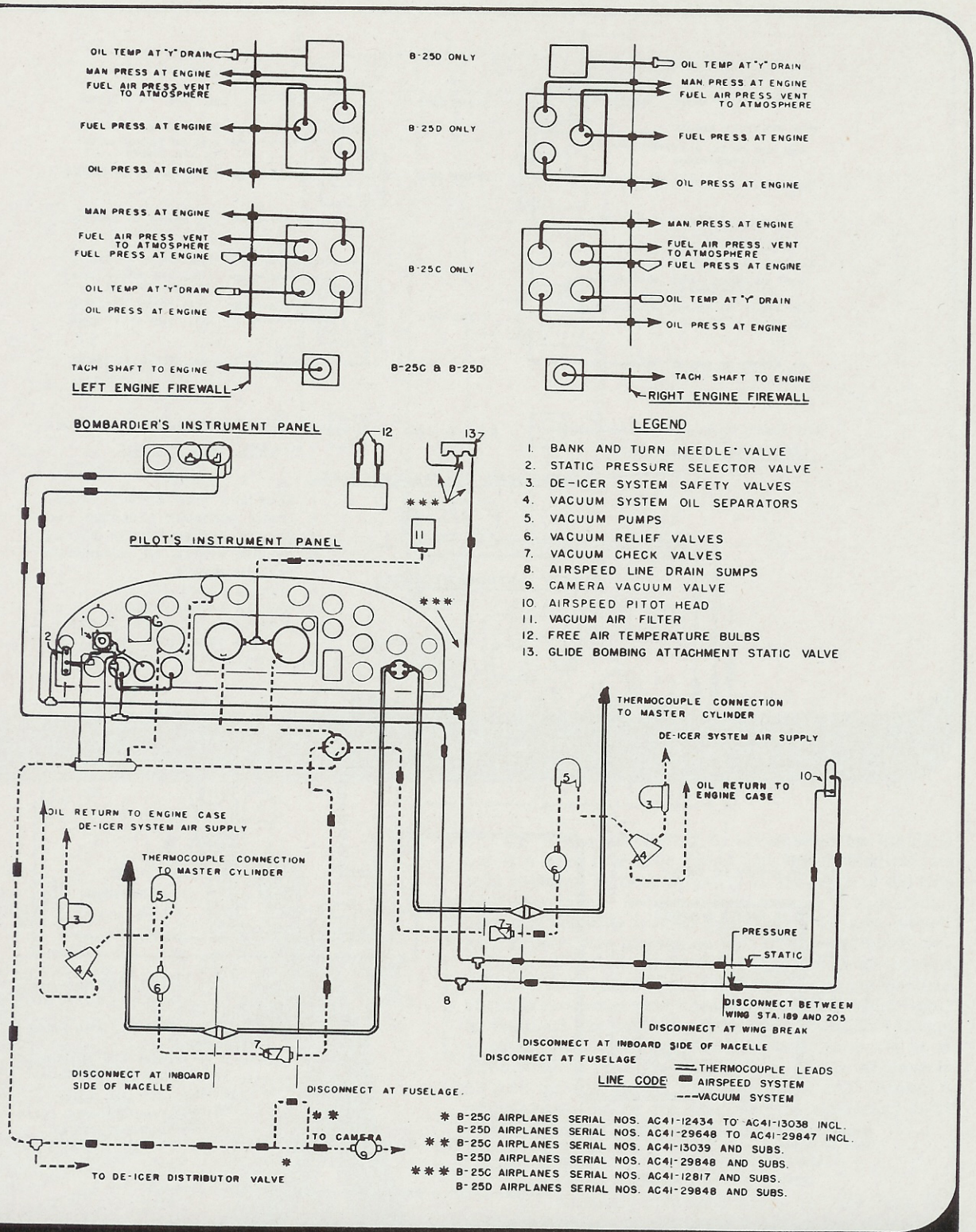


Figure 13 - Instrument and Vacuum System Diagram (A-3 Sperry)

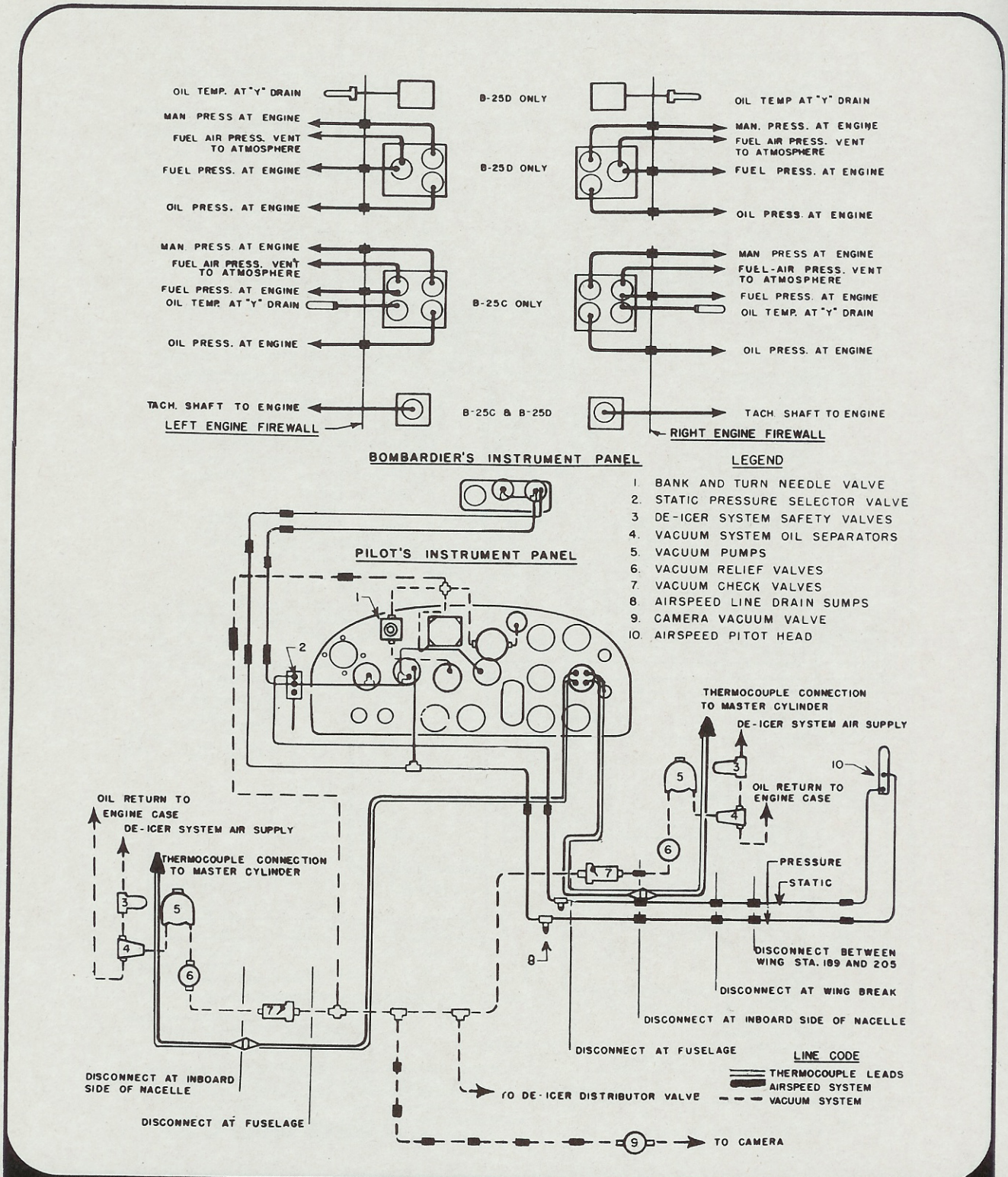


Figure 14 - Instrument and Vacuum System Diagram (A.F.C.E.)

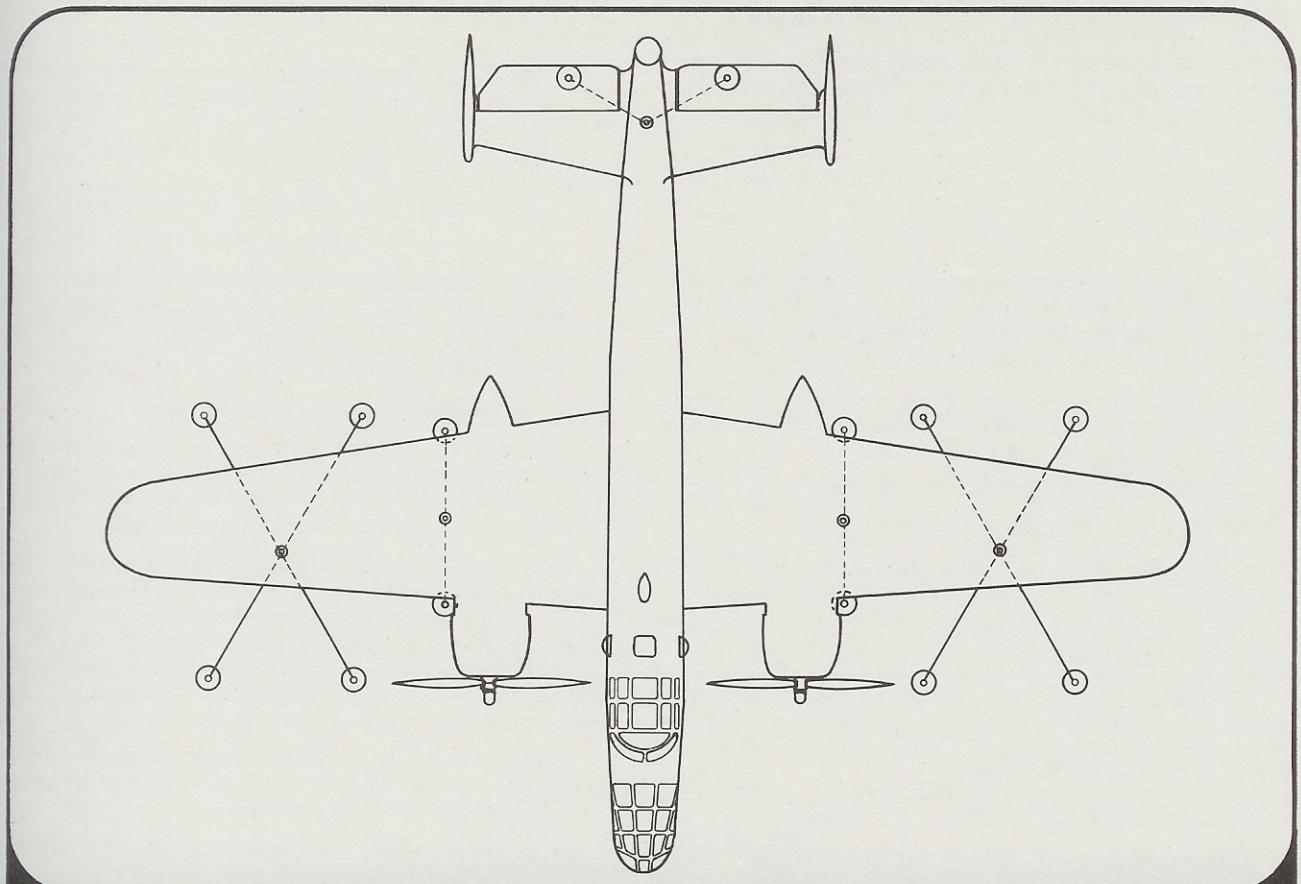


Figure 15 - Mooring Diagram

(2) When attempting to straighten the airplane out of a turn it will be found that the nose wheel has less tendency to trail properly as the depth of the tire sink increases. A tire sink in excess of 2 in. (5cm) causes a negative trailing reaction on the nose wheel, and, rather than straighten out, it will attempt to reverse its position and trail 180 degrees to its normal angle. If the tire sink exceeds 2 in. (5cm), one member of the crew should walk ahead of the airplane and signal to the pilot the position of the nose wheel and advise whether the nose wheel tends to trail properly or is attempting to reverse its position. If the airplane is pivoted on one wheel, the nose wheel will assume a sharp angle toward the rear, and the stationary pivot wheel will mire itself.

(3) If the airplane becomes mired:

(a) Manually turn nose wheel in line with the airplane fuselage by the use of a towing bar or a piece of iron pipe.

(b) If either of the main wheels sinks to a depth of 4 or 5 in. (10 or 12 cm), dig a shallow trench in front

of each wheel with a forward slope of 10 to 20 degrees. Then run engines to take-off power and release brakes quickly. If main wheels sink more than 5 in. (12 cm) move airplane by tractor. Do not attempt to tow airplane over soft ground by means of the nose wheel tow bar.

CAUTION: Considerable care should be exercised in manually turning the nose wheel because of danger from propellers.

c. Recovery from a stall can be made by dropping the nose of the airplane. A rolling tendency is counteracted by the application of the opposite aileron control and a slight amount of rudder.

(1) With the wing flaps fully down 45 degrees, the indicated stalling speed is reduced 20 mph at normal gross weight (25,450 lb; 11,542 kg).

(2) For stalling speeds refer to paragraph 10.m.

d. Trim Tab Changes Are Conventional.

e. Dives. - The maximum indicated diving air speed is 340 mph (295 knots) at normal gross weight.

f. Climbing. - An indicated air speed of at least 155 mph (133.3 knots).

g. Center of Gravity. - These airplanes have an allowable CG range from a maximum forward position of 20 percent (gear down) to a maximum rearward position of 32.6 percent (gear up).

h. Air Speed Restrictions.

(1) Do not exceed an air speed of 340 mph (295 knots) indicated.

(2) Do not lower landing gear at a speed in excess of 170 mph (148 knots) indicated.

(3) With landing gear down and wing flaps up do not exceed an air speed of 200 mph (174 knots) indicated.

(4) Do not lower main landing gear or nose gear by hand (mechanically) at a speed over 150 mph (130 knots) indicated.

(5) Do not lower wing flaps or fly with wing flaps down over 170 mph (148 knots) indicated.

(6) Do not lower wing flaps by hand or fly after the flaps are mechanically operated, at indicated air speeds over 150 mph (130 knots).

CAUTION: Do not attempt to operate the wing flap mechanically or even install crank except when a complete failure of the hydraulic system exists, since the hydraulic and mechanical systems oppose each other. For complete instructions refer to section X.

(7) Do not open bomb bay doors at an air speed over 290 mph (252 knots) indicated.

(8) Do not operate de-icer system at speeds above 230 mph (200 knots) indicated.

(9) Do not operate de-icer system during take-off or landing.

i. Single Engine Operation. - The minimum controllable speed with one engine is 140 mph (122 knots). Fly with dead engine high.

j. Power Plant Restrictions.

(1) Do not exceed an engine speed of 2880 rpm.

(2) Do not idle engines on ground below 450 rpm.

(3) Do not turn on high blower during take-off.

CAUTION: Use air pressure brake system in an emergency only. After using, hydraulic brake system must be bled.

k. Restricted Use of Automatic Pilot.

(1) Do not operate airplane by automatic pilot in extremely turbulent air, when de-icer system is operating, or when one or more engines are not delivering normal power output.

(2) Do not place airplane under control of the automatic pilot at any speed or altitude until the pilot has determined by manual operation that the existing flight conditions permit safe control by the automatic pilot, and in no case will automatic pilots be used when the airplane is flying at less than an indicated air speed of 40 mph (35 knots) above the stalling speed.

(3) Do not use automatic pilot unless one rated pilot remains "on watch" and maintains a close check of the airplane and instruments.

(4) Do not engage automatic pilot when follow-up indexes are not lined up.

(5) Do not make course and altitude changes by rapid knob movements. Turn slowly and smoothly.

(6) Do not allow airplane to get too far out of trim.

(7) Do not turn any of the three speed controls to "OFF" or lowest speed when automatic pilot is engaged, as this would lock the corresponding surface controls in whatever position they happen to be.

CAUTION: Automatic pilot can be overpowered.

l. Loading Limitations. - Only straight flying is permitted when airplane is loaded to specified maximum loaded weight for safe flight. Refer to paragraph p. for maneuvers prohibited.

m. Stalls. - The stalling speeds for these airplanes with flaps up are as follows:

Level flight	101 mph; 87.7 knots
30 degree bank	134 mph; 116.3 knots
60 degree bank	154 mph; 133.7 knots

(1) Recovery from a stall may be made by dropping the nose.

(2) Stalling characteristics are not affected by changes of the gross weight, amount of power used, the setting of the wing flaps, or the operation of the

de-icer shoes. However the indicated stalling speed is raised 4 mph by operation of the de-icer. With the wing flaps fully down (45 degrees) the indicated stalling speed is reduced 20 mph at normal gross weight (25,450 lb; 11,542 kg.). A slight buffeting on the elevator and the horizontal stabilizer warns of a stall.

n. Spins. - Intentional spins are prohibited. However if an unintentional spin develops recovery may be made in the conventional manner.

CAUTION: These airplanes are very clean aerodynamically and will accelerate very rapidly in a dive. Recovery from any dive position should be without delay and accomplished as smoothly as possible.

o. Acrobatics. - All acrobatics are prohibited.

p. Maneuvers Prohibited.

Loop	Inverted Flight
Spin	Vertical Bank
Roll	Immelman

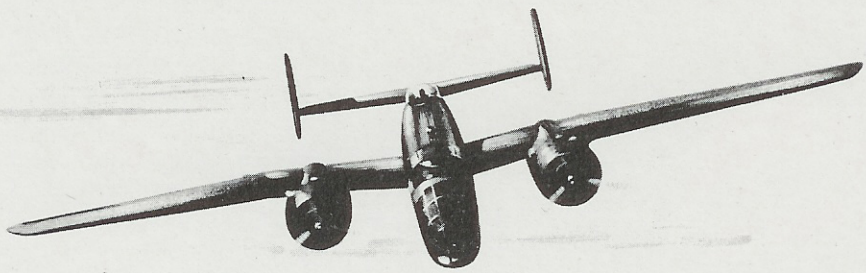
q. Diving.

(1) The maximum indicated air speed is 340 mph (295 knots) at normal gross weight.

(2) Recovery from dives should not be too abrupt.

(3) The following table gives maximum accelerations and diving speeds according to basic weight conditions:

Gross Weight							
	lb.	20,000	23,000	26,000	29,302	32,000	34.000
	kg.	9,070	10,430	11,791	13,291	14,512	15,419
Maximum allowable pull-out and push-over acceleration "g"		+3.67	+3.67	+3.67	+2.67	+2.67	+2.67
		-2.00	-2.00	-2.00	-1.67	-1.67	-1.67
Maximum allowable during speed (indicated)	mph	340	340	340	340	332	303
	knots	295	295	295	295	288	263



SECTION II

PILOT'S OPERATING INSTRUCTIONS

Pilot

Copilot

1. BEFORE ENTERING THE PILOT'S COMPARTMENT.

a. Check that nose gear towing pin is engaged.

b. To enter front entrance hatch:

(1) Verify that the lock on the front entrance hatch is unlocked.

(2) Depress flush type spring latch by pushing upward.

(3) Enter navigator's compartment.

c. While still in navigator's compartment:

(1) Check fuel cross-feed shut-off valve. (See figure 23-221.)

(2) Check fuel transfer valves. (See figure 23-222.)

Pilot

(3) Check generator main line switches. (See figure 23-224.)

(4) Check generator voltage switch. (See figure 23-225.)

(5) Check emergency nose gear operating pawl control (figure 25-239) "OFF."

2. ON ENTERING THE PILOT'S COMPARTMENT

a. Check for all flights.

(1) Check with radio operator that the main landing gear and wing flap emergency cranks are stowed.

(2) Check with navigator that bomb door emergency cranks are stowed.

(4) Check with crew members to see that the three emergency ground escape hatches are unlocked.

(19) Phone navigator to set emergency fuel shut-off valves to "ON."

Copilot

(3) Check emergency brake air pressure at 400-425 lb/sq in. (28.1 to 29.9 kg/sq cm)

(5) Ignition switches (figure 18-156) "OFF."

(6) Set parking brakes. (See figure 17-153.)

(7) Unlock surface controls by pulling up on lock handle (figure 18-161) and check operation.

(8) Remove snap wire hook attached to floor below landing gear control lever from the control handle (figure 21-192) and stow.

(9) Remove locking plate from wing and cowl flap control levers (figure 17-149) and stow the lock.

(10) See that automatic pilot or automatic flight control equipment is "OFF."

(11) If engines are inoperative for over two hours have propellers turned by hand three or four revolutions with the ignition "OFF."

(12) Crack open throttle 1/2 inch (1.27 cm) at (700-800 rpm).

(13) Set propeller control (figure 18-165) to "INCREASE RPM."

(14) Set mixture control (figure 18-167) to "FULL RICH."

(15) Lock supercharger control (figure 17-146) at "LOW."

(16) See that oil cooler shutter controls (figure 17-151) are "CLOSED."

(17) Set carburetor air (figure 16-141) to "NORMAL."

(18) Set cowl flaps (figure 17-149) to "OPEN."

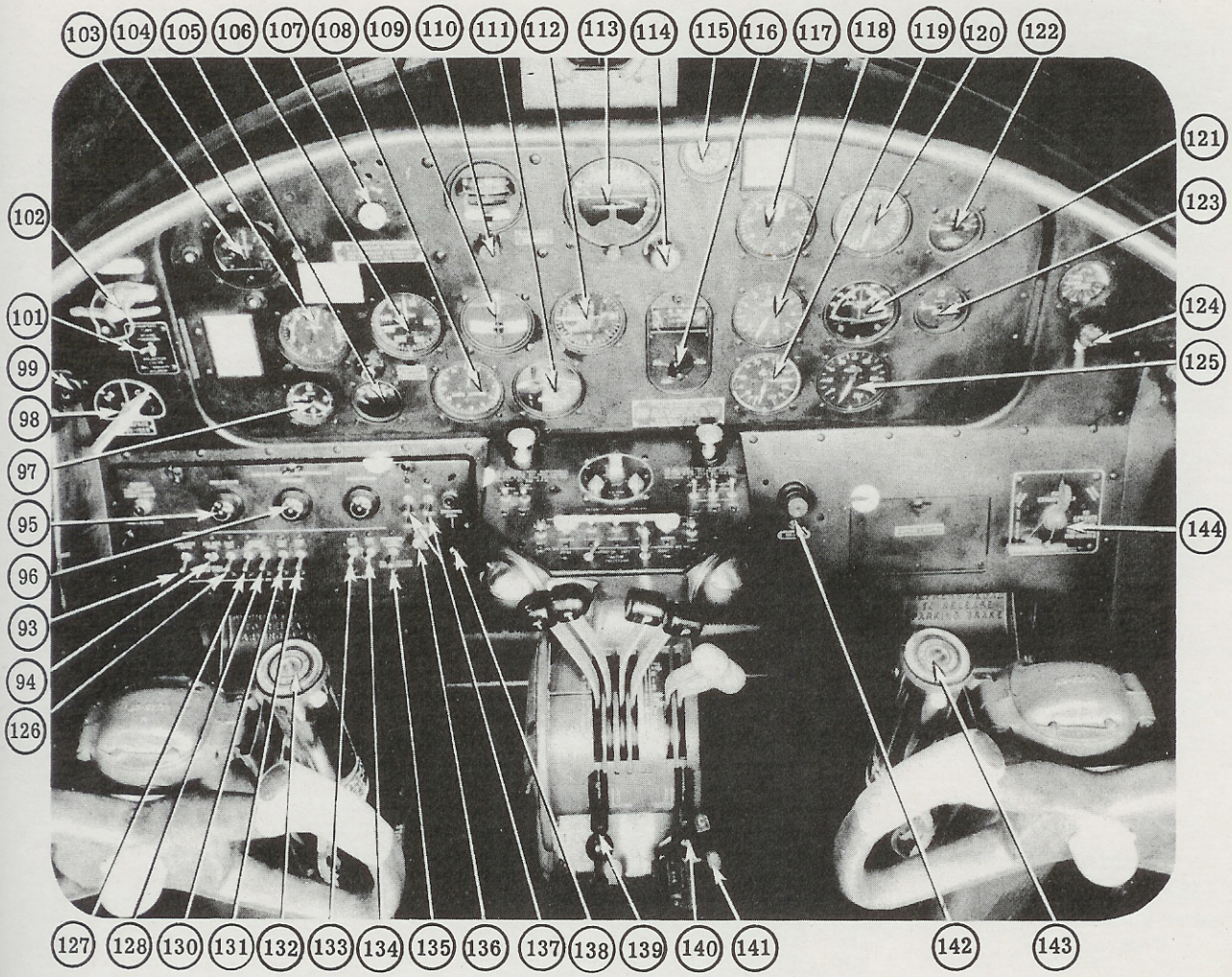


Figure 16 - Pilot's Instruments and Control Panel

93 Fluorescent Lights Switch
94 Landing Gear Warning Horn Release Switch
95 Propeller Anti-Icer Rheostat
96 Formation Lights
97 Clock
98 De-Icer Valve
99 Spring Latch for Side Window
101 Air-Speed Tube Static Pressure Selector Valve (Alternate Source)
102 Emergency Bomb Release
103 Pilot's Direction Indicator
104 Altimeter
105 Free Air Temperature
106 Air Speed
107 Vacuum Adjustment Knob
108 Radio Compass
109 Turn and Bank Indicator
110 Turn Indicator
111 Landing Gear and Wing Flap Indicator
112 Climb Indicator
113 Flight Control (Artificial Horizon)
114 Caging Knob
115 Vacuum Pressure
116 Fuel Selector Valve
117 Manifold Pressure
118 Fuel Pressure
119 Oil Temperature
120 Tachometer
121 Cylinder Temperature
122 Hydraulic Pressure
123 Hydraulic Brake Pressure
124 Oxygen Regulator
125 Oil Pressure
126 Passing Lights
127 Battery Disconnect (Left)
128 Battery Disconnect (Right)
129 Compass Light Rheostat
130 Pitot Heater
131 Dome Light Switch Panel
132 Lamp on Aileron Control
133 Cockpit Lights
134 Running Lights
135 Oil Dilution Both Engines
136 Identification Light Keying Switch
137 Identification Light Top and Bottom
138 Bombardier Signal
139 Locking Controls, Propeller, and Mixture
140 Locking Controls
141 Carburetor Air
142 Extension Light and Switch
143 Lamp on Aileron Control
144 Fire Extinguisher Selector Valve and Pull Handle

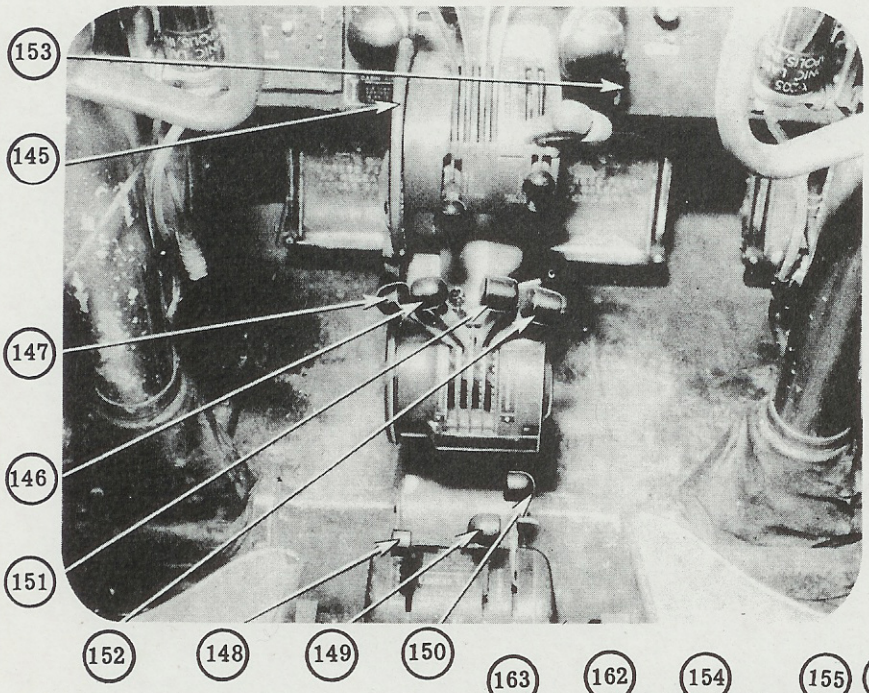


Figure 17 - Pilot's Control Pedestal

145 Rudder Trim Tab (Altitude)
146 Supercharger Control
147 Supercharger Control
148 Wing Flaps
149 Cowl Flaps
150 Cowl Flaps
151 Oil Cooler Shutters
152 Oil Cooler Shutters
153 Parking Brake

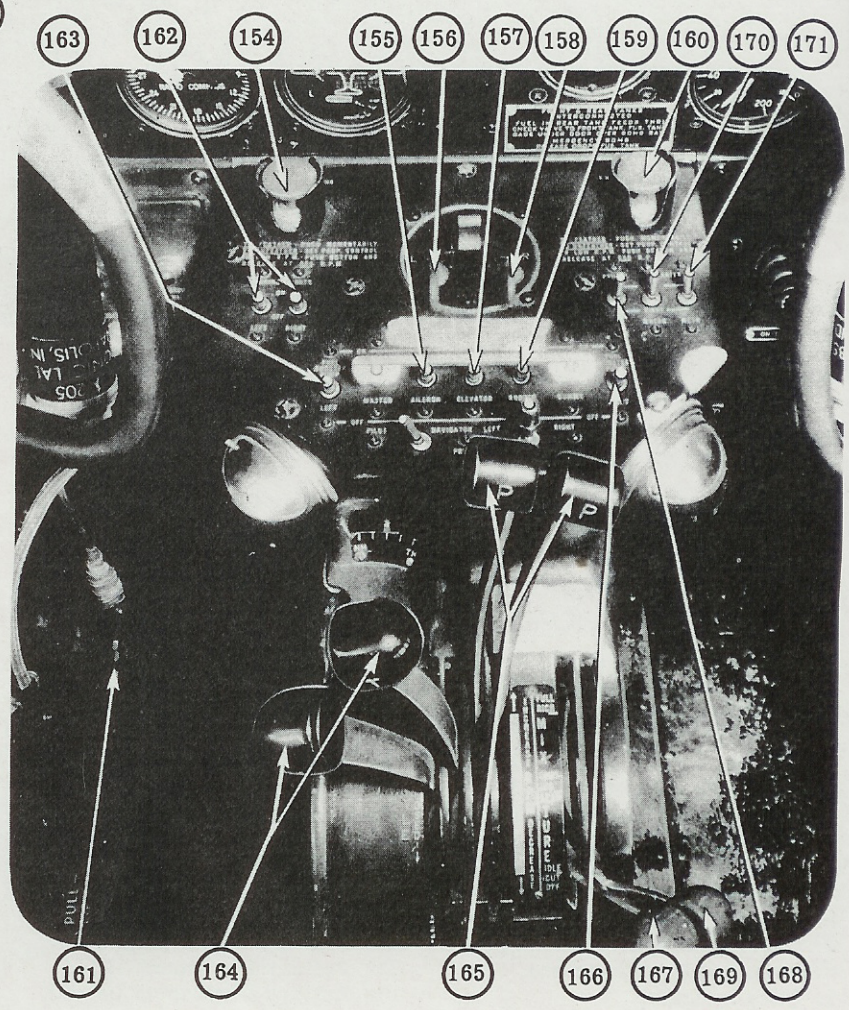


Figure 18 - Pilot's A.F.C.E. Control Panel

154 Propeller Feathering Knob
155 Aileron (A.F.C.E.)
156 Left Ignition Switch
157 Elevator (A.F.C.E.)
158 Right Ignition Switch
159 Rudder (A.F.C.E.)
160 Propeller Feathering Knob
161 Surface Control Lock Handle
162 Landing Lights
163 Fuel Booster Pump
164 Throttle
165 Propeller
166 Fuel Booster Pump
167 Mixture Control
168 Primer Switch
169 Mixture Control
170 Energizing Switch
171 Starter Switch