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RB-26, 26A and B-26B AIRPLANES

PILOT'S FLIGHT OPERATING INSTRUCTIONS

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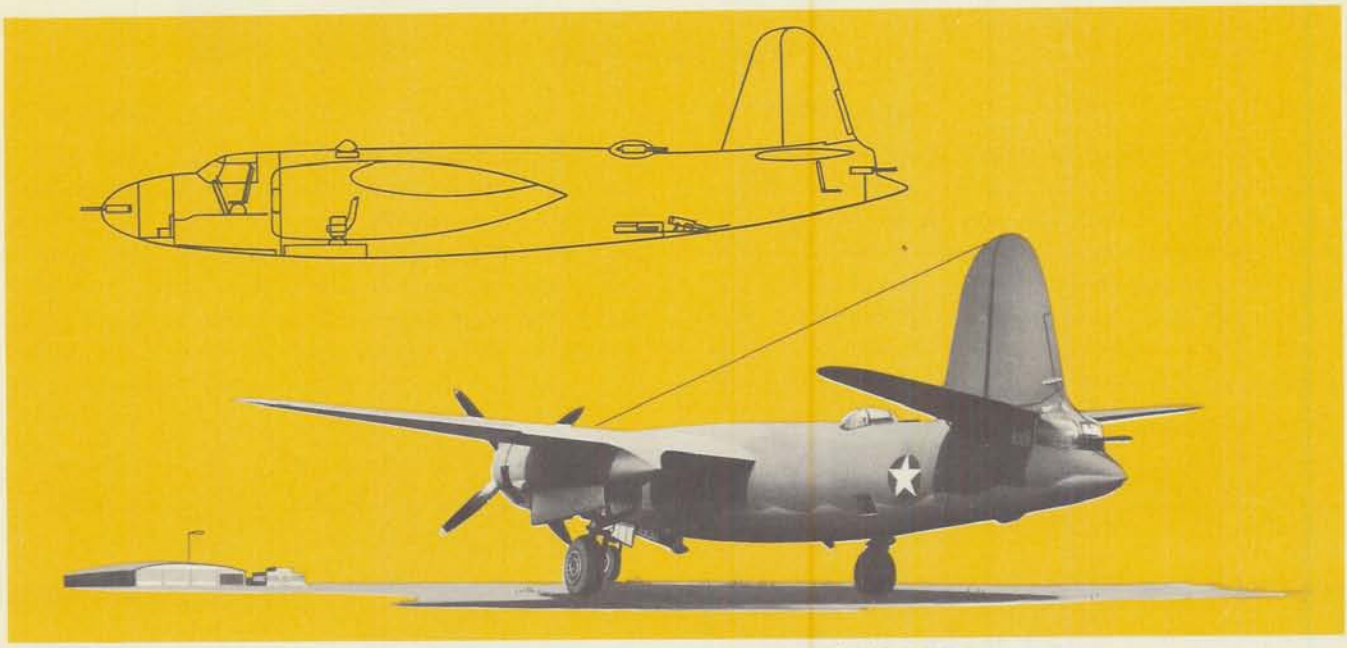
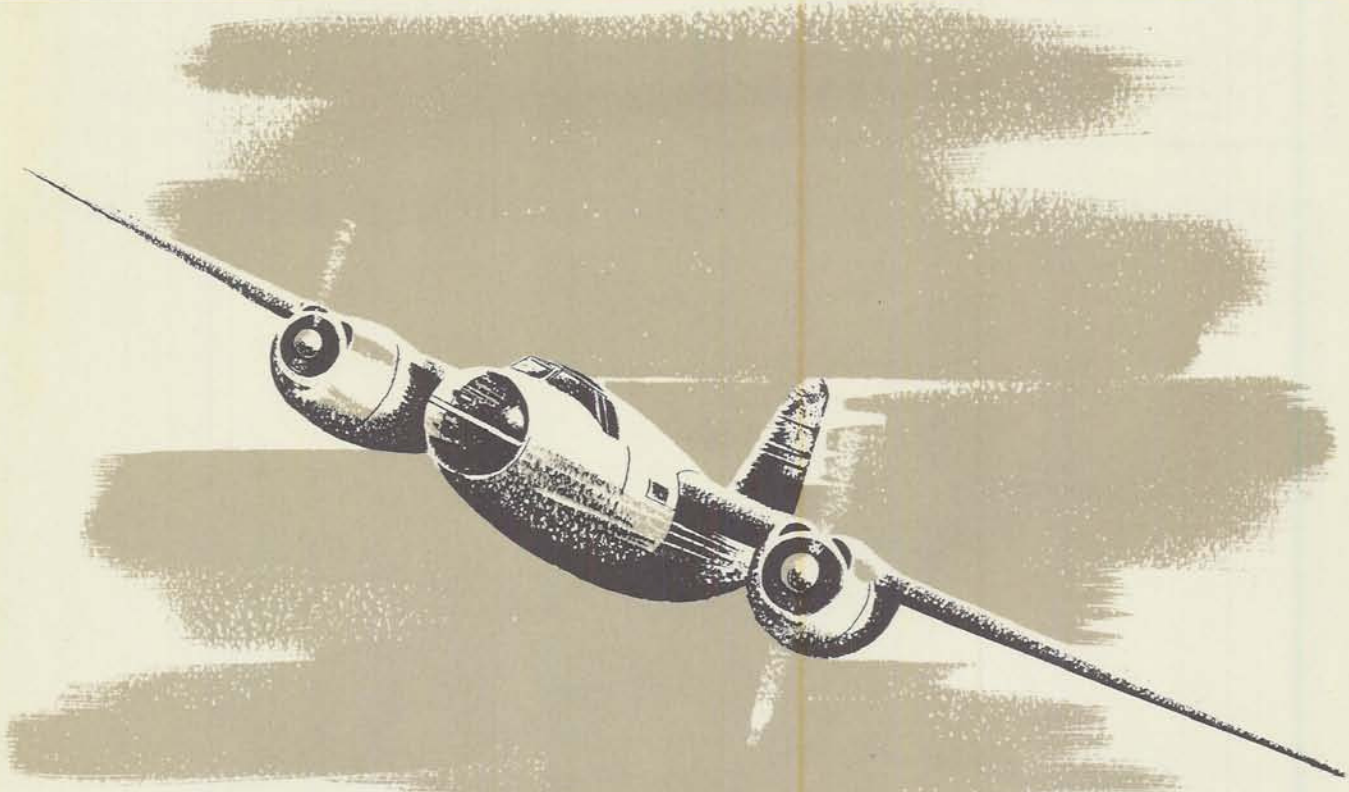




B-26

Three Views of the B-26 Medium Bomber

3. ARMAMENT.

a. B-26 and B-26A:

One flexible .50 caliber gun in nose
One flexible .50 caliber gun installed by clips to rear bulkhead of aft bomb bay (remove and fire through any opening)
One flexible .50 caliber in tail
Two flexible .50 caliber in upper turret.

b. B-26B. These vary on their gun installations, but will usually carry the following equipment. Most of the guns may be quickly detached to permit rapid conversion of the airplane for different missions:

One flexible .50 caliber gun in nose
One fixed .50 caliber gun in nose
Two flexible .50 caliber waist guns
One flexible .50 caliber tunnel gun
Two flexible .50 caliber guns in the tail
Two flexible .50 caliber guns mounted in upper turret
Four fixed .50 caliber guns mounted on the sides of the airplane in blisters

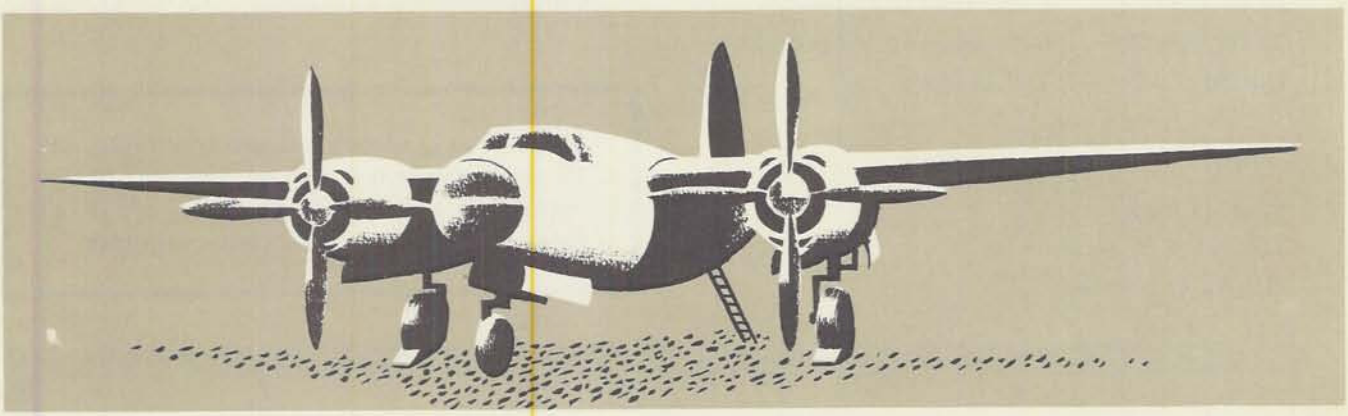


Figure 3—View With Rear Ladder Down

SECTION I
PILOT AND COPILOT

1. ACCESS TO COMPARTMENT.

ENTER through nose wheel well. A hinged door on the B-26 (sliding panel on B-26A and B-26B) is unlocked with the same key provided for the rear gunner's lower hatch. The rear hatch may be used for entry, but its height above the ground makes entry difficult until the ladder inside is obtained. EXIT DURING FLIGHT through the nose wheel well or go aft and out either bomb bay. EXIT ON GROUND OR WATER by pulling the emergency release handle in roof of pilots' compartment and escaping through upper hatches.

2. ARMOR PROTECTION.

Armor plate is provided, affording protection for the pilot and copilot from the angles illustrated (fig. 4). For protection for the other crew members, see their respective sections.

3. CONTROLS AND OPERATIONAL EQUIPMENT.

a. AIRPLANE CONTROLS.

(1) GENERAL.

(a) SEATS.—Each seat may be adjusted for desired height by first releasing its locking lever (fig. 5-2) and then moving the entire assembly up or down to the desired height followed by releasing the locking lever, then "juggling" the seat slightly in a vertical direction until the locking dogs definitely snap into place. Fore and aft adjustment may be accomplished as described above except the locking lever (fig. 5-3), located on the aisle side of the seat, is operated. To tilt the seat, operate lever (fig. 5-1) on the side of the seat towards the cockpit wall.

(b) HEATING AND VENTILATION.—Mixture of cold and exhaust heated air is controlled from

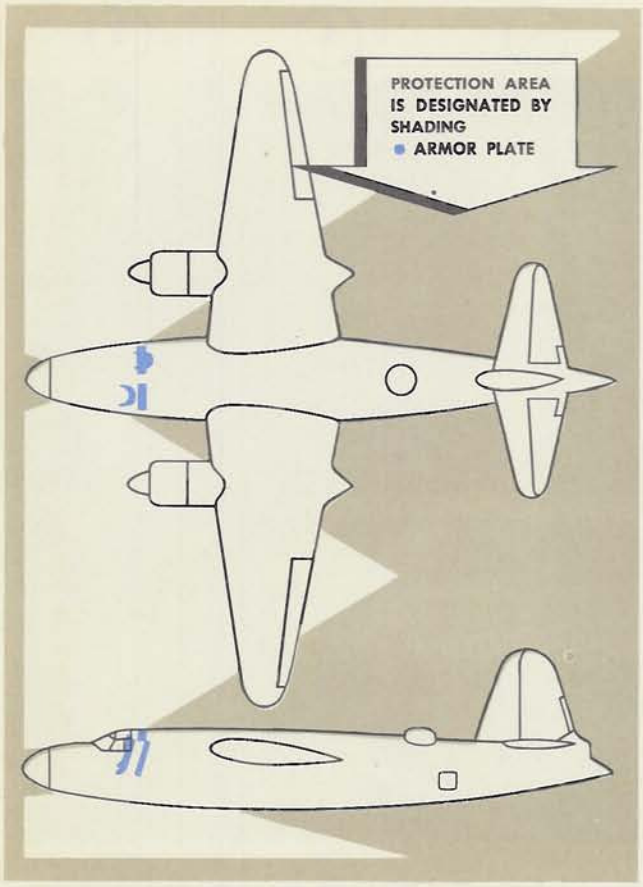


Figure 4—Pilot's and Copilot's Armor Diagram

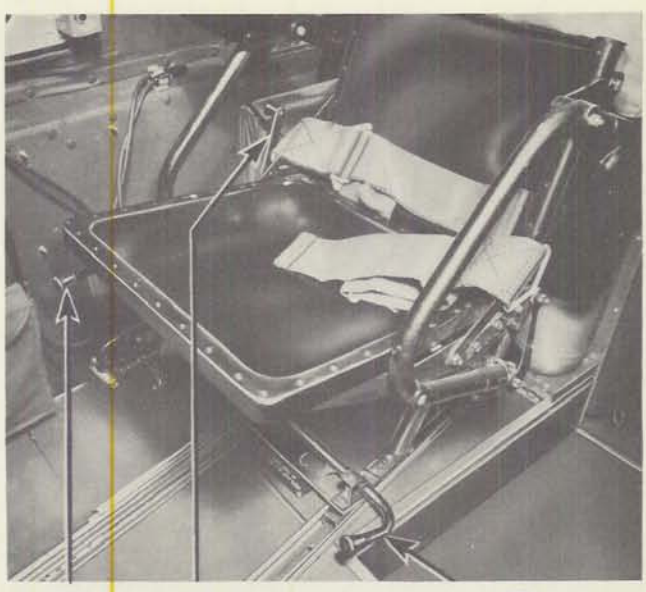
the navigator's compartment. Individual shutters are provided for each compartment. See diagrams, figs. 87 and 88.

(c) OXYGEN SYSTEM.—This is a low pressure system filled from the aft bomb bay. Each bottle is equipped with a check valve so that a bullet hole through one bottle will not cause the whole system to leak. Oxygen regulators are provided at each station.

(d) ANTI-ICING EQUIPMENT.—(1) There are standard slinger rings for propellers and a five gallon fluid tank controlled by a rheostat (fig. 24-20). (2) Carburetor air heat control is located on the control pedestal (fig. 26-20). (3) Carburetor anti-icer control is located on front instrument panel.

(e) DE-ICING EQUIPMENT.—Wing de-icer shoes are operated by a De-icer Distributor Valve located either on the wall to rear and left of pilot or on the rear center wall of radio compartment (fig. 38-1).

(f) FIRE EXTINGUISHER EQUIPMENT. — Engine fire extinguishing system is controlled by a selector valve located under a hatch in a recess on the



1. Tilt Lever
2. Height Lever
3. Fore and Aft Lever

Figure 5—Seat Adjustment

floor between pilot's and copilot's seats. To operate the system set selector (fig. 7) to right or left engine and give T-shaped operating handle (fig. 7) a quick pull.

(g) VACUUM SELECTOR. — When vacuum selector lever (fig. 23-5) is up, right engine operates instruments and camera and left engine operates the de-icer. Vacuum selector lever DOWN reverses this action. The de-icer lever (fig. 38-1) must be placed in its down position to be ON.

(h) Static Pressure Air Speed Alternate Tube Source Selector Valve is located at the pilot's left elbow.

Figure 6
Pilot's Oxygen Regulator

1. Ventilator
2. Oxygen Regulator

(u) UPPER HATCH OPERATING INSTRUCTIONS.—Two hatches are provided in the ceiling of the pilot's compartment. Each hatch hinges to the side of the airplane and is latched to the fuselage upper center beam (fig. 17). A small arm with a red disc about two inches in diameter is connected to the hatch doors in such a manner that it will appear directly before the pilot's or copilot's eyes if the hatches are not definitely down and secured.

(v) TORPEDO RELEASE.

1. ELECTRICAL.—Using this release it will be released "ARMED." PULL handle (fig. 12-1) out and down. This places shackles in "Select" position. Press firing key (fig. 11) to release torpedo.

2. MECHANICAL.—Pull red ring (fig. 12-1). This removes a stop on the normal release handle. Then pull release handle (fig. 12-1) all the way out to drop torpedo "Armed."

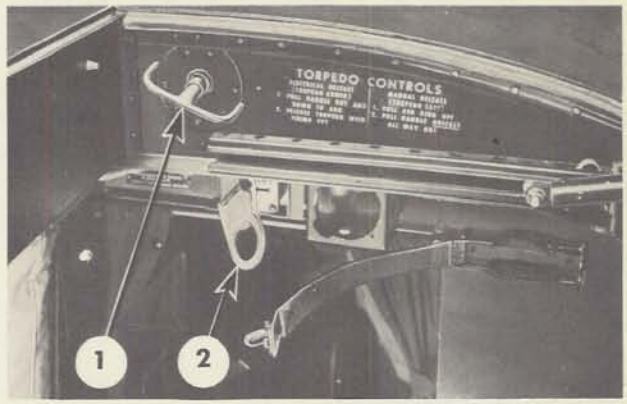
3. EMERGENCY.—Pull emergency bomb release (fig. 17-2) to drop torpedo and/or bombs.

(w) FUEL TRANSFER SYSTEM.

1. The fuel transfer system is operated from the front bomb bay, and the fuel gage is located on the pilot's instrument board. Complete detailed instructions and illustrations for operating the fuel transfer pumps, including emergency operation, are contained in the section of this handbook covering operating instructions for the forward bomb bay.

2. The pilot should direct some member of the crew to transfer fuel from right or left auxiliary or bomb bay tanks to the right and left main tanks when his fuel gage indicates the supply is running low. An interphone connection is provided in the front bomb bay where the men operating the fuel transfer pumps can plug in his mike to contact the pilot during pumping operations. The pilot should set his fuel gage (fig. 24-13) to the tank into which fuel is being pumped, and notify the fuel transfer pump operator when the tank is full so that the pump can be stopped.

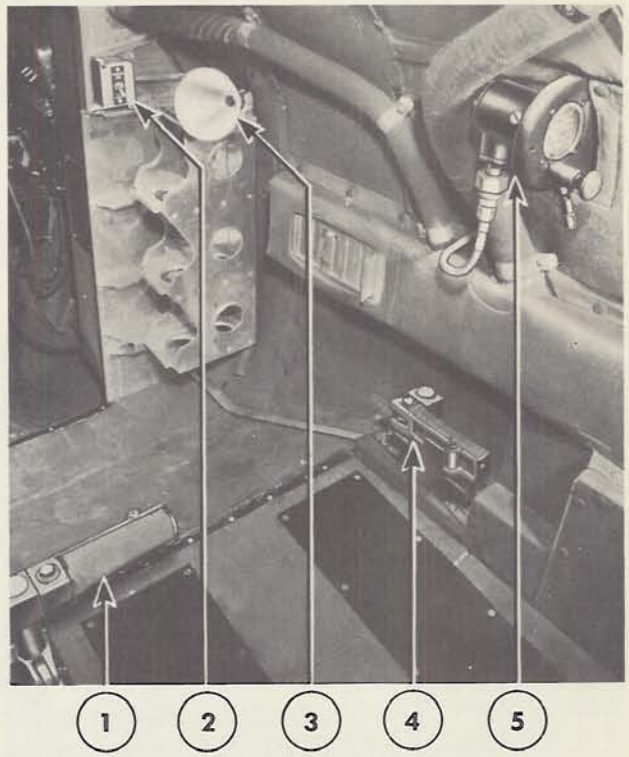
NOTE: The fuel transfer system is so arranged that LEFT auxiliary cannot be transferred to *left* main, but must be transferred to the *right* main tank. In the same manner, the *right* auxiliary must be transferred to the *left* main tank. The pilot should be prepared to compensate for right or left wing heaviness as fuel can be removed from only one auxiliary tank at a time.



1. Normal Pedal 2. Emergency Release Ring

Figure 12—Emergency Torpedo Release Switch

WARNING: Extreme care must be exercised to stop pumping *into* the right or left main tanks after they are full, as the pressure generated by the electric or hand fuel pump is sufficient to burst the gasoline tank. To make matters more complicated, the gage for the right and left main fuel tanks on the pilot's instrument board is calibrated to 275 U. S. gallons maximum, but the tank will hold 360 U. S. gallons.



1. Rudder Pedal 2. Dome Light Switch 3. Portable Light
4. Rudder Pedal 5. Oxygen Regulator

Figure 13—Copilot's Side Looking Forward

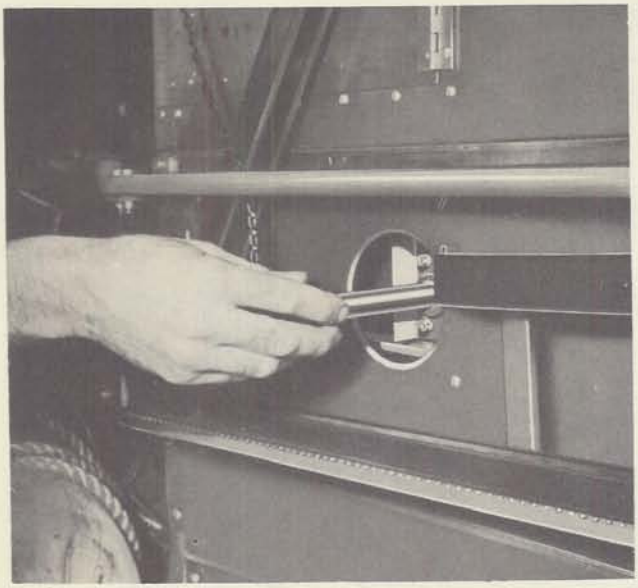


Figure 14—Elevator Control Lock

WARNING: DO NOT EXCEED "FULL" GAGE READING ON ANY FUEL TANK WHEN OPERATING THE FUEL TRANSFER PUMPS, ELECTRIC OR HAND.

(2) FLIGHT CONTROLS.—Dual side by side wheel-column and rudder pedal controls are provided with conventional toe brakes on the pilot's rudder pedals only. The copilot's rudder pedals (right seat) may

Figure 15—Rudder Control Lock

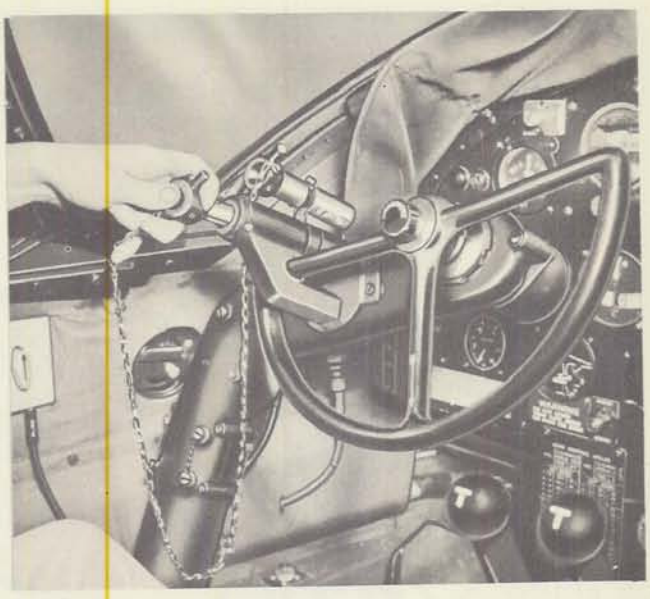


Figure 16—Aileron Control Lock

be stowed by pressing a small lever on the back of the tread and then swiveling the pedal arm rearward 90 degrees until the spring loaded locking pins snap into place. To place pedals into operation from a stowed position, first press the spring loaded locking pins, then turn the pedal treads in and forward until their locking pins snap into position.

(a) SURFACE CONTROL LOCKS.—To lock aileron, elevator, and rudder controls, first obtain the special lock yoke from its stowage bag located back of the pilot's seat. Rotate the pilot's aileron control wheel counterclockwise about 20 degrees and place the yoke over the control wheel spoke and control column and press it firmly into a special recess located in the base

1. Emergency Bomb Release
2. Emergency Release Control
3. Emergency Air Brake
4. Aileron Trim Tab Control
5. Rudder Trim Tab Control

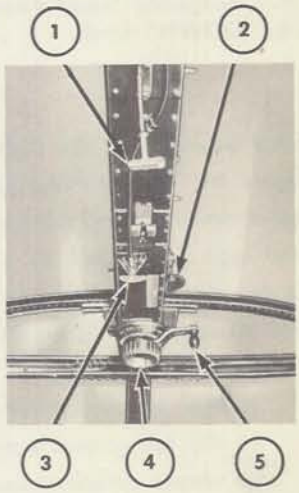
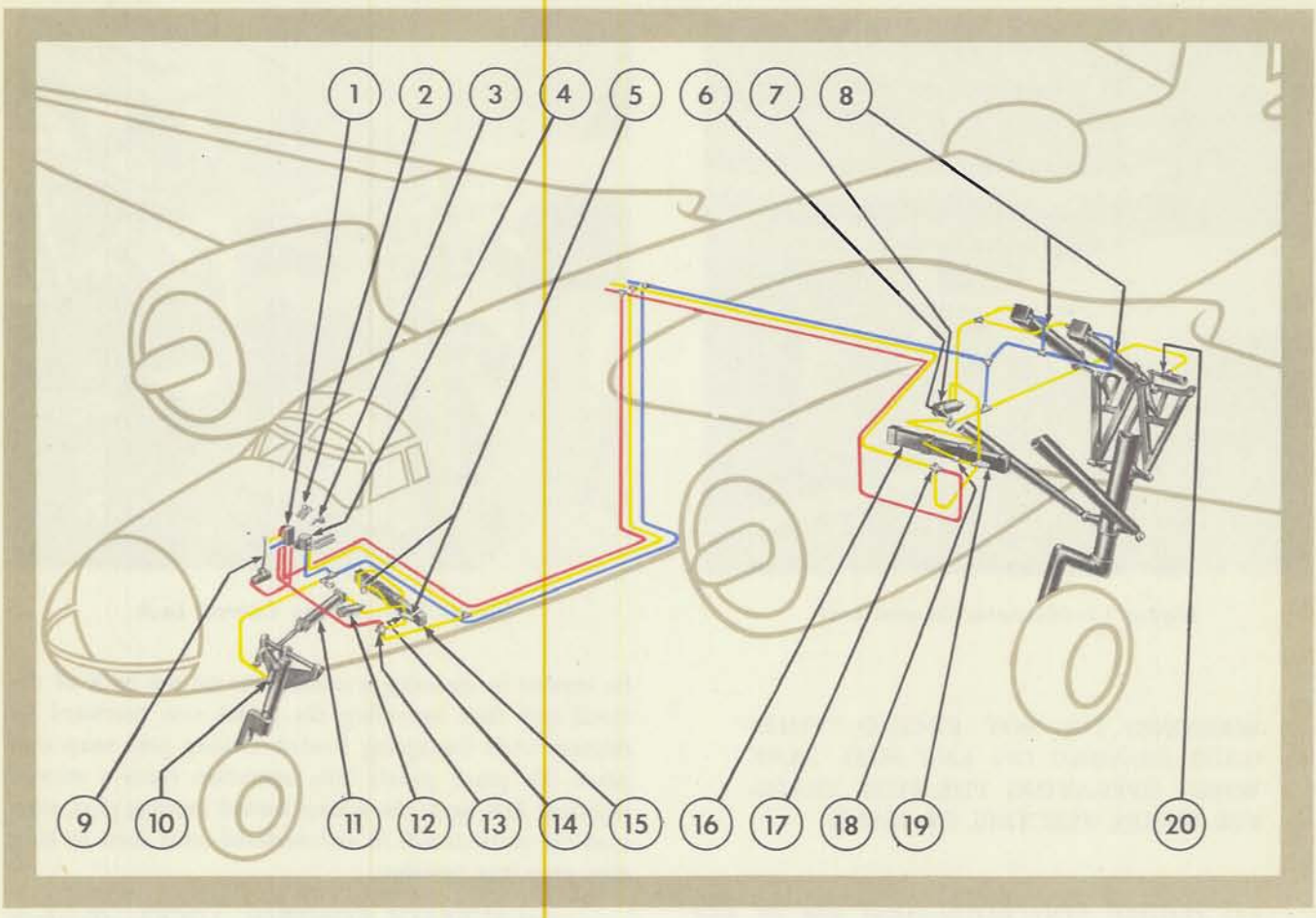


Figure 17

Upper Center Beam (Pilot's Compartment)



1. Nose and Main Gear Emergency Valve
2. Emergency Valve Release
3. Landing Gear Control Lever
4. Landing Gear Valve
5. Load and Fire Valves
6. Load and Fire Valve
7. "UP" Lock
8. Retracting Cylinders
9. Emergency Hand Pump
10. "DOWN" Lock
11. Retracting Cylinder
12. "UP" Lock
13. Shuttle Valve
14. Restrictor Valve
15. Door Cylinder
16. Door Cylinder
17. Shuttle Valve
18. Restrictor Valve
19. Load and Fire Valve
20. "DOWN" Lock

Main Pressure Lines
Main Return Lines
Emergency Lines

Figure 18—Landing Gear Diagram

plate attached to the control column as illustrated in figure 16. Turn locking key marked "Elevator" 90 degrees clockwise and remove. Take the elevator and rudder keys (connected by a chain) to the tail gunner's entrance passage, and open the elevator quadrant inspection panel (fig. 14), on the left side of the airplane.

NOTE: It will be necessary to open a "gate" in the tail gunner's upper machine gun track to obtain sufficient room for insertion of the elevator lock. Remove the cowl clip (fig. 14) from the track and fold a small section of it back on the hinge provided as illustrated in figure 14.

Neutralize the elevator quadrant with the two side fittings and insert the "Elevator" key all the way until the snap spring engages. Open the inspection panel for the rudder quadrant (fig. 15) in the ceiling and centralize the hole in the rudder quadrant with the hole in

the lug on the stabilizer rear spar and insert the "Rudder" key all the way until the snap spring engages. This procedure locks all surface controls. Reverse this procedure to disengage locks.

CAUTION: Do not attempt to remove the "Elevator" key from the lock yoke without first installing the yoke to the pilot's control wheel and column. Do not attempt a forceful removal of the lock yoke from the pilot's control wheel and column, but secure keys from elevator (fig. 14) and rudder (fig. 15) tail quadrants and unlock.

(b) ELEVATOR TRIM TAB CONTROL.—Located on the side of the pedestal adjacent to the pilot. Rotate top of wheel (fig. 26-2) FORWARD to put nose DOWN.

(c) RUDDER TRIM TAB CONTROL.—Located on the ceiling at the fuselage center line. Turn crank (fig. 17-5) CLOCKWISE to turn nose of airplane to the RIGHT.

(d) AILERON TRIM TAB CONTROL.—Located on the ceiling on the fuselage center line. Turn knob (fig. 17-4) CLOCKWISE to put the right wing DOWN.

NOTE: All tab controls are equipped with indicators calibrated in degrees. Tabs are flush with surface of airfoil when the indicator is set at zero degrees. To obtain the greatest number of miles-per-gallon on long range operation, the airplane should be loaded so as to permit level flight with a minimum number of degrees elevator tab adjustment.

(e) WING FLAP CONTROL.—Move flap lever (fig. 26-5) "UP" to retract, and "DOWN" to extend flaps. The flaps may be stopped at any intermediate position by returning the control lever to "NEUTRAL." A spring catch will hold the flap control lever in neutral after it has been placed in that position.

1. EMERGENCY OPERATION.—Place control handle (fig. 26-5) in its "DOWN" position and direct some member of the crew to manually wind the flaps down from the forward bomb bay. Return control handle to its "NEUTRAL" position *after* the flaps are down.

NOTE: Refer to Section VII (forward bomb bay instructions) for illustrations and instructions on manual operation of the wing flaps.

(f) LANDING GEAR AND NOSE WHEEL CONTROL.—Hydraulically operated from the control pedestal with provisions for automatic or emergency hand operation. Male and female serrations are provided on the control lever arm and guide in which it operates to prevent accidental movement, and it will be necessary to hold the lever knob toward the right sufficiently to disengage these serrations before attempting vertical movement.

1. LANDING GEAR DOWN.—The landing gear should not be lowered until the IAS is 185 mph or less. Close the engine throttles until the landing gear warning horn sounds (usually at about 15 to 20 in. Hg), then move the landing gear control lever (fig. 26-16) all the way down and leave the lever in its full "DOWN" position continuously between landing and take-off. If the warning horn does not cease sounding, it is evident that the gear is not definitely down with its locks in place. In this event, employ the emergency instructions outlined in paragraph 3*a (f)* 3 following.

2. LANDING GEAR UP.—The landing gear may be raised at any air speed. Move the landing gear control lever (fig. 26-16) all the way up and hold until the position indicator (fig. 24-16) shows the landing gear retracted. Return the control lever to "NEUTRAL."

3. EMERGENCY OPERATION.—If the nose and main gear fails to extend and lock when operated in accordance with instructions contained in the above paragraphs, proceed as follows:

a. FIRST EMERGENCY OPERATING INSTRUCTIONS:

(1) Observe the pressure shown on the hydraulic gage (fig. 26-6), and if it is below normal, it will indicate that the hydraulic system has either definitely failed, it is out of fluid, or it has an air lock somewhere in the lines. In this event, move the main landing gear control lever (fig. 26-16) to its "UP" position in an effort to bleed the lines, and if the hydraulic pressure returns to normal, proceed to lower the gear in the normal manner. If the pressure drops to zero, proceed as follows:

(2) Landing gear control lever (fig. 26-16) "DOWN."

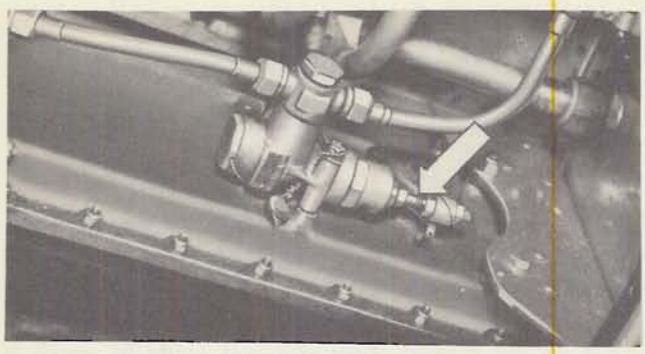


Figure 19—Load and Fire Valve

(3) Emergency nose gear lever (fig. 26-15) "EMERGENCY DOWN."

(4) Operate emergency hand pressure pump (fig. 26-13) until the nose gear doors open, the "UP-LOCKS" release, and the gear moves to its down and locked position as shown by the position indicator (fig. 24-16).

(5) Set emergency nose gear lever (fig. 26-15) to "NEUTRAL" if the airplane has been in combat, otherwise leave the lever in its "DOWN" position.

(6) Set emergency main gear lever (fig. 26-14) "EMERGENCY DOWN."

(7) Operate emergency hand pressure pump (fig. 26-13) until the main gear doors open, the main gear "UP-LOCKS" release, and the main gear falls into place as shown on the position indicator (fig. 24-16).

(8) Set emergency nose gear (fig. 26-15) and emergency main gear (fig. 26-14) levers to "NEUTRAL" position.

(9) The nose and landing gear is definitely down and locked if the landing gear warning horn fails to sound when the throttles are closed.

b. SECOND EMERGENCY OPERATING INSTRUCTIONS.—NOSE GEAR LOCK.—If the nose gear fails to *lock* in down position under regular and first emergency instructions, it may be because the load and fire valve has failed to function. This valve is located in the nose wheel well and should be hand operated by the copilot as follows:

(1) Open the trap door in the floor between the pilot's and copilot's seats and get down on knees with head facing towards the rear of the airplane.

(2) Place the left hand on the top entrance step (rear bulkhead of nose wheel well) and reach around under the pilot's cockpit floor in a forward direction.

(3) Locate the load and fire valve by feeling along the *front* side of the nose wheel well cross brace over toward the left side of the airplane. The load and fire valve is cylindrical in shape, about 6 inches long, and is mounted crossways to line of flight. It is equipped with a tappet (similar to an engine cylinder valve rocker arm tappet, except it operates as a straight plunger instead of through an arc) acting against a plunger (similar in size to the top of a valve stem) in the end of the load and fire valve. About 10 pounds pressure is needed to depress the plunger. Practice this on the ground.

(4) Hand operation consists of pushing this plunger in about one-quarter inch without getting the fingers caught by the tappet. This can be done by spreading the fingers on either side of the tappet and pushing over towards the right engine on the plunger. The pilot should place the emergency nose gear handle (fig. 26-15) in "NEUTRAL" position first, then move the main gear control (fig. 26-16) "UP," and then put the main gear control "DOWN" while the load and fire valve is held in. *Hold plunger in until the nose gear locks definitely snap into place,* evidenced by silencing of the landing gear warning horn. Refer to paragraph 2 in Appendix II on Hydraulic Emergencies.

NOTE: If the nose gear cannot be lowered, retract the main gear and bring the airplane in on its belly. This airplane is very well constructed along the under side of the fuselage, and will make a very nice belly landing. Crew members should not be in the nose, tail, or upper turret during landing or take-off. Do not attempt to land with the main gear down if the nose gear is up.

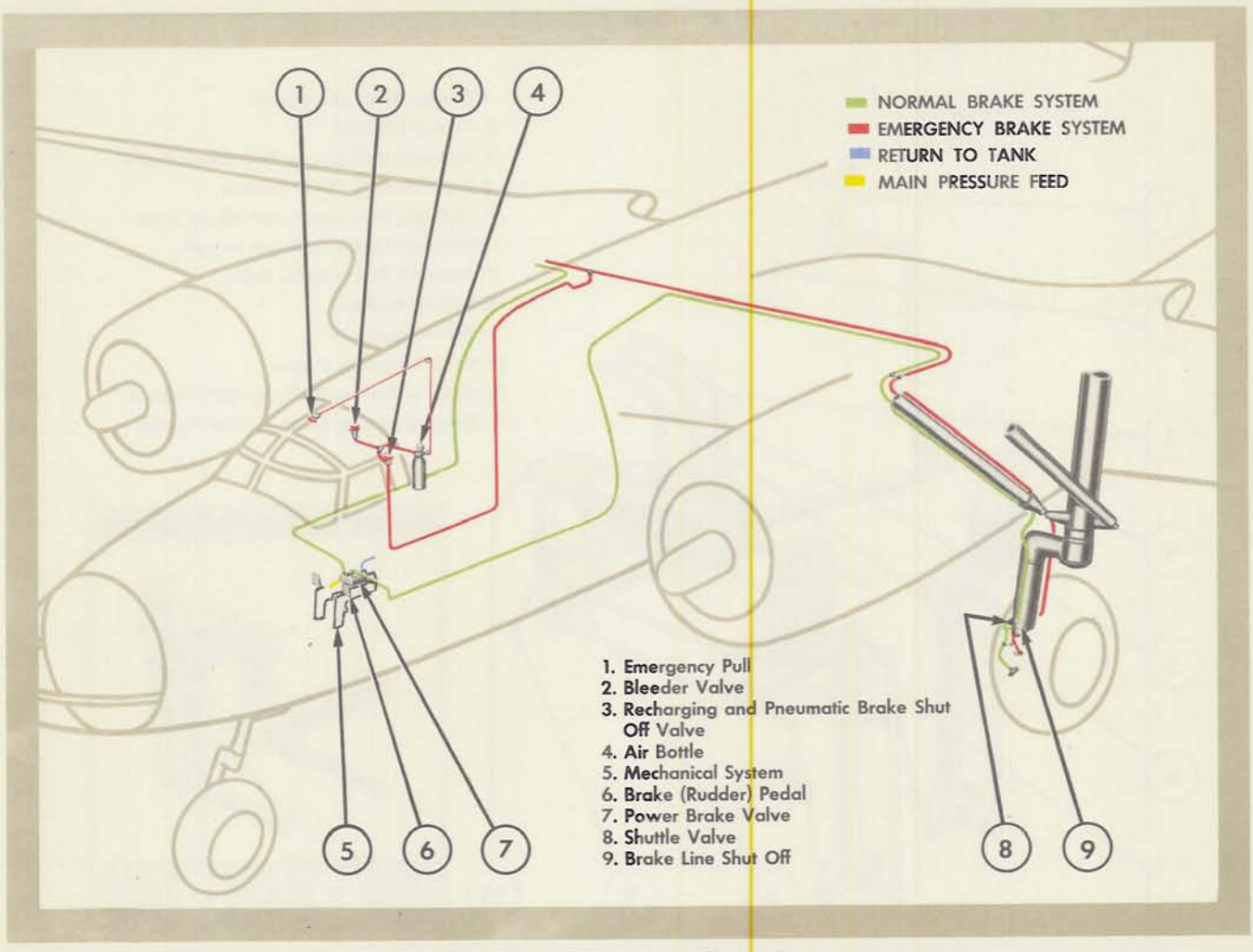


Figure 20—Normal and Emergency Brake System Diagram

c. THIRD EMERGENCY OPERATING INSTRUCTIONS.—On the B-26B, move the small knob near the floor on the right side of the pilot's control pedestal (fig. 26-17) forward. This feeds the five (5) gallon auxiliary hydraulic fluid into the system as the regular supply could have been lost by leaks or rupture in the lines due to enemy fire. Repeat all procedures in the order given above. This supply is sufficient for one emergency landing only. If hydraulic pressure cannot be obtained after the above instructions are followed, raise gear if possible, and land airplane on its belly.

d. LANDING GEAR WARNING HORN SILENCING SWITCH.—The landing gear warning horn may be silenced by moving the toggle switch (fig. 25-7) aft to "OFF." The circuit is replaced in operation by advancing the throttle.

e. EMERGENCY HYDRAULIC FLUID.—Emergency hydraulic fluid, for operation by hand pump only, may be obtained by turning selector valve (fig. 26-17) counterclockwise 90 degrees for emergency operation. In this manner partial replenishment may be made to the main tank.

f. BRAKES.

(1) SERVICE.—Conventional hydraulic toe brakes with each wheel brake operating independently. COPILOT HAS NO BRAKES.

(2) PARKING.—Depress toe brakes equally (fig. 21-4), pull back parking brake lever (fig. 21-1), remove pressure from toe brakes, and release parking brake lever. Application of pressure on the toe brakes (fig. 21-4) will automatically release the parking brakes. The hydraulic gage must show a minimum of 850 lb/sq in. when the airplane is parked.

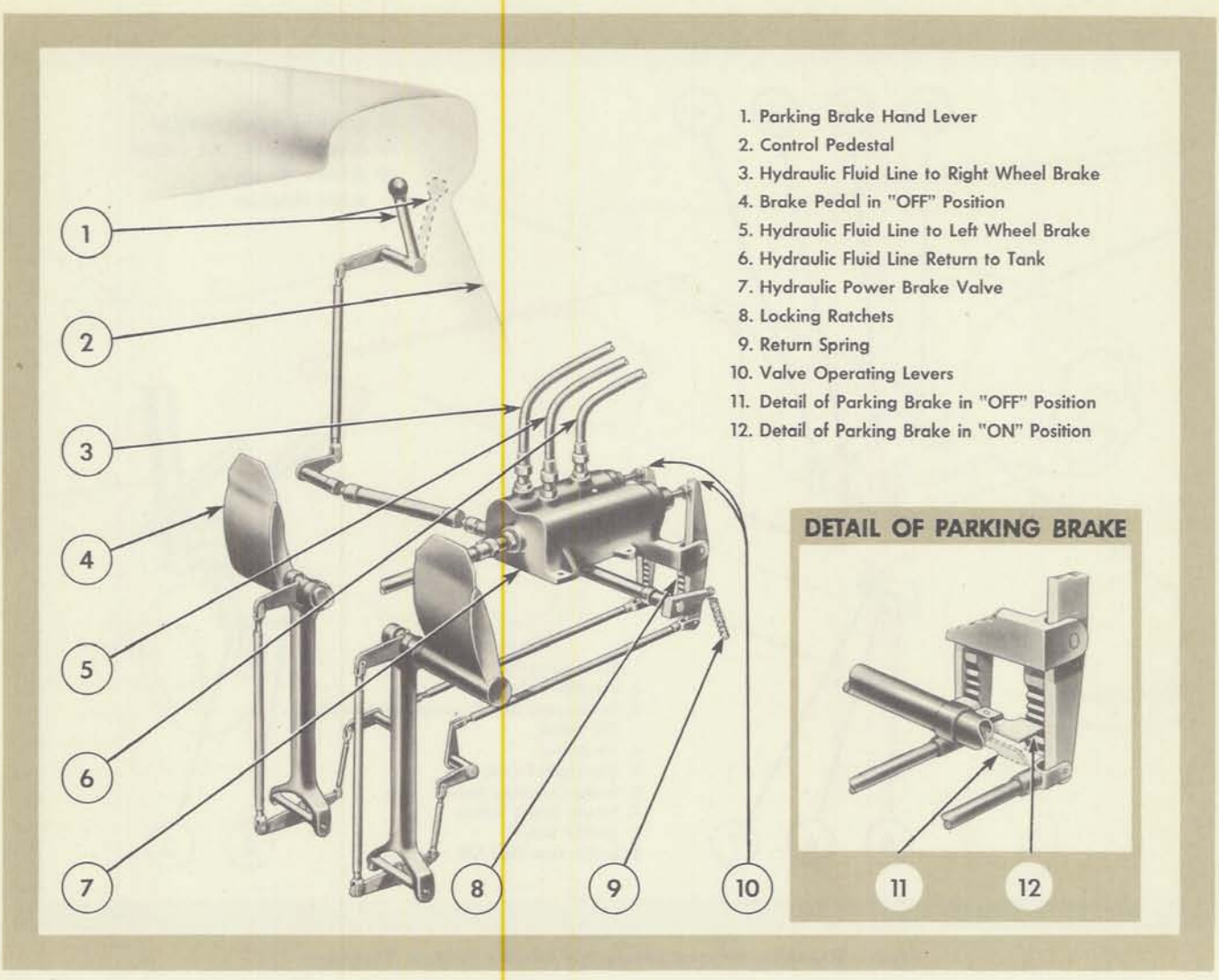


Figure 21—Parking Brake Control Diagram

(3) EMERGENCY OPERATION. — A pull on the emergency handle (fig. 17-3) will apply the brake shoes. Brakes may be released after emergency use by operation of the Emergency Brake Bleed Valve in the pilot's compartment, just above the door to the radio compartment. This is definitely an emergency operation, as brakes are absolutely locked after handle has been pulled.

CAUTION: Pilot should be poised on the throttles, ready to correct a swing to either side.

b. ENGINE.

(1) THROTTLE CONTROL.—On control pedestal (fig. 26-1), conventional in operation. An adjustable friction lock is provided to prevent throttle creeping. Rotate the knob (fig. 26-3) clockwise to tighten, and counterclockwise to loosen.

(2) MIXTURE CONTROL.—On control pedestal, and has four positions: "IDLE CUT-OFF," "AUTO-LEAN," "AUTO-RICH," and "FULL-RICH."

(3) SUPERCHARGER CONTROLS.

(a) GROUND TEST OPERATION.

1. Ground test engine in low blower, and test operate low-high blower shifting mechanism. Keep MP below 30 in. Hg and 2000 rpm for shift. CHECK RETURN TO LOW RATIO by noting slight drop in MP. The gage may show only a slight drop. Watch closely. To avoid unnecessary slipping of the clutches,

make the shift quickly without hesitating between the two positions. Allow 3 minutes between shifts to allow clutches to cool.

2. Cooling of the cylinder heads, barrels, and ignition harness is usually insufficient while on the ground under continued operation above 1600 rpm. Do not exceed a cylinder head temperature (fig. 24-21) of 232°C (450°F).

(b) FLIGHT OPERATION.

1. The manifold pressures below the critical altitudes are regulated by manually operating the engine throttle. Maximum engine performance and efficiency will be obtained by remaining in low blower ratio until the critical altitude has been exceeded and the manifold pressure has dropped about three or four inches Hg. Set mixture control to "AUTO-RICH" and shift to high blower ratio. Check return to low ratio by noting drop in M.P. to insure return to low blower. USE LOW BLOWER FOR TAKE-OFF OR LANDING.

2. In the event of prolonged flight in high blower ratio, it is advisable that, when tactically feasible, the supercharger be shifted to low ratio every two hours for approximately five minutes to wash out any sludge accumulated in the low ratio gears.

WARNING: Allow 3 minutes between shifts to permit clutches to cool.

CAUTION: When shifting from "LOW" to "HIGH" blower ratio, a slight increase in manifold pressure will be observed if the throttle is not moved. Prolonged fluctuation or low manifold pressure indicates improper high clutch engagement. In this event, the selector control (fig. 26-9) should be returned to "LOW" position and the shift into high ratio repeated.

(4) INCREASING OR DECREASING ENGINE POWER.

(a) To increase power during flight, set the mixture control in "AUTO-RICH," adjust propeller to desired rpm, adjust the throttle to obtain desired manifold pressure, and then readjust the mixture control if necessary.

(b) To decrease engine power, adjust the throttle to obtain the desired manifold pressure, adjust the propeller control to obtain the desired rpm, and then readjust the mixture control if necessary.

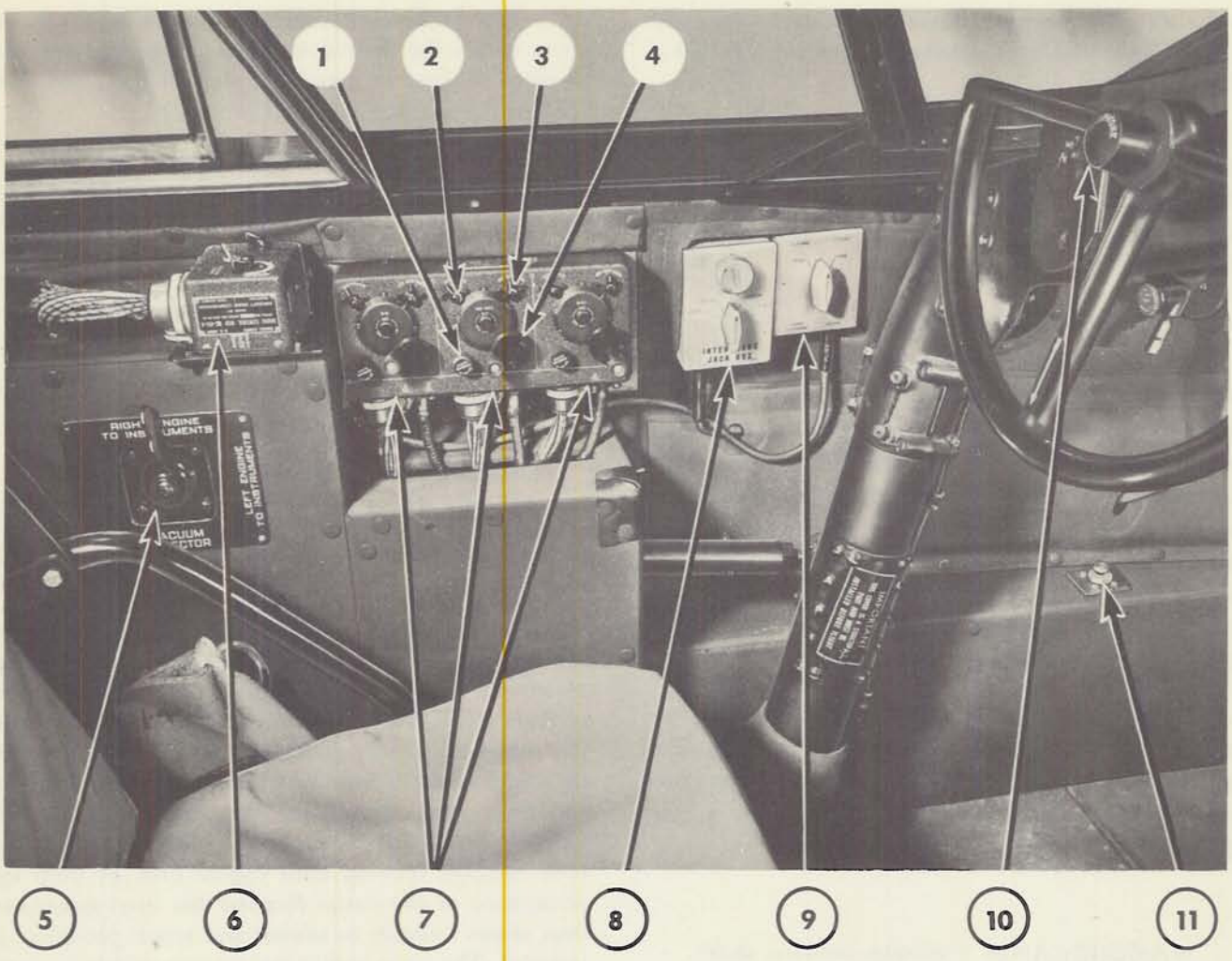
(5) CARBURETOR AIR INTAKE CONTROL.—The carburetor air intake control (fig. 26-20) should be moved up to its "COLD" position for all normal operation. If known icing conditions exist, the lever may be moved down to its "HOT" (or alternate air intake) position, where the emergency air intake shutter is unlocked and *will automatically open if the normal air duct or screens should become clogged with ice.*

CAUTION: Do not set in "HOT" unless necessary, and return to "COLD" position as soon as practical. *Never* set to "HOT" for take-off.

(6) ENGINE STARTER.—The engine starters are controlled by two three-position toggle switches (fig. 25-10) with their "OFF" position located in the center of their travel. To operate the left engine starter, move the energizing switch (left) (fig. 27-10) forward until the sound of the inertia flywheel in the starter indicates maximum rpm, then move the starter mesh switch (right) (fig. 25-10) forward to engage the clutch. Hold both switches forward until engine fires, or until the momentum of the starter flywheel has been spent, and then return switches to neutral and repeat procedure if required. The right engine starter operates in the same manner as the left engine, except the toggle switches are moved to their aft position.

CAUTION: External battery cart connection (fig. 22) or auxiliary generator must be used when starting.

Figure 22
Nacelle Plug-In Connection for Battery Cart



1. Increase Output Switch
2. "A-B" Switch
3. "CW-OFF-MCW" Switch
4. Receiver Tuning Control
5. Vacuum Selector
6. Transmitter Control Box
7. Receiver Control Boxes
8. Interphone Jack Box
9. Crystal Filter Box
10. Microphone Switch
11. Turn and Bank Throttle Valve

Figure 23—Pilot's Left Side Over-all

(7) IDLING.

(a) Long continued idling below 1000 rpm will result in fouled spark plugs.

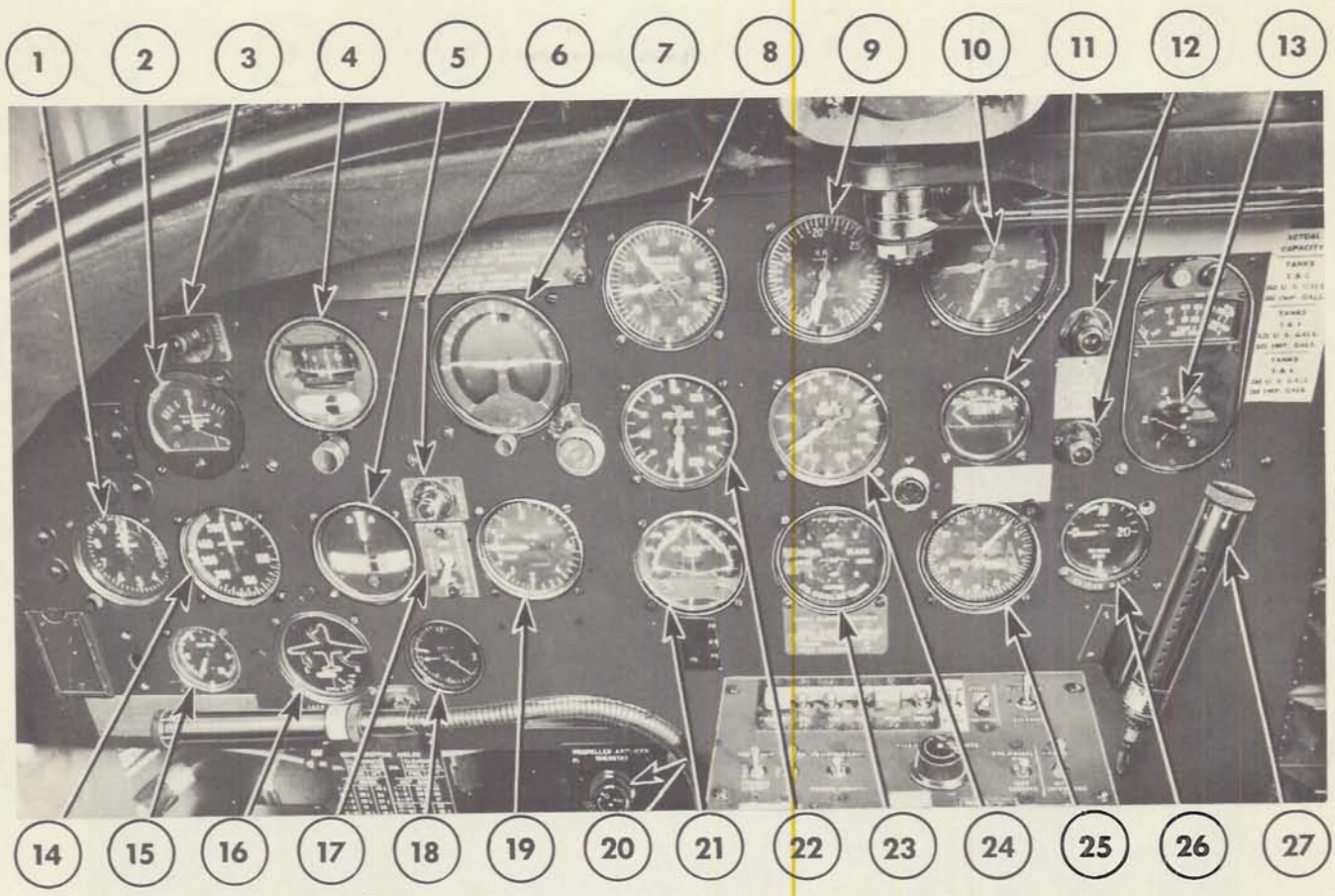
(8) OIL COOLER SHUTTERS.—The oil cooler shutter controls (fig. 26-8) move up to "OPEN" and down to "CLOSE." Keep open during take-off and climb, to prevent possible closure due to air loads, otherwise return to neutral after use.

(9) PRIMING ENGINES. — Turn applicable (right or left) booster pump (fig. 26-19) "ON," then move the corresponding primer switch (fig. 26-18) "ON" (up position) while the engine is cranking. Use care not to overprime; release primer switch as soon as engine fires a few times.

(10) PROPELLER CONTROLS.

(a) AUTOMATIC CONTROL. — Set toggle switches (fig. 25-18, 22) to their forward position, marked "AUTOMATIC" and adjust the propeller governor control levers (fig. 26-10) to obtain the desired rpm.

NOTE: Changing throttle position will not change the rpm except at idle position.

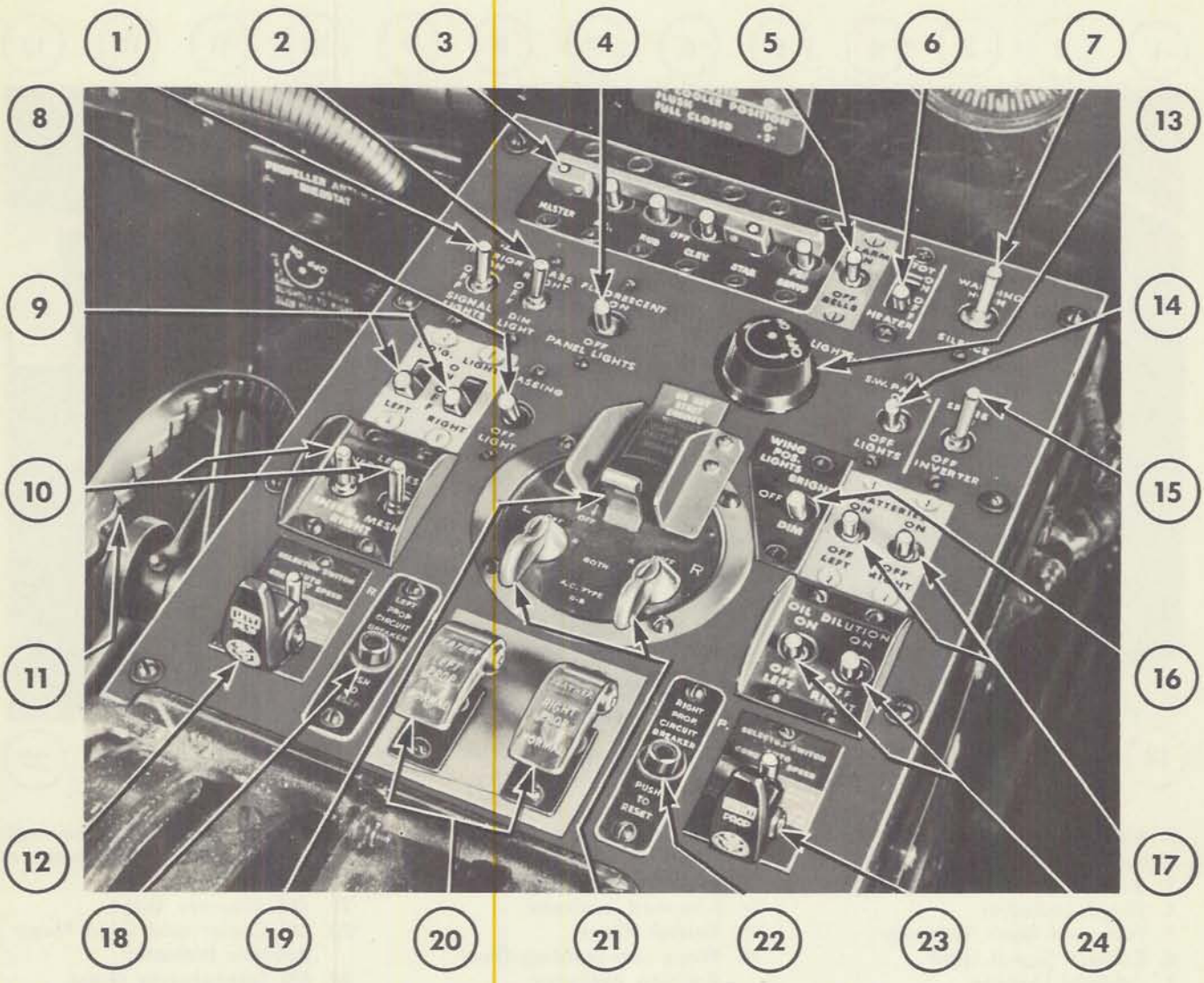


1. Altimeter
2. Voltmeter
3. Bomb Release Indicator Light
4. Flight Indicator
5. Turn and Bank Indicator
6. Camera Signal Light
7. Artificial Horizon
8. Manifold Pressure Gage
9. Tachometer
10. Fuel Pressure Gage
11. Free Air Temperature Gage
12. Propeller Switch Indicator Lights
13. Fuel Quantity Gage
14. Airspeed Indicator
15. Suction Gage
16. Flaps and Landing Gear Position Indicator
17. Radio Recognition Switch
18. Clock
19. Rate of Climb Indicator
20. Propeller Anti-icer Rheostat
21. Cylinder Head Temperature Indicator
22. Oil Pressure Gage
23. Oil Cooler and Cowl Flaps Position Indicator
24. Oil Temperature Gage
25. Radio Compass
26. De-icer Pressure Gage
27. Fluorescent Light

Figure 24—Front Instrument Panel Over-all

(b) MANUAL CONTROL.—Set toggle switches (fig. 25-18, 22) to their "NEUTRAL" position. The propeller speed may be increased or decreased by holding the toggle switches (fig. 25-18, 22) to the right (marked "INCREASE RPM"), or to the left (marked "DECREASE RPM"), as the needs require. When right or left pressure is released from the toggle switch, it will automatically return to neutral, and the propeller pitch will remain at its last setting.

NOTE: When the toggle switches (fig. 25-18, 22) are in manual position (neutral setting), the propeller acts as a "fixed pitch prop," and the rpm may be governed by adjustment of the throttle with variations caused by climbing or diving. Adjust the throttle and propeller control together until the correct rpm and manifold pressure is obtained for the indicated air speed given in the Flight Operation Instruction Chart (Section III).



1. Interior Signal Light Switch
2. Compass Light Switch
3. Automatic Flight Control
4. Panel Light Switch
5. Alarm Bell Switch
6. Pilot Heater Switch
7. Warning Horn Switch
8. Passing Light Switch
9. Landing Light Switch
10. Starter Energizing and Mesh Switch
11. Elevator Tab Control
12. L.H. Auto and Manual Pitch Selector
13. Formation Light Rheostat
14. Switch Panel Light Switch
15. Spare Inverter Switch
16. Signal and Running Light Switch
17. Battery Master Switch
18. Left Propeller Circuit Breaker
19. Airplane Master Switch
20. Propeller Feathering Switches
21. Main Ignition Switches
22. Right Propeller Circuit Breaker
23. R.H. Auto and Manual Pitch Selector
24. Oil Dilution Switches

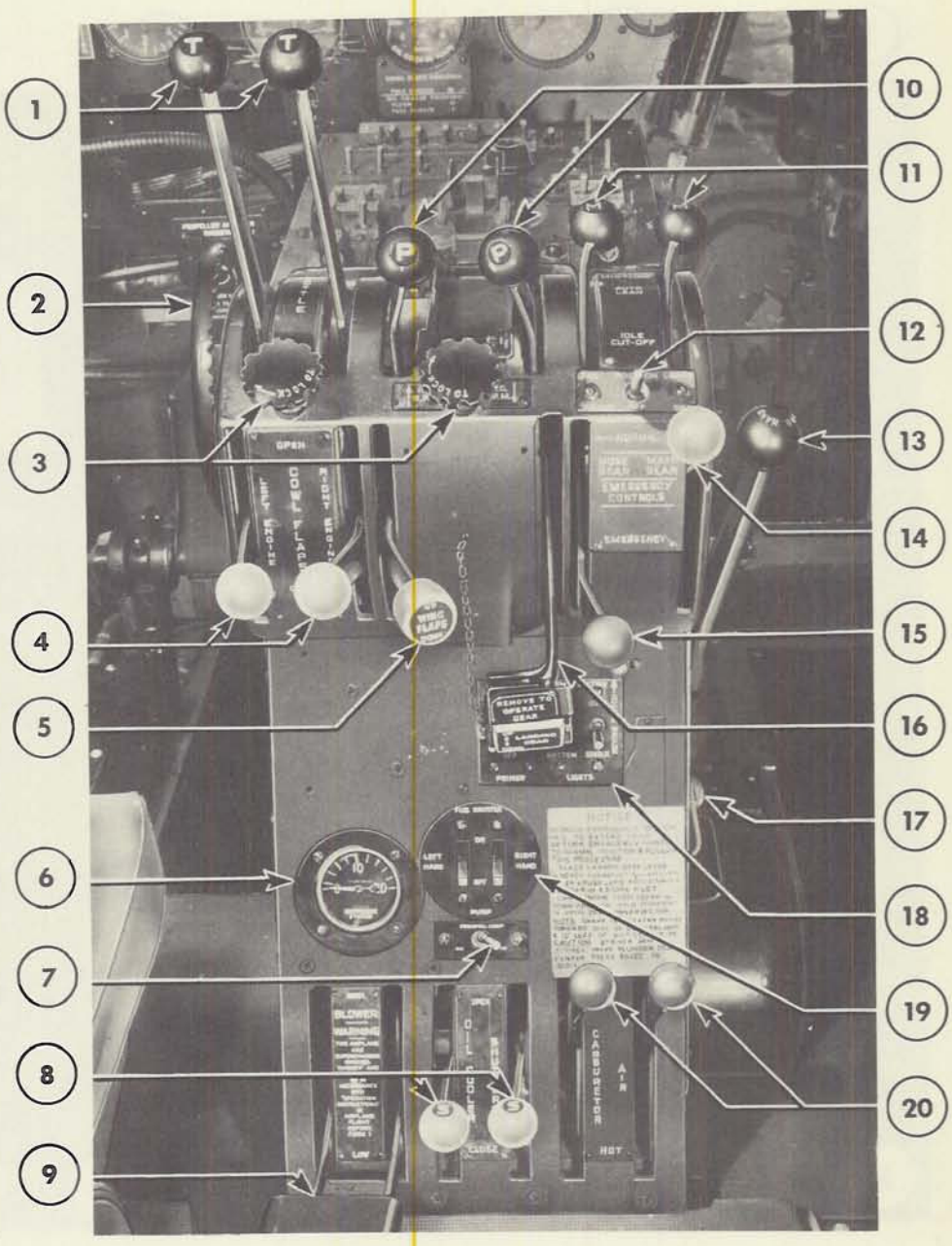
Figure 25—Pedestal Top

(c) FEATHERING CONTROLS.—The feathering controls (fig. 25-20) are protected from accidental operation by a hinged plastic cover. To feather propeller, lift the cover and move the switch lever forward.

(11) COWL FLAPS.—The cowl flaps are actuated by hydraulic valves and controlled by vertical moving levers (fig. 26-4). The neutral position of the levers is in the center of their travel.

(a) TO OPEN FLAPS.—Move lever (fig. 26-4) up and hold until the desired opening is obtained, then return lever to neutral.

(b) TO CLOSE FLAPS.—Move lever (fig. 26-4) down and hold until the desired opening is obtained, then return to neutral.



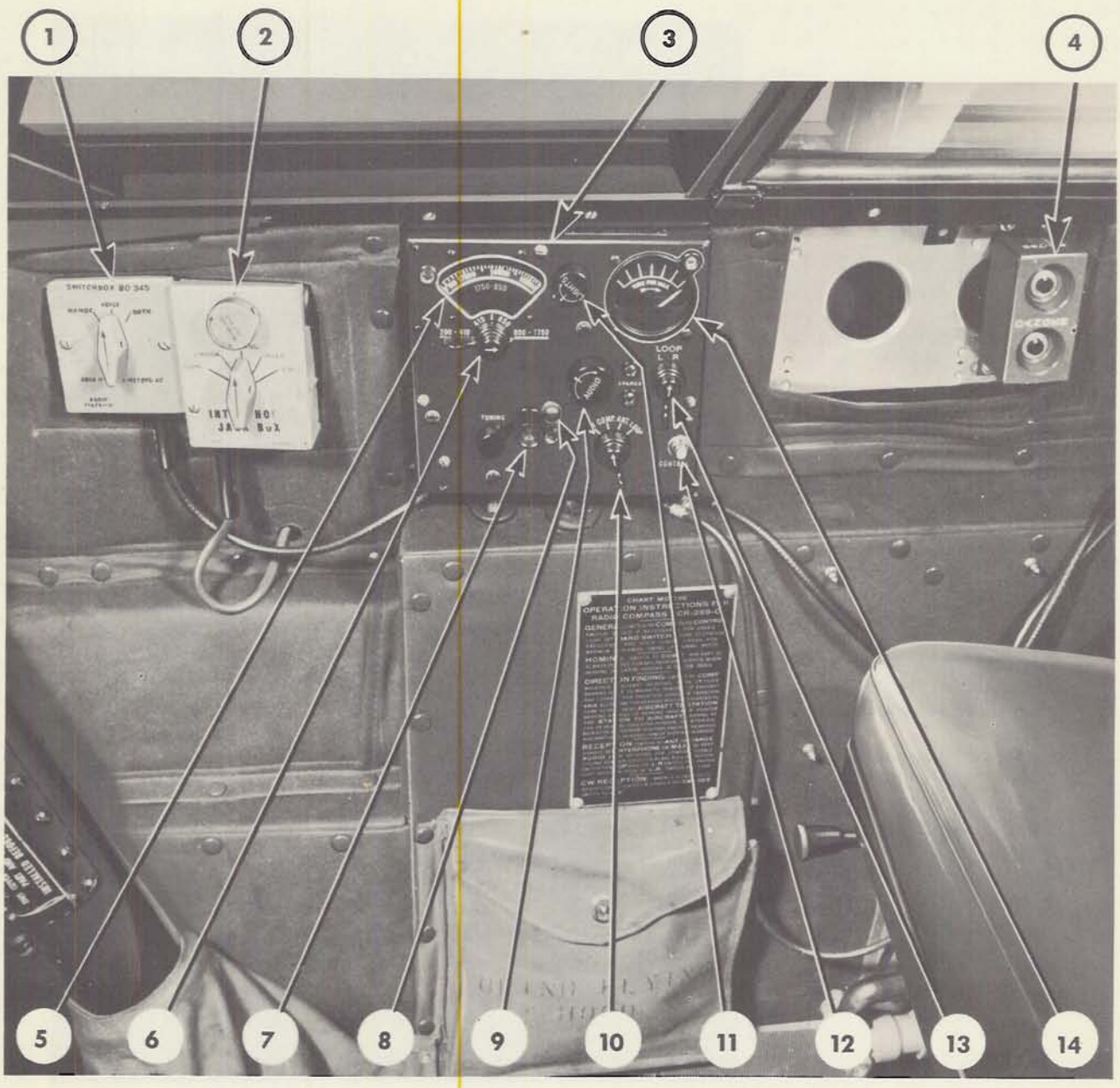
1. Throttle Controls
2. Elevator Trim Tab Control
3. Friction Locks
4. Cowl Flap Controls
5. Wing Flap Controls
6. Hydraulic Pressure Gage
7. Pedestal Light Switch
8. Oil Cooler Shutter Control
9. Supercharger Controls
10. Propeller Governor Controls
11. Mixture Controls
12. Position Light Switch
13. Emergency Hand Pump
14. Emergency Main Gear Control
15. Emergency Nose Gear Control
16. Landing Gear Control Lever
17. Hydraulic Selector Valve
18. Engine Primer and Identification Light Switch
19. Fuel Booster Pump Switches
20. Carburetor Air Control

Figure 26
Pedestal Front View

CAUTION: Allow the cowl flap control lever (fig. 26-4) to remain in its up position during take-off, then set as desired and return to neutral position.

(12) OIL DILUTION.—Controlled by individual toggle switches for each engine. When anticipating temperatures below 0°C (32°F) the oil system should be diluted before stopping the engine. Operate the engine at about 800 rpm and hold the applicable toggle switch (fig. 25-24) forward to its "ON" position for about three minutes. As long as the oil pressure remains reasonably steady and sufficiently high, there is very little danger of over-dilution.

(13) ENGINE CRANK.—Hand crank with extension bar stowed in right wheel well on firewall. Entrance holes in left and right nacelles are on lower right side aft of cowl flaps. To operate, clamp extension rod to the crank, engage the starter through the hole, and crank



1. Copilot's Crystal Filter Box
2. Interphone Jack Box
3. Radio Compass Control Box
4. Detonator Switches
5. Direct Reading Frequency Dial
6. Band Change Switch
7. Tuning Control
8. Green Light
9. Audio Control
10. Selector Switch
11. Light Rheostat
12. Push Button
13. Loop Selector
14. Visual Tuning Meter

Figure 27—Copilot's Right Side Over-all

in clockwise direction, gradually picking up speed. To engage meshing gears, reach inside the access door and pull handle. The access door is just below and aft of crank hole. A screw driver is required to loosen the Dzus-fastener.

4. RADIO OPERATION, PILOT'S COMPARTMENT.

a. Plug in headset and throat microphone.

b. LIAISON SET (SCR-287-A).—Controlled from radio compartment only. When set is in operation, pilot may use same by setting interphone jackbox selector switch to "LIAISON."

c. COMMAND SET (SCR-274-N).

(1) RECEIVING COMPONENTS.—Three command radio receivers are located in the radio operator's compartment with all tuning dials and switches for their operation located in the pilot's compartment along the upper left longeron adjacent to the pilot's cockpit seat (fig. 23). Frequency range limits of each receiver are plainly stamped near the center of each tuning dial, with included frequencies calibrated in detail along the outside diameter.

(a) OPERATION.

1. FOR GROUND OPERATION, USE EXTERNAL POWER SUPPLY. Plug headset into extension cord jack which will be found below the left rear window at the side. The plug should be plugged into the "PHONES" portion in the filter (fig. 23-9). Set filter selector switch (fig. 23-9) to "BOTH."

WARNING: For all normal (voice or tone) reception, the radio receiver filter selector switch (fig. 23-9) should be set at "BOTH." To receive the radio range without possibility of voice interference, set the selector switch to "RANGE." To receive voice without possibility of radio range interference set the selector switch to "VOICE." *It is impossible to receive voice when this selector switch is set on "RANGE."*

EMERGENCY: If the filter becomes inoperative, plug the headset into the "A" position (fig. 23-7) under the tuning dial covering the frequency it is desired to receive. As a last resort, signal the radio operator to plug pilot's headset extension cord into the emergency "A" jack located directly under the liaison receiver operating table and turn adjacent "A-B" switch to "A." If this fails, the receiver is inoperative.

2. Turn selector knob on interphone jackbox to "COMMAND."

3. Set increase output knob on interphone jackbox "FULL ON."

4. Turn on desired receiver by turning selector knob (fig. 23-3) to "MCW" for voice reception or to "CW" for code signals.

CAUTION: "A-B" switch (fig. 23-2) on "A."

5. Adjust dial control knob (fig. 23-4) to desired frequency.

6. Turn "INCREASE OUTPUT" control knob (fig. 23-1) on the receiver control box *to the right* to the desired output.

NOTE: To monitor two channels simultaneously, adjust one volume low, the other high.

NOTE: To use one receiver and hold another ready for instantaneous use, tune in the receiver to be "held" and adjust volume. Then turn "A-B" switch to the "B" position. Output only will be disconnected, and returning to the "A" position will place the receiver instantly into use.

(2) TRANSMITTING COMPONENTS. — Controlled exclusively from pilot's compartment through a type BC-451-A radio control box located under the window at left of pilot's seat (fig. 23-6). Plug throat microphone into jack on microphone extension cord. For frequencies available, refer to placard located just above switch control.

(a) OPERATION.

1. Interphone jackbox selector switch to "COMMAND" position; increase output knob full on.

2. Turn transmitter on (fig. 23-6).

3. Set selector switch on desired frequency (fig. 23-6).

(b) To transmit on "VOICE."

1. Selector switch (fig. 23-6) to "VOICE."

2. Hold microphone button in center of flight control wheel (fig. 23-10) continually depressed during transmission. Do not shout, but speak slowly with clear, distinct words, as the microphone is designed for aircraft use and is very sensitive.

(c) To transmit on "TONE."

1. Selector switch (fig. 23-6) to "TONE."

2. Transmit by key on top of control box (fig. 23-6).

(d) To transmit on "CW."

1. Selector switch (fig. 23-6) to "CW."

2. Transmit by key on top of control box (fig. 23-6).

EMERGENCY: If command transmitter is inoperative, instruct radio operator to tune liaison transmitter to frequency desired. Unless liaison receiver is also used, pilot must switch to "LIAISON" to transmit, and to "COMMAND" to receive.

d. RADIO COMPASS (SCR-269-G).—The copilot is the operator of this equipment, although a duplicate set of controls is provided for the radio operator. To take control of electrical circuits at either position press button (fig. 27-12) until green panel light (fig. 27-8) glows.

(1) Turn invertor "ON," (fig. 38-3) on generator panel in radio compartment over door to forward bomb bay.

(2) Set control (fig. 27-10) to "ANT."

(3) Turn interphone jackbox (fig. 27-2) to "COMP" and plug receivers in jack. Turn increase output knob full on (fig. 27-2).

(4) Push button (fig. 27-12) and hold depressed until control panel lights glow.

(5) Set band change switch (fig. 27-6) to the band containing the frequency desired.

(6) Turn Audio Control to desired level (fig. 27-9).

(7) Operate tuning crank (fig. 27-7) and tune in frequency desired by reference to direct reading frequency dial (fig. 27-5). The signal will be heard in the receivers. Make final adjustment to obtain maximum indication on dial of visual tuning meter (fig. 27-14).

(8) Set control (fig. 27-10) to "COMP."

(9) Adjust vernier on Radio Compass Instrument (fig. 24-25) to outside scale (marked 0-90-180-270-etc.), zero mark to the fixed arrow. The large center arrow indicates the direction the airplane is flying with relation to the station tuned. To operate as a "homing" compass, turn the airplane until the large pointer coincides with the small fixed pointer, continue flying, and the instrument will lead you to the radio transmitting station antenna.

WARNING: Do not depend on aural indications when operating on "COMP" position and tuned to a radio range station, due to the AVC action on this position.

e. MARKER BEACON RECEIVER (RC-43A).—Turning on the radio compass also turns on the marker beacon receiver. Passing over a fan marker or "Z" marker will be indicated by a light on pilot's instrument panel just below the clock.

f. RADIO SET (SCR-535).—This set is operated by the radio operator and is located above his table. It is equipped with a detonator in the receiver located beside the upper turret, which will be set off automatically should a crash landing occur. The detonator may also be set off by the pilot or copilot by simultaneously pressing the two buttons located on the copilot's cockpit wall (fig. 27-4) or over the doorway in the pilot's compartment. The explosion is not dangerous to personnel in the waist gunner's compartment, but contact with the set should be avoided at that time.

5. FLYING CHARACTERISTICS.

a. TAXYING.

(1) To start the airplane rolling from a standstill, BOTH THROTTLES should be opened slightly and evenly with the BRAKES OFF. As soon as the airplane moves, the direction in which the nose wheel is pointing becomes apparent. Always permit the airplane to move slowly when making turns, or *whenever a change in the angle of the nose wheel is desired.*

CAUTION: DO NOT ATTEMPT TO CHANGE THE ANGLE OF THE NOSE WHEEL UNLESS THE AIRPLANE IS ROLLING. DO NOT MAKE A SHARP TURN BY LOCKING ONE MAIN WHEEL WITH ITS BRAKE.

(2) The nose wheel will swivel 40 degrees to right or left of its center line. At either extremity the inside main wheel turns in a radius of about 10 feet. *It is important, therefore, that the inside main wheel should not be locked when making a short turn.*

b. TAKE-OFF.

CAUTION: Pilot's and copilot's sliding windows must be CLOSED AND LOCKED during take-offs and landings, as they might fall out into the propellers.

(1) NORMAL TWO-ENGINE OPERATION.—Flaps may be used on take-offs with ½ "DOWN" position the maximum for clearing obstacles, and ¾ "DOWN" position the maximum for short ground run. (Refer to the Take-off, Climb & Landing Chart in Section III for the take-off distance estimates.) Fuel booster pumps (fig. 26-19) should be "ON" during take-off and climb. Propeller governor controls (fig. 26-10) must be set to "HIGH" rpm. A straight course may be maintained by normal use of the throttle and rudder. In extreme cases the brakes may be used, but applications should be gentle so as not to increase the take-off run. As soon as the airplane has rolled far enough to insure that the nose wheel is straight, smoothly advance the throttles to take-off manifold pressure. When this pressure is attained, bring the flight control wheel all the way back and hold until the nose wheel breaks away from the ground (approximately 60 mph IAS), when the control wheel should be eased forward to approximately neutral. The airplane will then practically fly herself off at about 105 mph IAS at 28,000 pounds gross weight. Bring the landing gear up as soon as practicable after leaving the ground, and if the terrain permits, do not start the climb below 150 mph IAS. When clear of obstructions and out of danger, bring the throttles back to the desired cruising manifold pressure and synchronize propellers to cruising rpm. As soon as the cylinder head temperatures drop, readjust mixture control and then close the cowl flaps as much as possible without causing the head temperatures to exceed limits. Close oil cooler shutters as far as possible without permitting oil temperature to increase.

(2) SINGLE ENGINE FAILURE DURING TAKE-OFF.—THIS AIRPLANE CANNOT MAINTAIN FLIGHT ON ONE ENGINE WHEN THE LANDING GEAR IS DOWN. Cut both throttles and hold a straight course into a landing directly ahead.

(a) If one engine fails after airplane is in the air and airspeed of 150 mph IAS has been reached and the landing gear retracted (or retracting) take-off might be continued. Apply plenty of rudder toward the running engine, and at the same time drop the wing with the running engine slightly below the horizontal. Feather propeller and close cowl flaps and oil cooler shutters on failing engine, and if wing flaps were used, raise them cautiously in several steps to avoid losing altitude. Always keep directional control even if you have to reduce power on good engine and dive to maintain flying speed.

c. CLIMB.

(1) Mixture control in "AUTO-RICH" at approximately 75% power and above, "AUTO-LEAN" below. Refer to Flight Operation Instruction Charts (Section III) for specific directions.

(2) Fuel booster pumps "ON."

(3) Refer to the "CLIMB" section of the "TAKE-OFF, CLIMB & LANDING CHART" in Section III for operating data on combat or ferry climb. These charts indicate that for fuel economy "FERRY" climb should be used, and for speed "COMBAT" climb should be used.

(4) When climbing at high power even in cold weather, it is necessary to open the cowl flaps and oil cooler shutters. It is sometimes possible to stay within the engine operating temperatures with the cowl flaps and oil cooler shutters less than half open, thereby decreasing airplane drag and increasing the rate of climb.

d. LEVELING OUT.—To obtain maximum cruising performance (miles-per-gallon), first climb four or five hundred feet higher than cruising altitude, then set throttles and propellers for desired power, and fly "downhill" to the selected cruising altitude. By trimming the ship with some excess speed and allowing this speed to be lost gradually, it is often possible to obtain 5 to 10 miles per hour more speed with the same power setting than if the airplane is merely trimmed out when the desired altitude has been reached.

e. LEVEL FLIGHT.—Always return hydraulic controls to "NEUTRAL" during normal flight. This does not apply to the bomb door levers which must remain in "DOOR CLOSED" position in normal flight.

f. DIVES.—Since dives are usually followed by other maneuvers that may require full power, the mixture control should be set in "AUTO-RICH" position. Super-

charger should be in "LOW" ratio to prevent excess wear on bearings and driving gears caused by overspeeding of engine. Do not exceed placarded speed.

g. ACROBATICS.—Do not execute any acrobatics.

h. FAILURE OF ONE ENGINE DURING FLIGHT.

(1) First get and keep control of the airplane by ruddering into good engine and dropping wing with *good* engine about 5 degrees below the horizontal; the more nearly level, the better the performance, but the lower the pulling engine, the better the control. A compromise must be made, depending upon which is the more desirable under the prevailing conditions.

(2) Advance good engine to rated horsepower (Refer to small chart in upper left corner of each Flight Operation Instruction Chart) to hold airspeed while trimming out and trying to discover what is wrong. If this gives more speed than actually needed, throttle back slightly to save the one remaining engine. Under normal loads 160 mph IAS will be sufficient to hold altitude.

(3) Often a failing engine will produce *some* power under reduced throttle settings, but if the engine has failed completely, feather propeller, close cowl flaps, and oil cooler shutters on that engine to reduce drag.

(4) If necessary, bombs or bomb bay tanks may be salvoed and if over suitable terrain, crew members may bail out. Thus it might be possible to effect a safe landing instead of crashing with all the crew aboard.

i. STALLS.

(1) POWER STALLS.—Caution must be used in this maneuver as the high torque of your engines at the nose-high position necessary to reach stalling speed will probably throw you over on your back and into a spin.

(2) POWER-OFF STALLS.—Are preceded by a warning consisting of buffeting of tail surfaces. At 28,000 pounds gross weight, this airplane stalls at approximately 120 mph with the flaps up and 110 mph with the flaps down.

j. SPINS.—DO NOT SPIN THIS AIRPLANE, and so fly it that you do not get into attitudes from which spins might result. Recommended recovery procedure: Ride with the spin without pressure on controls for about one-half turn, then briskly apply full opposite rudder followed with neutral stick and hold it there. When rotation stops, nose down and get at least 150 mph IAS before attempting to level off. Rotation may not stop immediately, so hold opposite rudder for 5 turns before attempting any other method of recovery. There is, at present, no "sure-fire" method of spin recovery for this airplane.

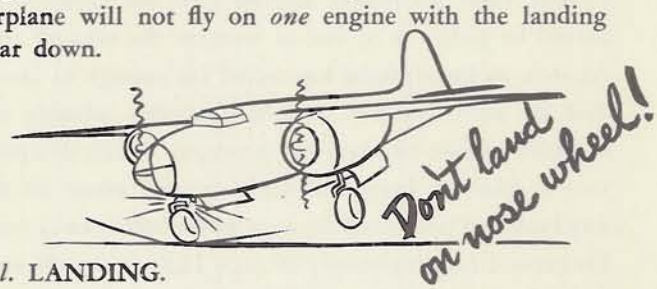
k. APPROACH.

(1) Blower ratio "LOW," mixture controls "AUTO-RICH," fuel booster pumps "ON," propellers in "AUTOMATIC" and set at 2200-2300 rpm, cowl flaps partially open, oil cooler shutters closed, landing gear warning switch "ON," check hydraulic pressure for 750-950 lb/sq in., lower wing flaps as desired.

(2) Refer to "Take-Off, Climb, and Landing Chart" for the correct approach speed.

(3) Every attempt should be made to be flying straight in on the final approach before lowering landing gear or flaps; but if necessary to make turns after the gear and flaps have been lowered, the turns should be gentle and never require over a 15 degree bank.

(4) Slide slipping is extremely dangerous at low altitudes or during the approach for landing, as the engine on the low side is likely to cut out, and the airplane will not fly on *one* engine with the landing gear down.



l. LANDING.

(1) When using full flaps and an airspeed of 150 mph, the descent is rather steep (approximately 45 degrees), but the airplane is easily leveled out for landing.

(2) The nose may be held up to a stall landing or may be left low for what would be a wheel landing for an airplane equipped with a tail skid.

(3) Under no circumstances should the nose wheel strike the ground first or be slammed down hard by use of elevators or brakes.

(4) Don't fail to use your Load Adjuster to check CG before landing. If all bombs, ammunition, and fuel have been expended, the center of gravity will be too far forward for ease of control during landing. In such case crew members may be moved to the rear.

(5) After landing has been completed and before taxying in, the following operations should be performed:

(a) Put "ON" landing gear safety lever lock.

(b) OPEN cowl flaps.

(c) OPEN oil cooler shutters.

(d) Turn fuel booster pumps "OFF."

(e) RAISE wing flaps.

(f) Set propeller governor controls to "HIGH RPM."

m. PARKING.

(1) The hydraulic system gage must show a pressure of 850-1050 lb/sq in. when airplane is parked.

(2) Set parking brakes by depressing both brake pedals equally and setting parking brake lever (fig. 21-1).

(3) Control surfaces should be locked (fig. 14, 15, 16).

n. STOPPING ENGINES.

(1) Leave propeller control in "HIGH RPM" position.

(2) If the cylinders are hot due to taxying, permit the engine to idle a short time to allow cylinder temperatures to cool below 205° C (401° F).

(3) Move mixture control to the "IDLE CUT-OFF" position, with the engine turning about 1,000 rpm. When the engine has stopped, turn all switches to "OFF."

(4) Leave the cowl flaps OPEN after the engine stops to aid in circulation of air over the engine.

(5) If "IDLE CUT-OFF" fails to stop the engine, close the throttle, cut the ignition switch and slowly open the throttle wide as the propeller stops rotation.

(6) Leave the mixture control in the "IDLE CUT-OFF" position at all times when the engine is not running.

Don't try to turn the airplane "on a dime"...

SECTION II
PILOT OPERATING INSTRUCTIONS

1. BEFORE ENTERING THE PILOT'S COMPARTMENT.

a. AIRPLANE LOADING.—Check and sign Weight and Balance Clearance prepared by ground loading personnel. This may be rapidly and accurately accomplished by using a "LOAD ADJUSTER." Refer to appendix I for detailed instructions on the operation of the load adjuster.

2. ON ENTERING THE PILOT'S COMPARTMENT.

PILOT **COPILOT**

a. SPECIAL CHECK FOR NIGHT FLYING

(1) Plug in external power supply (fig. 22) for all ground testing.

(2) Turn battery master switches (fig. 25-17) "OFF," airplane master switch (fig. 25-19) "OFF."

(3) Turn instrument panel lights "ON" by placing toggle switch (fig. 25-4) in its forward position.

(4) Turn switch panel lights "ON" by placing toggle switch (fig. 25-14) in its forward position.

(5) Plug in microphone and receiver. Hold interphone selector switch on "CALL" and ask each compartment in the airplane for an O.K. on lights and electric power. To receive, release the interphone selector switch to "INTER."

(6) Check fuel tank gages (fig. 24-13) for service.

(1) Turn compartment dome light "ON" by operating toggle switch.

(2) Turn main inverter "ON" in Radio Operator's Compartment (fig. 38-3).

(3) Test operate fluorescent panel light by placing toggle switch (fig. 25-4) in its forward position.

(4) Turn compass light "ON" by placing toggle switch (fig. 25-2) in its forward or aft position.

(5) Turn running lights "ON" by placing toggle switch (fig. 25-16) in its forward position.

(7) Test operate formation lights by operating rheostat (fig. 25-13).

(8) Test operate landing lights by placing their toggle switches (fig. 25-9) in a forward position, and as soon as the lights glow, turn off.

b. CHECK FOR ALL FLIGHTS

(1) Ignition switches (fig. 25-21) "OFF."

(2) Generator switches "OFF,"—(fig. 38-5, 8) Radio Compartment.

(1) Remove elevator and rudder locking keys from their installed position in the tunnel between the camera and tail gunner's station.

PILOT

(3) Hold both toe brakes (fig. 21-4) down while setting parking brake (fig. 21-1).

(4) Landing gear control lever (fig. 26-16) "DOWN."

(5) Wing flap control (fig. 26-5) in its "UP" position.

(6) Cooler shutter controls (fig. 26-8) in their up and "OPEN" position.

(7) Carburetor air controls (fig. 26-20) in their up and "COLD" position.

(8) Place mixture controls (fig. 26-11) aft to their "IDLE CUT-OFF" position.

(9) Propeller toggle switches (fig. 25-18, 22) forward to "AUTOMATIC" position.

(10) Propeller governor controls (fig. 26-10) full forward to "HIGH RPM" position.

(11) Throttles (fig. 26-1) aft to their "CLOSED" position.

(12) Blower controls (fig. 26-9) down to their LOW BLOWER position.

(13) Check freedom of flight controls through the extremities of their operating range.

COPILOT

CAUTION: Be sure to close small hinged covers after removing keys, and to close and install the locking pin in the small hinged section in the upper machine gun bullet track adjacent to the elevator keyhole.

(2) Turn "ON" the two main gasoline shut-off valves (fig. 48-5) on the right and left of the forward bomb bay front bulkhead.

CAUTION: Set valves by "feel," not by position of the pointer. You can "feel" the proper setting.

(3) Check the emergency air brake reserve tank under the radio operator's table. The outlet valve should be open and the air pressure gage should show approximately 1,000 lb pressure.

(4) Emergency air brake release valve (fig. 17-3) closed. (Turn to RIGHT to close.)

(5) Give surface control locking keys to pilot and, after he removes the aileron locks from the flight control wheel, stow the keys and lock in the bag just aft of the pilot's seat.

c. STARTING ENGINES

USE EXTERNAL POWER SUPPLY

(1) Turn "ON" booster pump switch (fig. 26-19) for left engine.

(2) Energize and engage starter (fig. 25-10). Push primer switch (fig. 26-18) and hold until engine fires.

(3) When the engine fires, release primer and starter switches and move mixture to "AUTO-RICH."

(4) Booster pump "OFF" after fuel pressure is normal.

(5) If oil pressure does not register within 30 seconds, stop engine.

(6) Start right engine using same procedure as outlined above.

From here on the copilot's duty is to assist the pilot as directed. A good practice is to read the Check List to the pilot through each step.

PILOT

COPILOT

d. WARM UP

(1) Warm up engines at 1000 rpm.

(2) Check hydraulic pumps on each engine 750 to 950 lb/sq in., max. 1050 lb/sq in.

(3) Check operation of cowl flaps, oil cooler shutters, and wing flaps.

NOTE: Cowl flaps and oil cooler shutters must be "OPEN" during warm-up and take-off.

(4) Return all white control handles to "NEUTRAL," except landing gear control (fig. 26-16) which should be "DOWN."

(5) Release and reset parking brakes.

(6) Oil temperature 40 degrees C (104 degrees F), and oil pressure 80-90 lb/sq in., cylinder head temperature 100 degrees C or more. Check propeller governor operation at 25 in. Hg.

(a) Decrease rpm to 1500, using "DEC RPM" switch, then return to original rpm by using "INC RPM" switch.

(b) Toggle switches in "AUTOMATIC."

(c) Decrease rpm to 1500, using governor control (fig. 26-10), then readjust to full "INC RPM."

(7) Rapidly, but smoothly, increase MP to 49 in. (not to exceed 5-10 seconds) to check that engine does not exceed 2600 rpm (2700 at 51.5 in. Hg on the -41 and -43 engines).

(8) Check magnetos at 30 in. Hg (rpm 2000 to 2250) not to exceed 15 seconds.

NOTE: Since propeller is at its lowest angle of attack it is not necessary to be in fixed pitch for this check, but automatic control must be in FULL "INC RPM."

(9) Check ignition master switch (fig. 25-21) "OFF" momentarily at idling rpm.

(10) Check generator output (fig. 38-4, Radio Compartment) with both engines at 1900 rpm. Difference should not exceed 15 amp.

(11) All flight instruments UN-CAGED.

PILOT

COPILOT

(12) Automatic pilot master switch (fig. 25-3) "OFF."

(13) Immediately upon starting to taxi, test brakes for proper functioning. Turn generators "ON."

e. EMERGENCY TAKE-OFF

(1) Dilute oil as necessary to maintain pressures within limits.

(2) Taxi out and as soon as engines will "take" the throttle, TAKE-OFF.

f. BEFORE TAKE-OFF

(1) While taxying to take-off position, make a smart taxi run until air speed indicates 50-60 mph, checking for nose wheel shimmy and proper brake functioning.

(2) (Fig. 25-3) Automatic pilot master switch "OFF."

(3) Check flight controls for free movement.

(4) Blower ratio "LOW."

(5) Cowl flaps (fig. 26-4) "OPEN."

(6) Oil cooler flaps (fig. 26-8) "OPEN."

(7) Carburetor heat control (fig. 26-20) "COLD."

(8) Mixture control (fig. 26-11) "AUTO-RICH."

(9) Propeller safety switches (fig. 25-12, 23) "ON." Propeller toggle switches (fig. 25-18, 22) "AUTOMATIC."

Propeller governor controls (fig. 26-10) FULL FORWARD "HIGH RPM."

(10) Set throttle and propeller locks (fig. 26-3) for proper friction.

(11) Set aileron (fig. 17-4) NEUTRAL to "0" degrees.

(12) Apply 2 to 3 degrees right rudder tab (fig. 17-5).

(13) Adjust elevator tab to compensate for fore and aft balance requirements as indicated by final po-

PILOT

sition of "hair line" on load adjuster. (Refer to appendix I.)

(14) Lower wing flaps (fig. 26-5) if desired (normal ¼ to ½).

(15) Check fuel quantity gages (fig. 24-13).

(16) Booster pumps (fig. 26-19) "ON."

NOTE: Turn "OFF" after take-off as soon as practicable.

(17) Spare inverter (fig. 25-15) "OFF."

NOTE: This is a safety measure; turn "OFF" after take-off.

(18) Run engines up momentarily at approximately 40 in. Hg at 2500 rpm.

(19) Reduce to 30 in. Hg and check magnetos.

(20) Remove safety lock from landing gear handle.

COPILOT

g. TAKE-OFF

(1) Maximums for Take-Off.

Manifold pressure	49 in. Hg (51.5 in. Hg on -41 & -43 engines)
Cylinder head temperature	Max 218°C (424°F), Min 100°C (212°F)
Oil temperature	Max 95°C (203°F), Min 40°C (104°F)
Oil pressure	Max 90 lb, Min 60 lb
Fuel pressure	15 to 17 lb
Hydraulic pressure	750 to 1050 lb
Prop. gov.	2600 rpm (-41 & -43, 2700 rpm).

(2) Order gear retracted as soon as practicable after take-off.

(3) Reduce throttle gradually to 38.0 in. Hg or less and direct copilot to reduce rpm. Refer to Flight Operation Instruction Chart for desired cruising rpm and manifold pressure.

(4) Retract wing flaps as soon as practicable (not before 400 feet altitude).

(5) Drop nose and obtain 150 mph IAS as soon as possible.

(1) Retract gear on pilot's order.

(2) Gradually reduce rpm on pilot's order to 2400 or less as pilot may direct.

"SPEED is the essence of flight"

PILOT COPILOT

h. FAILURE OF BOTH ENGINES

(1) GO STRAIGHT AHEAD, DON'T LOSE FLYING SPEED. Retract gear if you are outside the airport boundaries and land on the belly.

You can't use the part of the field you've left behind...

i. FAILURE OF ONE ENGINE DURING TAKE-OFF

(1) If below 150 mph IAS, cut both throttles and land STRAIGHT AHEAD.

(2) If 150 mph IAS has been reached, and gear is all the way up:

(a) Rudder into running engine.

(b) Drop wing slightly below horizontal on side toward running engine.

(c) Feather dead engine propeller; close cowl flaps and oil cooler shutters on dead engine.

j. CLIMB

(1) Reduce MP and rpm to 38 in. and 2400 rpm as soon as practicable.

NOTE: Full military power is allowed for five minutes but is not good practice unless absolutely necessary.

(2) Continue climb at this power setting and at 170 mph until approximately 1500-2000 ft altitude is reached, then refer to Take-off, Climb, & Landing Chart in Section III for additional operating data.

(3) Set cowl flaps (fig. 26-4) as dictated by cylinder head temperatures.

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COPILOT

(4) Set oil cooler (fig. 26-8) as dictated by oil temperatures.

NOTE: Keep oil cooler shutters closed or nearly closed in outside air temperature of 0 degrees C (32 degrees F) or less. With shutters open oil may congeal, sometimes causing a severe rise in oil temperature, bringing about the unusual procedure of having to close shutters to reduce temperature.

k. LEVELING OUT

(1) Set throttles (fig. 26-1) and propellers (fig. 26-10) for proper cruising power. Refer to Flight Operation Instruction Chart, Section III for cruising data.

(2) Set rudder tab (fig. 17-5).

(3) Set aileron tab (fig. 17-4).

(4) Set elevator tab (fig. 26-2).

l. FLIGHT OPERATION

CAUTION: Do not allow main fuel tank to become less than ¼ full before refilling.

(1) Refer to Flight Operation Charts for cruising condition.

m. FAILURE OF ONE ENGINE DURING FLIGHT

(1) Trim to compensate for all abnormal flight control pressures.

(2) Hold running engine wing slightly below horizontal.

(3) Save good engine by using only necessary power for holding altitude.

PILOT

COPILOT

(4) Reduce drag as much as possible by feathering dead engine propeller and closing cowl flaps and oil cooler shutters.

n. STALLS

(1) Maximum of 20 degrees nose high allowable for "POWER ON" stall. With a higher nose, the airplane is likely to go over on her back due to propeller torque, otherwise airplane is stable and recovers nicely.

o. SPINS

(1) ABSOLUTELY PROHIBITED.

p. BEFORE LANDING

(1) Automatic flight control (fig. 25-3) "OFF."

(2) Mixture (fig. 26-11) "AUTO-RICH."

(3) Propeller toggle switches (fig. 25-12, 23) "AUTOMATIC" (2200-2300 rpm).

(4) Carburetor heat (fig. 26-20) as needed.

CAUTION: Emergency take-off, carburetor heat "COLD."

(5) Check for sufficient fuel in main tanks.

(6) Reduce speed to 185 mph and lower landing gear (fig. 26-16).

(7) 15-20 in. Hg—glide approximately 45 degree angle.

(8) Check landing gear warning indicator (fig. 24-16) that gear is down and locked.

CAUTION: Do not bank over 15 degrees with gear down.

PILOT

(9) Check hydraulic pressure (fig. 26-6) 750 lb to 950 lb.

(10) Lower wing flaps (fig. 26-5) as desired (usually full flaps).

(11) Refer to Take-off, Climb, & Landing Chart for best IAS approach and estimates on distance required to set her down.

COPILOT

"stalleth not on the approach and thy days shall be long and happy..."

q. AFTER LANDING

(1) Landing gear handle safety lock "ON." Do this only after coming to a complete stop.

(2) Cowl flaps (fig. 26-4) and oil coolers (fig. 26-8) "OPEN."

(3) Wing flaps (fig. 26-5) "UP."

(4) Fuel booster pumps (fig. 26-19) "OFF."

(5) Propeller "AUTOMATIC" and "INC RPM."

(6) Taxi in.

CAUTION: Avoid taxying through tall grass, mud, or any questionable places as foreign articles may be picked up by propeller resulting in severe damage.

(7) Parking brakes "ON."

r. STOPPING ENGINES

(1) Run engines a few seconds at 1000 rpm. Place mixture in "IDLE CUT-OFF." All switches "OFF" as soon as propellers have stopped.

(2) Turn fuel cocks "OFF" (fig. 48-5).

(3) Do not leave airplane unless it is under proper care.

SECTION III
FLIGHT OPERATION DATA

1. DETERMINING GROSS WEIGHT AND BALANCE.

Refer to Clearance Form F in the "Handbook of Weight and Balance Data" in the airplane. Determine from the load adjuster for *that particular airplane* that loading is within safe balance limits.

2. FLIGHT PLANNING.

The following outline is a guide to using the FLIGHT OPERATION INSTRUCTION CHART for flight planning.

a. If the flight plan calls for a continuous flight where the desired cruising power and airspeed are reasonably constant after take-off and climb to 5000 feet, the fuel required and flight time may be computed as a "single section flight."

b. Greater speed means less range, and greater range means less speed. Determine speed by balancing range desired against urgency of the flight.

(1) Determine gross weight and external load, if any, at take-off. Select the FLIGHT OPERATION INSTRUCTION CHART for these conditions. Find the largest figure under U. S. (or IMP.) G.P.H. in the lower half of the chart under column I, "MAX. CONT. POWER." Multiply this figure by the hours desired for reserve fuel, and add the result to the number of "warm up, take-off, and climb" gallons listed under foot note number two (2) in the LEGEND. Subtract this total from the amount of fuel in the airplane before starting engines, to obtain the amount of fuel available for flight planning.

(2) Select a figure in the U. S. (or IMP.) fuel column equal to, or less than, the amount of fuel available for flight planning (par. 2 *b* (1), above). Move horizontally to the right or left and select a figure equal to, or *greater* than, the air miles (with no wind) to be flown. Engine operating data in the lower half of this column represents the highest cruising speed possible at different altitudes for the range desired; however, engine operating data listed in any column to the right may be used with the result of greater fuel economy but slower speed.

(3) Drop to the lower part of the same column in which range in miles was found and convert IAS (indicated air speed) at flight plan criusing altitude to T.A.S. (true air speed). To allow for wind at cruising altitude calculate corrected ground speed with the aid of a flight calculator or a navigator's triangle of velocities. Divide air miles to be flown by corrected ground speed to obtain hours of flight duration.

(4) Opposite cruising altitude in lower half of chart under "OPERATING DATA" (same column) find correct RPM, IAS, MP, and GPH to make this range good. To check, multiply GPH by hours of flight duration; the total should be *equal* to, or less than, the total amount of fuel available for flight planning as determined in paragraph 2 *b* (1). If *greater,* pilot should use next longer range column.

c. The flight plan may be readily changed at any time enroute, and the chart will show the balance of range at various cruising powers by following the Instructions for Using Chart printed at the top on each chart.

d. Usually the flight plan will call for a change during flight in power, speed, gross load, or external load. In such case, break the total flight into a series of individual short flights, each computed as outlined in par. *b.* in its entirety, then add them together to make up the total flight and its requirements.

5-1-42

AIRPLANE MODELS

B-26, B-26A, and B-26B

SPECIFIC ENGINE FLIGHT CHART

ENGINE MODELS

R-2800-5

CONDITION	FUEL PRESSURE LB./SQ. IN.	OIL PRESSURE LB./SQ. IN.	OIL TEMP. °C	COOLANT TEMP. °C		
DESIRED	16	75	60-75	-		
MAXIMUM	17	85	100	-		
MINIMUM	15	50	40	-		
IDLING	7	25	40 Min. 100 Max.	-		

MAX. PERMISSIBLE DIVING R.P.M. 2800

CONDITION	ALLOWABLE OIL CONSUMPTION			
"MAX CONTINUOUS"	94	IMP. PT./HR.	56	U.S. QT./HR.
"ECONOMICAL MAX."	69	IMP. PT./HR.	41	U.S. QT./HR.
"MIN. SPECIFIC"	50	IMP. PT./HR.	30	U.S. QT./HR.

OIL GRADE: (S) 1120 (W) 1120

SUPERCHARGER TYPE:

FUEL OCTANE

OPERATING CONDITION	R.P.M.	MANIF. PRESS. (BOOST.)	HORSE POWER	CRITICAL ALTITUDE (FEET)	BLOWER	USE LOW BLOWER BELOW	MIXTURE CONTROL POSITION	FUEL FLOW (GAL./HR./ENG.) U.S.	FUEL FLOW IMP.	MAXIMUM CYL. TEMP. °C	MAXIMUM CYL. TEMP. °F	MAXIMUM DURATION (MINUTES)	REMARKS
TAKE-OFF	2600	49.0	1850	3100	L	9500 FT. ALT.	A.R.	480	400	260	500	5	Fuel and Oil consumptions are for 2 engines
EMERGENCY MAXIMUM	2600	49.0	1850	3100	L	9500 FT. ALT.	A.R.	480	400	260	500	5	
MAXIMUM CONTINUOUS	2400 2400	38.0 40.0	1500 1450	7800 13000	L H	9500 FT. ALT.	A.R. A.R.	400	330	260	500	Cont.	
ECONOMICAL MAXIMUM	2100 2100	32.0 32.0	1100 1050	11000 17000	L H	11000 FT. ALT.	A.L. A.L.	240	200	232	450	Cont.	
MINIMUM SPECIFIC CONSUMPTION	1800	29,5	800	15000	L	15000 FT. ALT.	A.L.	115	95	232	450	Cont.	
MINIMUM CRUISING	1600	28	650	9000	L	14000 FT. ALT.	A.L.	90	78	232	450	Cont.	
CONDITIONS TO AVOID	Below 1600 rpm, generator output is insufficient												

NOTE: CRITICAL ALTITUDE IS THAT AT WHICH MAXIMUM POWER IS OBTAINED WITH FULL THROTTLE UNDER CONDITIONS SHOWN.

5-1-42

AIRPLANE MODELS B-26, B-26A, and B-26B

SPECIFIC ENGINE FLIGHT CHART

ENGINE MODELS R-2800-41 and -43

CONDITION	FUEL PRESSURE LB./SQ. IN.	OIL PRESSURE LB./SQ. IN.	OIL TEMP. °C	COOLANT TEMP. °C		
DESIRED	16	75	60-75	-		
MAXIMUM	17	80	100	-		
MINIMUM	15	50	40	-		
IDLING	7	25	-	-		

MAX. PERMISSIBLE DIVING R.P.M. 2880

CONDITION	ALLOWABLE OIL CONSUMPTION	
"MAX CONTINUOUS"	100 IMP. PT./HR.	60 U.S. QT./HR.
"ECONOMICAL MAX."	43 IMP. PT./HR.	26 U.S. QT./HR.
"MIN. SPECIFIC"	25 IMP. PT./HR.	15 U.S. QT./HR.

OIL GRADE: (S) _____ (W) _____

SUPERCHARGER TYPE: Single stage, two speed.

FUEL OCTANE 100

OPERATING CONDITION	R.P.M.	MANIF. PRESS. (BOOST.)	HORSE POWER	CRITICAL ALTITUDE (FEET)	BLOWER	USE LOW BLOWER BELOW	MIXTURE CONTROL POSITION	FUEL FLOW (GAL./HR./ENG.) U.S.	FUEL FLOW IMP.	MAXIMUM CYL. TEMP. °C	MAXIMUM CYL. TEMP. °F	MAXIMUM DURATION (MINUTES)	REMARKS
TAKE-OFF	2700	51.5	2000	1500	L	7500 FT. ALT.	A.R.	532	444	260	500	5	Fuel and Oil consumptions are for 2 engines
EMERGENCY	2700	49.5	2000	1500	L	7500	A.R.	532	444	260	500	5	
MAXIMUM	2700	43.5	1600	13500	H	FT. ALT.	A.R.	426	355				
MAXIMUM CONTINUOUS	2400	40.8	1600	6500	L	9200	A.R.	392	326	232	450	Cont.	
	2400	44.5	1450	14000	H	FT. ALT.	A.R.	384	320				
ECONOMICAL	2100	28.5	960	13500	L	13500	A.L.	151	126	232	450	Cont.	
MAXIMUM	2100	31.2	960	19300	H	FT. ALT.	A.L.	164	137				
MINIMUM SPECIFIC CONSUMPTION	1600	23.0	560	14000	L	14000 FT. ALT.	A.L.	86	72	232	450	Cont.	Manifold pressure 30 in. Hg at sea level
MINIMUM CRUISING	1600	23.0	560	14000	L	14000 FT. ALT.	A.L.	86	72	232	450	Cont.	
CONDITIONS TO AVOID													

NOTE: CRITICAL ALTITUDE IS THAT AT WHICH MAXIMUM POWER IS OBTAINED WITH FULL THROTTLE UNDER CONDITIONS SHOWN.

11-20-42

AIRPLANE MODELS: B-26, B-26A and B-26B

TAKE-OFF, CLIMB & LANDING CHART

ENGINE MODELS: R-2800-5

TAKE-OFF DISTANCE (IN FEET)

GROSS WEIGHT (IN LBS.)	HEAD WIND (MPH)	HARD SURFACE RUNWAY						SOD-TURF RUNWAY						SOFT SURFACE RUNWAY					
		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.	
		GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.
40,000	0	3550	4900	4350	6050	DO NOT		3900	5250	4750	6450	DO NOT		4850	6200	5850	7550	DO NOT	
	20	2700	3700	3400	4800	ATTEMPT		3000	4000	3850	5250	ATTEMPT		3900	4900	5000	6400	ATTEMPT	
	40	1800	2500	2550	3550	TAKE-OFF		2000	2700	2900	3900	TAKE-OFF		2900	3600	3900	4900	TAKE-OFF	
32,000	0	2000	2750	2350	3250	3150	4300	2200	2950	2600	3500	3450	4600	2650	3400	3150	4050	4100	5250
	20	1450	2000	1750	2450	2300	3200	1650	2200	1900	2600	2600	3500	1950	2500	2300	3000	3200	4100
	40	900	1250	1150	1550	1550	2100	1050	1400	1250	1650	1800	2350	1250	1600	1550	1950	2150	2700
24,000	0	1050	1450	1200	1650	1600	2150	1150	1500	1300	1750	1650	2200	1250	1650	1450	1900	2000	2550
	20	700	950	850	1150	1100	1550	800	1050	900	1200	1200	1650	900	1150	1050	1350	1450	1900
	40	350	500	500	650	700	950	400	550	550	700	750	1000	500	650	650	800	950	1200

NOTE: INCREASE DISTANCE 10% FOR EACH 10°C ABOVE 0°C (10% FOR EACH 20°F ABOVE 32°F)

ENGINE LIMITS FOR TAKE-OFF 2600 RPM & 47 IN. HG

CLIMB DATA

COMBAT MISSIONS USE 2600* RPM & 47 IN. HG

FERRY MISSIONS USE 2100 RPM & 31.8 IN. HG

GROSS WEIGHT (IN LBS.)	TYPE OF CLIMB	S.L. TO 5000 FT. ALT.			AT 10,000 FT. ALT.				AT 15,000 FT. ALT.				AT 20,000 FT. ALT.				AT 25,000 FT. ALT.				BLOWER CHANGE
		BEST I.A.S.	FT./MIN.	TIME FROM S.L.	BEST I.A.S.	FT./MIN.	TIME FROM S.L.	FUEL FROM S.L.	BEST I.A.S.	FT./MIN.	TIME FROM S.L.	FUEL FROM S.L.	BEST I.A.S.	FT./MIN.	TIME FROM S.L.	FUEL FROM S.L.	BEST I.A.S.	FT./MIN.	TIME FROM S.L.	FUEL FROM S.L.	
40,000	COMBAT	164	1025	4.3	182	636	11.0	154	182	380	21.5	218	-	-	-	-	-	-	-	-	9500
	FERRY	182	295	14.0	182	190	35.4	210	-	-	-	-	-	-	-	-	-	-	-	-	-
32,000	COMBAT	160	1650	2.8	160	1140	6.3	117	164	905	11.1	148	164	420	19.0	191	-	-	-	-	9500
	FERRY	164	675	7.1	164	590	14.9	124	164	490	24.0	159	164	250	35.7	209	-	-	-	-	13500
24,000	COMBAT	155	2595	1.8	155	1980	4.0	95	145	1670	6.9	113	145	1130	10.5	135	145	600	16.4	162	9500
	FERRY	145	1335	3.6	145	1260	7.5	93	145	1180	11.5	110	145	900	16.1	127	146	420	24.2	147	13500

NOTE: INCREASED ELAPSED CLIMBING TIME % FOR EACH 10°C ABOVE 0°C FREE AIR TEMPERATURE (% FOR EACH 20°F ABOVE 32°F) FUEL INCLUDES WARM-UP AND TAKE-OFF ALLOWANCE

LANDING DISTANCE (IN FEET)

GROSS WEIGHT (IN LBS.)	BEST I. A. S. Approach	HARD DRY SURFACE						FIRM DRY SOD						WET OR SLIPPERY					
		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.	
		TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL
32,000	119	2850	1600	3050	1750	3300	1900	3100	1850	3350	2050	3600	2200	7250	6000	7900	6600	8600	7200
24,000	103	2250	1200	2400	1350	2600	1450	2450	1400	2600	1550	2800	1650	5550	4500	6000	4950	6550	6400

NOTE: FOR GROUND TEMPERATURES ABOVE 35°C (95°F) INCREASE APPROACH I.A.S. 10% AND ALLOW 20% INCREASE IN GROUND ROLL.

REMARKS *REDUCE TO 2400 RPM AND 40 IN. HG. FIVE MINUTES AFTER TAKE-OFF.

LEGEND

I. A. S.: Indicated Air Speed

NOTE: All distances are average, and subject to considerable variations because of differences in pilot technique, load, C.G., etc.

RED FIGURES HAVE NOT BEEN FLIGHT CHECKED.

SPEC. AN-H-8 Dec. 10, 1942 FORM AS-5-10

AIRPLANE MODELS RB-26, RB-26A B-26B

TAKE-OFF, CLIMB & LANDING CHART

ENGINE MODELS R-2800-41 R-2800-43

TAKE-OFF DISTANCE (IN FEET)

GROSS WEIGHT (IN LBS.)	HEAD WIND MPH	HEAD WIND KNOTS	HARD SURFACE RUNWAY AT SEA LEVEL GROUND RUN	HARD SURFACE RUNWAY AT SEA LEVEL TO CLEAR 50' OBJ.	HARD SURFACE RUNWAY AT 3,000 FT. GROUND RUN	HARD SURFACE RUNWAY AT 3,000 FT. TO CLEAR 50' OBJ.	HARD SURFACE RUNWAY AT 6,000 FT. GROUND RUN	HARD SURFACE RUNWAY AT 6,000 FT. TO CLEAR 50' OBJ.	SOD-TURF RUNWAY AT SEA LEVEL GROUND RUN	SOD-TURF RUNWAY AT SEA LEVEL TO CLEAR 50' OBJ.	SOD-TURF RUNWAY AT 3,000 FT. GROUND RUN	SOD-TURF RUNWAY AT 3,000 FT. TO CLEAR 50' OBJ.	SOD-TURF RUNWAY AT 6,000 FT. GROUND RUN	SOD-TURF RUNWAY AT 6,000 FT. TO CLEAR 50' OBJ.	SOFT SURFACE RUNWAY AT SEA LEVEL GROUND RUN	SOFT SURFACE RUNWAY AT SEA LEVEL TO CLEAR 50' OBJ.	SOFT SURFACE RUNWAY AT 3,000 FT. GROUND RUN	SOFT SURFACE RUNWAY AT 3,000 FT. TO CLEAR 50' OBJ.	SOFT SURFACE RUNWAY AT 6,000 FT. GROUND RUN	SOFT SURFACE RUNWAY AT 6,000 FT. TO CLEAR 50' OBJ.
40,000	0	0	3500	4900	5200	6900	Do not attempt Take-off		5100	6500												
	20	17	2650	3750	4100	5500			3900	5000	Do not attempt Take-off						Do not attempt Take-off					
	40	35	1700	2550	3000	4000			2650	3500												
35,000	0	0	2300	3400	2800	4100	4150	5550	3250	4350	4000	5300	Do not attempt Take-off		4200	5300	5200	6500	Do not attempt Take-off			
	20	17	1700	2500	2150	3050	3200	4300	2450	3250	3100	4000			3200	4000	4100	5000				
	40	35	1100	1600	1300	2000	2200	2900	1600	2100	2000	2700			2150	2650	2900	3600				
30,000	0	0	1700	2400	1900	2800	2400	3600	2200	2900	2700	3600	3500	4700	2850	3550	3450	4350	4450	5650		
	20	17	1200	1700	1400	2050	1750	2650	1700	2200	2000	2650	2650	3550	2100	2600	2600	3250	3450	4350		
	40	35	650	1000	900	1300	1100	1700	1050	1400	1300	1700	1750	2350	1250	1600	1700	2100	2400	3000		

NOTE: INCREASE DISTANCE 10 % FOR EACH 10°C ABOVE 0°C (10 % FOR EACH 20°F ABOVE 32°F)

ENGINE LIMITS FOR TAKE-OFF 2700 RPM & 51.5 IN. HG

CLIMB DATA

COMBAT MISSIONS USE 2400 RPM & L.B. 40.8 H.B. 45.5 IN. HG

FERRY MISSIONS USE 2100 RPM & L.B. 31.5 H.B. 33.0 IN. HG

GROSS WEIGHT IN LBS.	TYPE OF CLIMB	S.L. TO 5000 FT. ALT. BEST I.A.S. MPH	S.L. TO 5000 FT. ALT. BEST I.A.S. KNOTS	S.L. TO 5000 FT. ALT. FT/MIN	S.L. TO 5000 FT. ALT. TIME FROM S.L.	10,000 FT. ALT. BEST I.A.S. MPH	10,000 FT. ALT. BEST I.A.S. KNOTS	10,000 FT. ALT. FT/MIN	10,000 FT. ALT. TIME FROM S.L.	10,000 FT. ALT. FUEL FROM S.L. U.S.	10,000 FT. ALT. FUEL FROM S.L. IMP.	15,000 FT. ALT. BEST I.A.S. MPH	15,000 FT. ALT. BEST I.A.S. KNOTS	15,000 FT. ALT. FT/MIN	15,000 FT. ALT. TIME FROM S.L.	15,000 FT. ALT. FUEL FROM S.L. U.S.	15,000 FT. ALT. FUEL FROM S.L. IMP.	20,000 FT. ALT. BEST I.A.S. MPH	20,000 FT. ALT. BEST I.A.S. KNOTS	20,000 FT. ALT. FT/MIN	20,000 FT. ALT. TIME FROM S.L.	20,000 FT. ALT. FUEL FROM S.L. U.S.	20,000 FT. ALT. FUEL FROM S.L. IMP.	25,000 FT. ALT. BEST I.A.S. MPH	25,000 FT. ALT. BEST I.A.S. KNOTS	25,000 FT. ALT. FT/MIN	25,000 FT. ALT. TIME FROM S.L.	25,000 FT. ALT. FUEL FROM S.L. U.S.	25,000 FT. ALT. FUEL FROM S.L. IMP.	BLOWER CHANGE
40,000	COMBAT	178	155	830	6	178	155	560	15	88	73	178	155	384	28	180	150												9200
	FERRY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-												
35,000	COMBAT	172	150	1100	4.5	172	150	910	10	64	53	172	150	710	17	110	92												9200
	FERRY	167	145	260	19.0	167	145	185	46	120	100	-	-	-	-	-	-												13500
30,000	COMBAT	165	144	1600	3	165	144	1250	7	45	38	165	144	1100	12	73	61	165	144	700	19	112	92						9200
	FERRY	159	138	570	9	159	138	500	18.5	47	39	159	138	400	31	80	67	-	-	-	-	-	-						13500

NOTE: INCREASED ELAPSED CLIMBING TIME 10 % FOR EACH 10°C ABOVE 0°C FREE AIR TEMPERATURE (10 % FOR EACH 20°F ABOVE 32°F) FUEL INCLUDES WARM-UP AND TAKE-OFF ALLOWANCE

LANDING DISTANCE (IN FEET)

GROSS WEIGHT IN LBS.	BEST I. A. S. APPROACH MPH	BEST I. A. S. APPROACH KNOTS	HARD DRY SURFACE AT SEA LEVEL TO CLEAR 50' OBJ.	HARD DRY SURFACE AT SEA LEVEL GROUND ROLL	HARD DRY SURFACE AT 3,000 FT. TO CLEAR 50' OBJ.	HARD DRY SURFACE AT 3,000 FT. GROUND ROLL	HARD DRY SURFACE AT 6,000 FT. TO CLEAR 50' OBJ.	HARD DRY SURFACE AT 6,000 FT. GROUND ROLL	FIRM DRY SOD AT SEA LEVEL TO CLEAR 50' OBJ.	FIRM DRY SOD AT SEA LEVEL GROUND ROLL	FIRM DRY SOD AT 3,000 FT. TO CLEAR 50' OBJ.	FIRM DRY SOD AT 3,000 FT. GROUND ROLL	FIRM DRY SOD AT 6,000 FT. TO CLEAR 50' OBJ.	FIRM DRY SOD AT 6,000 FT. GROUND ROLL	WET OR SLIPPERY AT SEA LEVEL TO CLEAR 50' OBJ.	WET OR SLIPPERY AT SEA LEVEL GROUND ROLL	WET OR SLIPPERY AT 3,000 FT. TO CLEAR 50' OBJ.	WET OR SLIPPERY AT 3,000 FT. GROUND ROLL	WET OR SLIPPERY AT 6,000 FT. TO CLEAR 50' OBJ.	WET OR SLIPPERY AT 6,000 FT. GROUND ROLL
30,000	145	126	3000	2100	3300	2300	3600	2600	3500	2600	3800	2800	4100	3100	5800	4900	6400	5400	6900	5900
25,000	135	117	2600	1800	2800	1900	3000	2100	2900	2100	3200	2300	3500	2600	4900	4100	5400	4500	5900	4800

NOTE: FOR GROUND TEMPERATURES ABOVE 35°C (95°F) INCREASE APPROACH I.A.S. 10% AND ALLOW 20% INCREASE IN GROUND ROLL.

REMARKS

LEGEND
I.A.S.: Indicated Air Speed
M.P.H.: Miles Per Hour
S.L.: Sea Level
U.S.: U. S. Gallons
IMP.: Imperial Gallons
NOTE: All Distances are Average
RED FIGURES HAVE NOT BEEN FLIGHT CHECKED

WF-1-1-43-3M

11-20-42

MODEL (S)

B-26, B-26A and B-26B

TWO-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 1 OF 3 SHEETS

GR. WT. 36,500 TO 34,000 POUNDS

EXTERNAL LOAD ITEMS

NONE

CONDITION	R.P.M.	M.P. (IN. HG.)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	2600	49.0	LOW	A.R.	5		
MILITARY POWER	2600	47.5	LOW	A.R.	5		
ENGINE (S)	R-2800-5						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. *NOTES:* (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

NOTE: DO NOT EXCEED 36,500 LB. GROSS WEIGHT

ALTERNATE CRUISING CONDITIONS

(NO WIND) (NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES		FUEL U.S. GALS. (2)	II RANGE IN AIR MILES		III RANGE IN AIR MILES		IV RANGE IN AIR MILES		FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES	
STATUTE	NAUTICAL		STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL		STATUTE	NAUTICAL
		1992		62 U.S. (52	IMP.) GALLONS NOT AVAILA		BLE IN FLIGHT.		1661		
1170	*1020*	1930	1480	*1280*	1740	*1510*	2000	*1730*	1609	2330	*2100*
1030	*890*	1700	1300	*1130*	1530	*1330*	1760	*1530*	1418	2050	*1780*
910	*790*	1500	1150	*1000*	1350	*1170*	1550	*1340*	1250	1810	*1570*
790	*690*	1300	990	*860*	1170	*1010*	1340	*1160*	1083	1570	*1360*
670	*580*	1100	840	*730*	990	*860*	1140	*990*	917	1340	*1160*
550	*480*	900	690	*600*	810	*700*	930	*810*	750	1090	*950*
430	*370*	700	530	*460*	630	*550*	720	*620*	583	840	*730*
300	*260*	500	380	*330*	450	*390*	520	*450*	417	600	*520*
180	*160*	300	230	*200*	270	*230*	310	*270*	250	360	*310*

OPERATING DATA R.P.M.	T.A.S. M.P.H.	T.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.
						30000																			30000					
						25000																			25000					
2400	244	212	31	268	223	20000																			20000					
2400	286	248	38	369	308	15000	2200	215	187	35.9	322	268	2100	187	162	31.4	237	197	2100	174	151	30.0	191	159	15000					
2400	287	24[illegible]	40	398	332	12000	2200	221	192	35.8	315	262	2100	198	172	29.4	240	200	2100	189	164	28.0	199	166	12000					
2400	283	246	36.5	398	332	9000	2200	226	196	32.7	308	256	2100	202	175	30.2	233	194	2100	194	168	28.8	195	162	9000	2000	174	151	27.9	149	124
2400	279	242	38	415	346	6000	2200	229	199	33.2	299	249	2100	207	178	31.0	229	191	2100	198	172	29.5	190	158	6000	1950	175	152	28.4	138	115
2400	269	234	39	399	332	3000	2200	231	201	33.7	290	242	2100	212	184	31.9	225	185	2100	203	176	30.4	187	156	3000	1900	176	153	29.0	128	107
2400	259	221	38	383	319	S. L.	2200	232	202	34.0	279	232	2100	215	187	32.5	218	182	2100	209	181	31.4	183	152	S. L.	1900	178	155	30.0	124	103

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.

(2) ALLOW 62 U. S. GALS., 52 IMP. GALS. FOR WARM UP,
TAKE-OFF AND CLIMB TO 5000 FEET ALTITUDE
RETURN FUEL FLOWS TO TANK
USE FUEL FROM TANKS IN THE FOLLOWING ORDER

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle

EDITOR'S NOTE: AAF inspectors at modification centers will strike out columns not matching calibration of instruments in the airplane at time of delivery.

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK

11-20-42

MODEL (S)

B-26, B-26A and B-26B

TWO-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 2 OF 3 SHEETS

GR. WT. 34,000 TO 29,000 POUNDS

EXTERNAL LOAD ITEMS

NONE

CONDITION	R.P.M.	M.P. (IN. HG)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	2600	49.0	LOW	A.R.	5		
MILITARY POWER	2600	47.5	LOW	A.R.	5		
ENGINE (S)	R-2800-5						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. *NOTES:* (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

(NO WIND)

ALTERNATE CRUISING CONDITIONS

(NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES		FUEL U.S. GALS. (2)	II RANGE IN AIR MILES		III RANGE IN AIR MILES		IV RANGE IN AIR MILES		FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES	
STATUTE	NAUTICAL		STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL		STATUTE	NAUTICAL
		1462		62 U.S. (52 IMP.) GALLONS NOT AVAILABLE IN FLIGHT.					1219		
870	750	1400	1200	1040	1390	1205	1580	1370	1167	2020	1750
680	590	1100	940	820	1090	950	1240	1080	917	1580	1370
560	490	900	770	670	890	770	1010	880	750	1300	1130
440	380	700	600	520	690	600	790	690	583	1010	880
310	270	500	430	460	500	430	560	490	417	720	620
190	160	300	260	230	300	260	340	290	250	430	370

OPERATING DATA						(1) DENSITY ALT. IN FEET	OPERATING DATA						OPERATING DATA						OPERATING DATA						(1) DENSITY ALT. IN FEET	OPERATING DATA					
R.P.M.	T.A.S. M.P.H.	T.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.		R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.		R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.
						30000																			30000					
						25000																			25000					
2400	270	234	31.0	268	223	20000																			20000					
2400	295	256	38.0	369	308	15000	2200	215	187	34.0	289	241	2100	201	174	31.2	232	193	2100	196	170	30.3	200	167	15000	1950	172	149	25.9	136	113
2400	294	255	40.0	398	332	12000	2200	222	193	30.2	284	237	2100	208	181	29.3	230	192	2100	202	175	28.0	197	164	12000	1900	173	150	26.2	125	104
2400	291	252	36.5	398	332	9000	2200	226	196	31.6	277	231	2100	213	185	29.8	225	188	2100	207	180	28.7	192	160	9000	1850	174	151	26.8	121	101
2400	287	249	38.0	415	346	6000	2150	227	197	31.9	267	222	2100	217	188	30.8	219	183	2100	211	183	29.9	187	156	6000	1800	175	152	27.3	115	96
2400	276	240	38.0	399	332	3000	2150	229	199	32.4	256	213	2100	221	192	31.5	213	177	2100	214	186	30.4	182	152	3000	1800	176	153	28.2	112	93
2400	265	230	38.0	383	319	S. L.	2100	230	200	33.0	246	205	2100	222	193	32.3	206	172	2100	217	188	31.2	177	148	S. L.	1750	178	155	29.1	109	91

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.

(2) ALLOW 62 U. S. GALS., 52 IMP. GALS. FOR WARM UP,
TAKE-OFF AND CLIMB TO 5000 FEET ALTITUDE
RETURN FUEL FLOWS TO TANK
USE FUEL FROM TANKS IN THE FOLLOWING ORDER

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle

EDITOR'S NOTE: AAF inspectors at modification centers will strike out columns not matching calibration of instruments in the airplane at time of delivery.

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK

11-20-42

MODEL (S)

B-26, B-26A and B-26B

TWO-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 3 OF 3 SHEETS

GR. WT. 29,000 TO 24,000 POUNDS

EXTERNAL LOAD ITEMS

NONE

CONDITION	R.P.M.	M.P. (IN. HG)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	2600	49.0	LOW	A.R.	5		
MILITARY POWER	2600	47.5	LOW	A.R.	5		
ENGINE (S)	R-2800-5						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. *NOTES:* (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

(NO WIND) **ALTERNATE CRUISING CONDITIONS** (NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES		FUEL U.S. GALS. (2)	II RANGE IN AIR MILES		III RANGE IN AIR MILES		IV RANGE IN AIR MILES		FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES	
STATUTE	NAUTICAL		STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL		STATUTE	NAUTICAL
		962		62 U.S. (52 IMP.) GALLONS NOT AVAILABLE IN FLIGHT.					802		
570	490	900	970	840	1130	980	1300	1130	750	1550	1350
440	380	700	760	660	880	770	1010	880	583	1210	1050
320	280	500	540	470	630	550	720	630	417	860	750
190	160	300	320	280	380	330	430	380	250	520	450
60	50	100	110	100	130	120	140	120	83	170	150

OPERATING DATA R.P.M.	T.A.S. M.P.H.	T.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.
						30000																			30000						
						25000																			25000						
2400	288	250	31.0	268	223	20000													2100	190	167	27.1	163	136	20000						
2400	305	264	38.0	369	308	15000	2100	211	183	31.0	224	187	2100	206	179	29.9	187	156	2000	202	175	26.2	161	134	15000	1750	172	149	24.6	111	93
2400	302	262	40.0	398	332	12000	2100	219	190	28.8	222	185	2100	213	185	28.0	185	154	2000	207	180	27.2	157	131	12000	1750	173	150	25.0	107	89
2400	298	258	36.5	398	332	9000	2100	222	193	29.6	215	179	2100	216	187	28.6	180	157	2000	209	182	27.9	151	126	9000	1750	174	151	25.7	104	87
2400	293	254	38.0	415	346	6000	2100	224	194	30.1	208	173	2100	220	191	29.2	174	145	2000	211	183	28.6	146	122	6000	1650	175	152	26.4	100	83
2400	281	244	38.0	399	332	3000	2100	227	197	31.0	202	168	2050	221	192	30.0	168	140	1950	214	186	29.3	142	118	3000	1650	176	153	27.3	97	81
2400	270	234	38.0	383	319	S. L.	2100	230	200	31.7	194	194	2000	224	194	30.9	162	135	1950	216	187	30.2	137	114	S. L.	1600	178	155	28.3	92	77

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.

(2) ALLOW 62 U. S. GALS. 52 IMP. GALS. FOR WARM UP, TAKE-OFF AND CLIMB TO 5000 FEET ALTITUDE

RETURN FUEL FLOWS TO TANK

USE FUEL FROM TANKS IN THE FOLLOWING ORDER

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle

EDITOR'S NOTE: AAF inspectors at modification centers will strike out columns not matching calibration of instruments in the airplane at time of delivery.

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK

11-20-42

MODEL (S)

B-26, B-26A and B-26B

TWO-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 1 OF 4 SHEETS

GR. WT. 36,500 TO 35,000 POUNDS

EXTERNAL LOAD ITEMS

NONE

CONDITION	R.P.M.	M.P. (IN. HG)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	2700	51.5	LOW	A.R.	5		
MILITARY POWER	2700	49.5 43.5	LOW HIGH	A.R.	5		
ENGINE (S)	R-2800-41 & -43						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. *NOTES:* (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

NOTE: DO NOT EXCEED 36,500 LB. GROSS WEIGHT.

(NO WIND) **ALTERNATE CRUISING CONDITIONS** (NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES		FUEL U.S. GALS. (2)	II RANGE IN AIR MILES		III RANGE IN AIR MILES		IV RANGE IN AIR MILES		FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES	
STATUTE	NAUTICAL		STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL		STATUTE	NAUTICAL
		1992		212 U.S. (177 IMP.) GALLONS NOT AVAILABLE IN FLIGHT.					1660		
1150	1000	1780	1360	1190	1580	1370	1790	1560	1483	2230	1930
1030	900	1600	1230	1060	1420	1230	1610	1400	1334	2000	1740
970	840	1500	1150	1000	1330	1160	1510	1310	1250	1880	1630
900	780	1400	1080	930	1240	1080	1410	1230	1168	1750	1520
840	730	1300	1000	860	1150	1000	1310	1140	1084	1630	1410
770	670	1200	920	800	1060	920	1210	1050	1001	1500	1300
710	620	1100	840	730	980	850	1110	960	917	1380	1190
650	560	1000	770	670	890	770	1010	880	833	1250	1090
580	500	900	690	600	800	690	910	790	751	1130	980
520	450	800	610	530	710	620	810	700	667	1000	870
450	390	700	540	470	620	540	710	610	584	880	760

OPERATING DATA

R.P.M.	T.A.S. M.P.H.	T.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.
						30000													30000						
						25000													25000						
2400	255	221	F.T.	266	222	20000													20000						
2400	292	253	F.T.	367	306	15000	2350	227	197	F.T.	340	283	2200	218	189	F.T.	282	235	2100	208	180	38.0	243	203	15000						
2400	292	253	45.5	384	320	12000	2300	233	202	43.6	332	277	2200	220	191	41.0	277	231	2100	209	181	38.4	225	188	12000	2100	171	148	29.0	150	125
2400	286	248	F.T.	335	279	9000	2400	247	214	F.T.	335	279	2250	234	203	35.3	280	233	2200	223	193	34.1	239	199	9000	2050	173	150	29.8	145	121
2400	293	254	41.0	392	327	6000	2350	253	219	39.0	342	285	2250	238	206	36.7	282	235	2150	226	196	35.1	229	191	6000	2000	174	151	30.7	139	116
2400	286	248	42.2	392	327	3000	2350	256	222	40.2	338	282	2250	242	210	37.9	280	233	2150	229	199	36.2	227	189	3000	2000	176	153	31.7	135	112
2400	278	241	43.5	392	327	S. L.	2350	256	222	40.7	320	267	2250	242	210	38.7	262	218	2100	230	199	37.1	211	176	S. L.	1950	177	154	32.8	130	108

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.

(2) ALLOW 212 U. S. GALS., 177 IMP. GALS. FOR WARM UP.
TAKE-OFF AND CLIMB TO 15,000 FEET ALTITUDE
RETURN FUEL FLOWS TO TANK
USE FUEL FROM TANKS IN THE FOLLOWING ORDER

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle

EDITOR'S NOTE: AAF inspectors at modification centers will strike out columns not matching calibration of instruments in the airplane at time of delivery.

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK

11-20-42

MODEL (S)

B-26, B-26A and B-26B

TWO-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 2 OF 4 SHEETS

GR. WT. 35,000 TO 32,000 POUNDS

EXTERNAL LOAD ITEMS

NONE

CONDITION	R.P.M.	M.P. (IN. HG)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	2700	51.5	LOW	A.R.	5		
MILITARY POWER	2700	49.5 43.5	LOW HIGH	A.R.	5		
ENGINE (S)	R-2800-41 & -43						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. *NOTES:* (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

ALTERNATE CRUISING CONDITIONS

(NO WIND) (NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES		FUEL U.S. GALS. (2)	II RANGE IN AIR MILES		III RANGE IN AIR MILES		IV RANGE IN AIR MILES		FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES	
STATUTE	NAUTICAL		STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL		STATUTE	NAUTICAL
		1460	180 U.S. (150 IMP.) GALLONS NOT AVAILABLE IN FLIGHT.						1218		
840	730	1280	1020	880	1200	1040	1380	1200	1068	1740	1510
720	630	1100	880	760	1030	900	1190	1030	917	1500	1300
660	570	1000	800	690	940	810	1080	940	833	1360	1180
590	510	900	720	620	840	730	970	840	750	1220	1060
530	460	800	640	550	750	650	860	750	667	1090	940
460	400	700	560	480	660	570	750	660	584	950	830
390	340	600	480	420	560	490	650	560	500	820	710
330	280	500	400	350	470	410	540	470	417	680	590
260	230	400	320	280	380	330	430	370	334	540	470
200	170	300	240	210	280	240	320	280	250	410	350
130	110	200	160	140	190	160	220	190	167	270	240

OPERATING DATA						(1) DENSITY ALT. IN FEET	OPERATING DATA						OPERATING DATA						OPERATING DATA						(1) DENSITY ALT. IN FEET	OPERATING DATA					
R.P.M.	T.A.S. M.P.H.	T.A.S. KNOTS	M.P. IN. Hg	U.S. G. P. H.	IMP. G. P. H.		R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G. P. H.	IMP. G. P. H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G. P. H.	IMP. G. P. H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G. P. H.	IMP. G. P. H.		R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G. P. H.	IMP. G. P. H.
						30000																			30000					
						25000																			25000					
2400	275	239	F.T.	266	222	20000																			20000					
2400	298	259	F.T.	367	306	15000	2350	237	206	F.T.	334	278	2200	222	193	39.6	272	227	2100	211	183	37.0	227	189	15000	2100	170	147	F.T.	144	120
2400	297	258	45.5	384	320	12000	2250	236	205	43.0	320	267	2200	225	195	40.5	264	220	2100	215	187	38.2	222	185	12000	2000	171	148	27.8	135	112
2400	291	252	F.T.	335	279	9000	2400	251	218	F.T.	335	279	2250	235	204	34.8	265	221	2150	224	194	33.4	217	181	9000	1950	173	150	28.6	130	108
2400	297	258	41.0	392	327	6000	2350	254	220	38.4	331	276	2250	238	207	36.0	262	218	2100	227	197	34.5	209	174	6000	1900	174	151	29.6	125	104
2400	289	251	42.2	392	327	3000	2350	256	222	39.4	312	260	2200	240	208	36.8	247	206	2100	229	199	35.5	206	172	3000	1900	176	153	30.8	122	102
2400	282	244	43.5	392	327	S. L.	2300	258	224	40.4	312	260	2200	243	211	38.0	247	206	2100	230	199	36.5	198	165	S. L.	1850	177	154	32.0	118	98

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.

(2) ALLOW 180 U. S. GALS. 150 IMP. GALS. FOR WARM UP, TAKE-OFF AND CLIMB TO 15,000 FEET ALTITUDE

RETURN FUEL FLOWS TO TANK _____

USE FUEL FROM TANKS IN THE FOLLOWING ORDER _____

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle

EDITOR'S NOTE: AAF inspectors at modification centers will strike out columns not matching calibration of instruments in the airplane at time of delivery.

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK

11-20-42

MODEL (S)

B-26, B-26A and B-26B

TWO-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 3 OF 4 SHEETS

GR. WT. 32,000 TO 29,000 POUNDS

EXTERNAL LOAD ITEMS

NONE

CONDITION	R.P.M.	M.P. (IN. HG)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	2700	51.5	LOW	A.R.	5		
MILITARY POWER	2700	49.5 43.5	LOW HIGH	A.R.	5		
ENGINE (S)	R-2800-41 & -43						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. *NOTES:* (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

ALTERNATE CRUISING CONDITIONS

(NO WIND) (NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES		FUEL U.S. GALS. (2)	II RANGE IN AIR MILES		III RANGE IN AIR MILES		IV RANGE IN AIR MILES		FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES	
STATUTE	NAUTICAL		STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL		STATUTE	NAUTICAL
		1000	150 U.S. (125 IMP.) GALLONS NOT AVAILABLE IN FLIGHT.						833		
560	490	850	690	600	820	710	940	820	708	1200	1040
530	460	800	650	560	770	670	890	770	667	1130	980
460	400	700	570	490	670	580	780	670	584	990	860
400	340	600	490	420	580	500	670	580	500	850	740
330	290	500	410	350	480	420	560	480	417	710	610
260	230	400	320	280	380	330	440	390	334	560	490
200	170	300	240	210	290	250	330	290	250	420	370
130	110	200	160	140	190	170	220	190	167	280	250
66	57	100	81	70	96	83	110	96	83	140	120

OPERATING DATA

R.P.M.	T.A.S. M.P.H.	T.A.S. KNOTS	M.P. IN. Hg	U.S. G. P. H.	IMP. G. P. H.	(1) DENSITY ALT. IN FEET	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G. P. H.	IMP. G. P. H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G. P. H.	IMP. G. P. H.	(1) DENSITY ALT. IN FEET	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G. P. H.	IMP. G. P. H.
						30000													30000						
2400	233	202	F.T.	165	137	25000													25000						
2400	287	249	F.T.	266	222	20000													20000	2100	168	146	28.2	148	123
2400	306	266	F.T.	367	306	15000	2350	237	206	F.T.	340	283	2200	227	197	39.3	267	222	2100	218	189	37.0	226	188	15000	2100	170	147	25.3	135	112
2400	304	264	45.5	384	320	12000	2300	243	211	43.5	331	276	2200	230	199	40.7	267	222	2100	221	192	38.3	225	187	12000	1850	171	148	26.5	121	101
2400	296	257	F.T.	335	279	9000	2400	255	221	F.T.	335	279	2250	242	210	35.1	274	228	2150	230	199	33.5	219	183	9000	1850	173	150	27.4	116	97
2400	300	260	41.0	392	327	6000	2350	256	222	38.2	325	271	2250	242	210	35.8	258	215	2100	231	200	34.5	209	174	6000	1800	174	151	28.6	112	93
2400	293	254	42.2	392	327	3000	2350	258	224	39.3	316	263	2200	245	213	37.0	250	208	2100	234	203	35.6	204	170	3000	1800	176	153	29.9	110	92
2400	285	247	43.5	392	327	S. L.	2350	258	224	40.6	295	246	2200	245	213	38.2	236	197	2100	236	205	36.5	197	164	S. L.	1750	177	154	31.1	106	88

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.

(2) ALLOW 150 U. S. GALS., 125 IMP. GALS. FOR WARM UP, TAKE-OFF AND CLIMB TO 15,000 FEET ALTITUDE

RETURN FUEL FLOWS TO TANK _____

USE FUEL FROM TANKS IN THE FOLLOWING ORDER _____

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

BOLD NUMBERS: Use Auto-Rich

LIGHT NUMBERS: Use Auto-Lean

WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed

M.P.: Manifold Pressure (In. Hg)

U.S.G.P.H.: U. S. Gallons Per Hour

IMP.G.P.H.: Imperial Gallons Per Hour

F.T.: Full Throttle

EDITOR'S NOTE: AAF inspectors at modification centers will strike out columns not matching calibration of instruments in the airplane at time of delivery.

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK

MODEL (S)

B-26, B-26A and B-26B

TWO-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 4 OF 4 SHEETS

GR. WT. 29,000 TO 26,000 POUNDS

EXTERNAL LOAD ITEMS

NONE

CONDITION	R.P.M.	M.P. (IN. HG.)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	2700	51.5	LOW	A.R.	5		
MILITARY POWER	2700	49.5 43.5	LOW HIGH	A.R.	5		
ENGINE (S)	R-2800-41 & -43						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. *NOTES:* (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

(NO WIND)

ALTERNATE CRUISING CONDITIONS

(NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES		FUEL U.S. GALS. (2)	II RANGE IN AIR MILES		III RANGE IN AIR MILES		IV RANGE IN AIR MILES		FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES	
STATUTE	NAUTICAL		STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL		STATUTE	NAUTICAL
		530			130 U.S. (108 IMP.) GALLONS NOT AVAILABLE IN FLIGHT.				442		
270	230	400	340	290	400	350	470	410	334	610	530
200	170	300	250	220	300	260	360	310	250	460	400
130	120	200	170	150	200	180	240	210	167	310	270
67	58	100	84	73	100	88	120	100	83	150	130

OPERATING DATA R.P.M.	T.A.S. M.P.H.	T.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.
						30000																			30000						
2400	263	228	F.T.	165	137	25000																			25000						
2400	295	256	F.T.	266	222	20000																			20000	2300	168	146	26.2	136	113
2400	312	271	F.T.	367	306	15000	2300	240	208	F.T.	335	279	2200	231	200	39.2	267	222	2100	220	190	36.3	217	181	15000	2100	170	147	23.8	125	104
2400	308	267	45.5	384	320	12000	2250	244	212	43.2	321	268	2150	232	201	39.8	249	208	2100	223	193	37.4	208	173	12000	1800	171	148	25.6	109	91
2400	300	260	F.T.	335	279	9000	2350	256	222	F.T.	225	187	2200	242	210	34.5	245	204	2100	232	201	33.2	209	174	9000	1750	173	150	26.6	105	88
2400	303	263	41.0	392	327	6000	2350	258	224	37.9	316	263	2200	244	212	35.5	244	204	2100	233	202	34.0	199	161	6000	1700	174	151	27.8	101	84
2400	295	256	42.2	392	327	3000	2300	259	225	38.8	300	250	2200	245	213	36.5	234	195	2100	234	203	35.0	188	157	3000	1700	176	153	29.1	99	83
2400	287	249	43.5	392	327	S. L.	2300	261	226	39.9	295	246	2150	248	215	37.6	229	191	2100	236	205	36.0	185	154	S. L.	1700	177	154	30.5	97	81

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.

(2) ALLOW 130 U. S. GALS. 108 IMP. GALS. FOR WARM UP.
TAKE-OFF AND CLIMB TO 15,000 FEET ALTITUDE
RETURN FUEL FLOWS TO TANK
USE FUEL FROM TANKS IN THE FOLLOWING ORDER

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle

EDITOR'S NOTE: AAF inspectors at modification centers will strike out columns not matching calibration of instruments in the airplane at time of delivery.

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK

SPEC. AN-H-8 DEC. 18, 1942 — FORM ASC-511

MODEL (S) RB-26, RB-26A & B-26B
SINGLE-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 2 OF 2 SHEETS

GR. WT. 29,000 TO 27,000 POUNDS

EXTERNAL LOAD ITEMS
(1) FEATHERED PROPELLER

CONDITION	R.P.M.	M.P. (IN. HG.)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	Do not attempt take-off						
MILITARY POWER							
ENGINE (S)	R-2800-5 & -39						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. ***NOTES:*** (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

ALTERNATE CRUISING CONDITIONS

(NO WIND) — (NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES				FUEL U.S. GALS. (2)	II RANGE IN AIR MILES		III RANGE IN AIR MILES		IV RANGE IN AIR MILES		FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES	
STATUTE		NAUTICAL			STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL		STATUTE	NAUTICAL
AT S.L.	AT 12,000	AT S.L.	AT 12,000										
				900							750	720	625
				800							667	640	555
				700							583	560	485
				600							500	480	420
				500							417	400	350
				400							334	320	280
				300							250	240	210
				200							167	160	140

OPERATING DATA						(1) DENSITY ALT. IN FEET	OPERATING DATA						OPERATING DATA						OPERATING DATA						(1) DENSITY ALT. IN FEET	OPERATING DATA					
R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.		R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.		R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.
						30000																			30000					
						25000																			25000					
						20000																			20000					
						15000																			15000					
						12000																			12000					
						9000																			9000					
						6000																			6000	2400	168	146	38	207	172
						3000																			3000	2400	172	149	38	200	167
						S.L.																			S.L.	2400	174	151	38	192	160

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.
(2) ALLOW ___ U. S. GALS. ___ IMP. GALS. FOR WARM UP.
TAKE-OFF AND CLIMB TO ___ FEET ALTITUDE
RETURN FUEL FLOWS TO TANK ___
USE FUEL FROM TANKS IN THE FOLLOWING ORDER ___

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle
S.L.: Sea Level

WF-1-1-43-5M

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK

T. O. No. 01-35EA-1

Revised April 25, 1943

T. O. No. 01-35EA-1

SPEC. AN-H-8 DEC. 18, 1942 — FORM ASC-511

MODEL (S)
RB-26, RB-26A, & B-26B

SINGLE-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 1 OF 2 SHEETS

GR. WT. 27,000 TO 25,000 POUNDS

EXTERNAL LOAD ITEMS
(1) FEATHERED PROPELLER

CONDITION	R.P.M.	M.P. (IN. HG.)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	Do not attempt take-off						
MILITARY POWER							
ENGINE (S)	R-2800-5 & -39						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. *NOTES:* (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

ALTERNATE CRUISING CONDITIONS

(NO WIND) — (NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES STATUTE AT S.L.	I (MAX. CONT. POWER) RANGE IN AIR MILES STATUTE AT 12,000	I (MAX. CONT. POWER) RANGE IN AIR MILES NAUTICAL AT S.L.	I (MAX. CONT. POWER) RANGE IN AIR MILES NAUTICAL AT 12,000	FUEL U. S. GALS. (2)	II RANGE IN AIR MILES STATUTE	II RANGE IN AIR MILES NAUTICAL	III RANGE IN AIR MILES STATUTE	III RANGE IN AIR MILES NAUTICAL	IV RANGE IN AIR MILES STATUTE	IV RANGE IN AIR MILES NAUTICAL	FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES STATUTE	V (MAX. RANGE) RANGE IN AIR MILES NAUTICAL
	510		450	600							500	550	480
	425		370	500							417	460	400
	340		295	400							334	365	320
	255		220	300							250	275	240
	170		150	200							167	185	160

I OPERATING DATA R.P.M.	T.A.S. M.P.H.	T.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	II OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	III OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	IV OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	V OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.
						30000																			30000						
						25000																			25000						
						20000																			20000						
						15000																			15000						
						12000																			12000						
2400	193	168	38	199	166	9000																			9000	2340	158	140	34	182	152
2400	197	171	38	207	172	6000																			6000	2300	158	140	34	167	139
2400	191	166	38	200	167	3000																			3000	2270	158	140	34	156	130
2400	185	161	38	192	160	S. L.																			S. L.	2230	158	140	34	147	122

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.
(2) ALLOW ___ U. S. GALS., ___ IMP. GALS. FOR WARM UP,
TAKE-OFF AND CLIMB TO ___ FEET ALTITUDE
RETURN FUEL FLOWS TO TANK ___
USE FUEL FROM TANKS IN THE FOLLOWING ORDER ___

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle
S.L.: Sea Level

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

WF-1-1-43-5M

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK

SPEC. AN-H-8 DEC. 18, 1942 FORM ASC-511

MODEL (S)
RB-26, RB-26A & B-26B
SINGLE-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 1 OF 2 SHEETS

GR. WT. 31,000 TO 29,000 POUNDS

EXTERNAL LOAD ITEMS
(1) FEATHERED PROPELLER

CONDITION	R.P.M.	M.P. (IN. HG.)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	2700	51.5	Low	A.R.	5		
MILITARY POWER	2700	49.5 43.5	Low High	A.R.	5		
ENGINE (S)	R-2800-41 & -43						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. *NOTES:* (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

ALTERNATE CRUISING CONDITIONS

(NO WIND) (NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES STATUTE AT S.L.	I (MAX. CONT. POWER) RANGE IN AIR MILES STATUTE AT 12,000	I (MAX. CONT. POWER) RANGE IN AIR MILES NAUTICAL AT S.L.	I (MAX. CONT. POWER) RANGE IN AIR MILES NAUTICAL AT 12,000	FUEL U. S. GALS. (2)	II RANGE IN AIR MILES STATUTE	II RANGE IN AIR MILES NAUTICAL	III RANGE IN AIR MILES STATUTE	III RANGE IN AIR MILES NAUTICAL	IV RANGE IN AIR MILES STATUTE	IV RANGE IN AIR MILES NAUTICAL	FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES STATUTE	V (MAX. RANGE) RANGE IN AIR MILES NAUTICAL
	780		680	900							750	780	680
	700		610	800							668	700	610
	610		530	700							583	610	530
	520		450	600							500	520	450
	440		380	500							417	440	380
	350		300	400							334	350	300
	260		230	300							250	260	230
	170		150	200							167	170	150
	90		80	100							83	90	80

OPERATING DATA R.P.M.	T.A.S. M.P.H.	T.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	(1) DENSITY ALT. IN FEET	OPERATING DATA R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.
						30000																			30000						
						25000																			25000						
						20000																			20000						
						15000																			15000						
						12000																			12000						
						9000																			9000						
2400	186	161	41.0	196	163	6000																			6000	2400	169	147	41.0	196	163
2400	187	162	42.2	196	163	3000																			3000	2400	177	154	42.2	196	163
2400	187	162	43.5	196	163	S.L.																			S.L.	2350	164	144	40.5	159	132

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.
(2) ALLOW ___ U. S. GALS., ___ IMP. GALS. FOR WARM UP.
TAKE-OFF AND CLIMB TO ___ FEET ALTITUDE
RETURN FUEL FLOWS TO TANK ___
USE FUEL FROM TANKS IN THE FOLLOWING ORDER ___

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle
S.L.: Sea Level

WF-1-1-43-5M

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK

T. O. No. 01-35EA-1

Revised April 25, 1943

SPEC. AN-H-8 DEC. 18, 1942 FORM ASC-511

MODEL (S) RB-26, RB-26A & B-26B
SINGLE-ENGINE OPERATION

FLIGHT OPERATION INSTRUCTION CHART

SHEET 2 OF 2 SHEETS

GR. WT. 29,000 TO 26,000 POUNDS

EXTERNAL LOAD ITEMS
(1) FEATHERED PROPELLER

CONDITION	R.P.M.	M.P. (IN. HG)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	2700	51.5	Low	A.R.	5		
MILITARY POWER	2700	49.5 43.5	Low High	A.R.	5		
ENGINE (S)	R-2800-41 & -43						

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. *NOTES:* (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

(NO WIND)

ALTERNATE CRUISING CONDITIONS

(NO RESERVE FUEL ALLOWANCE)

I (MAX. CONT. POWER) RANGE IN AIR MILES				FUEL U.S. GALS. (2)	II RANGE IN AIR MILES		III RANGE IN AIR MILES		IV RANGE IN AIR MILES		FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES	
STATUTE		NAUTICAL			STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL		STATUTE	NAUTICAL
AT S.L.	AT 12,000	AT S.L.	AT 12,000										
	540		470	600							500	610	530
	450 360		390 310	500 400							417 334	510 410	440 350
	270 180		240 160	300 200							250 167	310 200	270 180
	90		80	100							83	100	90

OPERATING DATA						(1) DENSITY ALT. IN FEET	OPERATING DATA						OPERATING DATA						OPERATING DATA						(1) DENSITY ALT. IN FEET	OPERATING DATA					
R.P.M.	T.A.S. M.P.H.	T.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.		R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.		R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.
						30000																			30000					
						25000																			25000					
						20000																			20000					
						15000																			15000					
						12000																			12000					
2400	175	152	F.T.	168	140	9000																			9000					
2400	199	173	41.0	196	163	6000																			6000	2320	158	137	37.8	154	128
2400	198	172	42.2	196	163	3000																			3000	2300	158	137	38.1	142	118
2400	195	169	43.5	196	163	S.L.																			S.L.	2250	158	137	38.5	131	109

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.
(2) ALLOW ——— U. S. GALS. ——— IMP. GALS. FOR WARM UP,
TAKE-OFF AND CLIMB TO ——— FEET ALTITUDE
RETURN FUEL FLOWS TO TANK ———
USE FUEL FROM TANKS IN THE FOLLOWING ORDER ———

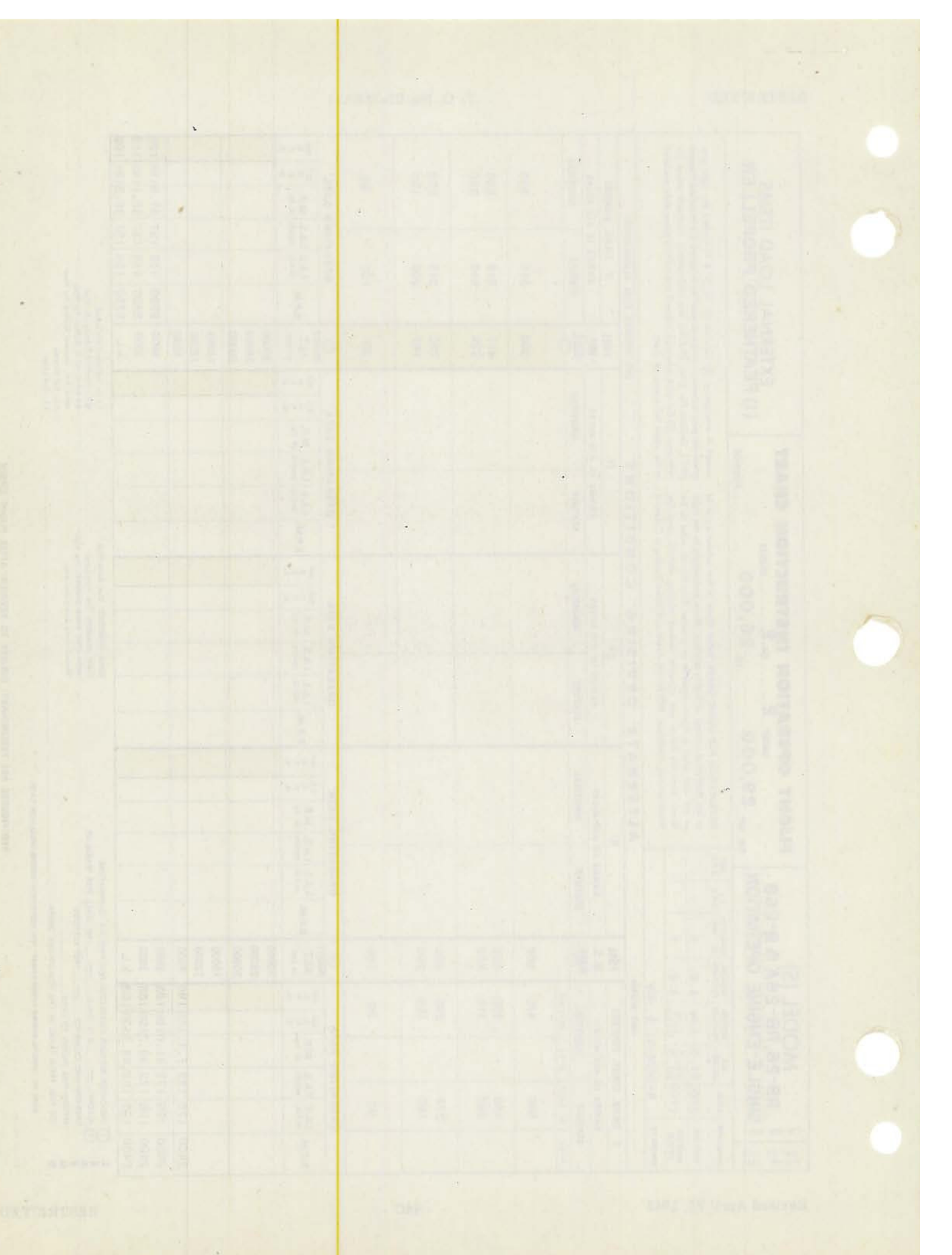
REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

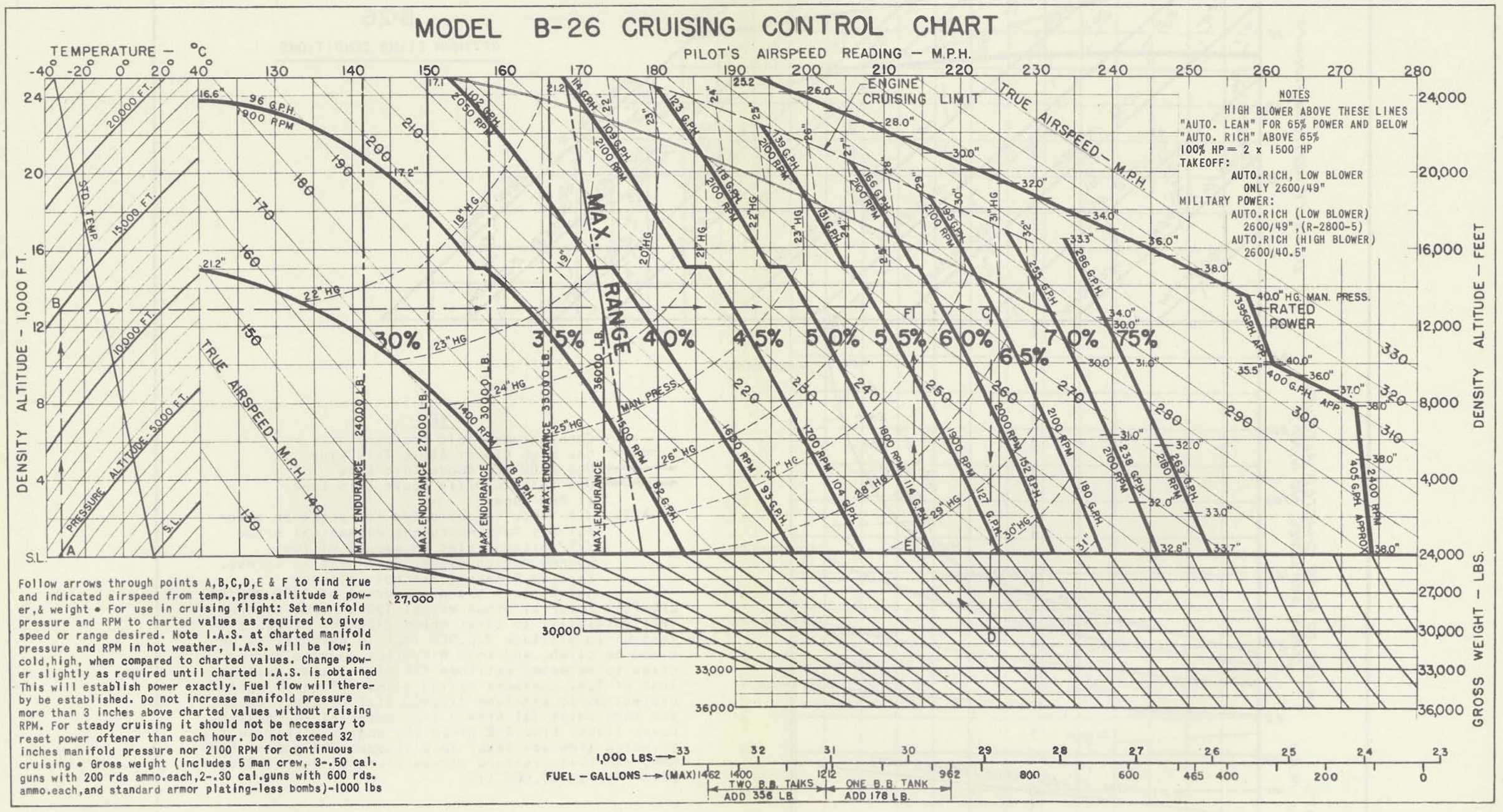
I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle
S.L.: Sea Level

WP-1-1-43-3M

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK



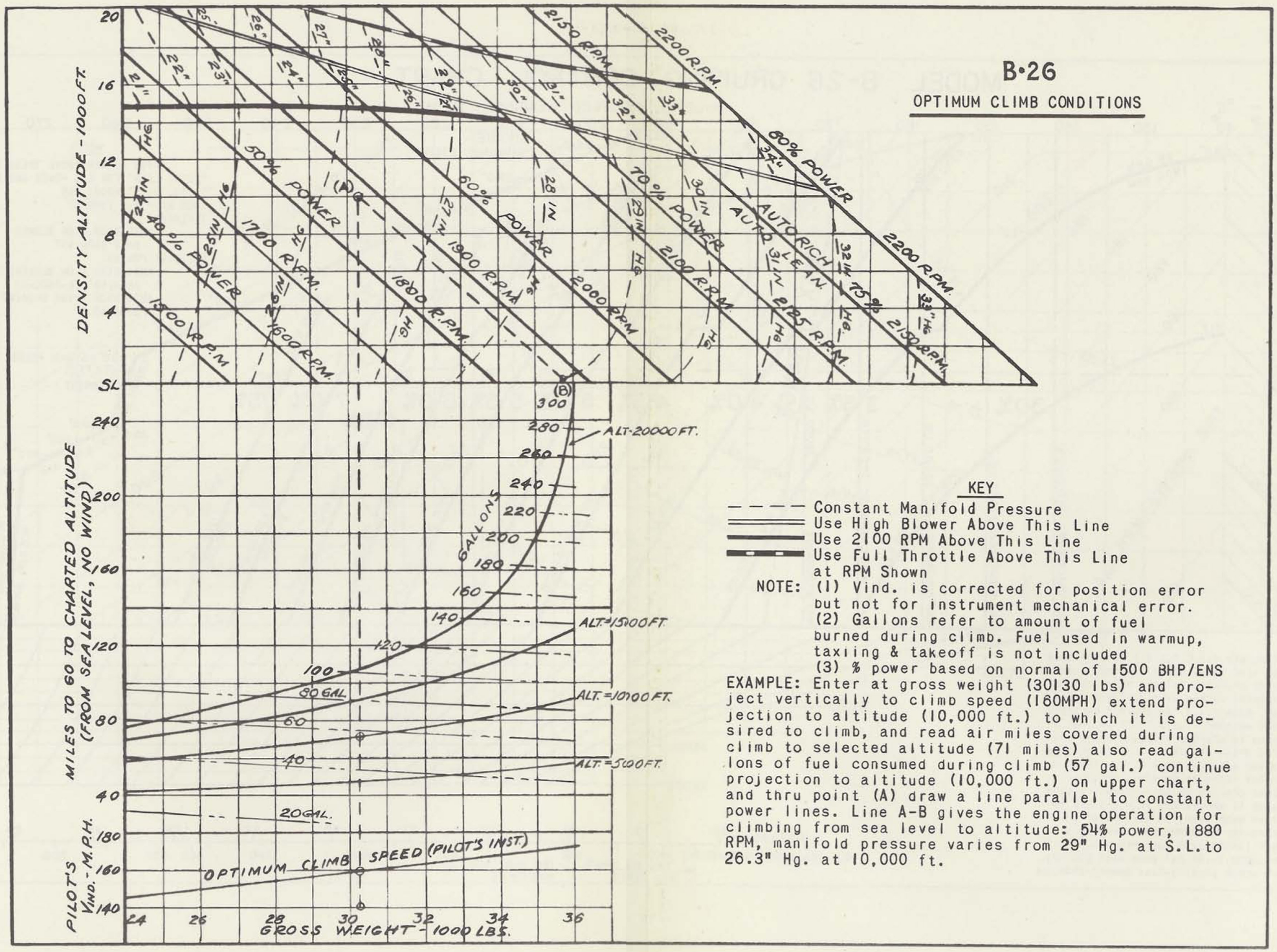
MODEL B-26 CRUISING CONTROL CHART



NOTES

HIGH BLOWER ABOVE THESE LINES
"AUTO. LEAN" FOR 65% POWER AND BELOW
"AUTO. RICH" ABOVE 65%
100% HP = 2 x 1500 HP
TAKEOFF:
AUTO. RICH, LOW BLOWER ONLY 2600/49"
MILITARY POWER:
AUTO. RICH (LOW BLOWER) 2600/49", (R-2800-5)
AUTO. RICH (HIGH BLOWER) 2600/40.5"

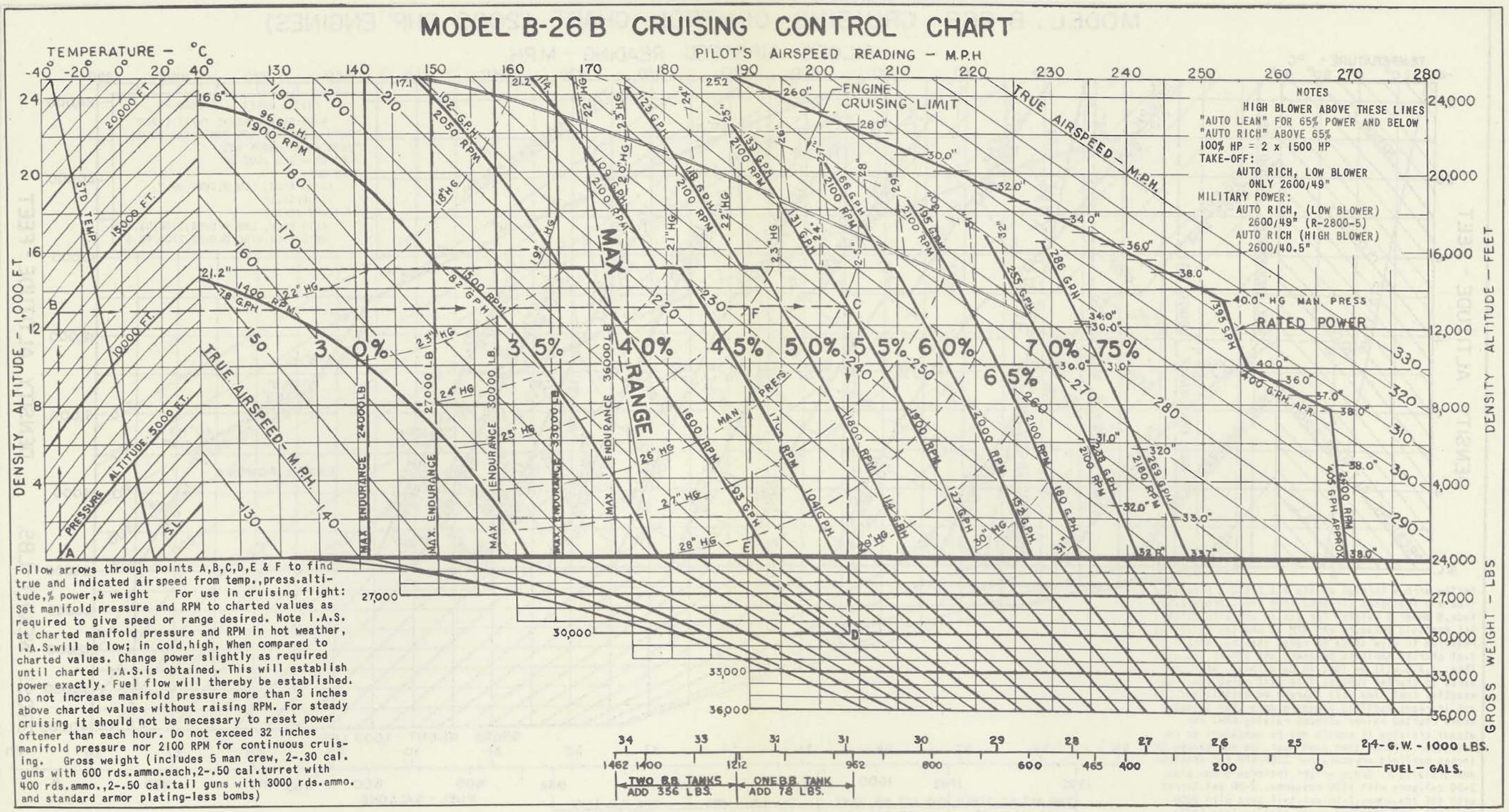
Follow arrows through points A, B, C, D, E & F to find true and indicated airspeed from temp., press. altitude & power, & weight • For use in cruising flight: Set manifold pressure and RPM to charted values as required to give speed or range desired. Note I.A.S. at charted manifold pressure and RPM in hot weather, I.A.S. will be low; in cold, high, when compared to charted values. Change power slightly as required until charted I.A.S. is obtained This will establish power exactly. Fuel flow will thereby be established. Do not increase manifold pressure more than 3 inches above charted values without raising RPM. For steady cruising it should not be necessary to reset power oftener than each hour. Do not exceed 32 inches manifold pressure nor 2100 RPM for continuous cruising • Gross weight (includes 5 man crew, 3-.50 cal. guns with 200 rds ammo. each, 2-.30 cal. guns with 600 rds. ammo. each, and standard armor plating-less bombs)-1000 lbs



NOTE: (1) Vind. is corrected for position error but not for instrument mechanical error.
(2) Gallons refer to amount of fuel burned during climb. Fuel used in warmup, taxiing & takeoff is not included
(3) % power based on normal of 1500 BHP/ENS

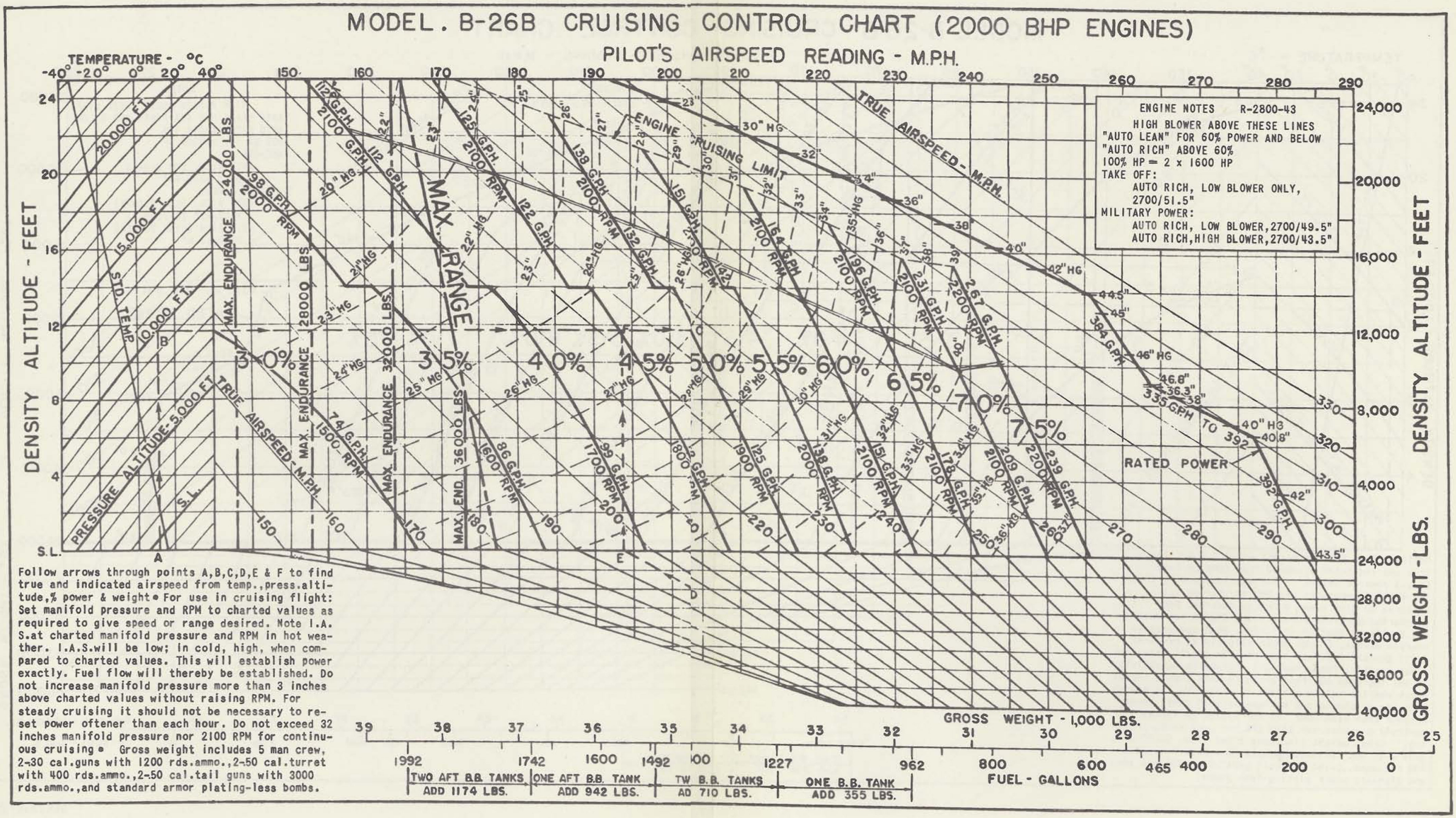
EXAMPLE: Enter at gross weight (30130 lbs) and project vertically to climb speed (160MPH) extend projection to altitude (10,000 ft.) to which it is desired to climb, and read air miles covered during climb to selected altitude (71 miles) also read gallons of fuel consumed during climb (57 gal.) continue projection to altitude (10,000 ft.) on upper chart, and thru point (A) draw a line parallel to constant power lines. Line A-B gives the engine operation for climbing from sea level to altitude: 54% power, 1880 RPM, manifold pressure varies from 29" Hg. at S.L. to 26.3" Hg. at 10,000 ft.

MODEL B-26 B CRUISING CONTROL CHART



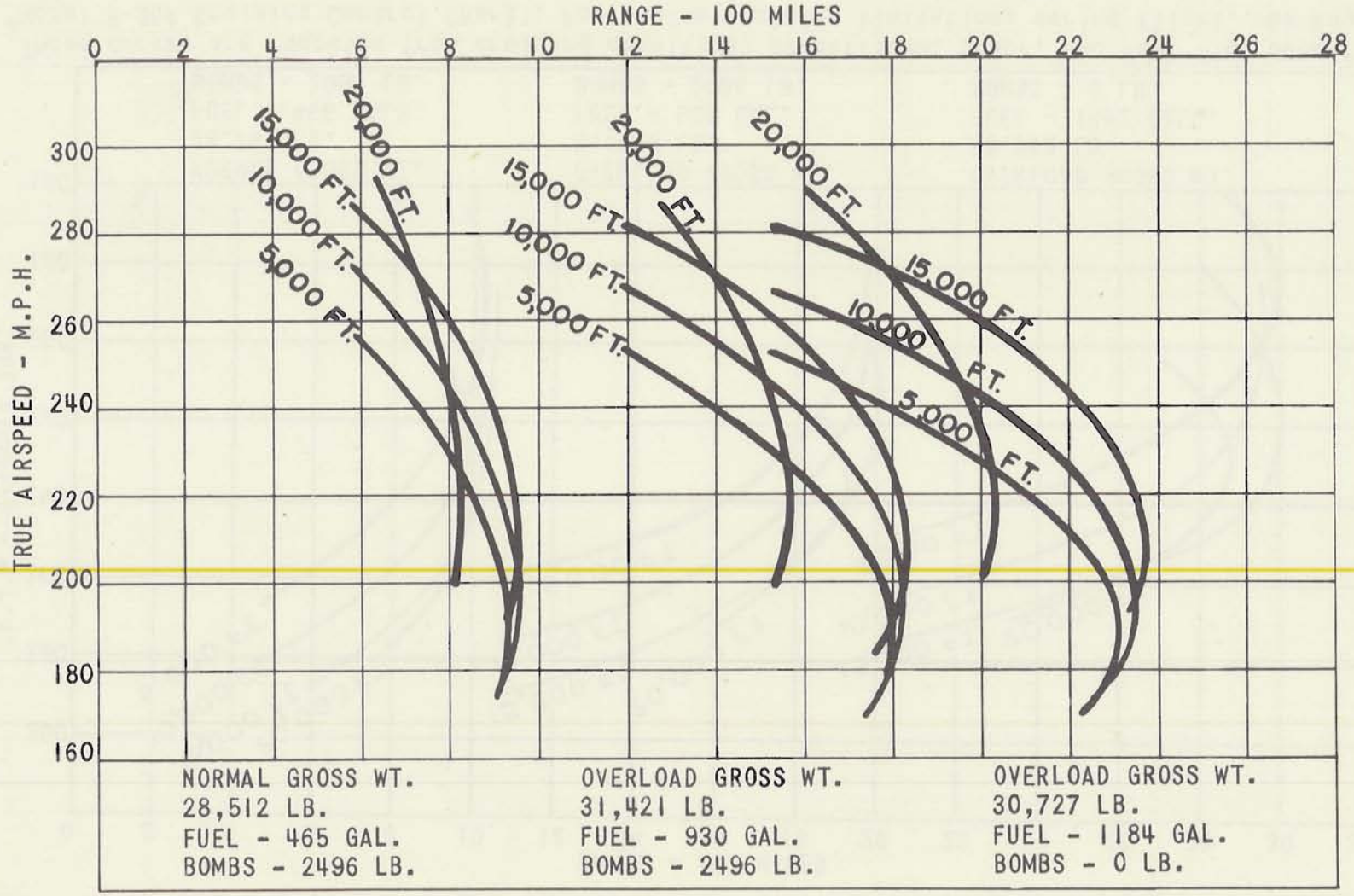
Follow arrows through points A,B,C,D,E & F to find true and indicated airspeed from temp.,press.altitude,% power,& weight For use in cruising flight: Set manifold pressure and RPM to charted values as required to give speed or range desired. Note I.A.S. at charted manifold pressure and RPM in hot weather, I.A.S.will be low; in cold,high, When compared to charted values. Change power slightly as required until charted I.A.S.is obtained. This will establish power exactly. Fuel flow will thereby be established. Do not increase manifold pressure more than 3 inches above charted values without raising RPM. For steady cruising it should not be necessary to reset power oftener than each hour. Do not exceed 32 inches manifold pressure nor 2100 RPM for continuous cruising. Gross weight (includes 5 man crew, 2-.30 cal. guns with 600 rds.ammo.each,2-.50 cal.turret with 400 rds.ammo.,2-.50 cal.tail guns with 3000 rds.ammo. and standard armor plating-less bombs)

MODEL. B-26B CRUISING CONTROL CHART (2000 BHP ENGINES)



Follow arrows through points A,B,C,D,E & F to find true and indicated airspeed from temp.,press.altitude,% power & weight. For use in cruising flight: Set manifold pressure and RPM to charted values as required to give speed or range desired. Note I.A.S.at charted manifold pressure and RPM in hot weather. I.A.S.will be low; in cold, high, when compared to charted values. This will establish power exactly. Fuel flow will thereby be established. Do not increase manifold pressure more than 3 inches above charted values without raising RPM. For steady cruising it should not be necessary to reset power oftener than each hour. Do not exceed 32 inches manifold pressure nor 2100 RPM for continuous cruising. Gross weight includes 5 man crew, 2-30 cal.guns with 1200 rds.ammo.,2-50 cal.turret with 400 rds.ammo.,2-50 cal.tail guns with 3000 rds.ammo.,and standard armor plating-less bombs.

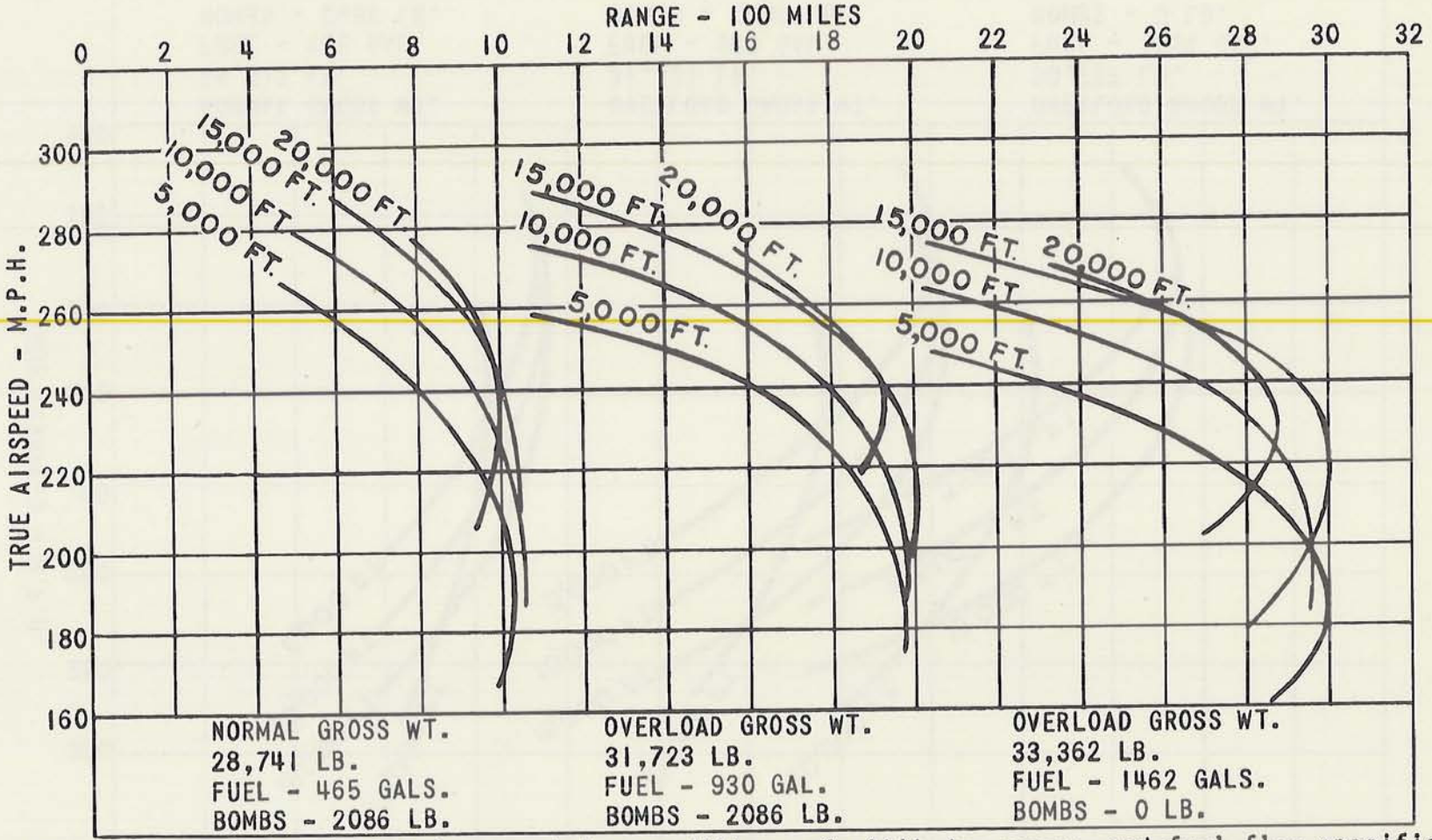
MODEL B-26 RANGE CHART
(STANDARD ATMOSPHERE)



These curves are computed from cruising conditions of altitude, power, and fuel flow specified on "Model B-26 Cruising Control Chart". For engine cruising limitations during flight, see Engine Operating Instructions. No allowances are made for warm-up, take-off, climb, head winds, or descent. Bomb load is considered to be carried half the distance of the flight.

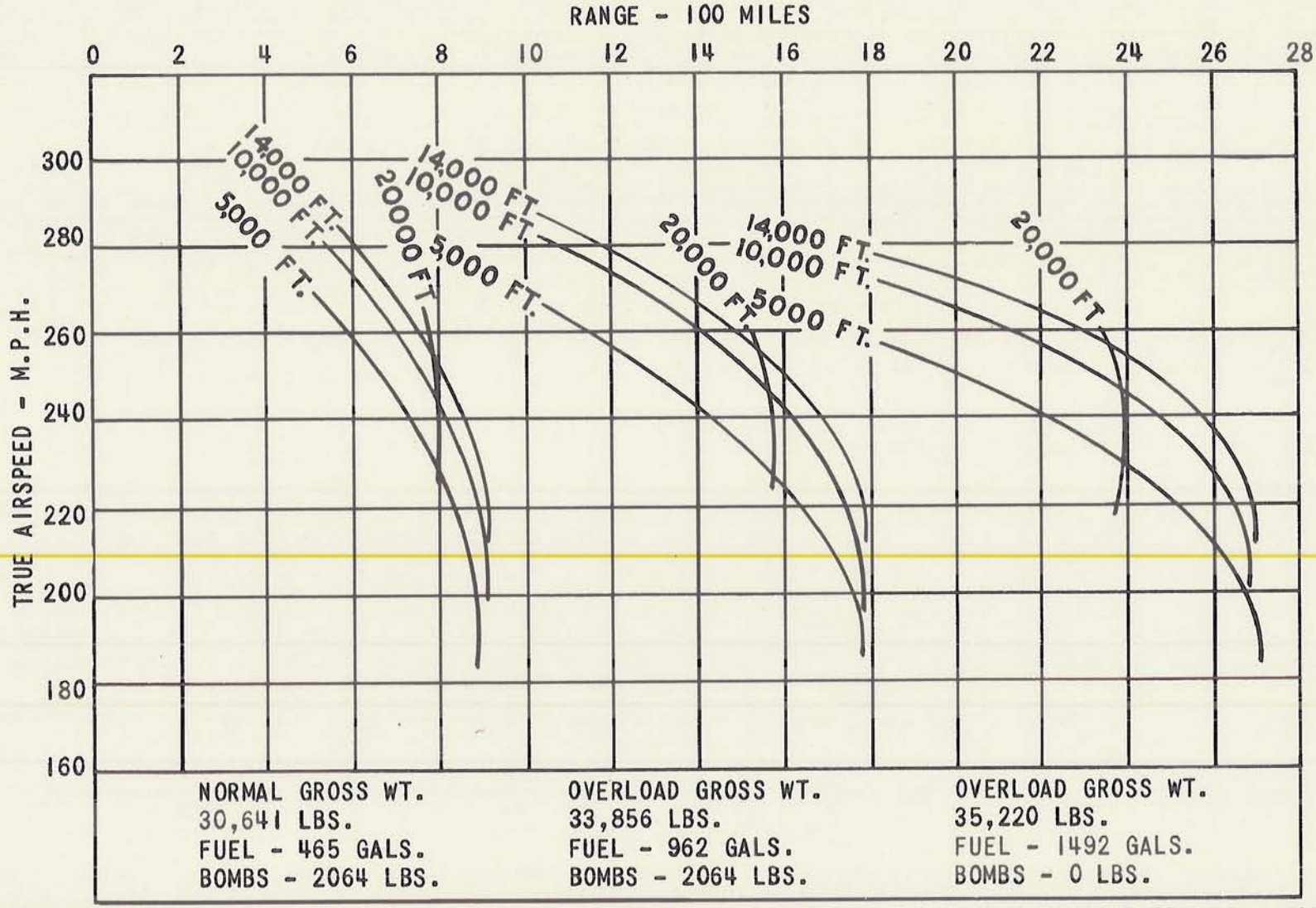
MODEL B-26A RANGE CHART

(STANDARD ATMOSPHERE)

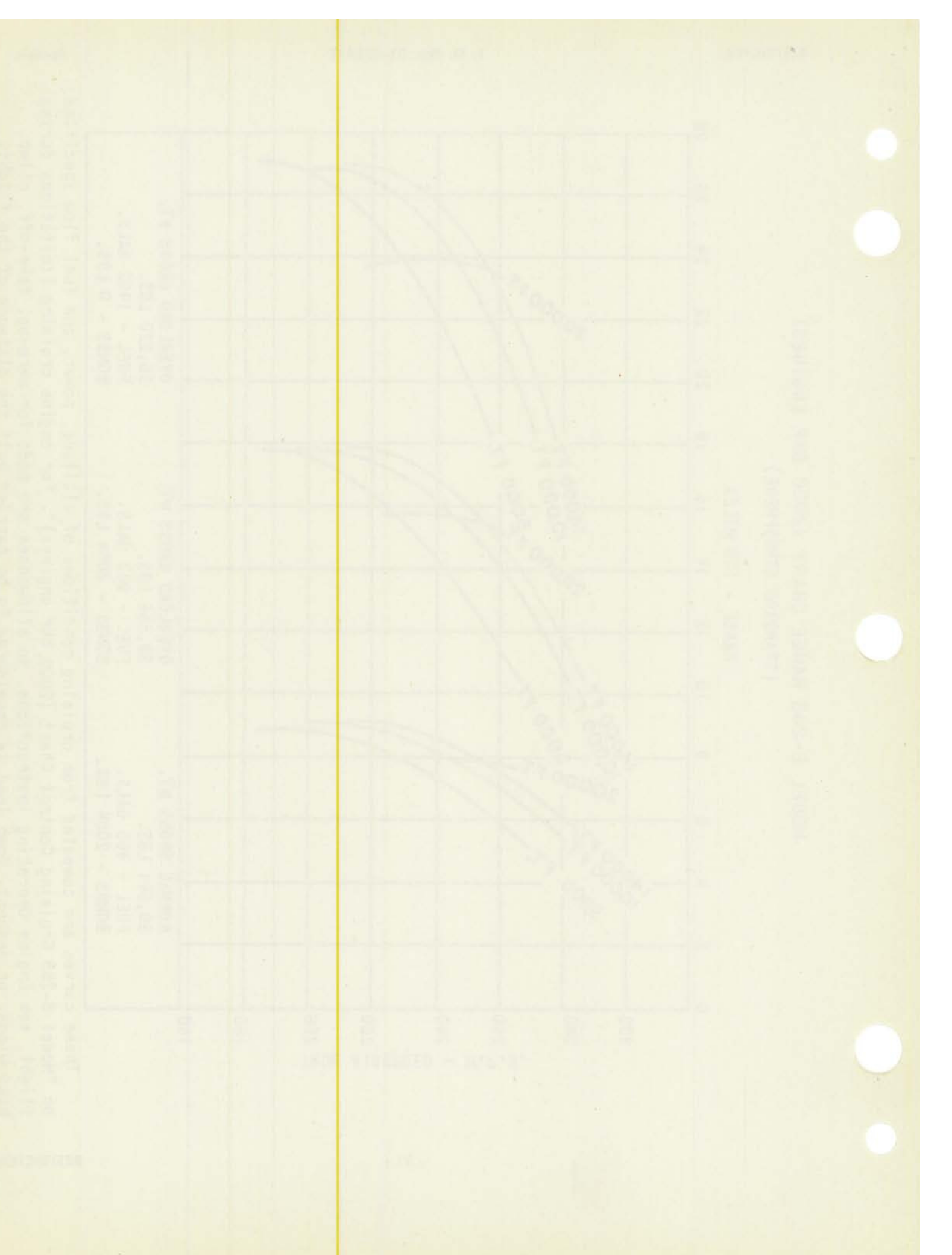


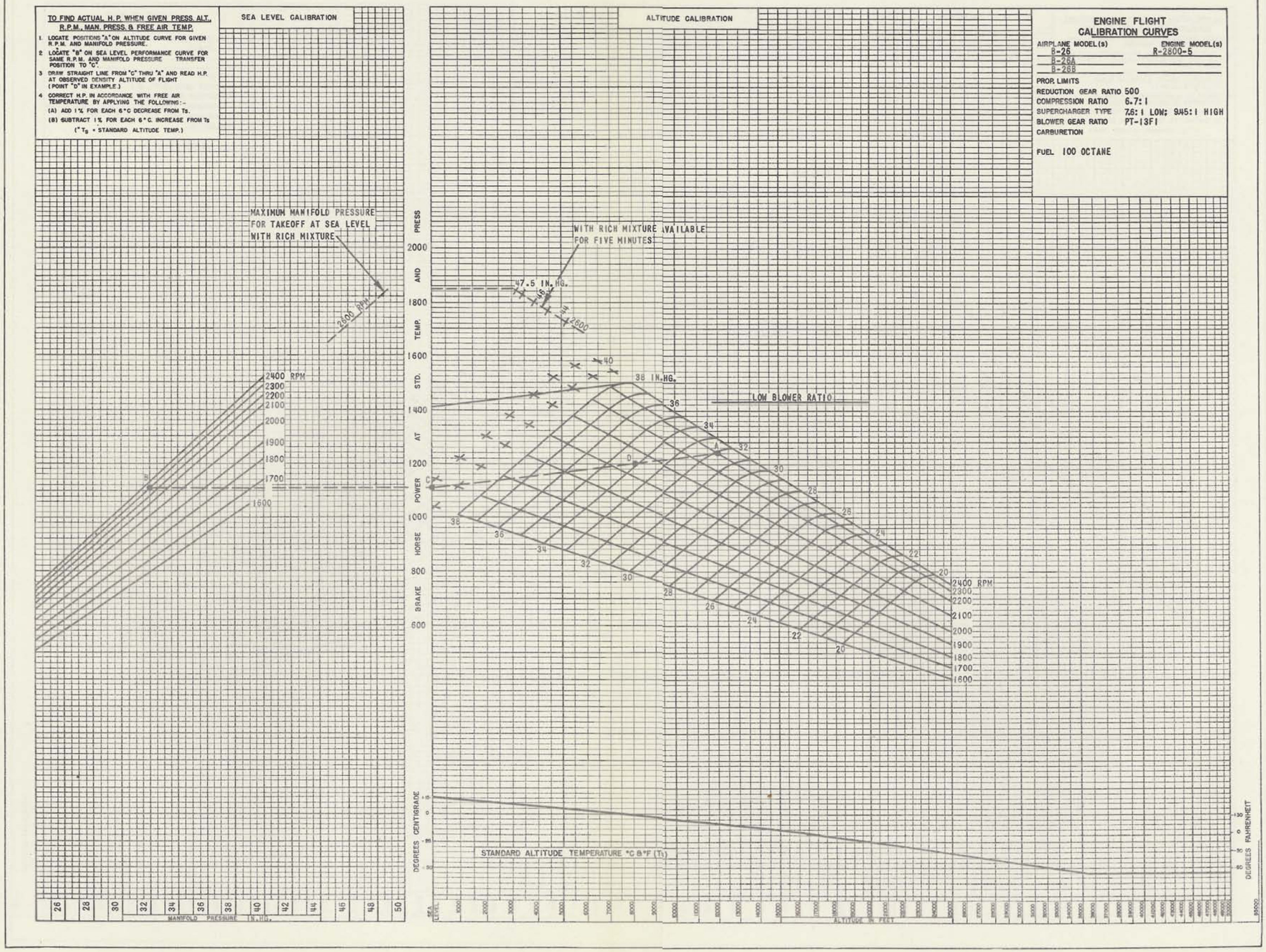
These curves are computed from cruising conditions of altitude, power, and fuel flow specified on "Model B-26A Cruising Control Chart". For engine cruising limitations during flight, see Engine Operating Instructions. No allowances are made for warm-up, take-off, climb, head winds, or descent. Bomb load is considered to be carried half the distance of the flight.

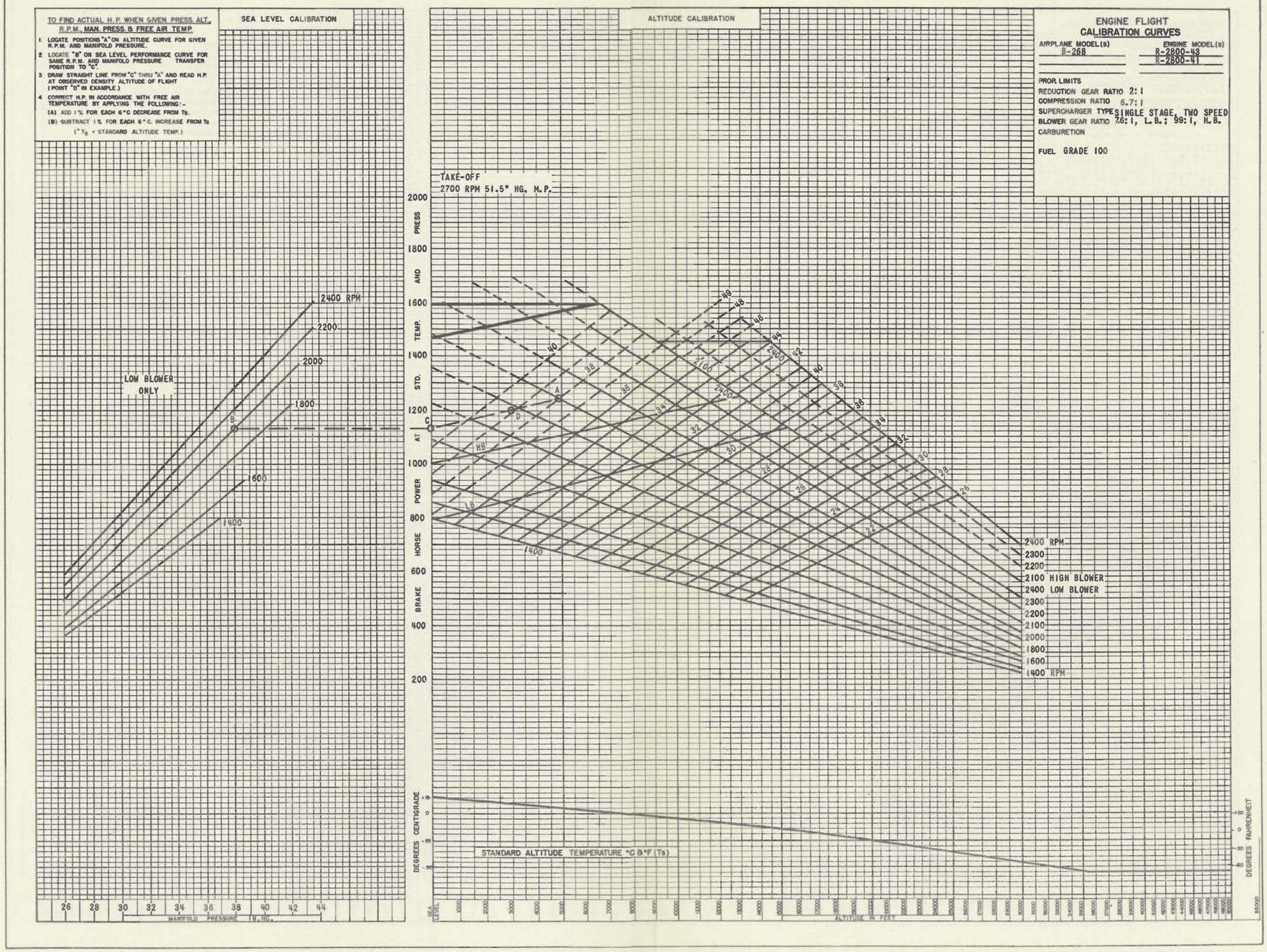
MODEL B-26B RANGE CHART (2000 BHP ENGINES)
(STANDARD ATMOSPHERE)



These curves are computed from cruising conditions of altitude, power, and fuel flow specified on "Model B-26B Cruising Control Chart (2000 BHP engines)". For engine cruising limitations during flight, see Engine Operating Instructions. No allowances are made for warm-up, take-off, climb, head winds, or descent. Bomb load is considered to be carried half the distance of the flight.




TO FIND ACTUAL H.P. WHEN GIVEN PRESS. ALT., R.P.M., MAN. PRESS. & FREE AIR TEMP.
1. LOCATE POSITIONS "A" ON ALTITUDE CURVE FOR GIVEN R.P.M. AND MANIFOLD PRESSURE.
2. LOCATE "B" ON SEA LEVEL PERFORMANCE CURVE FOR SAME R.P.M. AND MANIFOLD PRESSURE. TRANSFER POSITION TO "C".
3. DRAW STRAIGHT LINE FROM "C" THRU "A" AND READ H.P. AT OBSERVED DENSITY ALTITUDE OF FLIGHT (POINT "D" IN EXAMPLE.)
4. CORRECT H.P. IN ACCORDANCE WITH FREE AIR TEMPERATURE BY APPLYING THE FOLLOWING:-
(A) ADD 1% FOR EACH 6°C DECREASE FROM Ts.
(B) SUBTRACT 1% FOR EACH 6°C. INCREASE FROM Ts
("Ts = STANDARD ALTITUDE TEMP.)
SEA LEVEL CALIBRATION
MAXIMUM MANIFOLD PRESSURE FOR TAKEOFF AT SEA LEVEL WITH RICH MIXTURE
2600 RPM
2400 RPM
2300
2200
2100
2000
1900
1800
1700
1600
A
B
C
D
MANIFOLD PRESSURE IN. HG.
26 28 30 32 34 36 38 40 42 44 45 46 48 50
BRAKE HORSE POWER AT STD. PRESS AND TEMP.
600 800 1000 1200 1400 1600 1800 2000
DEGREES CENTIGRADE
DEGREES FAHRENHEIT
ALTITUDE CALIBRATION
WITH RICH MIXTURE AVAILABLE FOR FIVE MINUTES
47.5 IN. HG.
2600
40
38 IN. HG.
LOW BLOWER RATIO
36
34
32
30
28
26
24
22
20
2400 RPM
2300
2200
2100
2000
1900
1800
1700
1600
STANDARD ALTITUDE TEMPERATURE °C & °F (Ts)
SEA LEVEL
ALTITUDE IN FEET
ENGINE FLIGHT CALIBRATION CURVES
AIRPLANE MODEL(S)
B-26
B-26A
B-26B
ENGINE MODEL(S)
R-2800-5
PROP. LIMITS
REDUCTION GEAR RATIO 500
COMPRESSION RATIO 6.7:1
SUPERCHARGER TYPE 7.6:1 LOW; 9.45:1 HIGH
BLOWER GEAR RATIO PT-13F1
CARBURETION
FUEL 100 OCTANE


TO FIND ACTUAL H.P. WHEN GIVEN PRESS. ALT., R.P.M., MAN. PRESS. & FREE AIR TEMP.
1. LOCATE POSITIONS "A" ON ALTITUDE CURVE FOR GIVEN R.P.M. AND MANIFOLD PRESSURE.
2. LOCATE "B" ON SEA LEVEL PERFORMANCE CURVE FOR SAME R.P.M. AND MANIFOLD PRESSURE TRANSFER POSITION TO "C".
3. DRAW STRAIGHT LINE FROM "C" THRU "A" AND READ H.P. AT OBSERVED DENSITY ALTITUDE OF FLIGHT (POINT "D" IN EXAMPLE.)
4. CORRECT H.P. IN ACCORDANCE WITH FREE AIR TEMPERATURE BY APPLYING THE FOLLOWING:-
(A) ADD 1% FOR EACH 6°C DECREASE FROM Ts.
(B) SUBTRACT 1% FOR EACH 6° C. INCREASE FROM Ts
("Ts = STANDARD ALTITUDE TEMP.)
SEA LEVEL CALIBRATION
2400 RPM
2200
2000
1800
1600
1400
LOW BLOWER ONLY
26 28 30 32 34 36 38 40 42 44
MANIFOLD PRESSURE IN. HG.
ALTITUDE CALIBRATION
TAKE-OFF
2700 RPM 51.5" HG. M.P.
BRAKE HORSE POWER AT STD. AND PRESS TEMP.
2000
1800
1600
1400
1200
1000
800
600
400
200
HB
LB
A
B
C
D
2400 RPM
2300
2200
2100 HIGH BLOWER
2400 LOW BLOWER
2300
2200
2100
2000
1800
1600
1400 RPM
STANDARD ALTITUDE TEMPERATURE °C & °F (Ts)
DEGREES CENTIGRADE
DEGREES FAHRENHEIT
SEA LEVEL
ALTITUDE IN FEET
ENGINE FLIGHT CALIBRATION CURVES
AIRPLANE MODEL(S) B-26B
ENGINE MODEL(S) R-2800-43 R-2800-41
PROP. LIMITS
REDUCTION GEAR RATIO 2:1
COMPRESSION RATIO 6.7:1
SUPERCHARGER TYPE SINGLE STAGE, TWO SPEED
BLOWER GEAR RATIO 7.6:1, L.B.; 9.9:1, H.B.
CARBURETION
FUEL GRADE 100

SECTION IV
BOMBARDIER

1. ACCESS TO NOSE COMPARTMENT.

ENTER airplane through nose wheel well. Then go through pilot's compartment under copilot's flight control column and forward through small entrance door to nose compartment. EMERGENCY EXIT by way of pilot's compartment and through nose wheel well. ALTERNATE ESCAPE through pilot's and radio compartments and through forward bomb bay doors if in flight. *If not in flight,* pilot's or copilot's upper emergency escape hatch may be used.

2. ARMAMENT AND ARMOR PROTECTION.

One flexible .50 caliber gun is provided. Release stowage catch, swing gun into position, and clip upper support onto gun. Ammunition is carried under the bombardier's seat. One or two fixed .50 caliber guns may also be installed to fire straight ahead and are controlled from the pilot's compartment.

3. ON ENTERING NOSE COMPARTMENT.

a. LIGHTS.—For all test operation use external power supply. Master switches in pilot's compartment (fig. 25-17 and fig. 25-19) should be "OFF."

(1) The main ceiling light may be turned on by operating the toggle switch (fig. 13-2) on right side of door frame *outside* compartment.

(2) A fluorescent ceiling light is installed adjacent to the main ceiling light (fig. 30-1) and is provided with an integral revolving metal shade. The shade may be adjusted for different amounts of light by turning the exterior cylinder in a rotary direction. The light may be turned on or off by operating switch (fig. 33-15).

(3) A flexible fluorescent lamp (fig. 31) is provided for illumination of the bombardier's table (fig. 31) or the bomb sight. Operate toggle switch (fig. 31) adjacent to base to turn "ON" or "OFF."

(4) A semi-portable hand light (fig. 32-1) is provided in the left upper rear corner of the compartment just behind the bombardier's left shoulder. Current for the light is furnished by a twisted wire wound on a spring loaded drum, and it may be used by first turning on switch (fig. 32-1) and then withdrawing the light socket from its mounting, and then "pulling-out" as much wire as needed.

b. CONTROL'S CHECK.

(1) Ascertain that all switches and rheostats located

Figure 28—Exterior View of Bombardier's Compartment

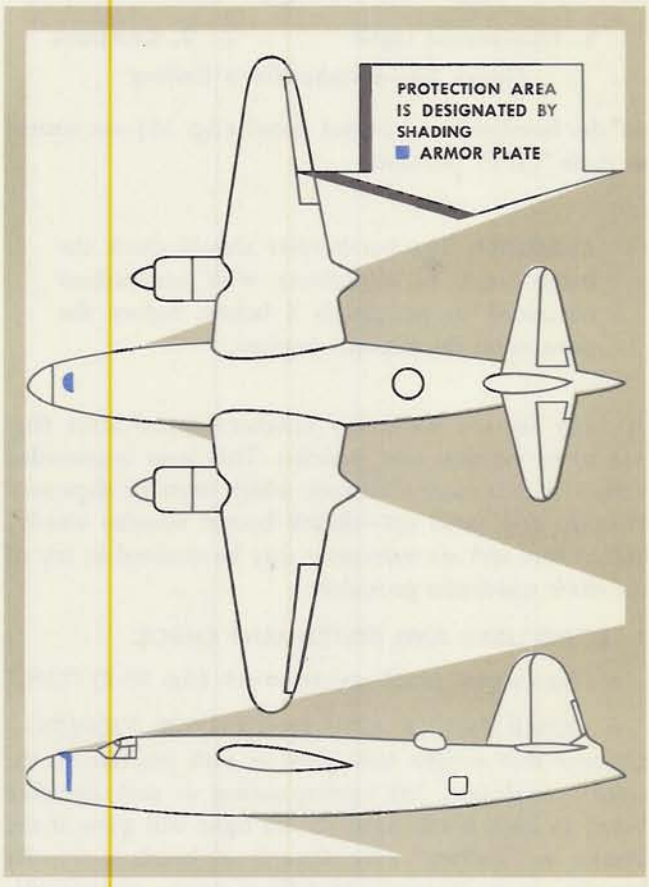
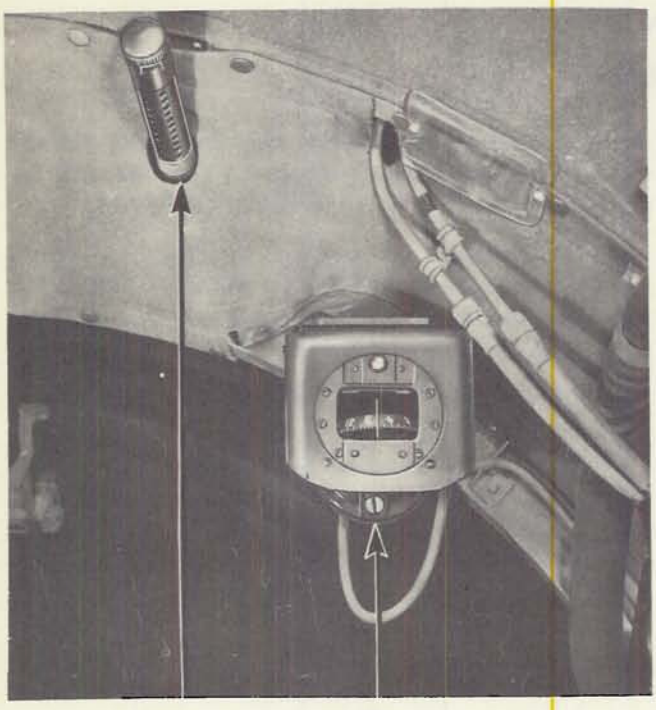


Figure 29—Bombardier's Armor Diagram



1. Fluorescent Light 2. Compass

Figure 30—Bombardier's Ceiling

on the bombardier's control panel (fig. 33) are turned to their "OFF" position.

CAUTION: The bombardier should check the bomb load, in accordance with instructions contained in paragraph 4 below, *before* the pilot starts the airplane engines.

(2) Set the bomb bay selector control lever (fig. 31) to its extreme rear position. This lever is provided with a thumb controlled lock which must be depressed (handle grip pulls up—thumb button remains steady) before fore and aft movement may be attained in any of the three quadrants provided.

4. BOMB LOAD AND INSTRUMENT CHECK.

a. Turn signal panel master switch (fig. 33-7) "ON."

b. BOMB RACKS AND INDICATOR LIGHTS.—Observe that a light will glow at each position in the signal panel (fig. 33) corresponding to each *installed* bomb in both bomb bays, or the light will glow if the shackle is "cocked," even though no bomb is actually hanging in it. If any light fails to glow, momentarily turn the signal panel test switch (fig. 33-5) "ON" and

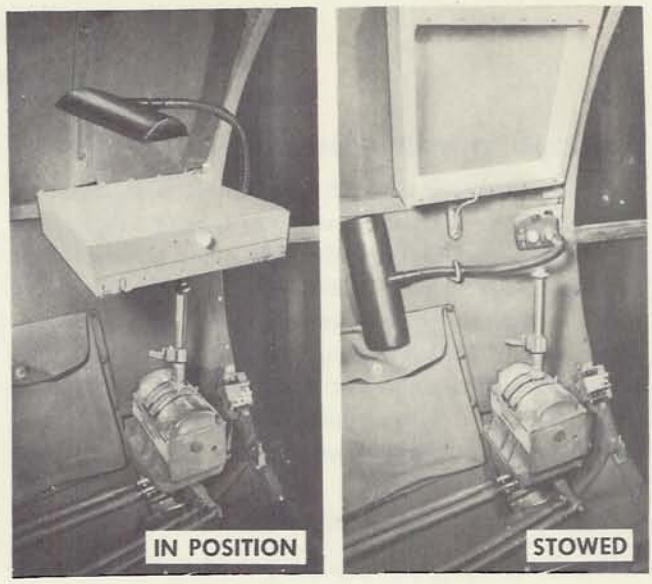


Figure 31—Bombardier's Table

if the light still fails to glow it may be assumed that the bulb is burnt out. If the light glows, it is definite proof that the corresponding bomb is not properly installed in its rack, and the pilot should be immediately notified not to start the airplane engines until the trouble has been eliminated. Turn signal panel master switch (fig. 33-7) "OFF."

c. BOMB BAY DOORS.—The bomb bay doors may be test opened by placing the bomb bay selector control lever (fig. 31) in "SELECT" position. When signal panel lights (fig. 33-6) glow, the doors are open. Close the doors by returning the selector lever (fig. 31) to its extreme aft position, and ask the radio operator over the interphone to check that the doors are definitely shut.

CAUTION: Be sure bomb bay doors are clear before operating doors.

WARNING: Never move the bomb bay selector control lever farther forward than "OPEN" position unless on an actual bombing run.

5. BOMB DROPPING.

a. BOMB SIGHT OPERATION.—Operation of a bomb sight in no way affects operation of the airplane proper, and is therefore omitted from these instructions.

b. FORWARD BOMB BAY—SELECT OPERATION.

(1) Set the intervalometer toggle switch (fig. 33-

1. Extension Light 2. Data Case
3. Alarm Bell

Figure 32—Bombardier's Left Rear

13) in "SEL" position.

(2) Move the bomb bay selector control lever in line with the forward bomb bay quadrant (fig. 31) and shift it forward to "SELECT" position.

(3) Set the bomb rack selector switch or switches (fig. 33-4, 10) "ON." The forward bomb bay door light (fig. 33-6) will glow as the bomb bay doors open by completing instructions contained in paragraph 4, *c*.

(4) Turn rheostat knob (fig. 33-17) approximately one-half revolution to the right. This will cause a *white* light to glow on the upper aft end of the right engine nacelle, and warn friendly aircraft that your bomb bay doors are *open*. Call power turret and check brilliancy.

(5) When about five seconds from firing point, set toggle switch (fig. 33-9) in "ARM POSITION" if airplane is equipped for nose or tail fusing, otherwise "SEL" position of bomb control unit (fig. 31) automatically arms the bombs.

(6) When over firing point, lift the guard covering either the right or left bomb release toggle switch (fig. 31 or 34), and press *down*. This will release the bomb, and a red light will automatically appear for about 5 to 6 seconds on the upper aft end of the right engine nacelle, and will warn friendly aircraft not to dive under the bomber. The white lights on the signal panel (fig. 33) corresponding to the bombs just dropped will cease to glow.

(7) Additional bombs may be dropped by repeated movement of either the right or left toggle switches (fig. 31 or 34).

CAUTION: Use the "Bomb Nose Fuse Switch" (fig. 33-9) in its "ARM" position only during the bomb run, and turn off immediately afterward, as the solenoids get too hot and are likely to burn out. In addition, when this switch is "ON," all bombs dropped are "armed," and when this switch is "OFF," all bombs dropped are "safe." Keep it "OFF" when not actually bombing.

(8) When through dropping bombs, close the bomb bay doors by setting the bomb bay selector control lever (fig. 31) in its extreme aft position.

(9) Set the forward bomb bay rack selector switches (fig. 33-4) in this "OFF" position.

(10) Turn the master panel light switch (fig. 33-7) "OFF."

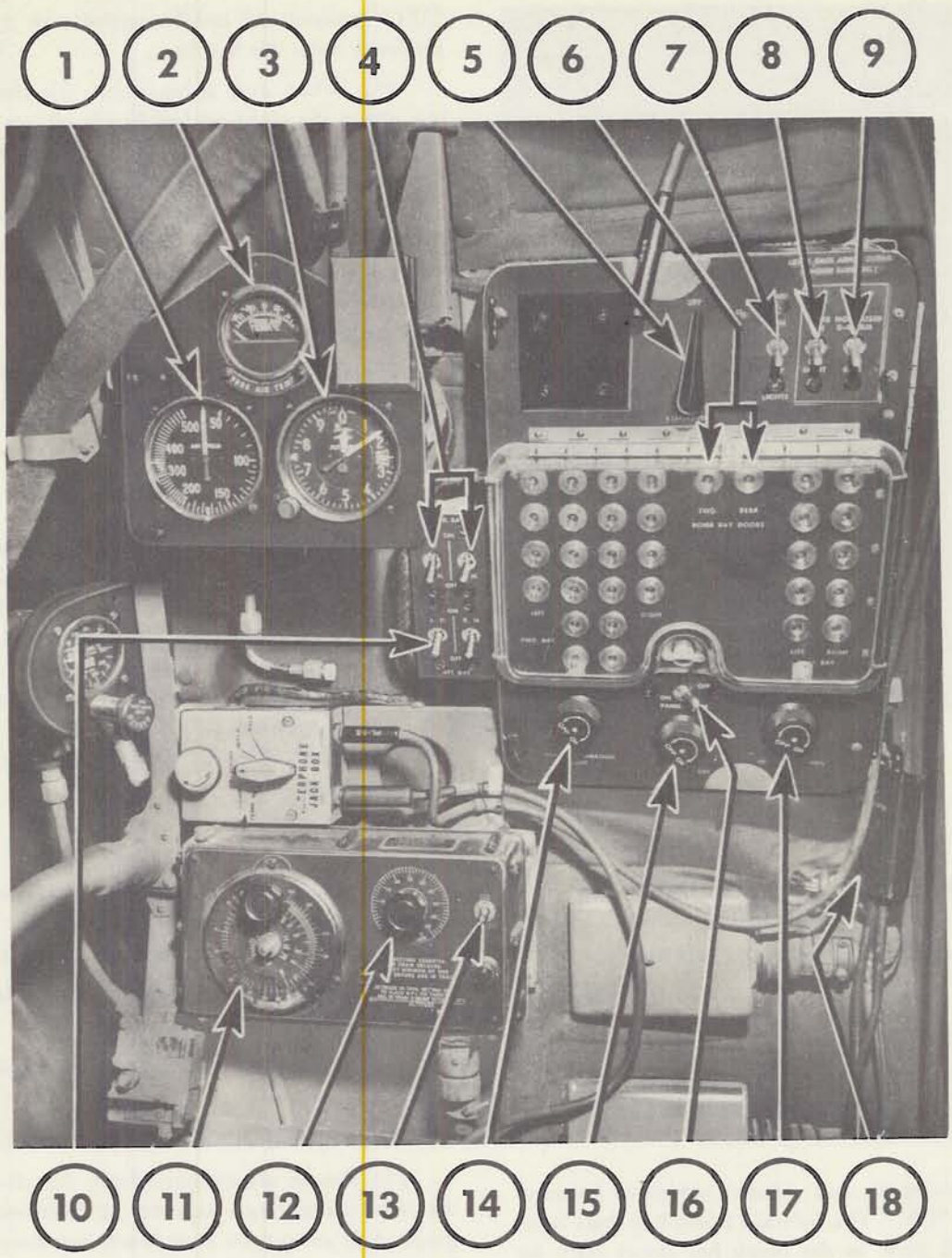
c. AFT BOMB BAY—SELECT OPERATION.

(1) Bombs are dropped from the aft bomb bay in the same manner and sequence as described under paragraph 5 *b*, *except the rear bomb bay doors* are opened by setting the bomb bay selector control lever (fig. 31) in its "SELECT" position in the extreme *left* quadrant, and placing the proper bomb rack selector switches (fig. 33-10) in their "ON" position.

d. FORWARD OR AFT BOMB BAY — TRAIN OPERATION.

(1) Set the toggle switch (fig. 33-13) in "TRAIN" position.

(2) On the intervalometer (fig. 33-11) set the indicated air speed opposite the dropping interval desired.



1. Air Speed Indicator
2. Free Air Temperature Gage
3. Altimeter
4. Fwd. Bomb Rack Selector Switch
5. Test Switch
6. Bomb Door Open Lights
7. Indicator Lights
8. Bomb Sight Switch
9. Nose Fusing Switch
10. Rear Bomb Rack Selector Switch
11. Interval Selector
12. Bomb Selector
13. "Sel-Train" Switch
14. Release Formation Light Rheostat
15. Compass Light Rheostat
16. Panel Light Switch
17. Door Formation Light Rheostat
18. Microphone Switch

Figure 33—Bombardier's Instrument and Electrical Panel

(3) Set the dial (fig. 33-12) to the desired number of bombs to be dropped.

(4) Set the bomb bay selector control lever (fig. 31) in line with the bomb bay quadrant desired, and shift forward to "SELECT" position.

(5) Select the bomb rack selector switches (fig. 33-4, 10) corresponding to the forward or aft bomb bay (same as the bomb bay selector control lever, fig. 31).

6. EMERGENCY BOMB RELEASE.

There are four methods for emergency bomb release:

a. BOMBARDIER'S SALVO (MECHANICAL).—Place bomb bay door control (fig. 31) in salvo position. Bombs will release after doors are open, unarmed unless separate nose and/or tail fusing solenoid control is provided and placed in "ARM."

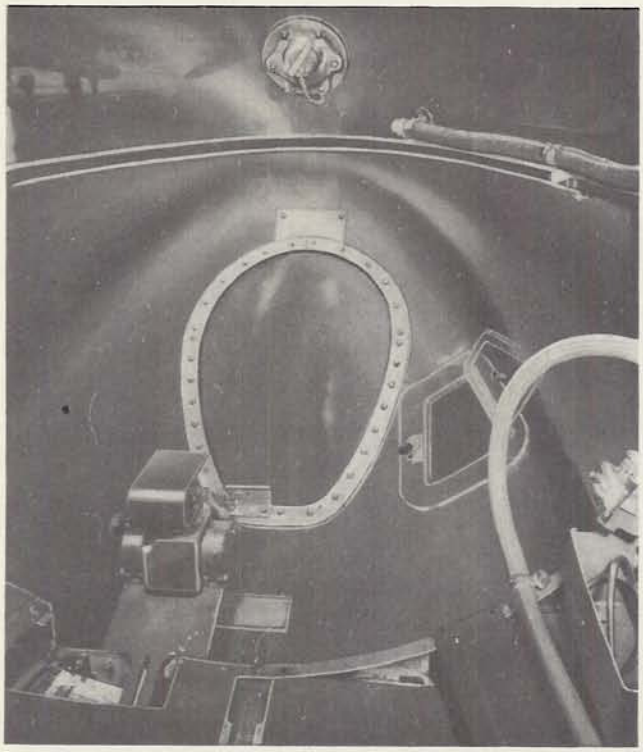


Figure 34—Bombardier's Ventilation Window

b. PILOT'S SALVO (PNEUMATIC). — Pull "T" handle overhead (fig. 17-1) to open bomb bay doors and salvo bombs unarmed. Unless handle is held out or hooked over catch provided, bombs will not drop. When handle is released, bomb bay doors will close automatically by hydraulic pressure. (If ship is equipped with electrical solenoid fusing controls for nose and/or tail of bomb, they may be dropped either armed or unarmed.)

c. FIRST EMERGENCY RELEASE FROM BOMB BAY.—Bombs may be released individually "armed" by turning screw head release control with an offset screwdriver inserted between bomb shackle and bomb hanger (fig. 51). (If electrical solenoid fusing control for nose and/or tail is provided, they may be released either armed or unarmed.)

d. SECOND EMERGENCY RELEASE FROM BOMB BAY.—A second release from bomb bay releases the bombs unarmed. Pry bomb hanger release arm past the spring loaded stop on the bomb release actuating arm of the bomb shackle (fig. 52). (If electrical solenoid fusing control for nose and/or tail of bomb is provided, they may be released either armed or unarmed.)

7. OTHER CONTROLS AND OPERATIONAL EQUIPMENT.

a. INTERPHONE.—Conventional. For detailed operating instructions, see Section V.

b. WINDOW FOR CLEANING OUTSIDE OF PLEXIGLASS AND FOR VENTILATION.

WARNING: Warn radio operator to reel in antenna before opening bomb bay doors.

Be sure bomb bay doors are closed before engines are started....

SECTION V
RADIO OPERATOR

1. ACCESS TO RADIO COMPARTMENT. — ENTER through the nose wheel well or forward through the bomb bays. EMERGENCY ENTRANCE may be gained by kicking out the upper hatch. EXIT DURING FLIGHT through the nose wheel well or go aft and through the bomb bay doors (if open), or rear lower hatch. EXIT ON GROUND OR WATER through the upper hatch. On water, after leaving, reach back inside, pull handle (fig. 45) and pull the life raft out of the airplane. On later models the life raft may be launched by pulling a handle on the OUTSIDE of the airplane.

WARNING: EXTERNAL POWER SUPPLY MUST BE USED for all ground operation.

2. ON ENTERING RADIO COMPARTMENT.

a. Turn "ON" two battery master switches (fig. 25-17) and airplane master electrical switch (fig. 25-19) on pedestal in pilot's compartment.

b. Turn compartment dome light on by operating toggle switch (fig. 40) located in the center of the door frame overhead between the radio and pilot's compartment.

c. Turn on table light (fig. 39-2) by operating toggle switch on mounting base of light.

d. A trouble light with about six feet of cord is provided above hatch doorway (fig. 40). Turn "ON" by its toggle switch just below.

3. LIAISON SET (SCR-287-A).

a. RECEIVING COMPONENTS.

To receive voice signals:

(1) Turn switch (fig. 39-14) to "MVC" position and allow set to warm up at least one minute.

(2) Set "CW-OSC" switch (fig. 39-5) to "OFF."

(3) Set "CRYSTAL" (fig. 39-6) to "OUT."

(4) There are six frequency bands provided on this receiver, any one of which may be selected by turning band switch (fig. 39-7) to the one desired.

(5) Turn volume control (fig. 39-15) at least halfway on until the desired signal is heard and then readjust as desired.

(6) Rotate tuning control to desired frequency as indicated on dial.

To receive CW:

(1) Proceed as above, then turn beat frequency control (fig. 39-16) "ON" and adjust to obtain the signal pitch required.

NOTE: A high pitch "CW" signal is easier to copy through interference, and a low pitch signal is easier to "hold" if the signal is unsteady.

In case of interference, cut in crystal filter (fig. 39-6) and phase as required.

1. Antenna Reel Control **2. Ventilator**

Figure 35—Radio Compartment, Left Side

NOTE: AVC may be used after set is tuned for either voice or "CW" reception.

NOTE: Antenna align adjustment is normally made at 2900 kcs. Slight readjustments may be made at other frequencies.

Figure 36—Antenna Reel

b. TRANSMITTING COMPONENTS—CW OPERATION.

CAUTION: Operation at Altitudes.—The transmitter may be expected to give satisfactory service on "CW" at all altitudes up to 27,000 feet. On "TONE" and "VOICE," however, insulation breakdown may be experienced with Transmitter Tuning Unit TU-8-B (6200-7700 KC) above 25,000 feet, and with Tuning Unit TU-9-B (7700-10,000 KC) above 19,000 feet. These altitude limitations may be exceeded slightly by care in tuning and by carefully guarding against accumulation of dust and other foreign matter in the equipment. Complete assurance of effective operation between 6200 and 10,000 kilocycles at altitudes between 19,000 and 27,000 feet may be had on "CW" alone. Transmitter Tuning Unit TU-22-B may be expected to give satisfactory service at all altitudes up to 15,000 feet.

(1) Insert transmitter tuning unit covering desired frequency.

(2) Set "BAND CHANGE SWITCH" (A) (fig. 37-11) at dial reading shown on tuning chart for frequency desired.

(3) Set "M. O. TUNING" control (B) (fig. 37-10) at dial reading shown on tuning chart for frequency desired.

(4) Set "P. A. TUNING" control (C) (fig. 37-13) at dial reading shown on tuning chart for frequency desired.

(5) Set "ANT. COUPLING SWITCH" (D) (fig. 37-15) on position "2."

(6) Set "ANT. IND. TUNING" dial (M) (fig. 37-8) on "O."

(7) Set "ANT. CIRCUIT SWITCH" (N) (fig. 37-9) on "2."

(8) Set "ANT. CAP. TUNING" dial (O) (fig. 37-18) on "50."

(9) Throw antenna switch to open circuit position.

(10) Request pilot's permission to reel out antenna.

(11) Reel out antenna approximately the number of feet indicated below:

2000 to 4000 kc—120 ft
4000 to 6000 kc— 75 ft
6000 to 8000 kc— 45 ft
8000 kc and up— 35 ft

(12) Place "TONE-CW-VOICE" switch on "CW" (fig. 37-2).

"CW FIL." position (fig. 37-6).

(13) Place "CW FIL.—MOD. FIL." switch on

(14) Turn "OFF-ON" switch "ON" (fig. 37-5). Note filament voltage shown on "FIL. VOLTAGE" meter. (Indicator should fall on red line. If not, check position of "24-28.5 VOLT" switch in rear of tube compartment to see that it is on "28.5 VOLT" position. Also "AC-DC" switch should be in "DC" position.)

(15) Place "CW-FIL.—MOD. FIL." switch on "MOD. FIL." position and repeat operation 14.

(16) Press Test Key (fig. 37-1) and vary "P. A. TUNING" (C) (fig. 37-13) for minimum value of plate current indicated on "TOTAL PL. CURRENT" meter. (If over 100 milliamperes do not operate transmitter.)

CAUTION: Do not change any switch position when test key is pressed.

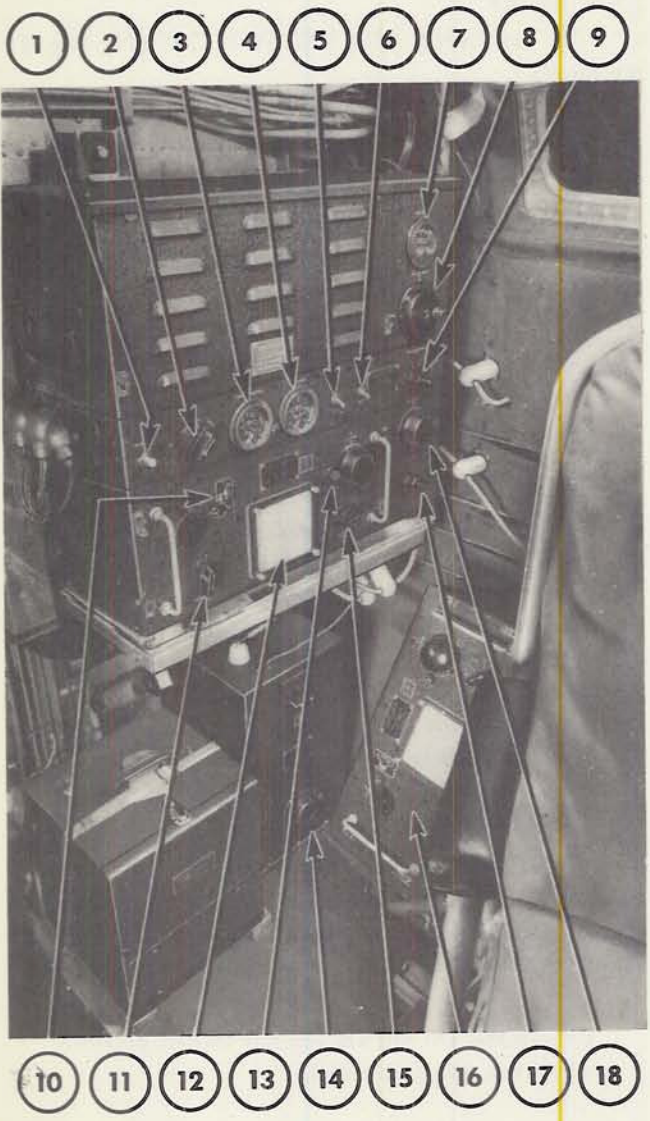
NOTE: When tuning, avoid pressing test key more than necessary.

(17) Throw antenna switch to trailing antenna position.

(18) Rotate "ANT. IND. TUNING" control (M) (fig. 37-8) until maximum readings of Plate current and Antenna current are shown on "TOTAL PL. CURRENT" and "ANT. CURRENT" meters. (If no deflection is noted, change position of "ANT. CAP. TUNING," increase "ANT. COUPLING" switch and repeat.

(19) If indicated reading of total plate current is below red line value, increase "ANT. COUPLING SWITCH" (D) (fig. 37-15) to a higher value and repeat operations 16, 18, and 19.

(20) Transmit with hand key on radio operator's table (fig. 39-13).



c. TRANSMITTING COMPONENTS — VOICE OPERATION.

(1) Tune transmitter as for "CW" operation (steps 1 to 19).

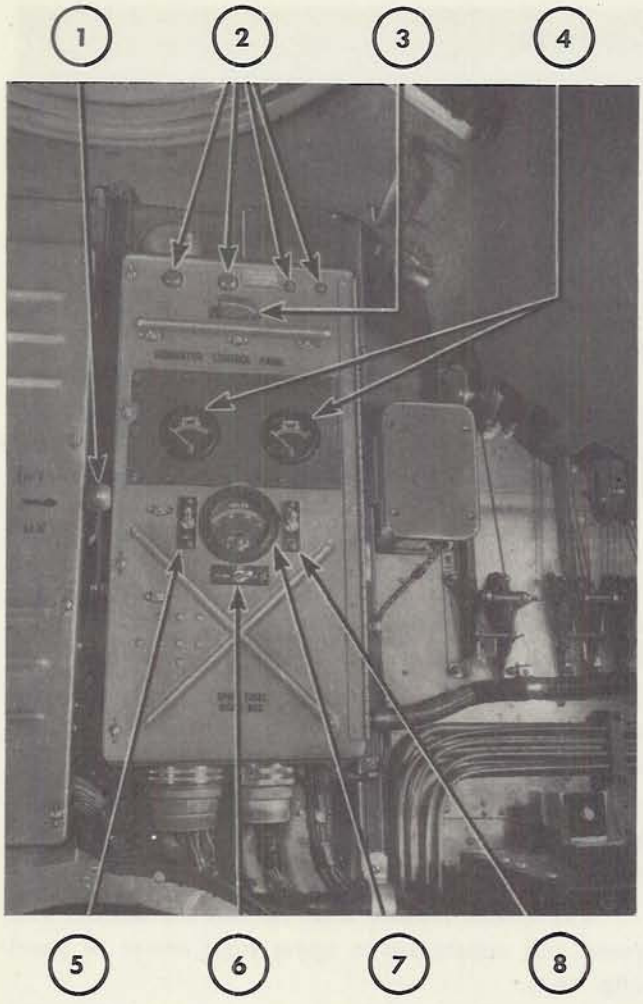
NOTE: Excessively high values of plate current (indicated beyond red line on "TOTAL PL. CURRENT" meter) will result in fuse, located inside transmitter in rear of transmitter tuning unit, burning out. (Spare fuse located under transmitter tuning unit.)

(2) Switch "TONE-CW-VOICE" switch (fig. 37-2) to "VOICE."

(3) Press microphone switch and observe total plate current indicated on "TOTAL PL. CURRENT" meter (fig. 37-3). If over 100 milliamperes greater than that indicated for CW operation do not operate transmitter on "VOICE."

1. Test Key
2. "Tone-CW-Voice" Switch
3. Total Pl. Current Meter
4. Fil. Voltage Meter
5. "On-Off" Switch
6. "CW Fil.-Mod. Fil." Switch
7. Ant. Current Meter
8. Ant. Ind. Tuning
9. Ant. Circuit Switch
10. M.O. Tuning Control
11. Band Change Switch
12. Calibration Chart
13. P.A. Tuning Control
14. Junction Box
15. Ant. Coupling Switch
16. Spare Tuning Unit
17. Ant. Ind. Switch
18. Ant. Cap. Tuning Dial

Figure 37—Radio Equipment



1. De-icer "On-Off" Switch
2. Circuit Breaker Reset Buttons
3. Main Inverter Switch
4. Ammeters
5. Generator "On-Off" Switch
6. Voltmeter R.H.-Off-L.H." Switch
7. Voltmeter
8. Generator "On-Off" Switch

Figure 38—Rear of Radio Compartment

(4) Speak into microphone.

CAUTION: Each time frequency is changed, operations 1 to 19 must be repeated.

NOTE: To operate on fixed antenna, change antenna switch to fixed antenna and retune transmitter.

WARNING: Trailing antenna must be in before bomb bay doors are opened, when landing, or when not in use.

WARNING: Do not change tubes or make adjustments of inside equipment with test key, microphone switch or hand key depressed. Do not operate any equipment with shields removed.

4. **COMMAND SET (SCR-274-N).** — Controlled from pilot's compartment only.

EMERGENCY OPERATION: (To by-pass the interphone system.) Radio operator should determine if command receiver is operating by plugging in to emergency jack located under the table. Set adjacent "A-B" switch to "A." If the set operates, use the extension line between the interphone jack box and radio operator's table receiver to add to the pilot's headset cord and plug into the jack under the table.

5. **RADIO SET (SCR-535)** — The radio control is located above the radio operator's desk.

a. Sensitivity should be set and the detonator checked before each flight by the radio maintenance personnel.

b. Turn the knob marked "V" to farthest counterclockwise position.

c. Turn "OFF-ON" switch to "ON."

d. Push button and turn knob "V" until the pointer on the meter points to the red line on the meter scale. This should be done with the engines running and the generators cut in.

NOTE: With models having two meters on the control box, adjust knob "V" as before, using voltmeter.

e. Reset knob "V" while in flight every 15 minutes when possible.

f. To turn radio off, turn "OFF-ON" switch to "OFF."

6. **INTERPHONE (RC-36).**—Operation is conventional.

a. Whenever master battery switches are "ON" the interphone system is in operation.

b. Five jack box selector positions are provided:

"CALL"—Emergency position permits crew mem-

bers to call all other crew members regardless of the setting of any other selector knob.

"INTER"—Affords communication with all other stations set to the "INTER" position.

"COMMAND"—Connected to output of command set when in operation.

"LIAISON"—Connected to output of liaison set when in operation.

"COMP"—Connected to output of radio compass when in operation.

WARNING: Other crew members stay off LIAISON, unless necessary, as the extra load weakens the signal.

7. OTHER EQUIPMENT.

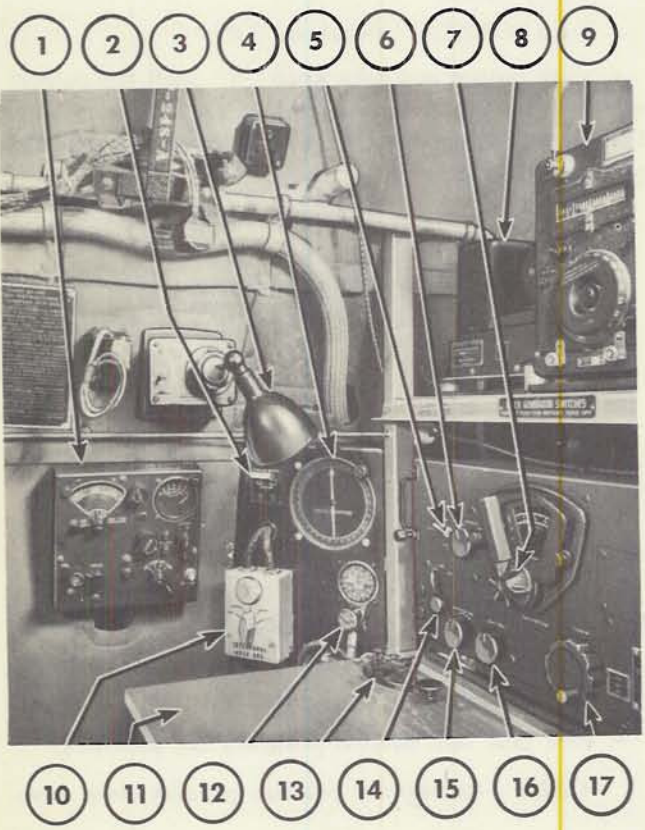
a. OXYGEN REGULATOR (fig. 39-12).

b. SEAT ADJUSTMENT.—Lift lever on right side of seat to allow seat to swivel.

c. SUIT HEAT.—Electrical outlet with rheostat.

d. GENERATOR PANEL.—Located on rear bulkhead of radio compartment (fig. 38).

(1) Generator control switches (fig. 38-5, 8).—Turn "ON" before taxying out.



1. Radio Compass
2. Modulator Switch
3. Light
4. Radio Compass
5. "CW-OSC" Switch
6. Crystal Filter Switch
7. Band Switch
8. Command Modulator
9. Command Set Transmitter
10. Interphone Jack Box
11. Table
12. Oxygen Regulator
13. Hand Transmitting Key
14. "AVC-OFF-MVC" Switch
15. Volume Control
16. Beat Frequency Control
17. Tuning Control

Figure 39—Radio Operator's Table

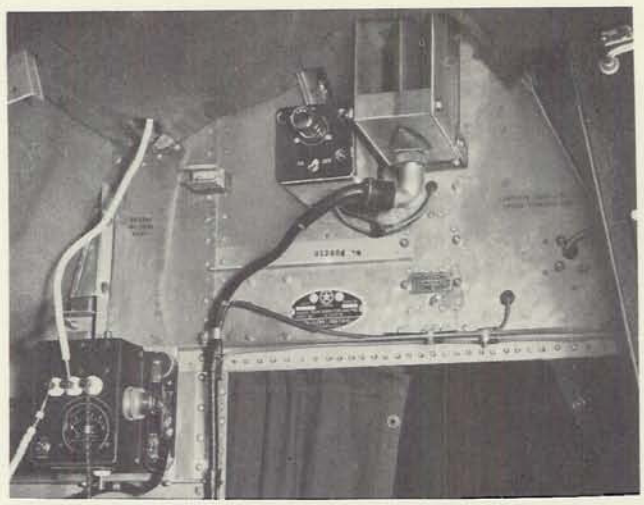


Figure 40—Radio Compartment Front

(2) Voltmeter selector switch (fig. 38-6).—Turn toggle switch left for reading on left generator, right for right generator.

(3) Main inverter control switch (fig. 38-3) is located upper center of panel. Turn "ON" to operate any fluorescent lights.

(4) Circuit breaker reset buttons for tail turret booster motors are in upper left corner of panel (fig. 38-2).

(5) Circuit breaker reset buttons for transfer fuel pump and camera are in upper right corner of panel (fig. 38-2).

e. FUSES AND CIRCUIT BREAKER RESET BUTTONS.—Located just behind forward bulkhead.

Fuses: Dynamotor 1, F.F. Power Detonator Radio Compass.

Reset buttons: Interphone Antenna Reel.

SECTION VI
NAVIGATOR

1. ACCESS TO NAVIGATOR'S COMPARMTENT.—

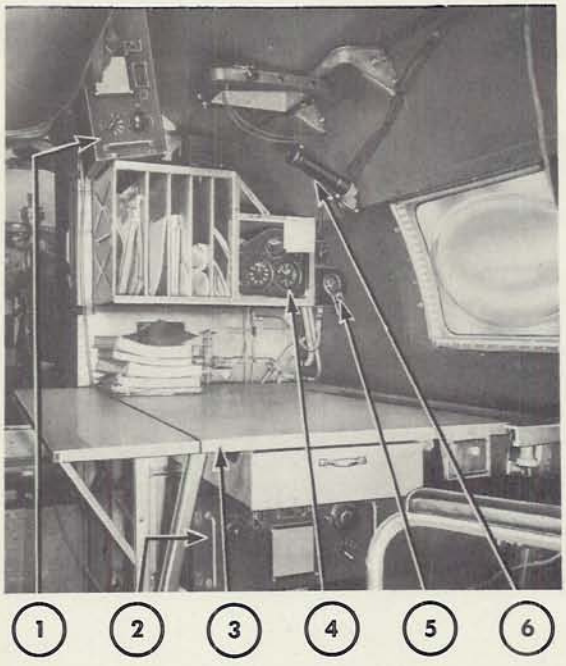
ENTRANCE may be gained through the nose wheel well, or from the rear of the airplane through the bomb bays. This compartment is located just aft of the pilot's compartment on the right side of the airplane. EXIT DURING FLIGHT by going aft and through the front bomb bay doors. NORMAL EXIT on ground by entrance. EMERGENCY EXIT on ground or water through the upper observation hatch.

2. BEFORE ENTERING NAVIGATOR'S COMPARTMENT.

Secure necessary equipment for navigation. Be sure that the weight and balance officer or pilot receives the total weight of extra navigational tools and equipment brought into the compartment.

3. ON ENTERING NAVIGATOR'S COMPARTMENT.

a. Use external power supply for all ground operation, master switches "OFF" (fig. 25-17, and fig. 25-19).



1. Spare Tuning Units
2. Transmitter Tuning Unit
3. Navigator's Table
4. Navigator's Instrument Panel
5. Oxygen Regulator
6. Fluorescent Light

Figure 41—Navigator's Compartment, Front

b. Turn dome light switch above forward doorway "ON."

c. Turn fluorescent light switch on right wall beside seat "ON."

d. Check upper hatch for security.

e. Check oxygen regulator fitting to mask.

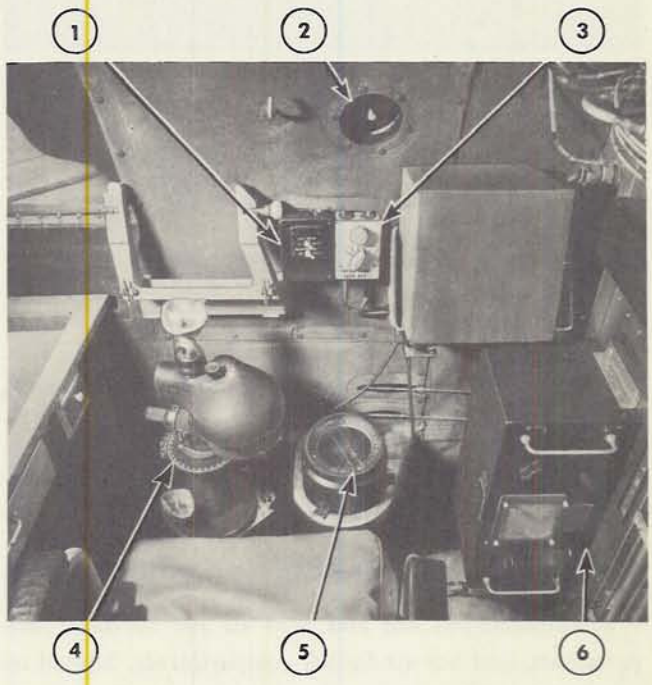
4. OTHER CONTROLS AND OPERATIONAL EQUIPMENT.

a. Liferaft (fig. 45).

b. Navigator's hatch—a plexiglass dome (fig. 44).

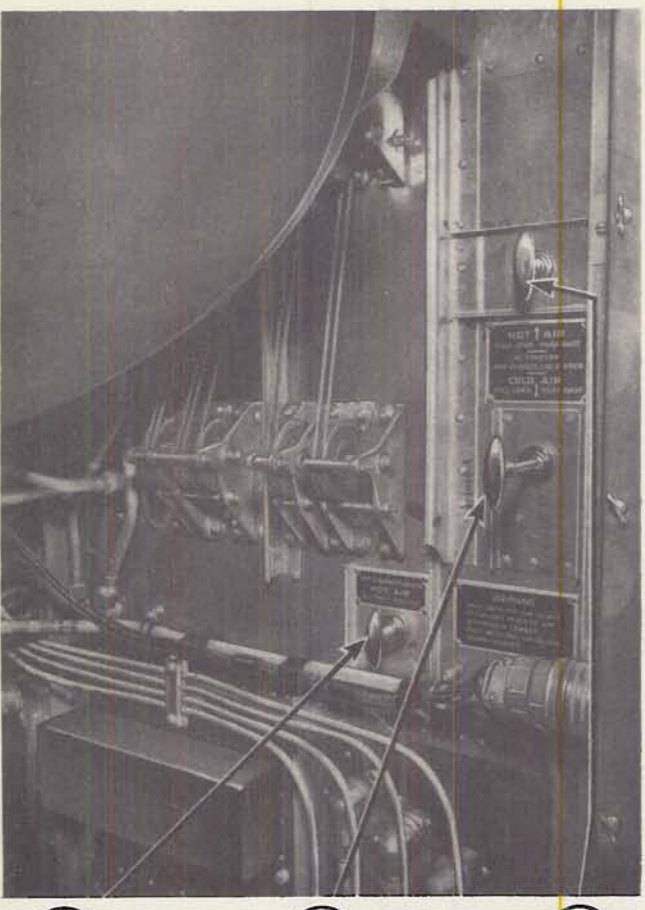
CAUTION: Dome should not be extended at speeds above 190 mph.

c. Drift meter (fig. 42-4).



1. Driftmeter and Navigation Light Switches
2. Ventilator
3. Interphone Jack Box
4. Driftmeter
5. Compass
6. Spare Tuning Unit

Figure 42—Navigator's Compartment, Right Side



1. Aft Compartment Hot Air Control
2. Cold Air Control 3. Hot Air Control

Figure 43—Navigator's Compartment, Rear

d. Compass (fig. 42-5).

e. Instrument panel—free air temperature, airspeed, and altitude gages (fig. 41-4).

f. Airspeed tube alternate source static pressure selector valve just above oxygen regulator.

g. Astrograph mounting ring above navigator's table.

h. Controls for hot and cold air for forward compartments, and hot air for aft compartments, located on rear bulkhead of navigator's compartment (fig. 43).

CAUTION: During take-off and combat, cold air open, hot air closed.

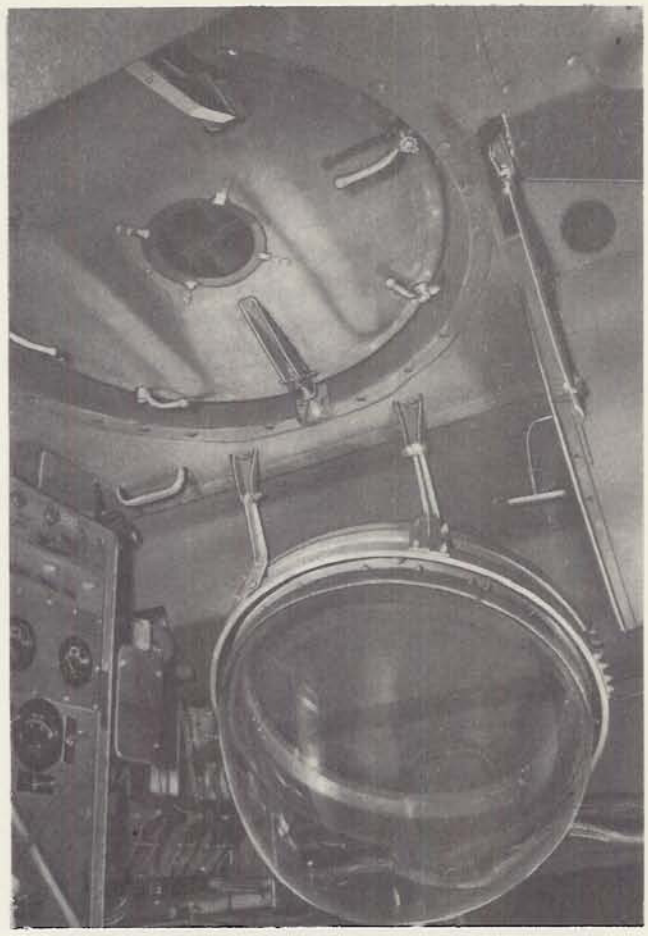


Figure 44—Navigator's Asteral Dome

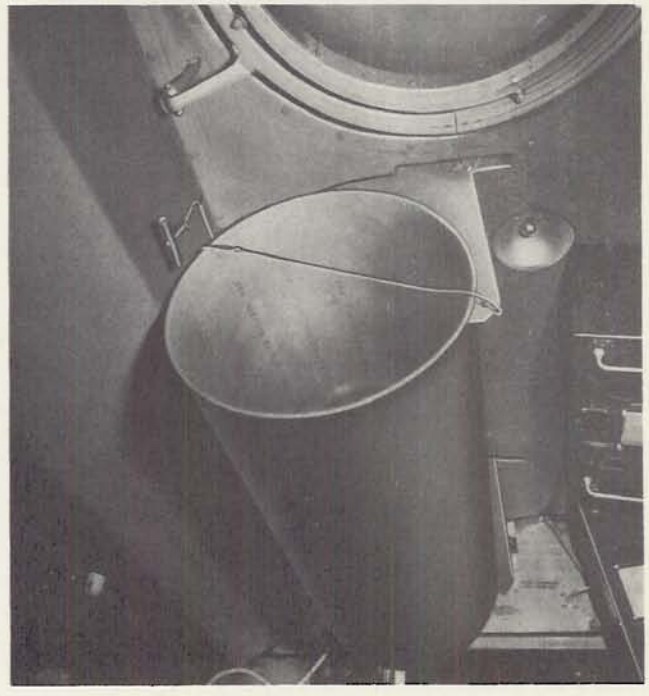


Figure 45—Liferaft Container

SECTION VII
FORWARD BOMB BAY

1. DESCRIPTION.

This compartment is located immediately aft of the navigator's and radio operator's compartment. A catwalk through the middle serves as a passage from the forward to the aft ends of the airplane.

2. ACCESS TO FORWARD BOMB BAY.

ENTER through Radio Operator's compartment, rear bomb bay or bomb bay doors. EXIT DURING FLIGHT through the bomb bay doors, if open, otherwise go aft and leave through the rear hatch. When emergency air release in pilots' compartment (fig. 17-1) is used, the doors will remain open only about one minute. Exit on ground by going forward and out navigator's upper hatch or through pilot's escape hatches.

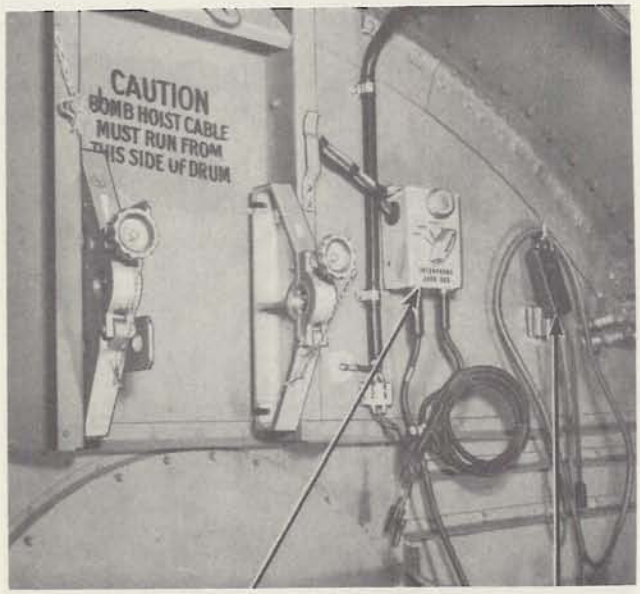
3. OPERATIONAL EQUIPMENT.

a. FUEL SYSTEM.—Refer to fig. 89-90 for diagram of complete fuel system. Fuel gages are located in pilot's compartment (fig. 24-13). Fuel gages are provided for most bomb bay tanks ON THE TANKS.

(1) Main fuel tank shut-off valves.—Located to the right and left side of the catwalk and mounted on the forward bulkhead (fig. 48-5 and 47-2). All fuel going to the right and left engines must pass through their respective right or left main fuel tanks and main shut-off valves.

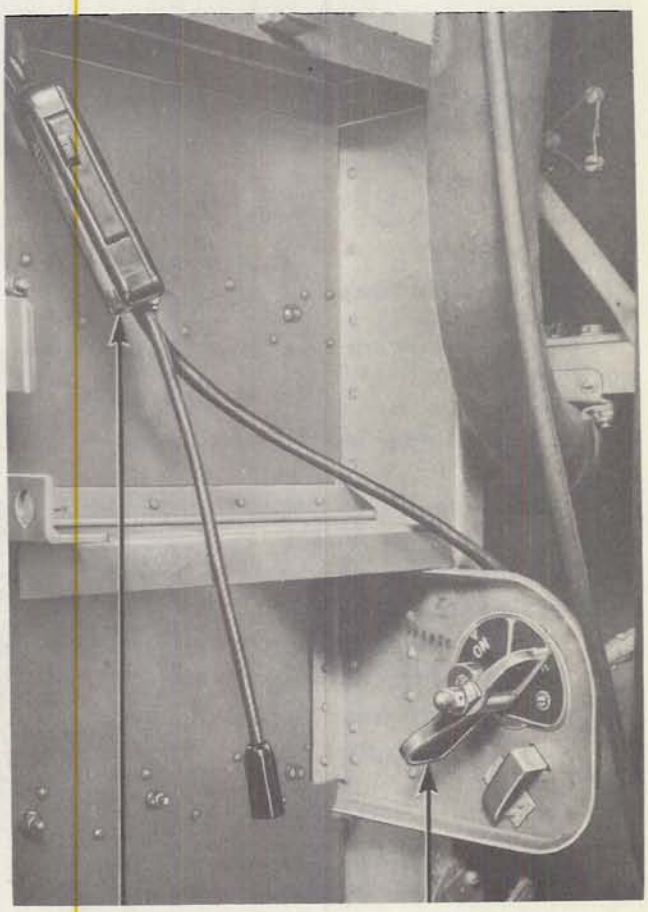
(2) Fuel Transfer System.

(a) Flow from the main fuel tanks to the engines is not dependent upon any particular setting of the fuel transfer valves (fig. 48-6). However, when not transferring fuel, the transfer selector valves will be in their "OFF" position.



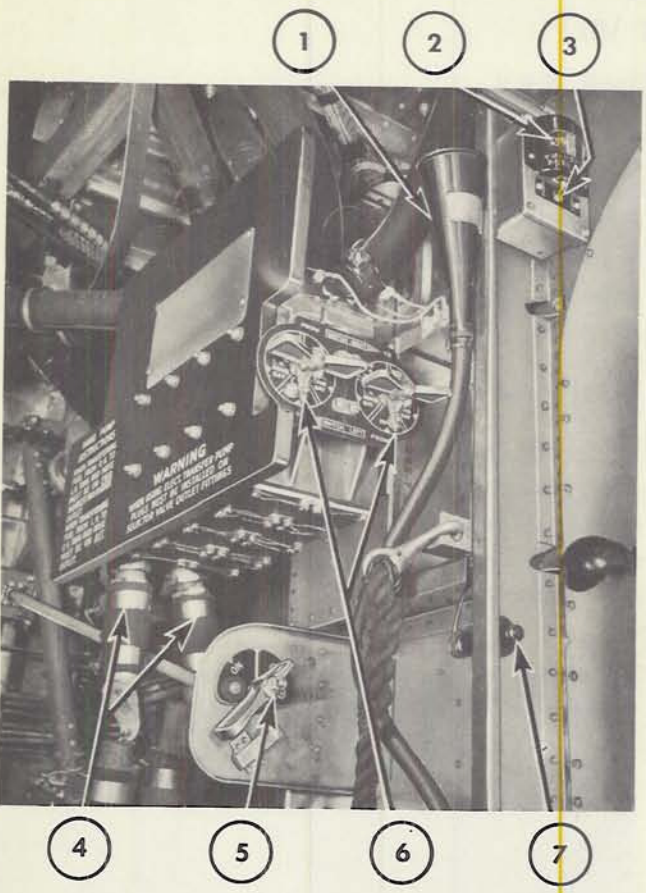
1. Interphone Jack Box 2. Microphone Switch

Figure 46—Forward Bomb Bay Bulkhead



1. Interphone Connection 2. Left Fuel Control Valve

Figure 47—Forward Bomb Bay Left Side



1. Relief Tube
2. Fuel Transfer Pump Light
3. Dome Light Switch
4. Hand Pump Hose Nipples
5. Right Fuel Control Valve
6. Fuel Selector Valves
7. Warning Light

Figure 48—Fuel Transfer System

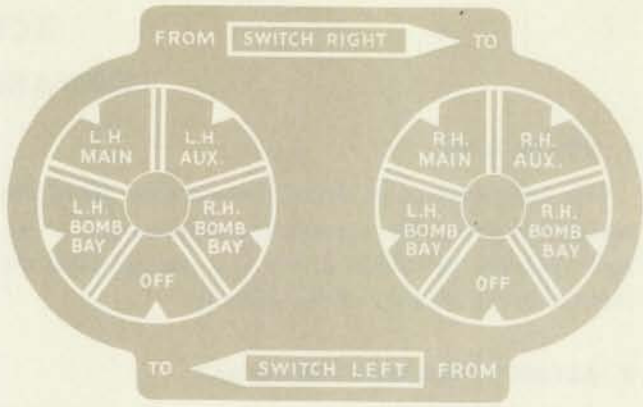
(b) As fuel is consumed from the main fuel tanks they should be filled by operation of the fuel transfer pumps from other tanks located in the airplane in the following sequence:

1. Remote tanks located aft of the forward bomb bay (if any are installed).

2. Forward bomb bay tanks.

3. Wing auxiliary tanks.

CAUTION: *Left* wing auxiliary fuel must be transferred to the *right* main tank, and *right* wing auxiliary fuel must be transferred to the *left* main tank. It is impossible to transfer fuel directly from wing auxiliary to main tanks on the same side of the airplane.



Detail of Fuel Transfer Valve

(c) The fuel selector valve (fig. 48-6) controls only the fuel from one tank to another and in no way effects the flow from the main tanks to the engines. (Refer to the Fuel System diagrams, fig. 89 & 90.) *All* fuel must pass through the main tanks, as they are the *only* tanks connected through the booster pumps to the engine. The selector valve (fig. 48-6) incorporates two separate controls with pointer handles and dial plates, marked as follows:

(d) The dial plates (fig. 48-6) also bear the notation that with the Transfer Pump Switch in its "FOR-

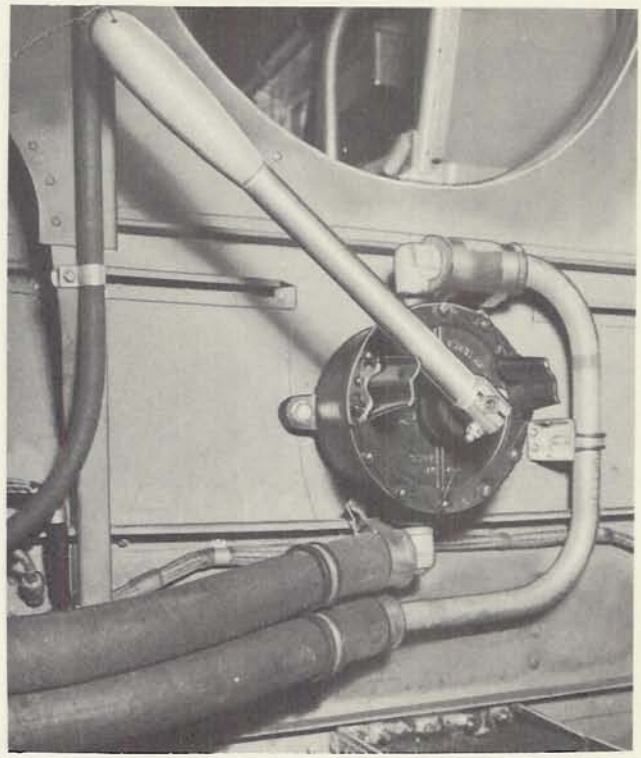


Figure 49—Fuel Transfer Emergency Pump

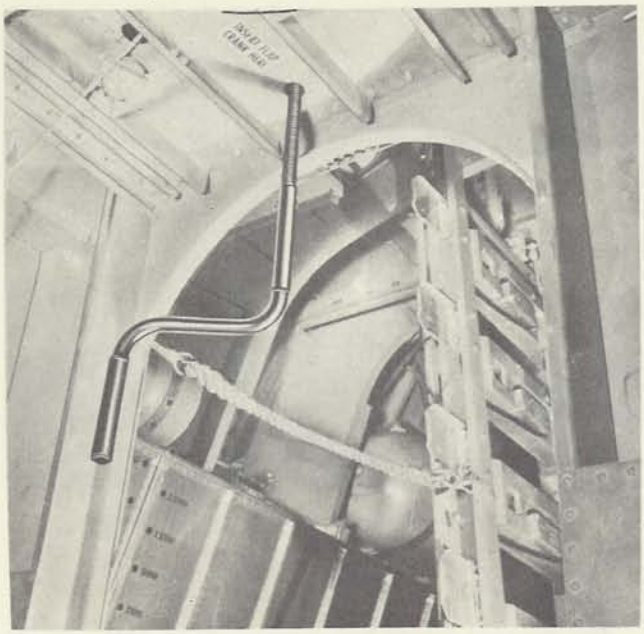


Figure 50—Emergency Flap Control

WARD" position, the flow is *from* the tank selected on the aft dial *to* the tank selected on the forward dial, and, with the Transfer Pump Switch in its "AFT" position, the direction of flow is reversed. It is thus possible to transfer fuel from any tank marked on the aft dial to any tank marked on the forward dial, or vice versa, and to transfer fuel between two tanks indicated on the same dial by first pumping into an intermediate tank.

NOTE: Call on the interphone (fig. 46-1) and have pilot check fuel quantity gages (fig. 24-13) before attempting to transfer any fuel. Do not attempt to pump fuel into any tank if its fuel gage shows "FULL" as this will burst the tank.

CAUTION: Pilot must ascertain that the change in fore and aft balance is within limits before transferring fuel from the bomb bay to the main tanks. Refer to instructions for using the load adjuster in Section II.

WARNING: Do not operate fuel transfer pump with either selector valve (fig. 48-6) in "OFF" position.

(e) Emergency Fuel Transfer System.

1. If the electric fuel transfer pump fails to operate when its control switch is placed either in its forward or aft position, the electric pump is out of commission, and nothing can be done while in flight to fix it.

2. The hand fuel pump may be substituted in place of the electric pump by first removing the plugs from the hand fuel pump hose nipples (fig. 48-4) and then installing the long flexible hand fuel pump hose thereto.

CAUTION: One hand fuel pump hose is painted red on the end, and the other is black. The red hose should be placed on the *forward* nipple if it is desired to pump fuel *from* the tank indicated on the forward fuel transfer selector valve (fig. 48-6) *to* the tank indicated on the aft fuel transfer selector valve (fig. 48-6). If it is desired to pump fuel *from* the tank indicated on the *aft* fuel transfer selector valve (fig. 48-6) *to* the tank indicated on the forward fuel transfer selector valve (fig. 48-6), the red hand fuel pump connecting hose should be connected to the *aft* nipple (fig. 48-4).

3. When the fuel transfer selector valves are set in their desired position, and the hand fuel transfer pump hoses are properly connected, fuel may be pumped by first removing the safety wire securing the hand fuel pump handle and then actuating the handle through the extremities of its operating range at about one stroke (one direction) per second.

4. If it is desired to remove fuel from the airplane tanks for emergency use in the auxiliary electric generating plant located in the waist gunner's compartment, proceed as follows:

a. Set fuel transfer selector valve (fig. 48-6) to any tank containing fuel.

b. Attach hand pump red connecting hose on forward or aft nipple (fig. 48-4) corresponding to forward or aft fuel transfer selector valve (fig. 48-6) that is set to the tank from which fuel is to be pumped.

c. Actuate hand fuel pump and fuel being discharged from the black hose can be directed into a separate container. Pump slowly so as not to spill fuel. Exercise extreme care to reduce fire hazard by having a man "stand by" with a CO_2 fire extinguisher while pumping.

b. FUEL PUMP WARNING LIGHT.—A red light (fig. 48-7) below transfer switch shines whenever the selected fuel tank is empty and transfer switch "ON." The warning signal is to prevent the pump from being run dry. When the light shines, turn the pumps "OFF" immediately.

CAUTION: Full tank is indicated ONLY on the pilot's instrument panel.

c. EMERGENCY MANUAL FLAP CONTROL.—The flaps may be lowered manually in the event of complete failure of the hydraulic pressure system.

(1) Reduce speed of airplane to 135 mph. Do not fly at speeds in excess of 135 mph after the flaps have been lowered.

(2) Move pilot's hydraulic flap control handle to "DOWN."

(3) Obtain crank (fig. 50) stowed at top of rear bulkhead of forward bomb bay.

(4) Insert crank in hole (fig. 50) directly forward and above passageway between bomb bays.

(5) Rotate crank in counterclockwise direction to lower flaps.

(6) To lock flaps in any position, stop rotation and leave the crank in place.

(7) To raise flaps, turn crank clockwise.

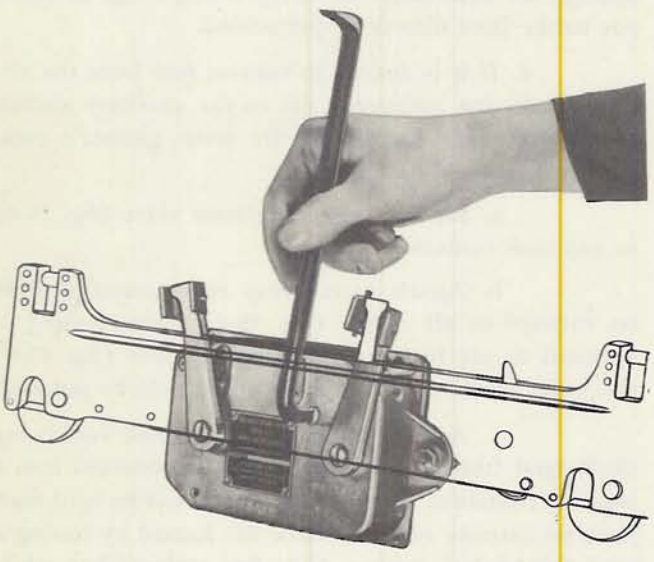


Figure 51—First Bomb Bay Release

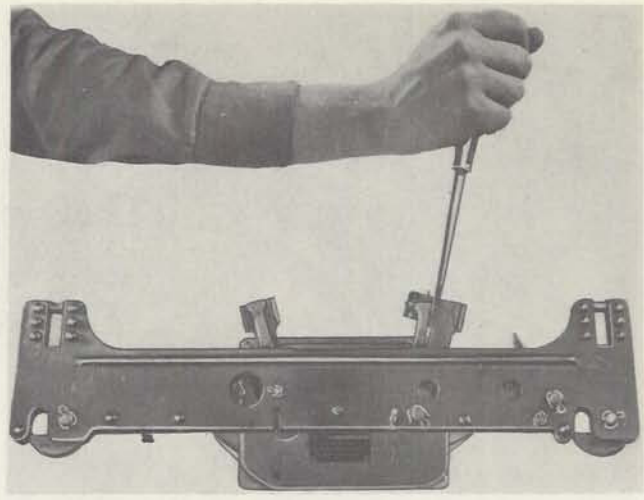


Figure 52—Second Bomb Bay Release

4. ARMAMENT.

The forward bomb bay contains four racks. Clearance is provided for:

Two 2000 lb Demolition Bombs
or
Four 1000 lb Demolition Bombs
or
Six 600 lb Demolition Bombs
or
Eight 300 lb Demolition Bombs
or
Twenty 100 lb Demolition Bombs.

a. EMERGENCY BOMB RELEASE.

(1) Bombs may be released individually "armed" by turning screw head release control with an offset screwdriver inserted between bomb shackle and bomb hanger (fig. 51). (If electrical solenoid fusing control for nose and/or tail of bomb is provided, they may be released either armed or unarmed.)

(2) Bombs may be released individually "unarmed" by prying bomb hanger release arm past the spring loaded stop on the bomb release actuating arm of the bomb shackle (fig. 52). (If electrical solenoid fusing control for nose and/or tail of bomb is provided, they may be released either armed or unarmed.)

5. INTERPHONE.

Conventional. For detailed operation, see Section V, par. 6.

SECTION VIII
REAR BOMB BAY

1. ACCESS.—

ENTER through rear lower hatch and waist gunner's compartment or through nose wheel well and go aft. The rear bomb bay is located just forward of the power turret and aft of the front bomb bay. EMERGENCY EXIT through bomb bay doors or go aft and out rear lower hatch.

CAUTION: Do not go from bomb bay past power turret when turret is in operation.

2. ARMAMENT.

a. The aft bomb bay contains two bomb racks. Clearance is provided for:

Two 600 lb Demolition Bombs
or
Six 300 lb Demolition Bombs
or
Ten 100 lb Demolition Bombs.

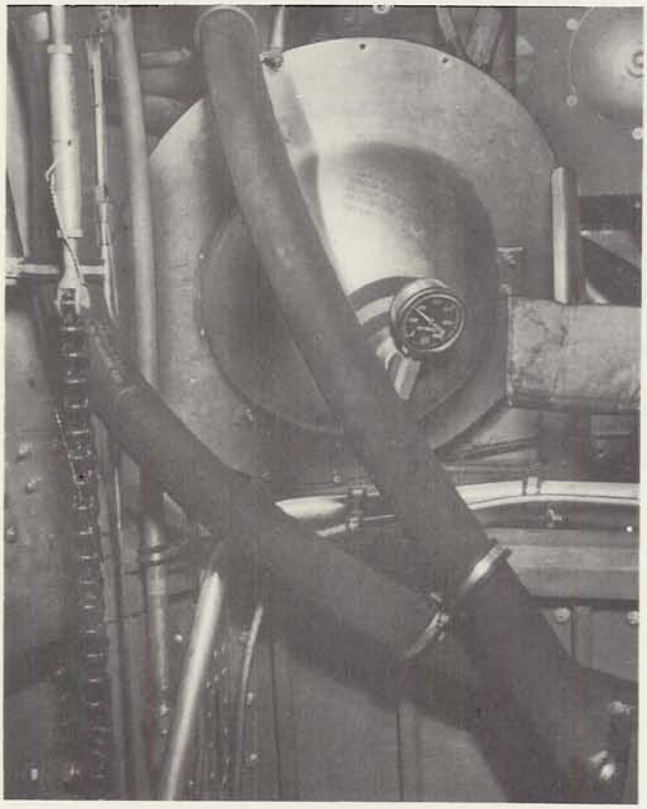
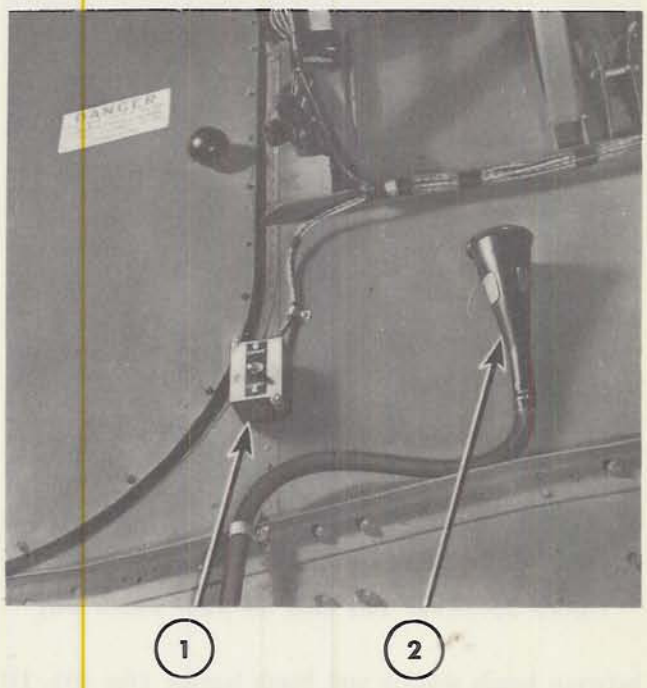


Figure 53—Hydraulic Pressure Accumulator

b. EMERGENCY BOMB RELEASE.

(1) To release individually "armed," turn screw head release control with an offset screwdriver inserted



1. Dome Light Switch 2. Relief Tube

Figure 54—Rear Left Side of Forward Bomb Bay

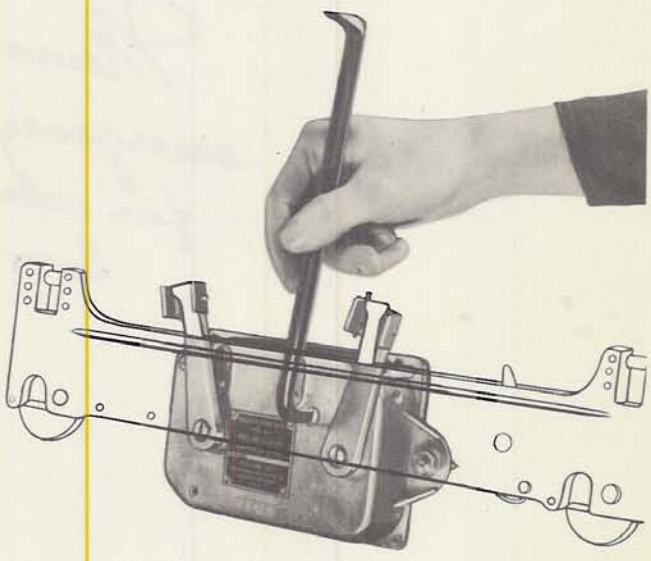


Figure 55—First Emergency Bomb Bay Release

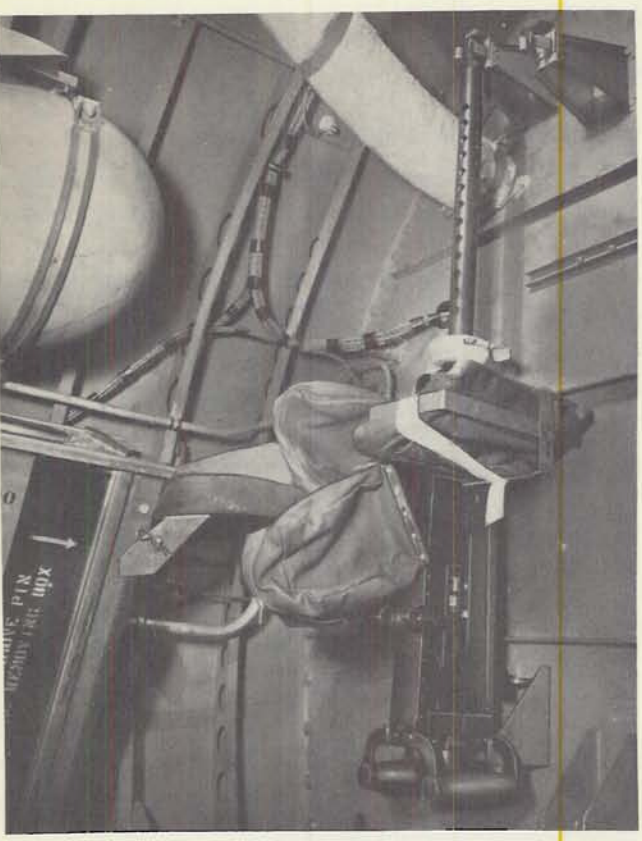


Figure 56—Rear Left Side of Rear Bomb Bay

between bomb shackle and bomb hanger (fig. 55). (If electrical solenoid fusing control for nose and/or tail of bomb is provided, they may be released either armed or unarmed.)

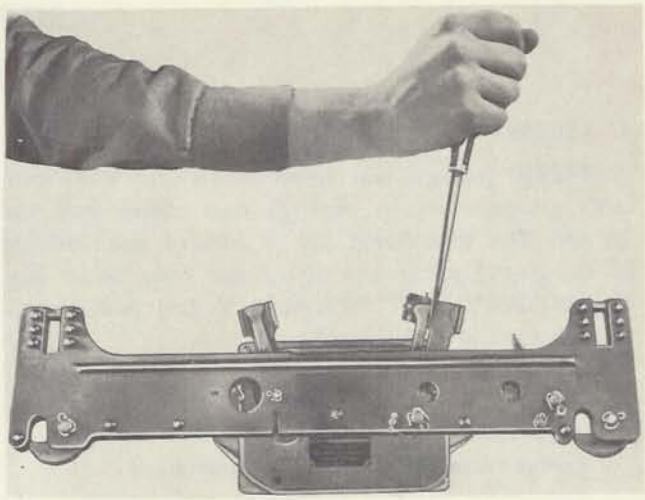


Figure 57—Second Emergency Bomb Bay Release

(2) To release individually "unarmed," pry bomb hanger release arm past the spring loaded stop on the bomb release actuating arm of the bomb shackle (fig. 57). (If electrical solenoid fusing control for nose and/or tail of bomb is provided, they may be released either armed or unarmed.)

3. OTHER EQUIPMENT.

a. RACKS FOR TWO MACHINE GUNS.—On rear bulkhead on the right side.

b. RELIEF TUBE.—On rear bulkhead on left side.

c. DOME LIGHT.—Switch on lower left hand side of rear doorway.

d. AMMUNITION STOWAGE FOR TAIL GUNS.

Memorize emergency methods for release of bombs

SECTION IX
UPPER TURRET

1. ACCESS TO UPPER TURRET.—

ENTER through the rear lower hatch or through bomb bays via the nose wheel well. The upper turret is just aft of the rear bomb bay and forward of the waist gunner's position. EXIT DURING FLIGHT from the rear lower hatch or side hatches. EXIT ON GROUND OR WATER through the navigator's escape hatch. Use the hand axe, if needed.

CAUTION: Do not occupy upper turret during take-off or landing.

2. ARMAMENT AND ARMOR PROTECTION.

a. The upper deck turret is a Martin, model 250 CE-2A, electrical type. It mounts two .50 caliber modified M-2 machine guns that protrude through slots in the plexiglass enclosure. The guns have a fire dispersion range from the horizontal to an elevation of 85°. They operate over a horizontal angle of 360° except where gun interruptors prevent their firing.

b. Armor plate, rotating with the turret, affords protection for the gunner, as shown in fig. 60.

3. BEFORE ENTERING UPPER TURRET.

a. External power supply must be used for ground operation.

b. Use cushion if desired and select desired thickness (single or double). Adjust foot rest.

c. If a cable is provided, plug into floor outlet (fig. 61).

d. Lower seat by releasing spring catches (fig. 62) for easier entrance.

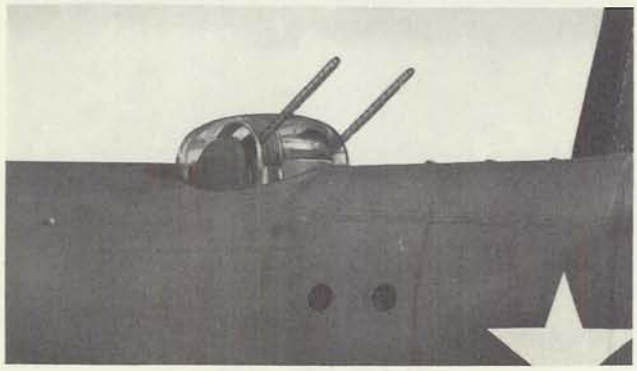


Figure 58—Upper Turret in Position

CAUTION: Do not use the sight link rods as hand grips when entering turret.

4. ON ENTERING UPPER TURRET.

a. Turn power switches "ON." Azimuth (fig. 59-9) and elevation (fig. 59-10) power switches are located on the seat. Any overload will open these switches, after which they must again be closed to operate turret.

b. Turn gun safety switch (fig. 59-11) on seat "ON."

c. Gun sight rheostat "ON" (fig. 59-2). Adjust to desired brilliancy.

d. Hands on "pistol" grips, left hand depressing "dead man" lever (fig. 59-7).

1. Elevation Clutch Lever
2. Sight Rheostat
3. Gun Trigger Switch
4. High Speed Switch
5. Azimuth Clutch Lever
6. Gun Trigger Switch
7. Dead Man Switch
8. Microphone Switch
9. Azimuth Power Switch
10. Elevation Power Switch
11. Gun Safety Switch

Figure 59—Upper Turret Operating Switches

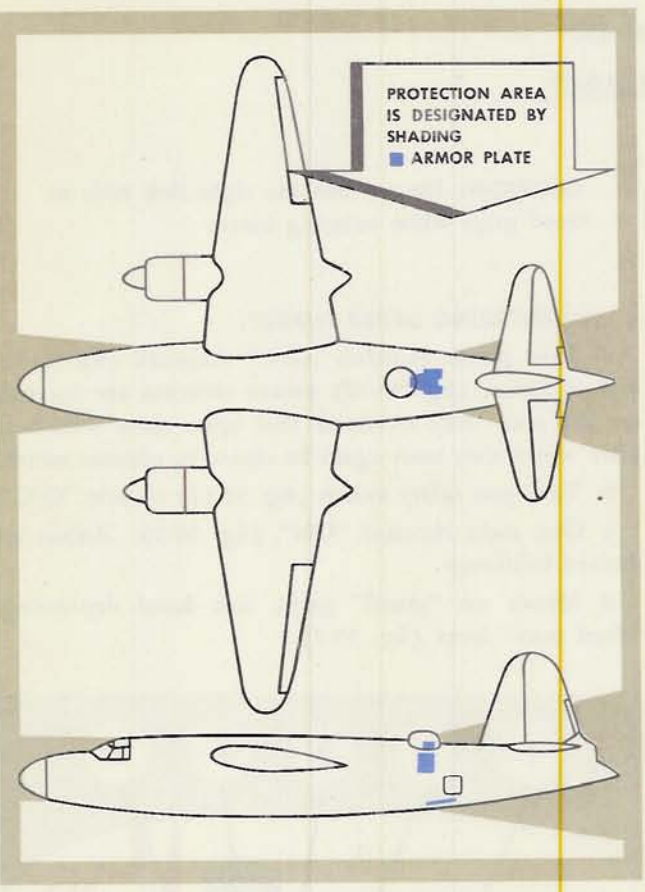


Figure 60—Rear Gunner's Armor Diagram

e. Operate turret by twisting hand grips (fore and aft to elevate and lower guns; push against one grip and pull on the other to turn). For high speed operation, press high speed switch first (fig. 59-4).

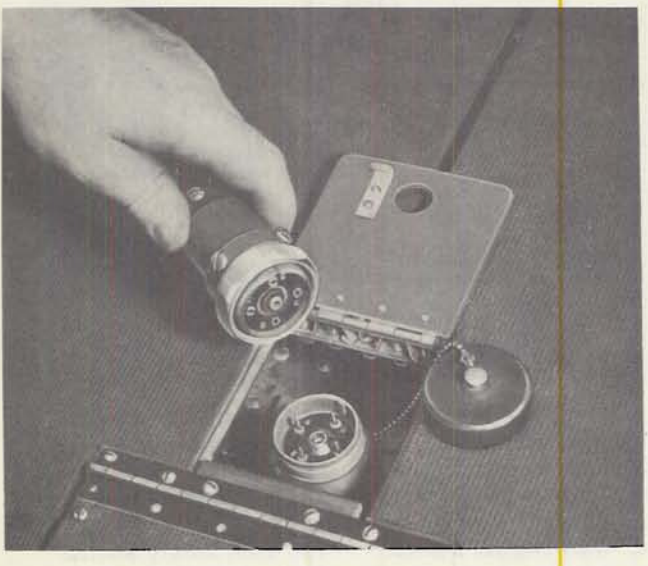


Figure 61—Turret Cable and Plug

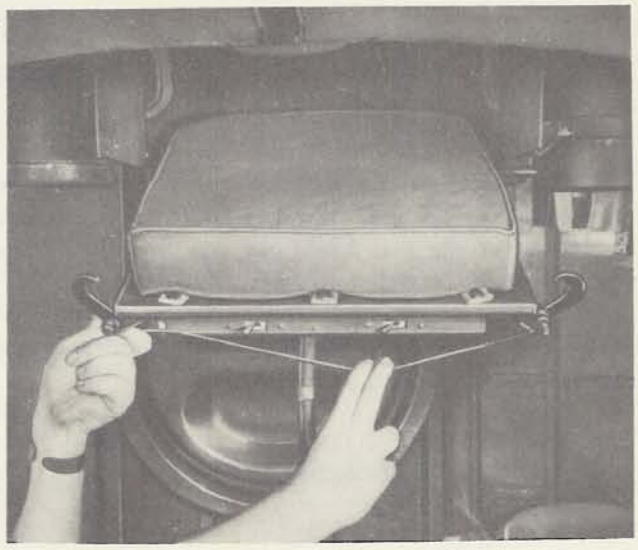


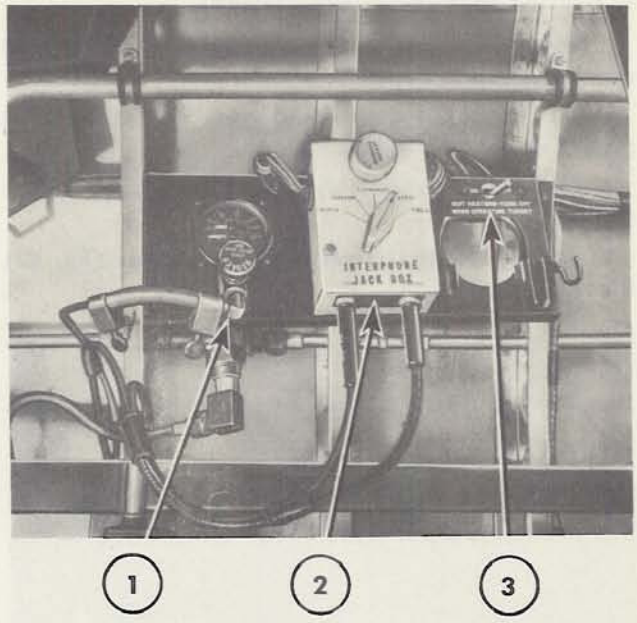
Figure 62—Upper Turret Seat Latch

f. Fire both guns by squeezing either trigger switch (fig. 59-3, 6). (B-26 individual fire.)

5. OTHER CONTROLS AND OPERATIONAL EQUIPMENT.

a. INTERPHONE.—Plug in (fig. 63-2). Switch operated by thumb on left grip (fig. 59-8).

b. CLUTCH LEVERS.—Located on motors for elevation (fig. 59-1) and for azimuth (fig. 59-5). When



1. Oxygen Regulator 2. Interphone Jack Box 3. Suit Heat Plug

Figure 63—Rear Gunner's Controls

either or both electric drives fail, release corresponding clutch lever and operate turret manually.

c. SUIT HEAT.—Plug in (fig. 63-3).

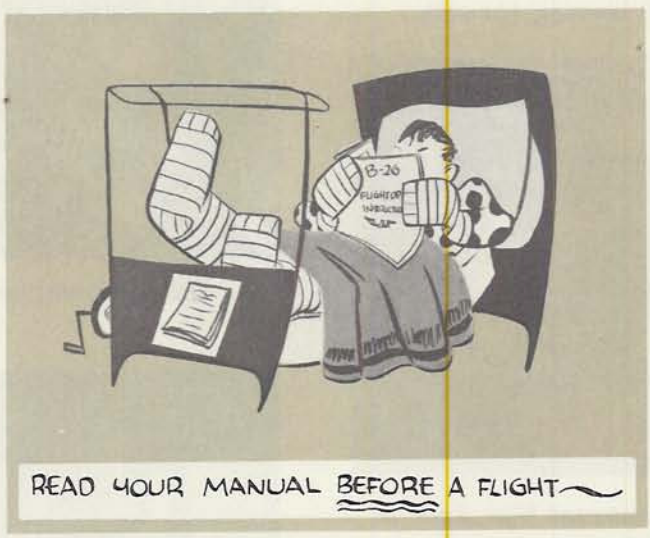
d. OXYGEN.—Connection (fig. 63-1).

e. ELEVATION AND AZIMUTH.—To turn turret, push against one grip and pull on the other. The grips will pivot and the turret will turn the same direction with a variable speed, according to the amount of pressure applied. To elevate guns, move either or both grips (they are inter-connected) by a twist of the wrist. Speed of elevation will also vary with the amount grips are moved. For diagonal motion of guns, use both movements together.

f. INTERRUPTORS.—Cams automatically open gun firing circuits whenever guns are aimed at vertical tail fin.

WARNING: Interruptors DO NOT protect propeller tips and wing tips.

g. EXTENSION LIGHT.—Right side of seat.



SECTION X
WAIST GUNNER

1. ACCESS TO COMPARTMENT.

ENTER through rear lower hatch, or through bomb bay. Compartment is located just aft of power turret, and forward of camera compartment. EXIT by lower hatch, side hatches or bomb bays during flight. On the ground, use normal lower hatch or navigator's upper exit. A hand axe is provided for emergency use.

2. ARMAMENT AND ARMOR PROTECTION.

Two side ports (one each side) each mount a .50 caliber flexible gun. A .50 caliber flexible gun is provided for fire to the rear through the lower hatch. Waist gunner will man the two side guns and act as relief for turret and tail gunners. Ammunition is stowed in separate container adjacent to guns.

3. ON ENTERING WAIST GUNNER'S COMPARTMENT.

a. Guns and ammunition stowed.

b. Check oxygen mask fitting to nipple (both right and left side).

4. OTHER CONTROLS AND OPERATIONAL EQUIPMENT.

a. INTERPHONE. — Conventional type. For detailed operating instructions, see Section V, par. 6.

b. SUIT HEATER.—Plug in on left side.

c. FIRE EXTINGUISHER. — CO_2, overhead (fig. 73-1).

d. EXTENSION LIGHT.—Overhead on right (fig. 73-6).

e. PARACHUTE STOWAGE. — Quick detachable parachutes are hung from the ceiling.

SECTION XI
CAMERA OPERATOR

1. ACCESS TO CAMERA COMPARTMENT.

ENTER through lower hatch or enter nose wheel well and go aft. This station is located just aft of the waist gunner's. EXIT DURING FLIGHT through lower hatch, side hatches, or bomb bay. EMERGENCY EXIT on water or ground through navigator's escape hatch. Use the hand axe if needed.

2. ARMAMENT AND ARMOR PROTECTION.

One flexible .50 caliber gun is provided for rearward fire through the lower hatch opening (tunnel).

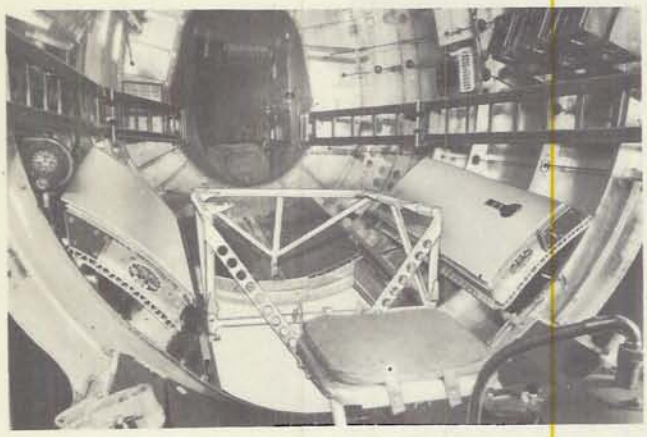


Figure 64—Camera Compartment With Rack in Position

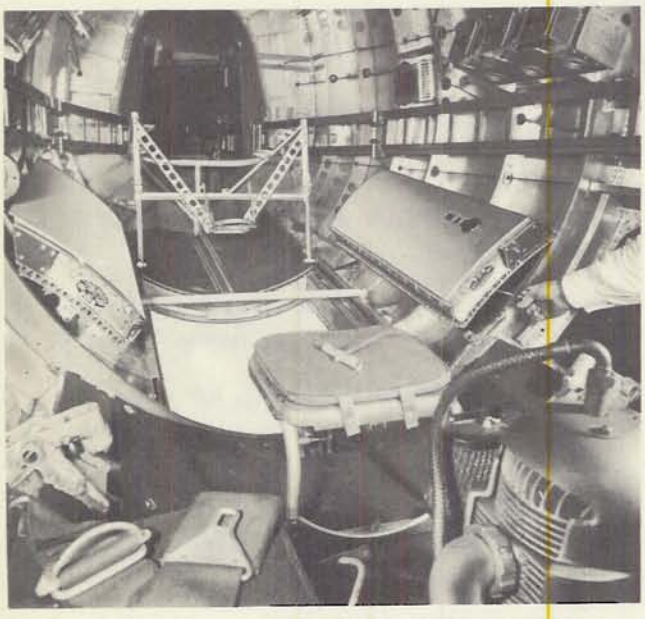


Figure 65—Camera Compartment With Hatch Doors Open

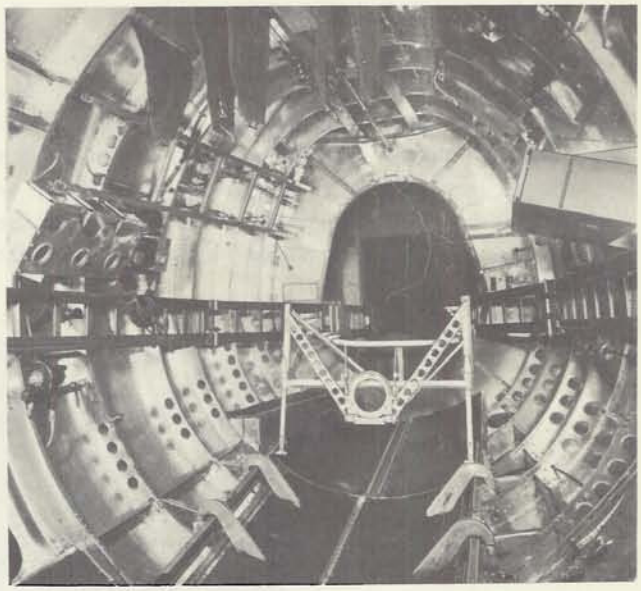


Figure 66—Camera Compartment With Rack Stowed

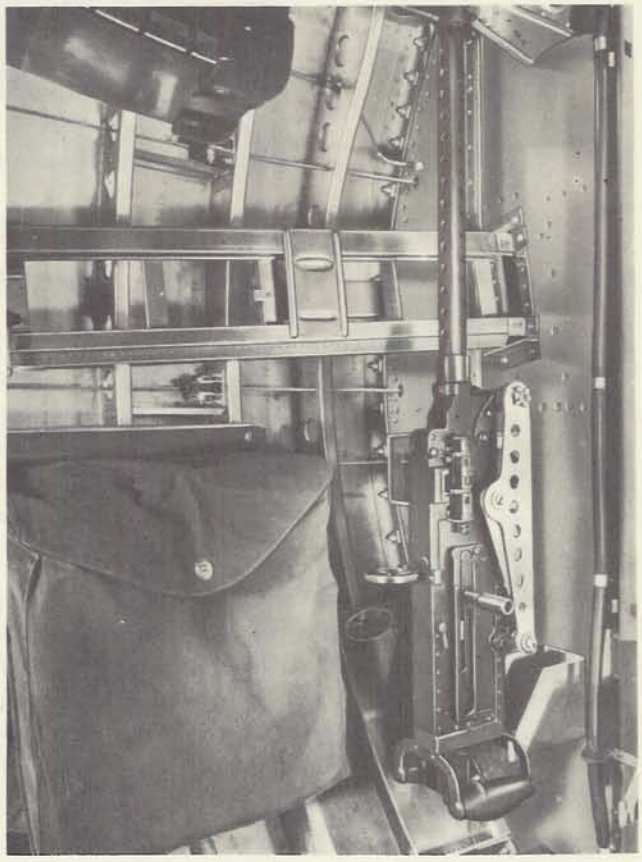


Figure 67—Camera Compartment Forward Left Side

3. CAMERA EQUIPMENT.

The four types of camera commonly used are:

Tactical mapping mission. Type T3.A.

Rapid reconaissance mapping mission. Type K-3B.

Oblique spotting and bomb recording mission (large scale). Type K7C.

High altitude mosaic and spotting mission (large scale). Type F-24.

An intervalometer is located on the right wall (fig. 68-2).

4. ON ENTERING CAMERA COMPARTMENT.

a. Portable light (fig. 73-6).

b. Check oxygen regulator fitting to mask (fig. 64-1).

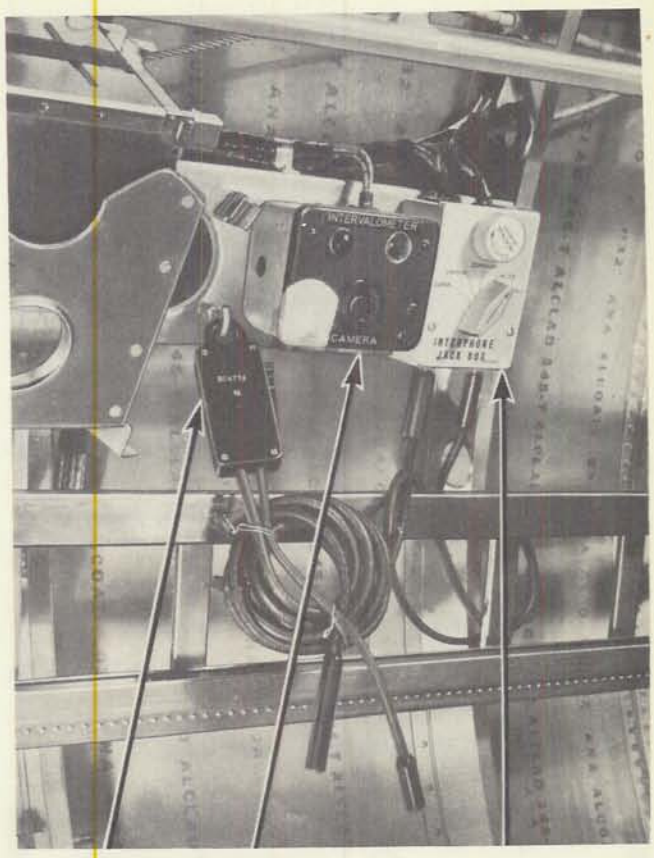
5. OTHER CONTROLS AND OPERATIONAL EQUIPMENT.

a. INTERPHONE.—Conventional. For detailed operating instructions, see Section V, par. 6.

b. OXYGEN.—Regulator on right side (fig. 64-1).

c. PARACHUTE STOWAGE. — Quick attachable parachutes are hung from the ceiling.

d. SUIT HEAT.—Left wall (fig. 64).



1. Microphone 2. Camera Intervalometer 3. Interphone Jack Box

Figure 68—Camera Compartment Right Side

SECTION XII
TAIL GUNNER

1. ACCESS TO TAIL GUNNER'S COMPARTMENT.

ENTER through the rear lower hatch. EXIT DURING FLIGHT through rear lower hatch or side hatches. EXIT ON GROUND OR WATER through navigator's escape hatch. Use the hand axe if needed.

CAUTION: Tail gunner's compartment must not be occupied during take-off and landing.

2. ARMAMENT AND ARMOR PROTECTION.

a. The tail gunner's compartment mounts a flexible unit of two Browning .50 caliber, Model M-2, machine guns.

b. Armor protection for the tail gunner is provided by armor plate installed on the two bulkheads between the gunner and the plastic tail cone. (Refer to fig. 70.)

3. ON ENTERING TAIL GUNNER'S COMPARTMENT.

a. Fasten safety belt.

b. INTERPHONE.—Plug in (fig. 72-2).

c. SUIT HEAT.—Plug in (fig. 71-1).

d. OXYGEN.—Connect (fig. 72-3).

4. CONTROLS AND OPERATIONAL EQUIPMENT.

a. AMMUNITION BOOSTER SWITCHES.—Turn on (fig. 71-2). Reset button for circuit breaker in navigator's compartment (fig. 38-2).

Figure 69—Exterior View of Tail Gunner's Compartment

b. GUN SAFETY SWITCHES.—Turn on.

c. TRIGGER SWITCHES.—Fire either or both guns by depressing individual switches.

d. EXTENSION LIGHT.—Switch (fig. 72-1).

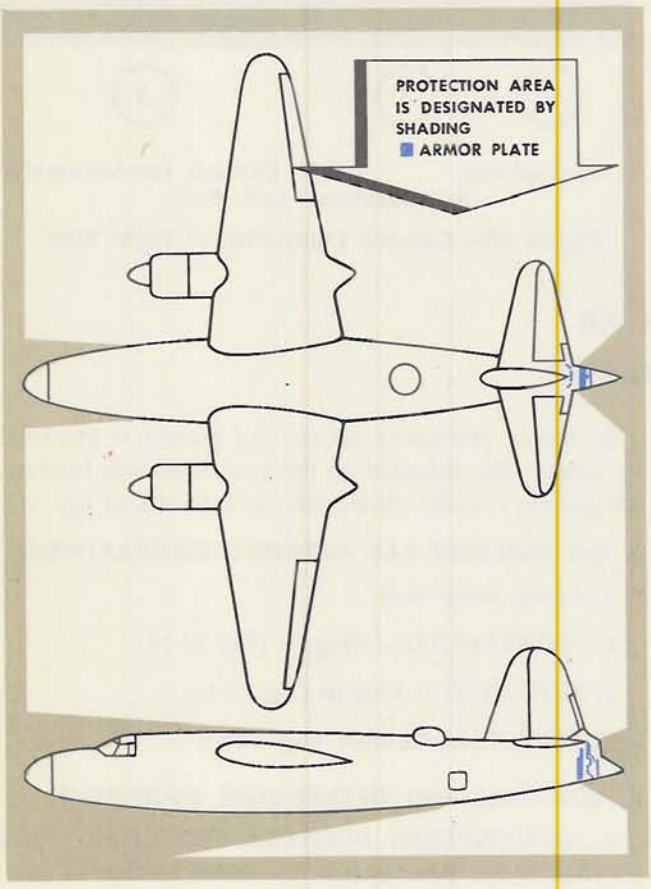
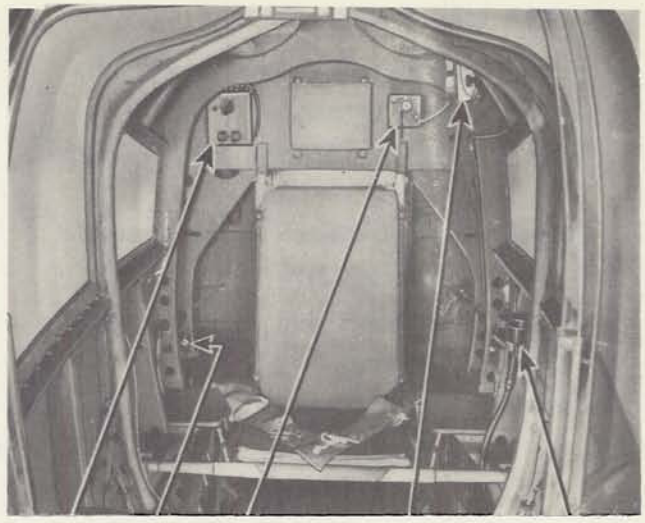


Figure 70—Tail Gunner's Armor Diagram

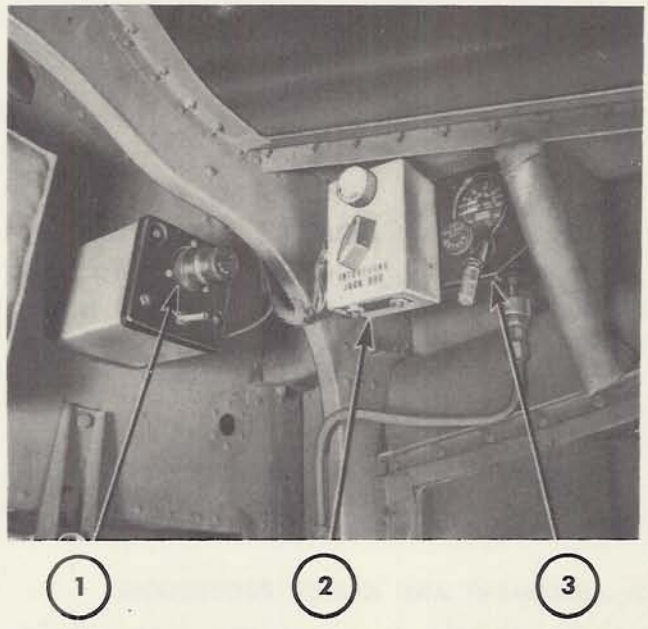


1. Suit Heat
2. Ammunition Booster Switches
3. Extension Light
4. Interphone Jack Box
5. Relief Tube

Figure 71—Tail Compartment Interior

e. RELIEF TUBE PROVIDED (fig. 71-5).

NOTE: To reach rear window catches, release wing nut on lower part of armor plate and slide same to one side.



1. Extension Light
2. Interphone Jack Box
3. Oxygen Regulator

Figure 72—Tail Compartment Right Side

SECTION XIII
AUXILIARY POWER PLANT

1. DESCRIPTION.

When there is an auxiliary power plant installed, it is located in waist gunner's compartment forward of rear entrance hatch. It is a completely self-contained power unit with its principal function to provide additional current for starting engines or charging the airplane batteries. Use battery cart for ground testing.

2. BEFORE STARTING ENGINES.

Check with pilot to see if external battery cart will be used. It not, auxiliary power plant must be in operation when engine starters are energized.

3. OPERATIONAL EQUIPMENT.

a. ENGINE AND GENERATOR.—One cylinder, four cycle, magneto ignition engine furnishes power. Speed is regulated automatically by a governor. No throttle is provided. Engine is directly coupled to a 28½ v., 2000 watt D.C. generator.

b. FUEL SUPPLY.—Mix thoroughly ½ pt AN9532 grade 1065 oil with each gallon 90-100 octane gasoline *before* pouring fuel into tank. (A measuring cup is attached to gas tank cap. Four measures = ½ pt.)

EMERGENCY FUEL SUPPLY: Obtain fuel from the auxiliary hand pump (fig. 49). (Refer to front bomb bay instructions for source of emergency fuel.)

c. EQUALIZER SWITCH.—Equalizer is used to balance output between generators. Whenever both auxiliary and main engine generators are charging *equalizer switch must be "ON."* If not "ON," a generator probably will be burnt out.

4. OPERATION.

a. STARTING POWER PLANT.

(1) Airplane master switch "ON" (fig. 25-19).

(2) Battery master switches "ON" (fig. 25-17).

(3) Equalizer switch "OFF" (fig. 73-11).

(4) Fuel shut-off valve "ON" (fig. 73-15).

(5) CHOKE by pulling plunger button of priming cup (fig. 73-13) all the way up and releasing. Repeat two or three times. In cold weather, operate the plunger five to eight times.

(6) Depress switch (fig. 73-12) on control box and release as soon as engine starts. For hand starting, wind starting rope around hub of fly wheel in direction of arrow and give the rope a quick, hard pull.

COLD WEATHER: If the engine falters after starting, operate priming pump at short intervals until the engine runs smoothly.

FLOODING: If the engine will not start or fails to run after starting, it may be flooded. Open crankcase drain cock and turn engine over a few times with starter. Close drain cock and press starting switch again if the engine has not already started.

b. CHARGING BATTERIES. — Equalizer switch "OFF" (fig. 73-11) unless speed of either or both airplane engines exceeds 1500 rpm. If either engine turns 1500 rpm or over, place equalizer switch "ON."

c. STOPPING POWER PLANT.

(1) Turn fuel supply valve "OFF." Engine will stop in about ½ minute.

(2) Equalizer switch "OFF."

(3) If desired to restart soon or for emergency stopping, STOP by pressing red button (fig. 73-14).

NOTE: Always stop auxiliary power plant after airplane is in normal flight.

d. ADJUSTING VOLTAGE REGULATOR.

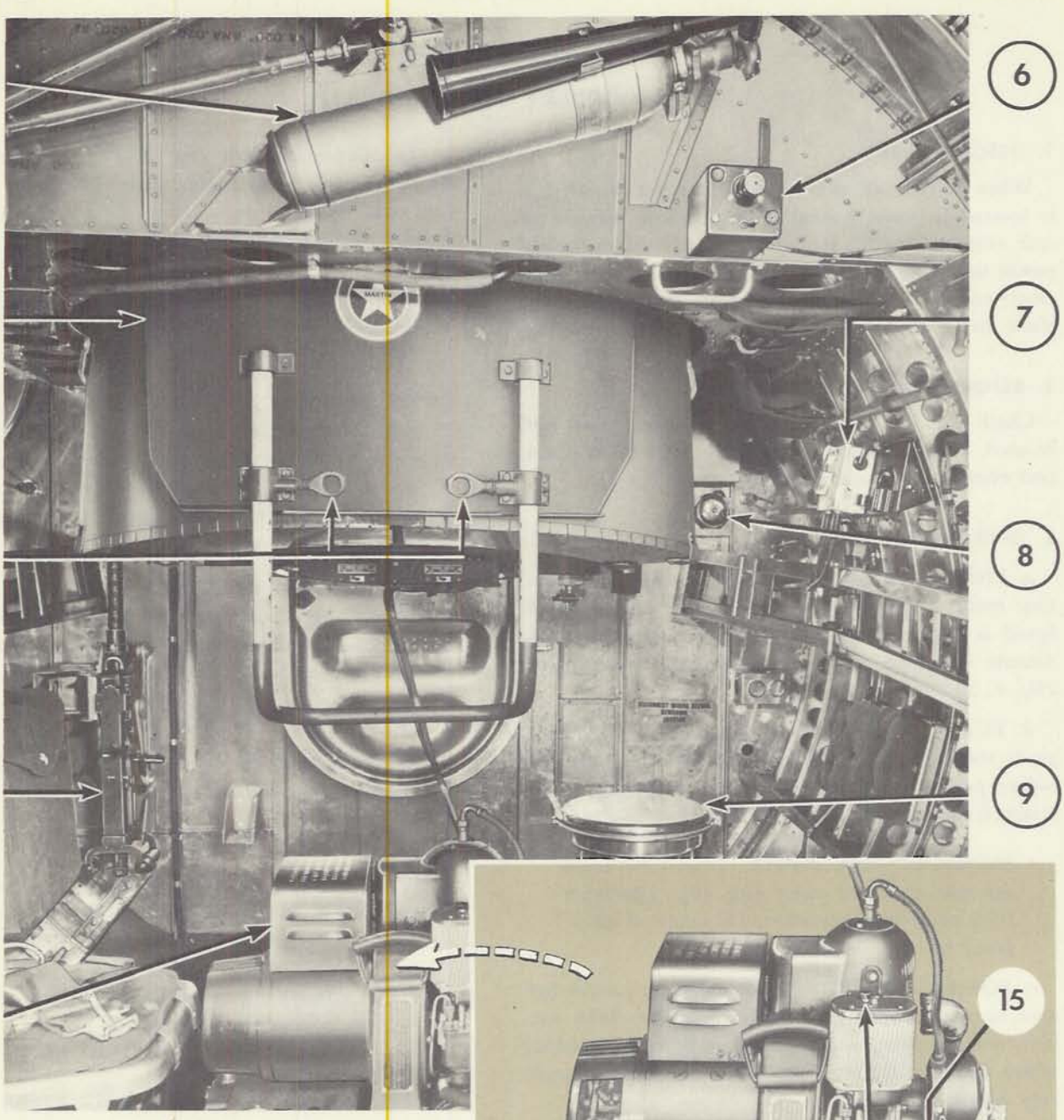
(1) Remove four No. 8 Parker Kaylon screws sesuring cover (the one with wording on the top) and lift cover straight up.

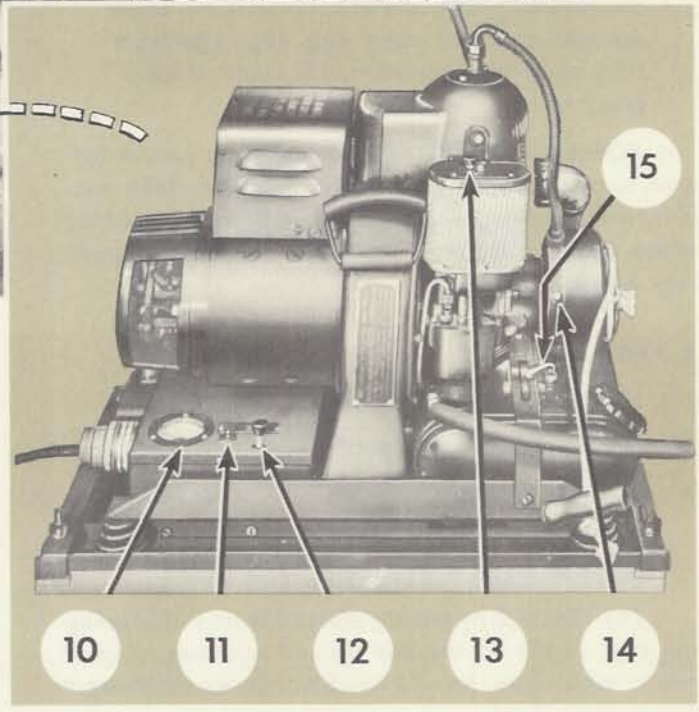
(2) Airplane engines STOPPED. Auxiliary power plant ON.

(3) Equalizer switch "OFF."

(4) Turn knurled knob clockwise to increase, counterclockwise to decrease voltage. Adjust to 28½ volts (red line on face of voltmeter) (fig. 73-10).

(5) Replace cover.





1. CO_2 Fire Extinguisher
2. Upper Turret
3. Foot Rest Adjustment
4. Machine Gun
5. Auxiliary Power Unit
6. Extension Light
7. Interphone Jack Box
8. Alarm Bell
9. Toilet
10. Voltmeter
11. Equalizer Switch
12. Starter Switch
13. Priming Pump Switch
14. Stopping Button
15. Fuel Shut-Off Valve

Figure 73—Auxiliary Power Unit

ADJUSTMENT DURING FLIGHT: (If voltmeter indicates generator needs adjustment.) Equalizer switch *must be "ON."*

e. ELECTRICAL EMERGENCY.—If in flight the main generators have failed, the auxiliary power plant may be used for current.

(1) Descend to 10,000 ft or less.

(2) Start auxiliary power plant.

(3) Equalizer "OFF."

(4) Use only MINIMUM current needs.

APPENDIX I

1. INSTRUCTIONS FOR USING THE LOAD ADJUSTER.

a. The following instructions and sample problem are published as condensed instructions for the information and guidance of all personnel using a LOAD ADJUSTER to determine change in balance from the basic airplane to the loaded airplane as flown, and to insure that the weight distribution of all items loaded above and beyond the basic airplane weight and balance will not produce a dangerous flying condition.

b. APPLICATION OF THE LOAD ADJUSTER.—A LOAD ADJUSTER will be found in its carrying case located on a mounting hook adjacent to the data case.

CAUTION: The airplane model designation stamped on every load adjuster indicates that the instrument may be used for balance calculations on any A.A.F. airplane of that particular model. However, the *INDEX* figure entered on the carrying case identification card is correct and applicable *only* for the specific airplane serial number printed directly above, and represents the balance index of only that one individual basic airplane.

c. OPERATING INSTRUCTIONS.

(1) The following instructions will illustrate and clarify operation of the load adjuster in predetermining gross weight and balance conditions prior to flight and any changes that may occur thereafter.

(a) The SUMMARY column on the WEIGHT AND BALANCE CLEARANCE lists the weight and location of all items loaded over and above the basic airplane and its fixed equipment.

(b) The load adjuster carrying case identification card lists the *basic* airplane weight and index figure. These figures are the *starting* values to which all items of variable load are added in accordance with the following instructions, and the result of the computation will inform the pilot what to expect in balance and airplane performance *before* he takes off.

(2) To Determine Gross Weight. — Add the weights of all items loaded in the airplane to the basic weight figure entered on the load adjuster carrying case identification card. This summary may be checked against the summary section of the Weight and Balance Clearance. If the Weight and Balance Clearance is not available, check the items loaded with the loading crew or by direct inspection of the airplane, and add them together on a separate piece of paper. The following list is a typical loading, and will be used as a sample in these instructions:

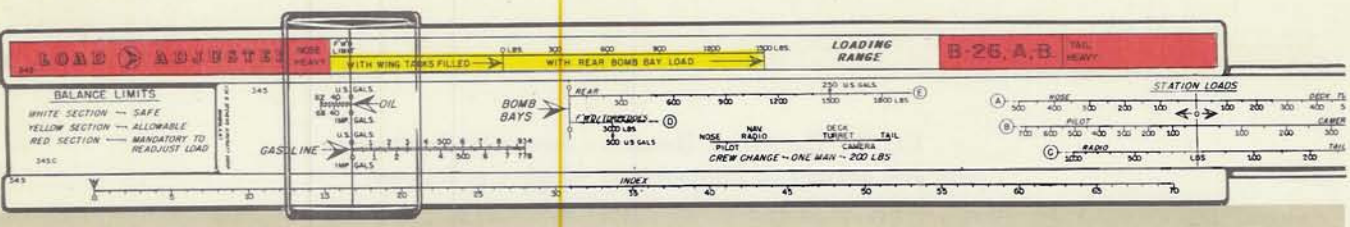
ITEM	UNIT WEIGHT	TOTAL WEIGHT
Basic Airplane		23,860
Oil (42 U.S. gal)		315
Gasoline (500 U.S. gal)		3,000
Forward Bomb Bay (Bombs or Torpedo)		2,500
Rear Bomb Bay		1,200
Nose Compartment (A):		
Bombardier	200	
Ammunition	240	
Bomb sight and brief case	60	
		500
Pilot's Compartment (B):		
Pilot and Copilot	400	
Brief case, maps, and side arms	75	
		475
Radio Station (C):		
Operator	200	
Brief case and personal instruments	50	
		250
Deck Turret (F):		
Gunner	200	
Ammunition (800—.50 cal)	240	
		440
Camera Station (G):		
Operator	200	
Camera and equipment	75	
		275
Tail Gunner (H):		
Operator	200	
Ammunition (650—.50 cal)	195	
		395
Total Gross Load		33,210

(3) To Determine Balance.—Secure load adjuster and add balance of compartment weights as follows:

CAUTION: The "INDEX" value shown on the load adjuster carrying case identification card is applicable *only* to the A.A.F. airplane whose *serial number* appears at the top of the identification card.

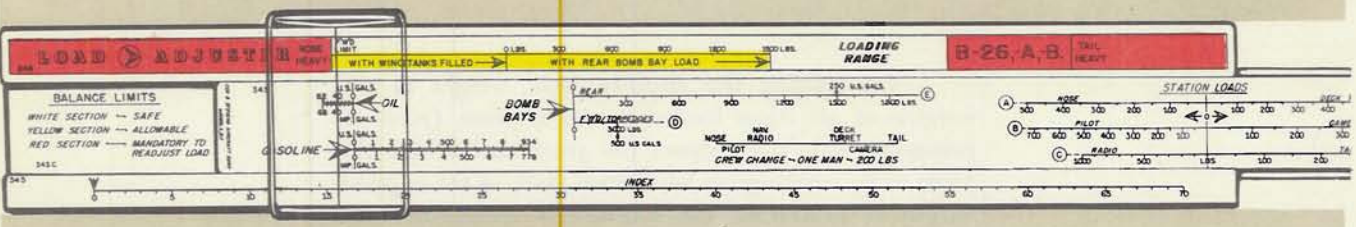
(a) Adding the airplane basic weight to the weights of all items loaded in the airplane (refer to paragraph 1, *c,* (2)) shows the gross load of the airplane to be within gross load limits, and, as far as gross weight is concerned, the airplane is satisfactory for flight. Adding the indices (balance moment) of all items loaded in the basic airplane to the original basic airplane index shows the total loaded airplane index to fall at 47.8. This is well within balance limits as indicated on the extreme upper "LOADING RANGE" scale of the "LOAD ADJUSTER," and the airplane is satisfactory for flight. If the loaded airplane had balanced anywhere within the tail-heavy red-colored section, or on the nose-heavy side of the aft limit in the yellow section labeled "WITH REAR BOMB BAY LOAD," it would have been necessary to readjust the load or carry sufficient ballast to bring the indicator hairline within the "LOADING RANGE" limits. It is permissible to shift miscellaneous cargo baggage or other items within the airplane to make final balance fall within approved limits. The load adjusting instrument is exceedingly simple to operate, equally accurate, and the airplane should be loaded as it indicates.

CAUTION: DO NOT SHIFT OR DISPOSE of any load without first predetermining (by use of the load adjuster) that the airplane balance will remain within limits *after* the change is made.



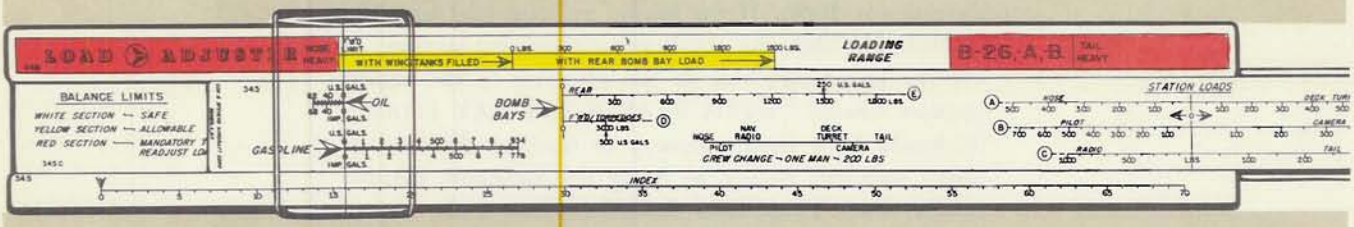
VIEW A

(*a*) Set *indicator* to basic airplane index 16.8 (secure from load adjuster carrying case identification card) and move *slide* to the zero mark on the "OIL" scale as illustrated in view A.



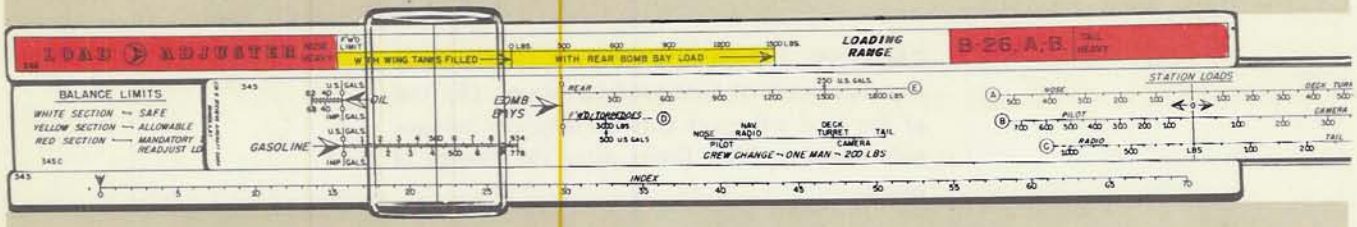
VIEW B

(*b*) Move indicator until its center line is over 42 on the "U. S. GALS." scale. This adds the balance moment of 42 gallons of oil as loaded in the airplane's oil tanks, and will move the index to 15.8 as illustrated in view B.



VIEW C

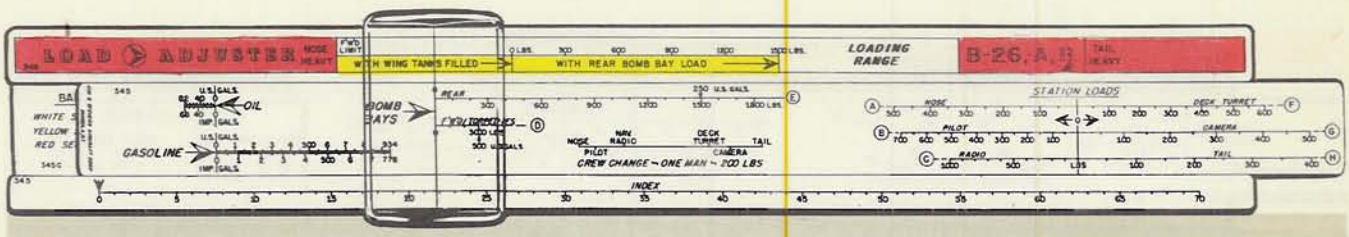
(*c*) Set slide to the zero mark on the "GASOLINE" scale as illustrated in view C. Move indicator until its center line is over 500 on the "U. S. GALS." scale.



VIEW D

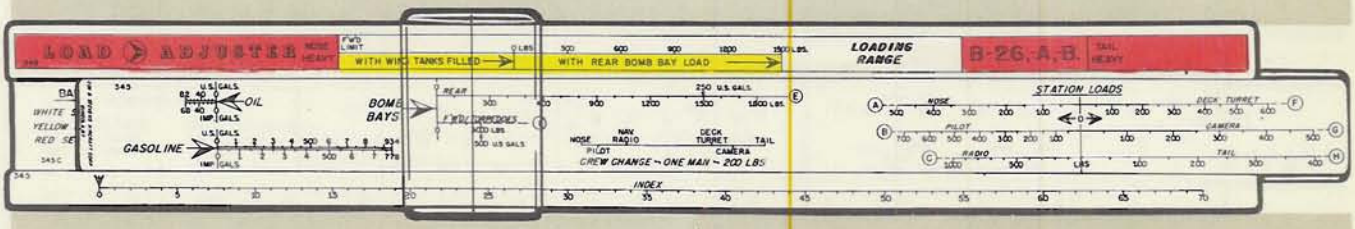
(*d*) This adds the balance moment of 500 U. S. gallons of gasoline as loaded in the airplane's tanks, and moves the index to 21.8 as illustrated in view D.

Figure 74—Load Adjusters



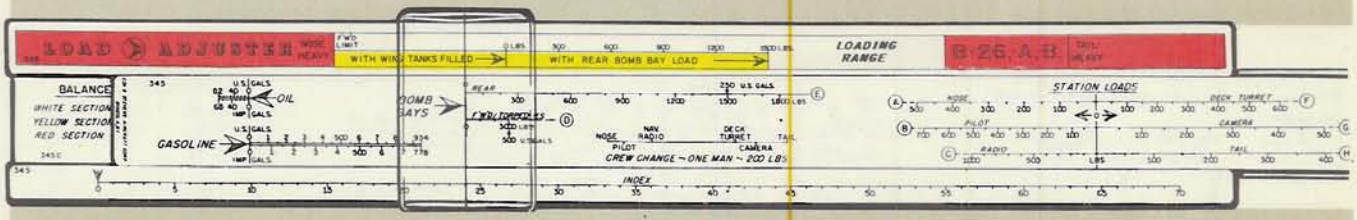
(*e*) Set slide to the zero mark on the "BOMB BAYS" scale as illustrated in view E. Move indicator until its center line is over 2,500 pounds on the "F'W'D/TORPEDOES" (D scale).

VIEW E



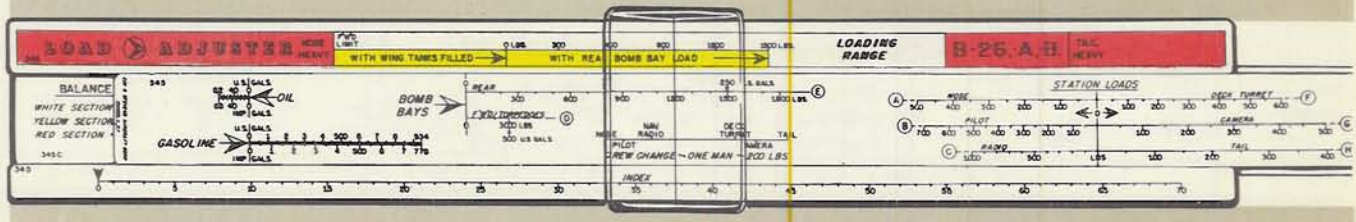
(*f*) This adds the balance moment of 2,500 pounds weight as loaded in the Forward Bomb Bay Compartment, and moves the index to 24.1 as illustrated in view F.

VIEW F



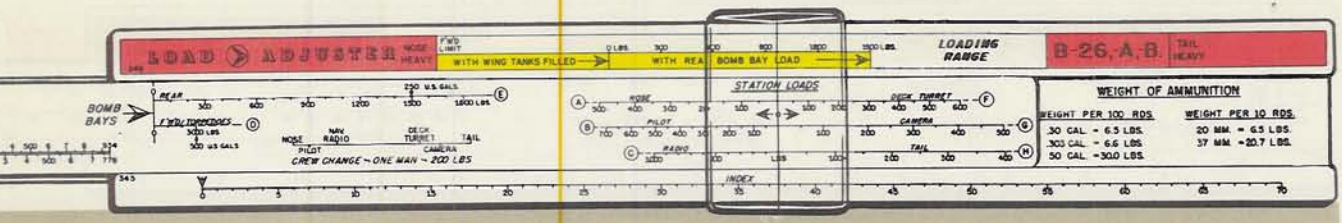
(*g*) Set slide to the zero mark on the "BOMB BAYS" scale as illustrated in view G. Move indicator until its center line is over 1200 on the "REAR" E scale.

VIEW G



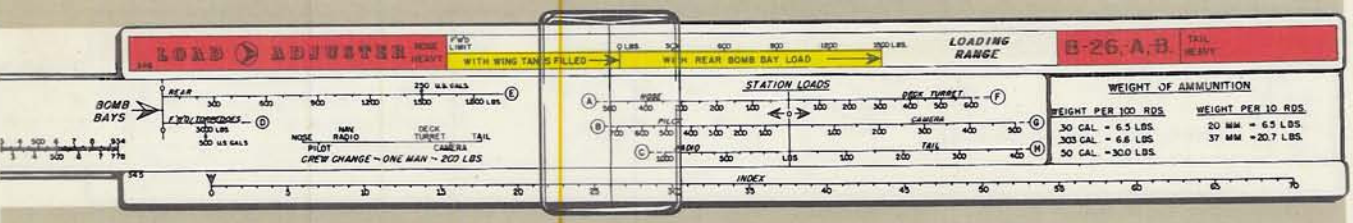
(*h*) This adds the balance moment of 1,200 pounds weight as loaded in the rear bomb bay compartment, and moves the index to 37.6 as illustrated in view H.

VIEW H



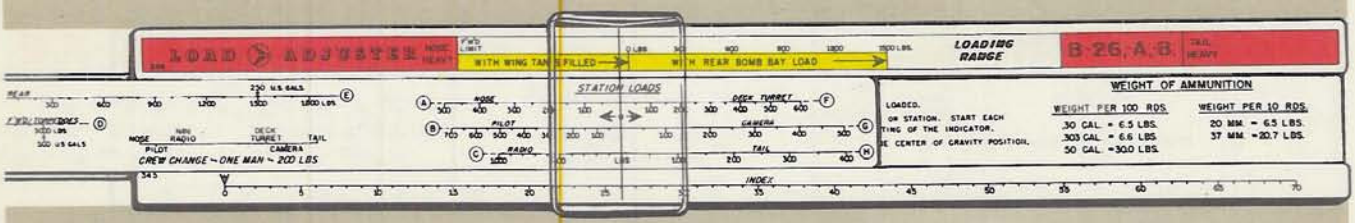
VIEW I

(*i*) Set slide to the "STATION LOADS" zero line as illustrated in view I. Move indicator until its center line is over 500 on the "NOSE" A scale.



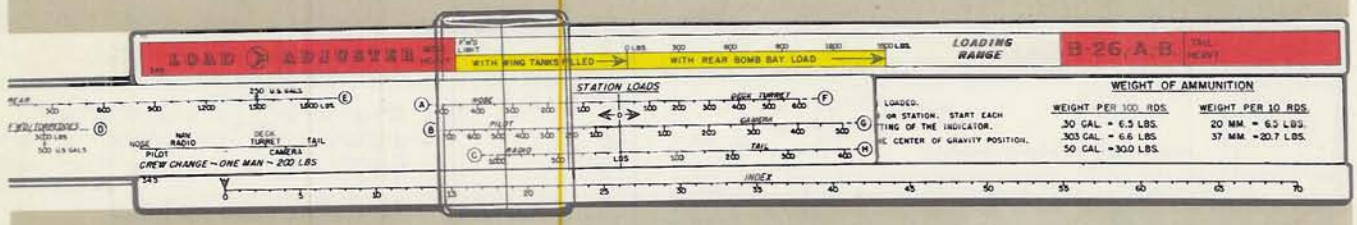
VIEW J

(*j*) This adds the balance moment of 500 pounds weight as loaded in the nose compartment, and moves the index to 26.1 as illustrated in view J.



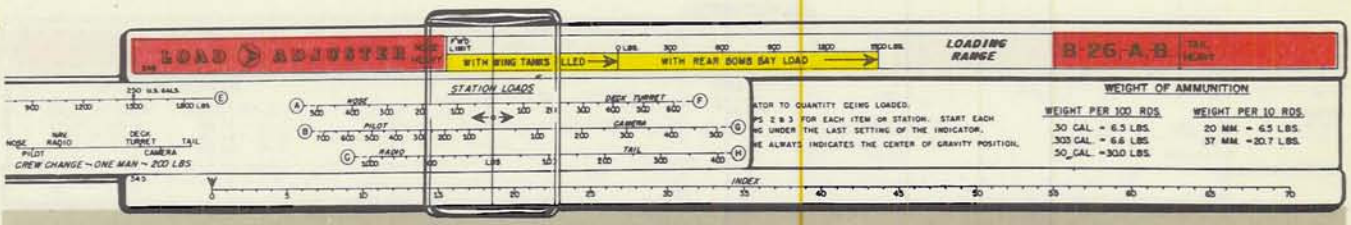
VIEW K

(*k*) Set the slide to the "STATION LOADS" zero line as illustrated in view K. Move indicator until its center line is over 475 on the "PILOT" B scale.



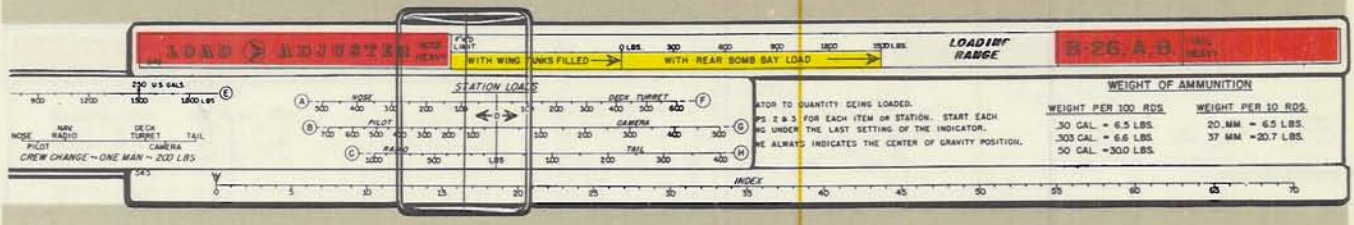
VIEW L

(*l*) This adds the balance moment of 475 pounds of weight as loaded in the pilot's compartment, and moves the index to 18.5 as illustrated in view L.



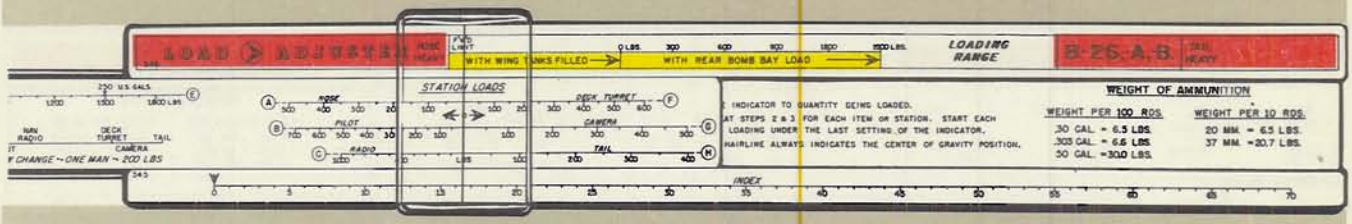
(*m*) Set slide to the zero mark on the "STATION LOADS" zero line as illustrated in view M. Move indicator until its center line is over 250 on the "RADIO" C scale.

VIEW M



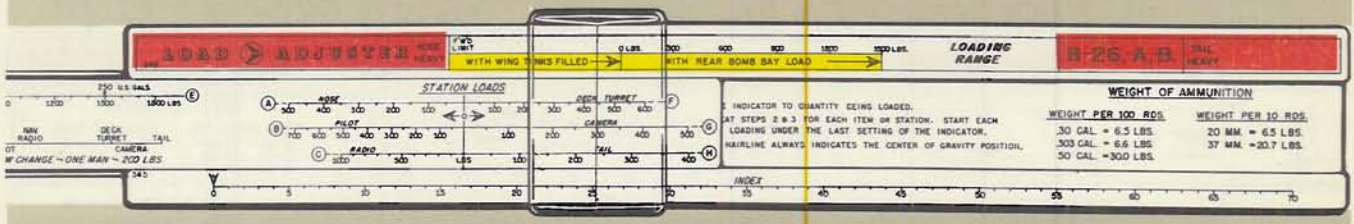
(*n*) This adds the balance moment of 250 pounds of weight as loaded in the radio compartment, and moves the index to 16.5 as illustrated in view N.

VIEW N



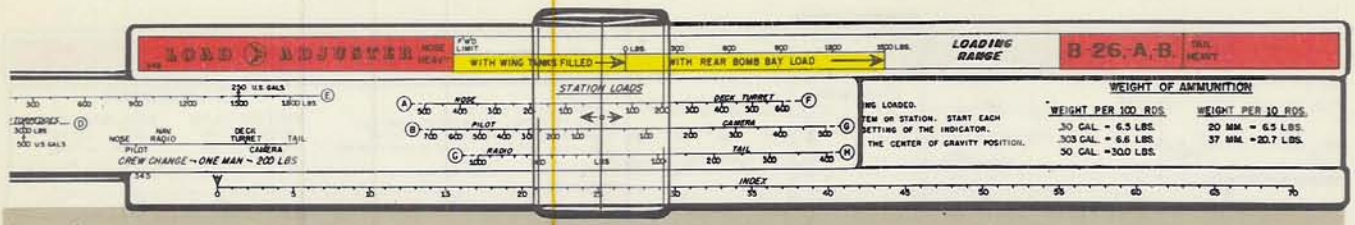
(*o*) Set slide to the zero mark on the "STATION LOADS" zero line as illustrated in view O. Move indicator until its center line is over 440 on the "DECK TURRET" F scale.

VIEW O



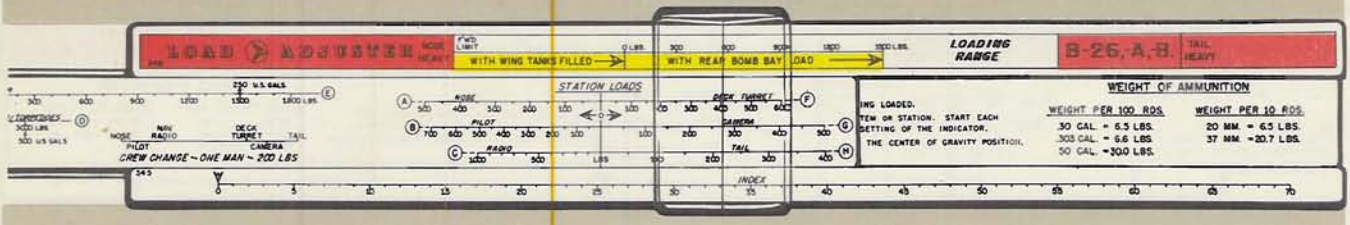
(*p*) This adds the balance moment of 440 pounds of weight as loaded in the deck turret compartment, and moves the index to 25.2 as illustrated in view P.

VIEW P



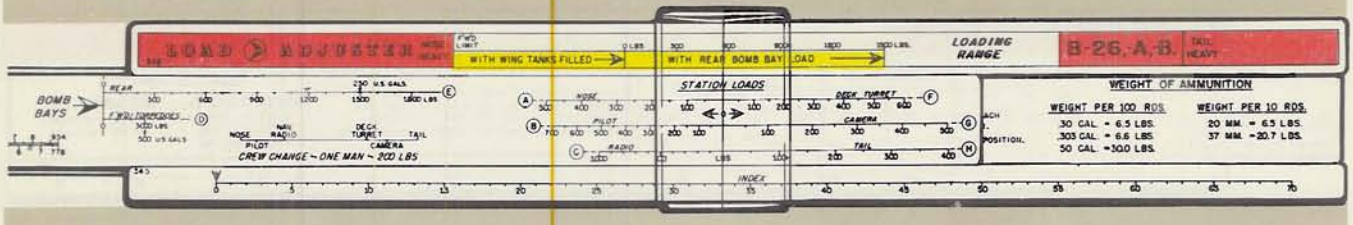
VIEW Q

(*q*) Set slide to the zero mark on the "STATION LOADS" zero line as illustrated in view Q. Move indicator until its center line is over 275 on the "CAMERA" G scale.



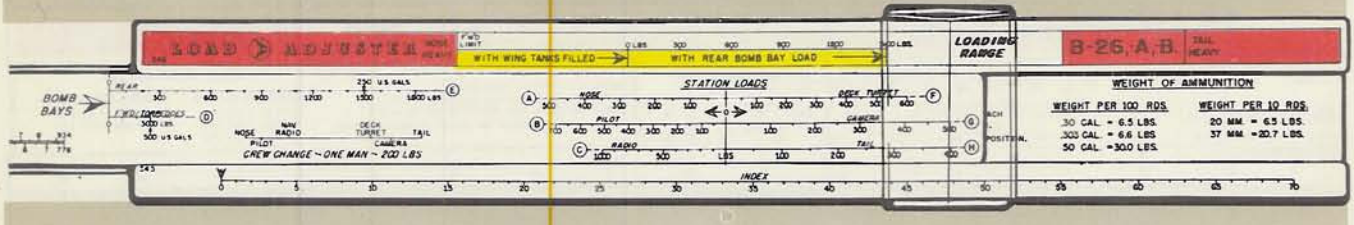
VIEW R

(*r*) This adds the balance moment of 275 pounds of weight as loaded in the camera station, and moves the index to 33.2 as illustrated in view R.



VIEW S

(*s*) Set slide to the zero mark on the "STATION LOADS" zero line as illustrated in view S. Move indicator until its center line is over 395 on the "TAIL" H scale.



VIEW T

(*t*) This adds the balance moment of 395 pounds of weight as loaded in the tail compartment, and moves the index to 47.8 as illustrated in view T.

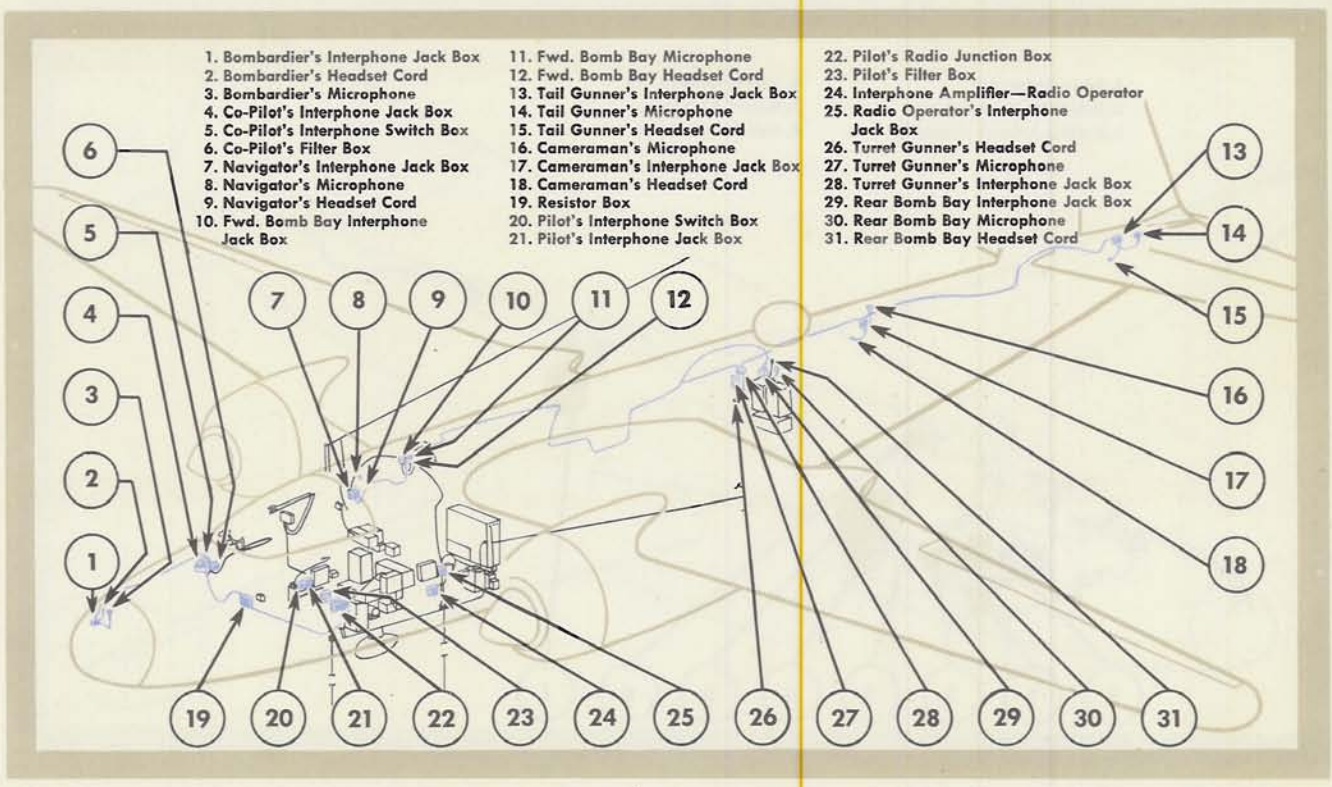


Figure 75—Interphone Installation B-26

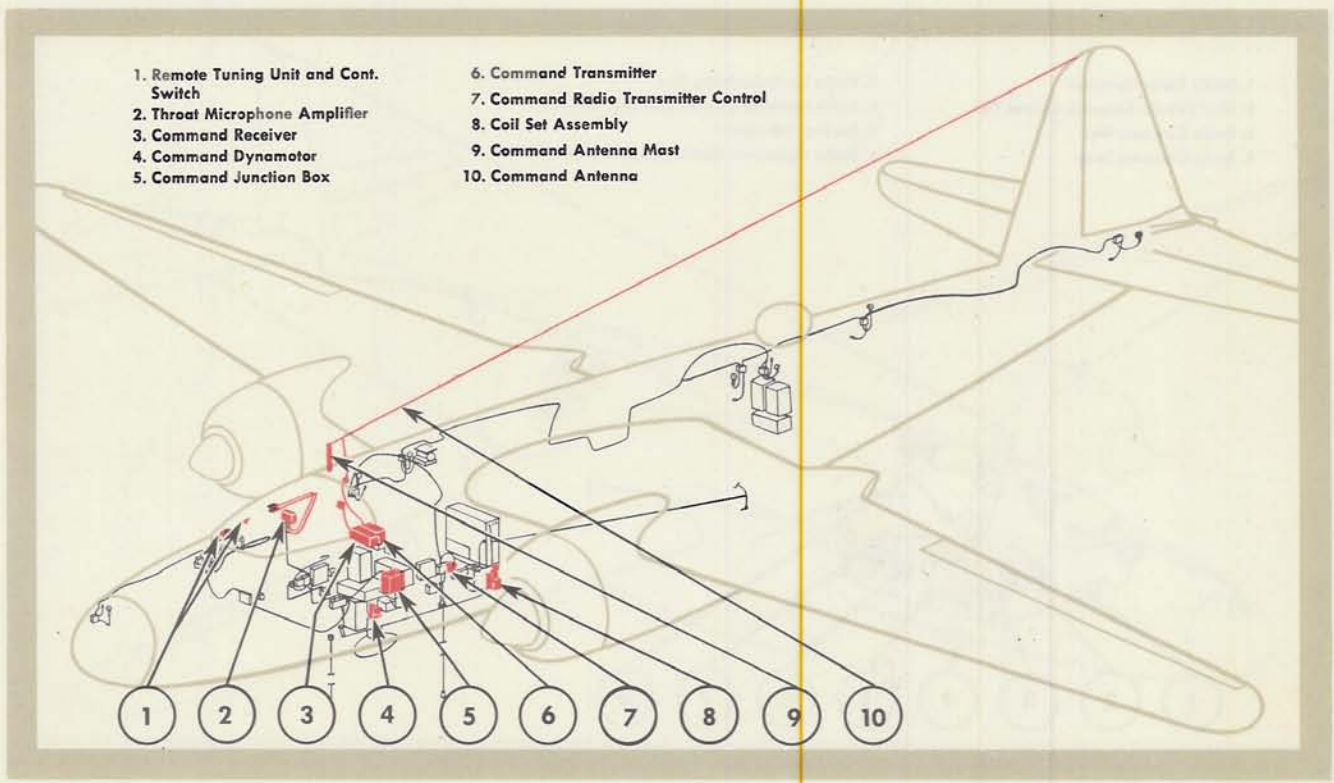


Figure 76—Command Set Installation B-26

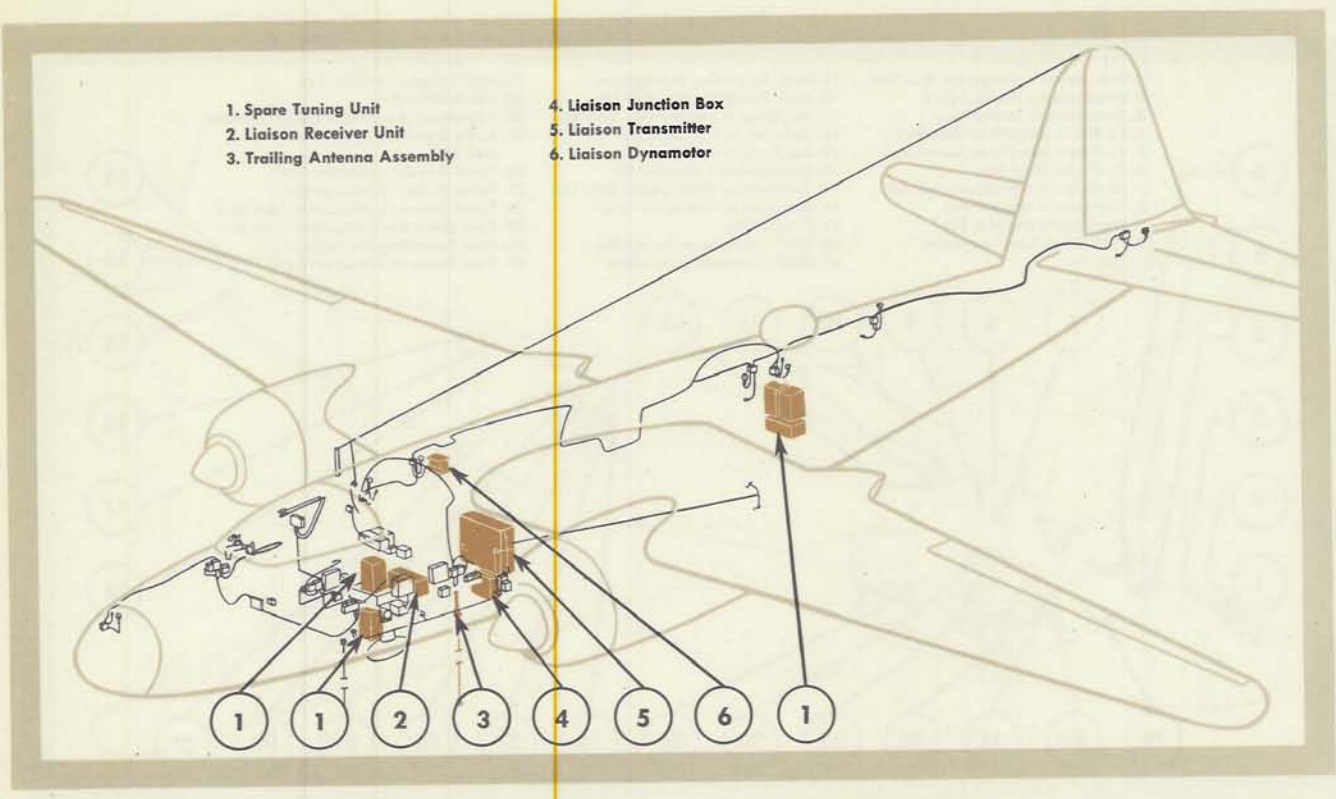


Figure 77—Liaison Set Installation B-26

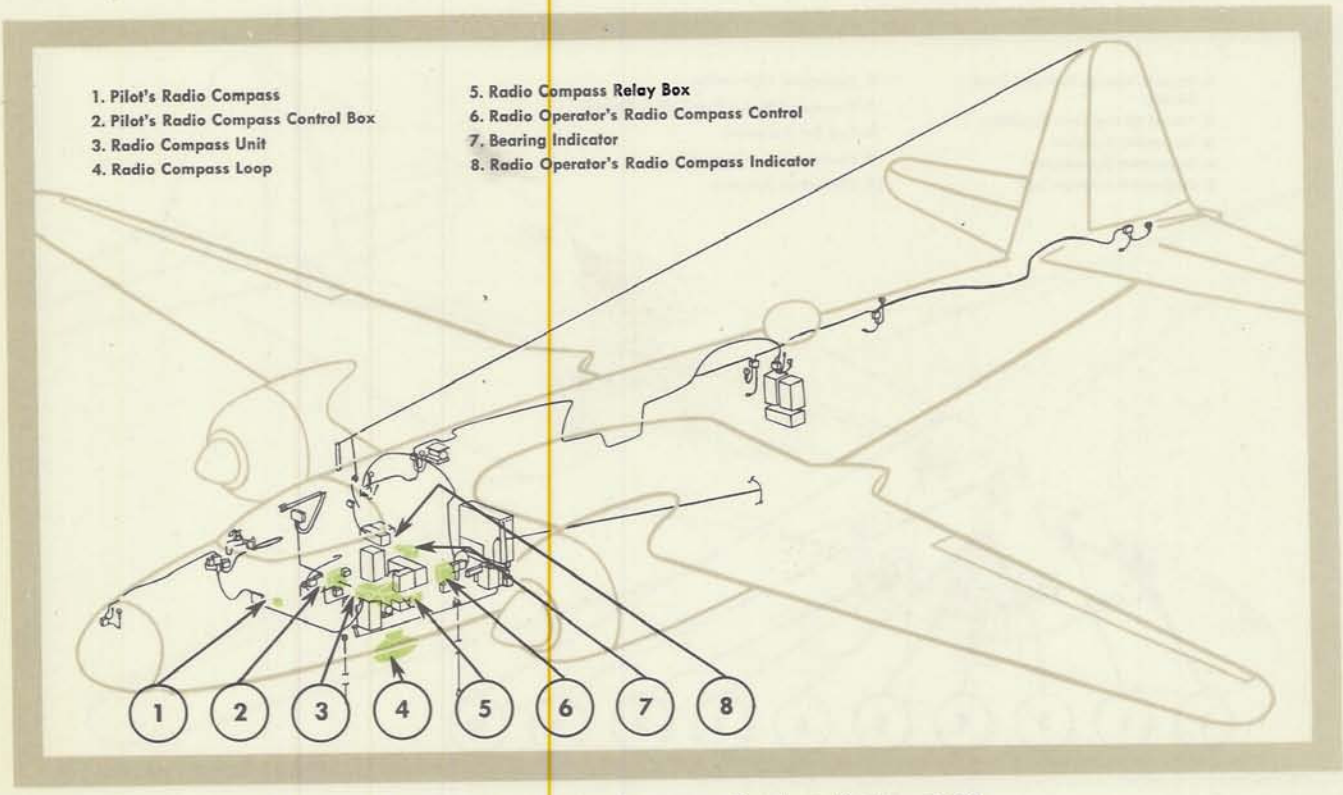


Figure 78—Radio Compass Set Installation B-26

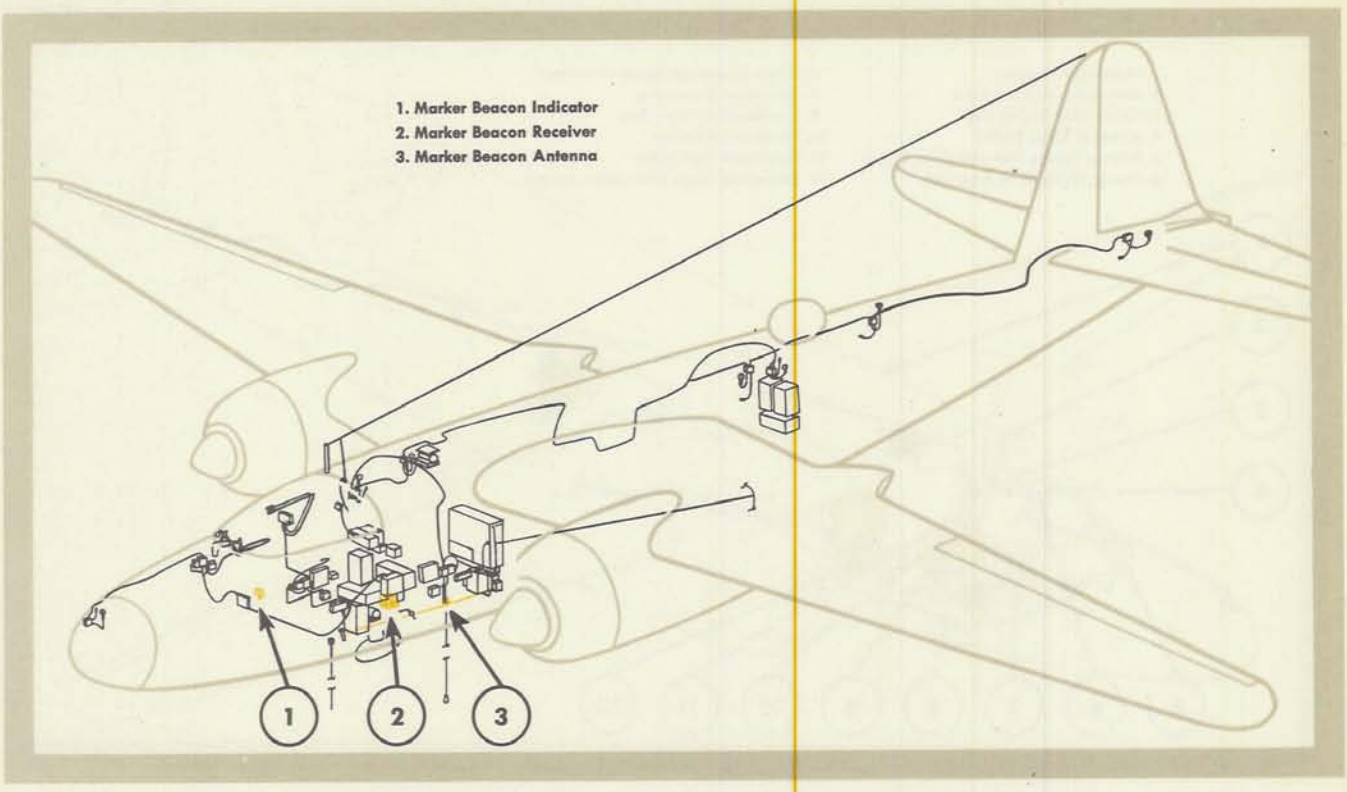


Figure 79—Marker Beacon Set Installation B-26

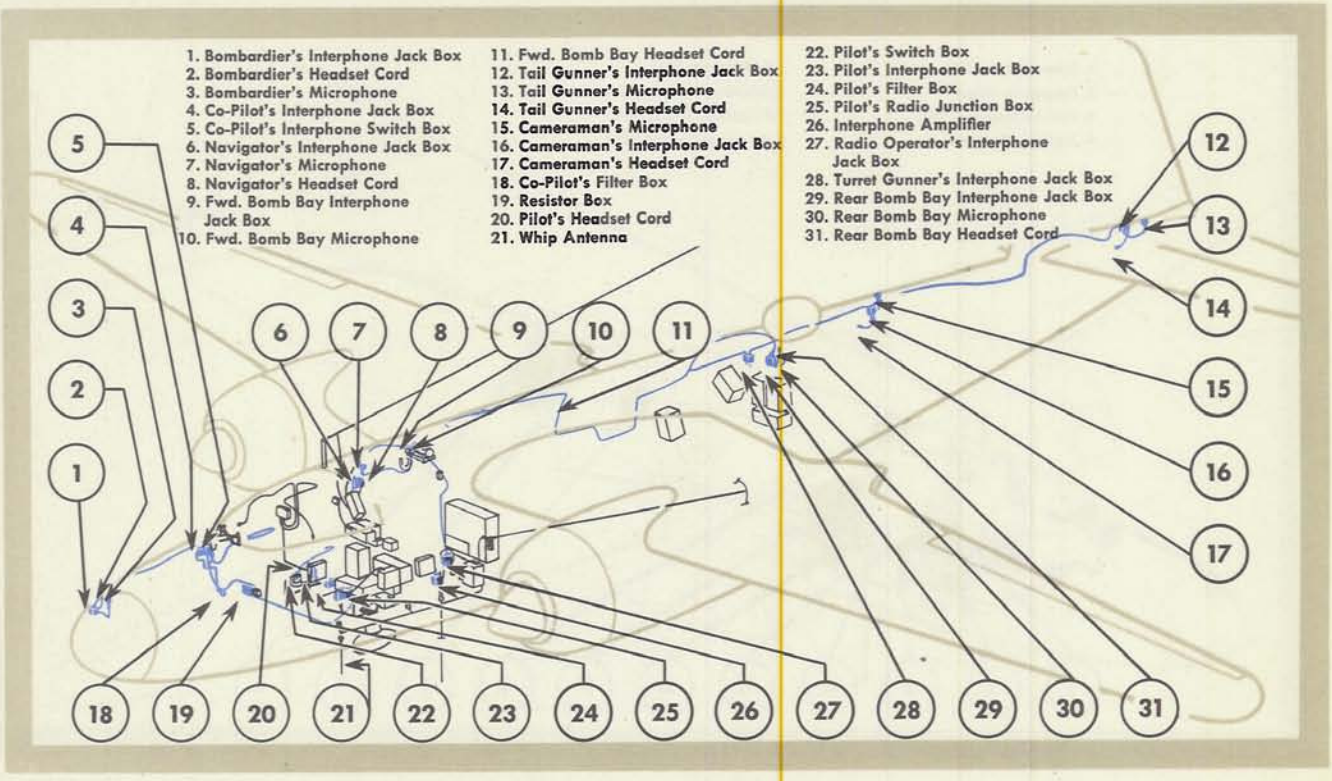


Figure 80—Interphone Installation B-26 A&B

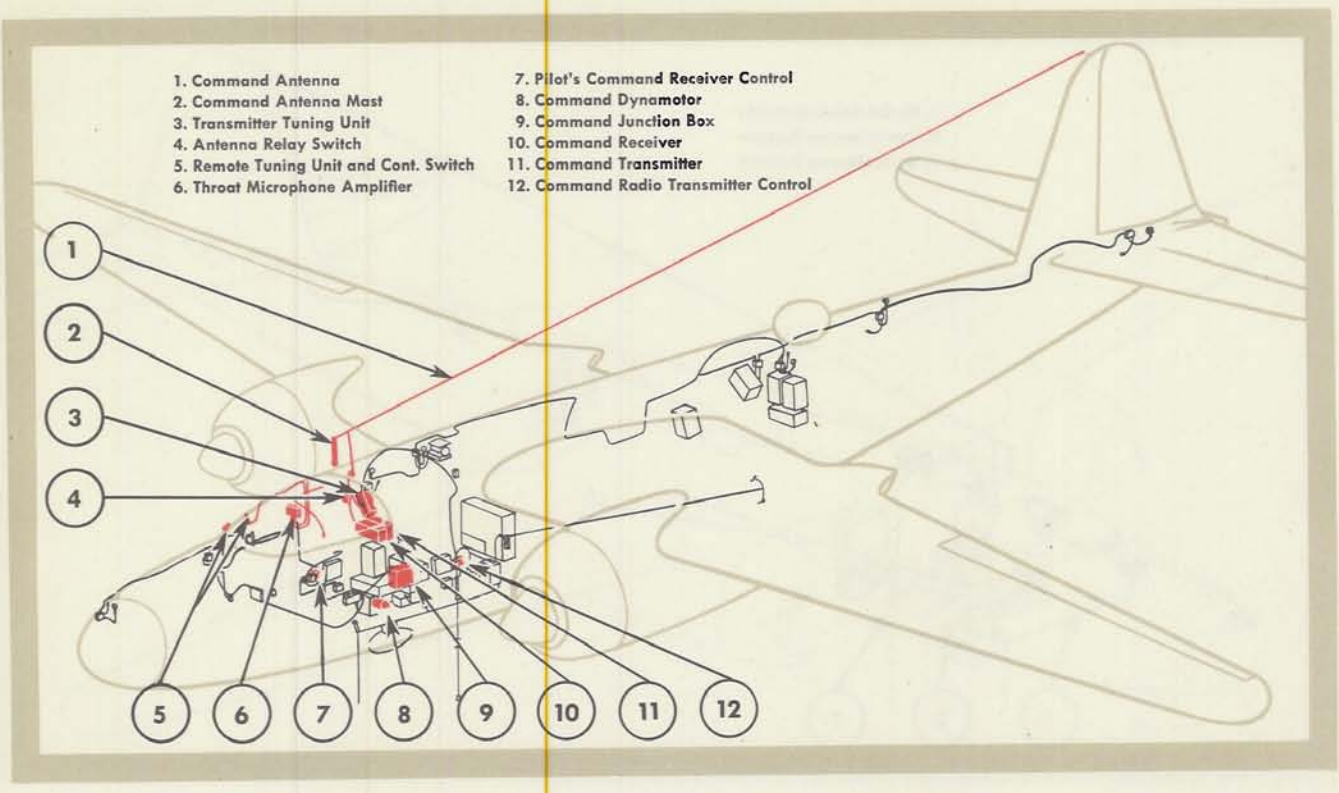


Figure 81—Command Set Installation B-26 A&B

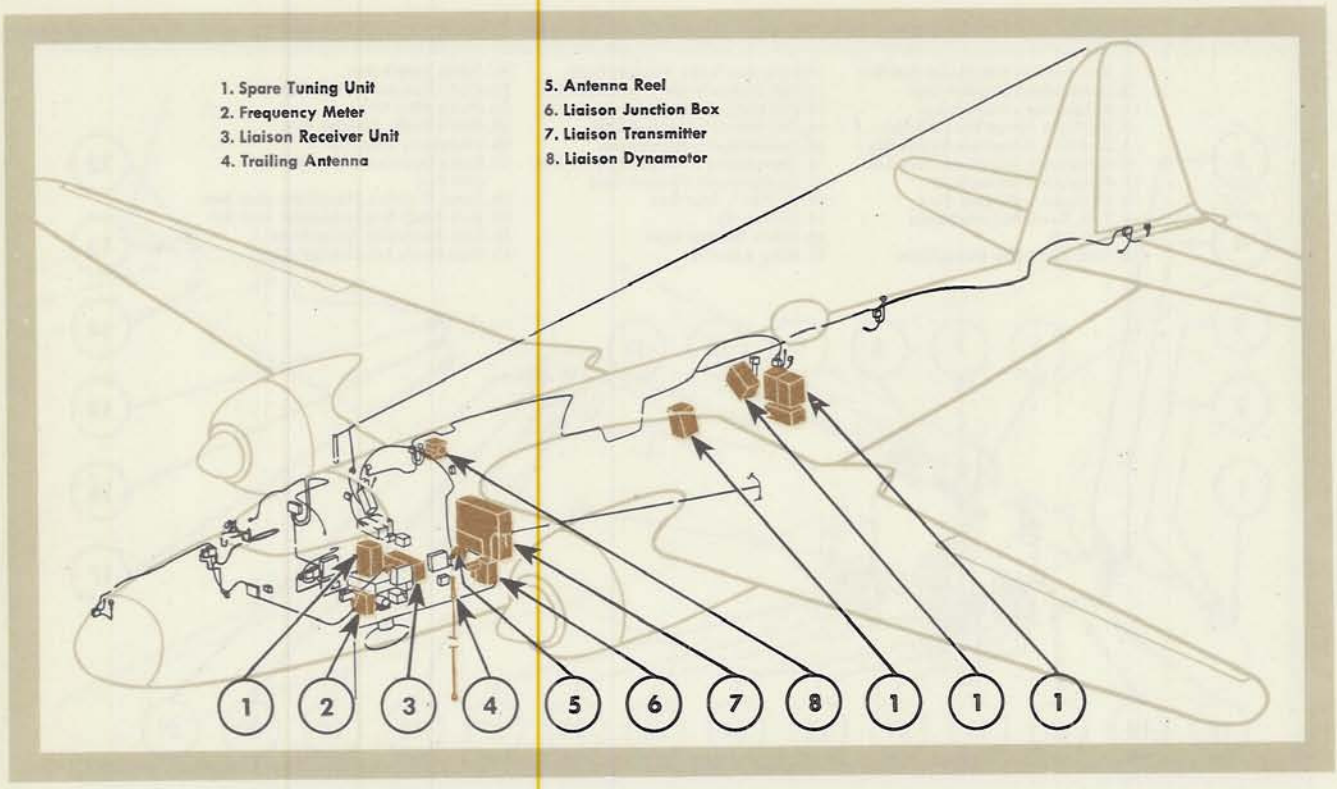


Figure 82—Interphone Installation B-26 A&B

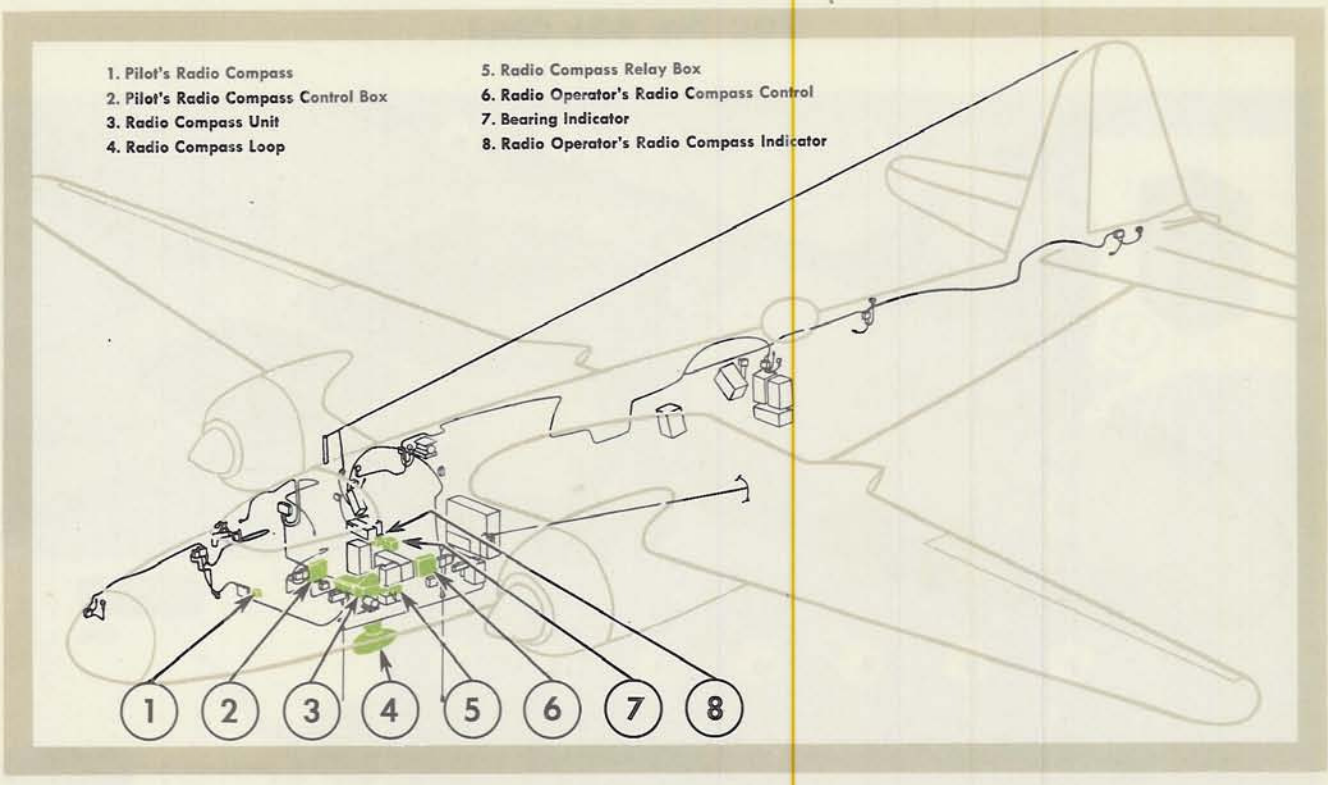


Figure 83—Radio Set Installation B-26 A&B

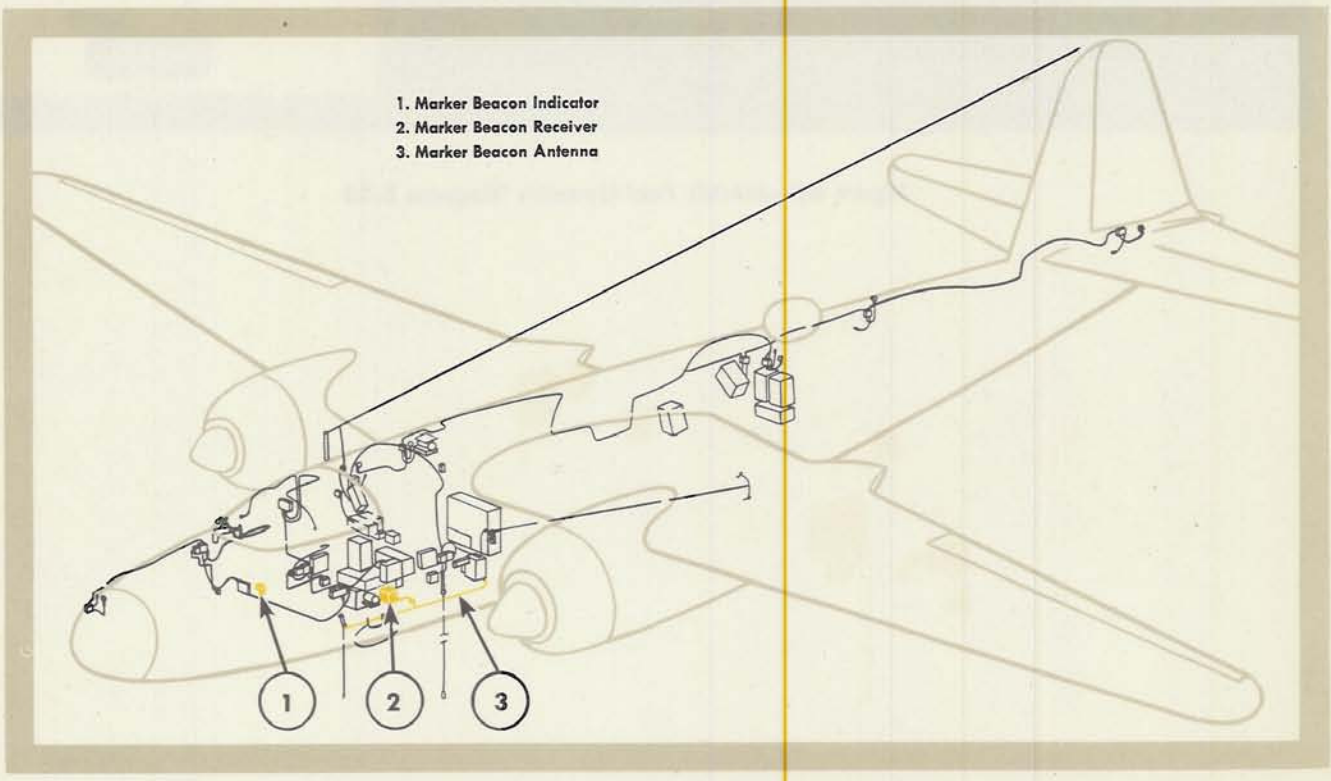
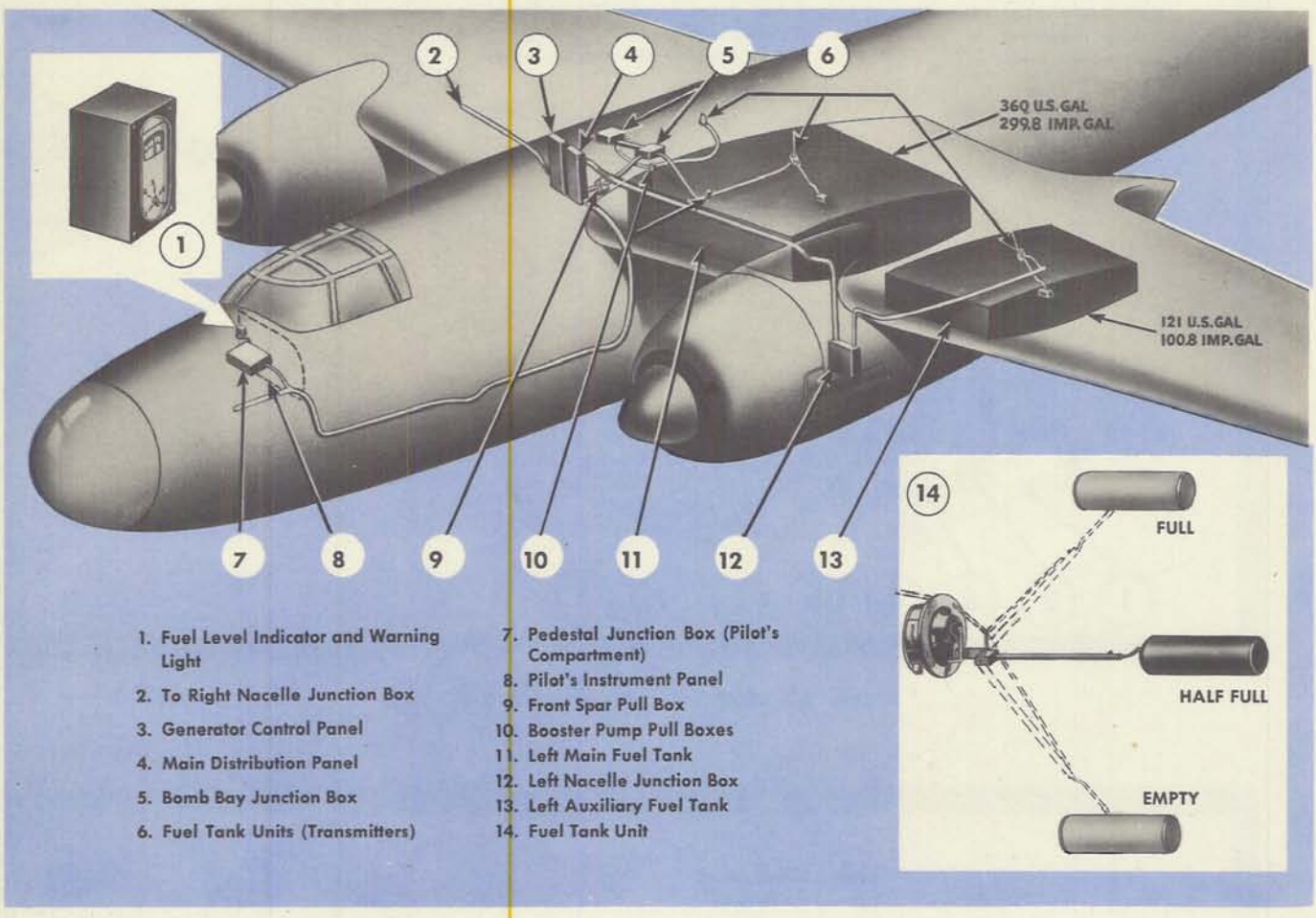


Figure 84—Marker Beacon Set Installation B-26 A&B

FOR THE B-26 ONLY



1. Fuel Level Indicator and Warning Light
2. To Right Nacelle Junction Box
3. Generator Control Panel
4. Main Distribution Panel
5. Bomb Bay Junction Box
6. Fuel Tank Units (Transmitters)
7. Pedestal Junction Box (Pilot's Compartment)
8. Pilot's Instrument Panel
9. Front Spar Pull Box
10. Booster Pump Pull Boxes
11. Left Main Fuel Tank
12. Left Nacelle Junction Box
13. Left Auxiliary Fuel Tank
14. Fuel Tank Unit

Figure 85—Electric Fuel Quantity Diagram B-26

FOR THE B-26 A&B

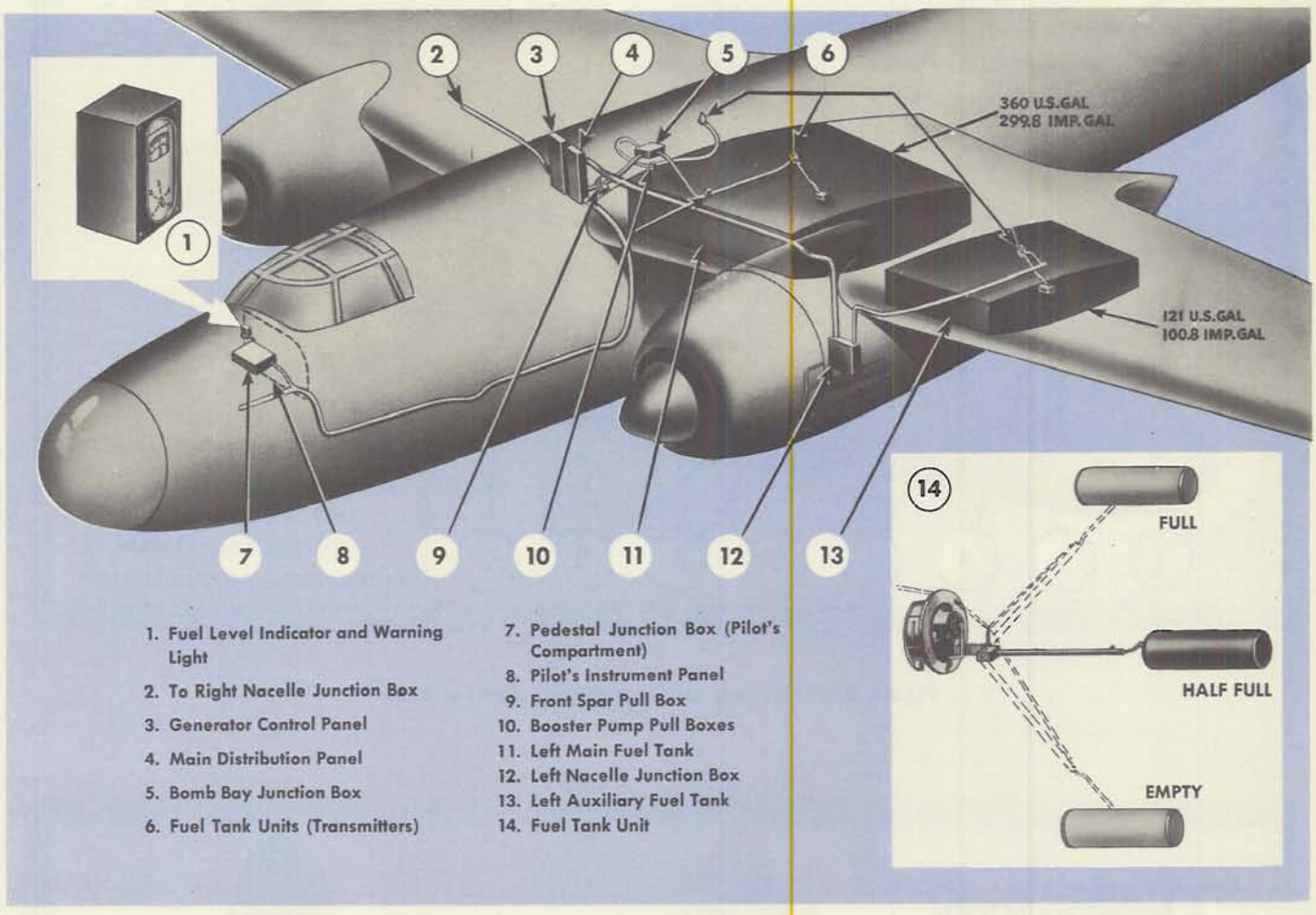


Figure 86—Electric Fuel Quantity Diagram B-26 A&B

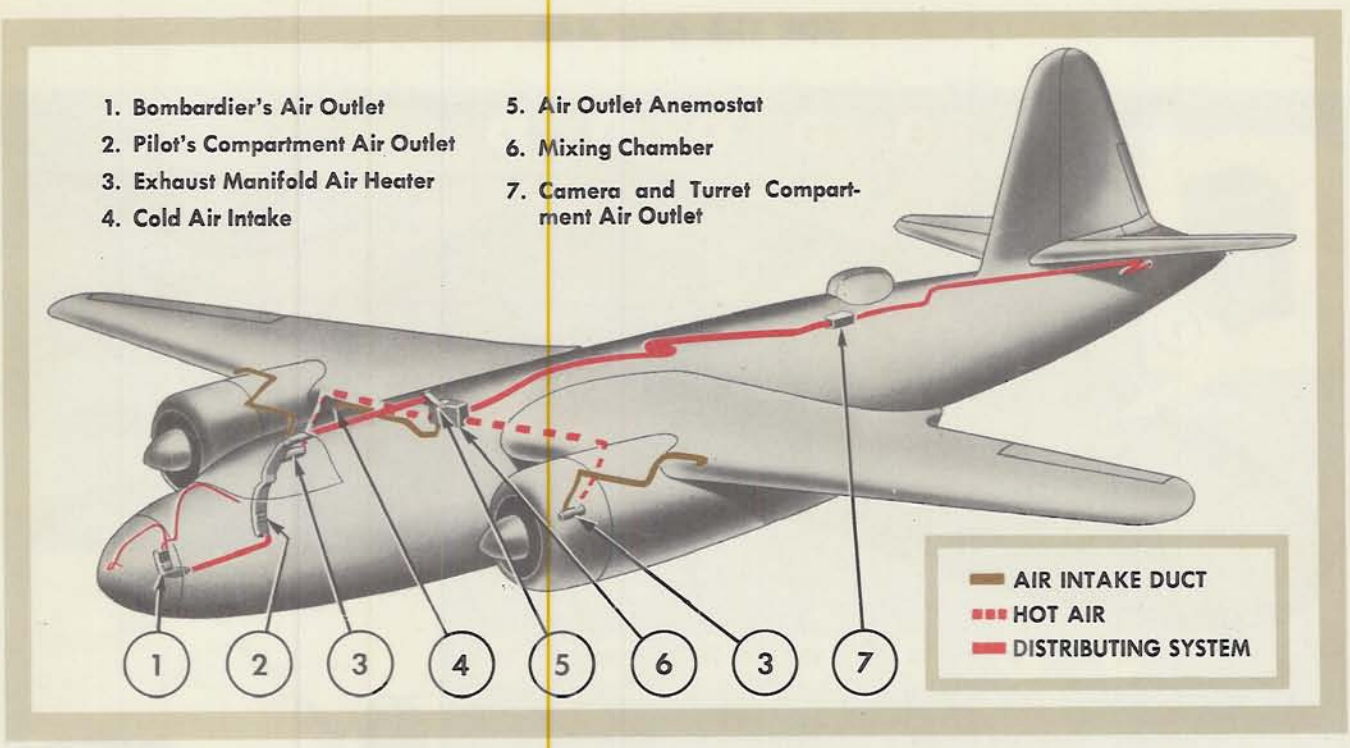


Figure 87—Heating and Ventilating System B-26

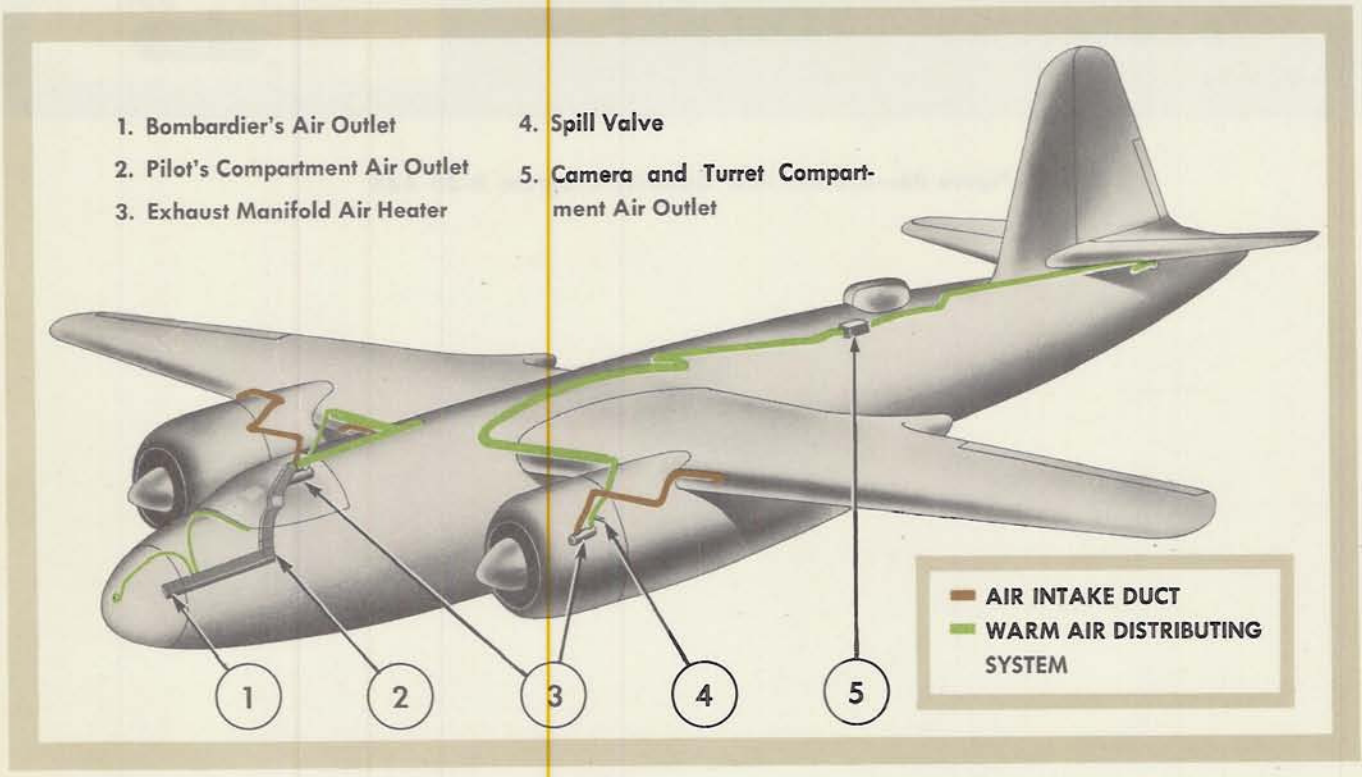
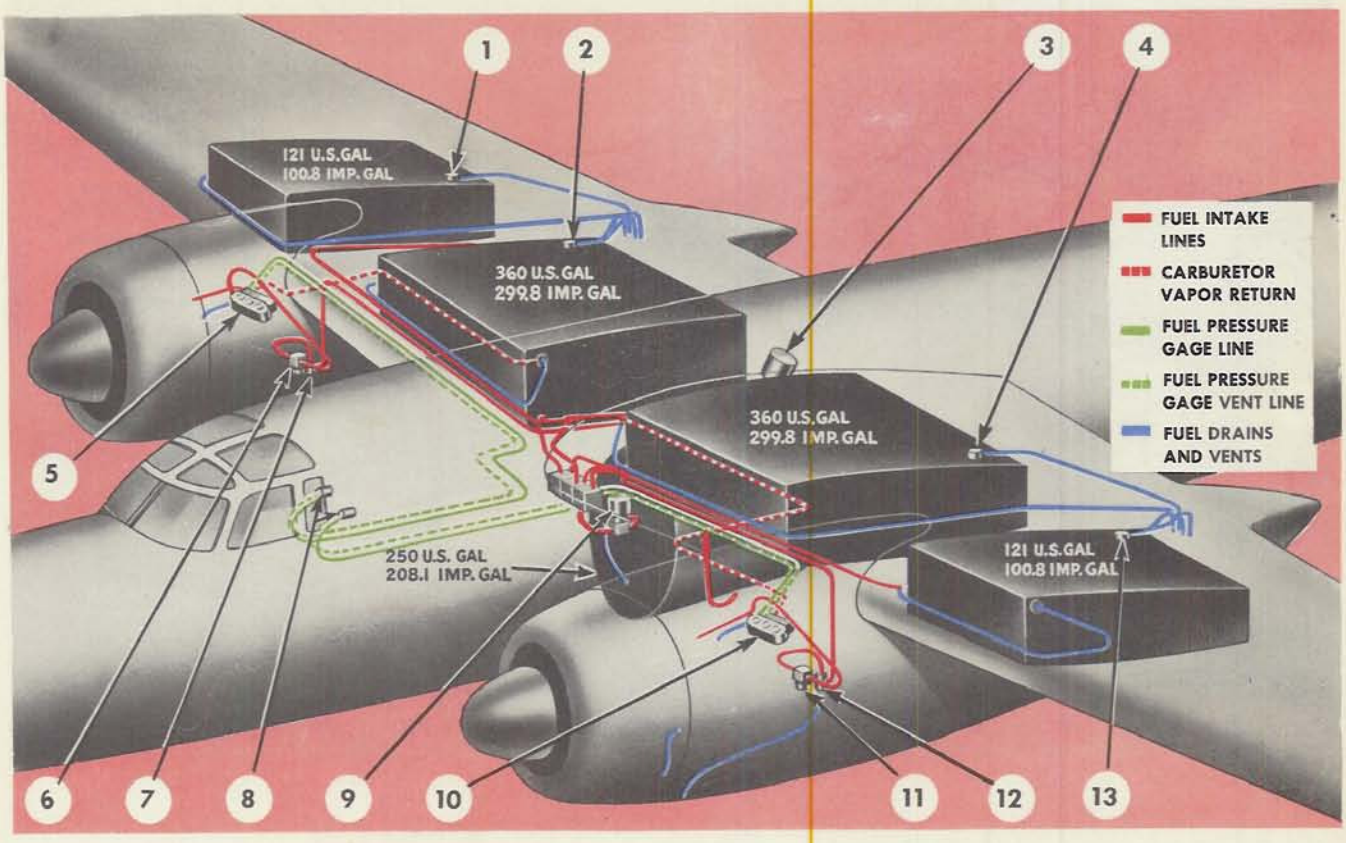


Figure 88—Heating and Ventilating System B-26 A&B

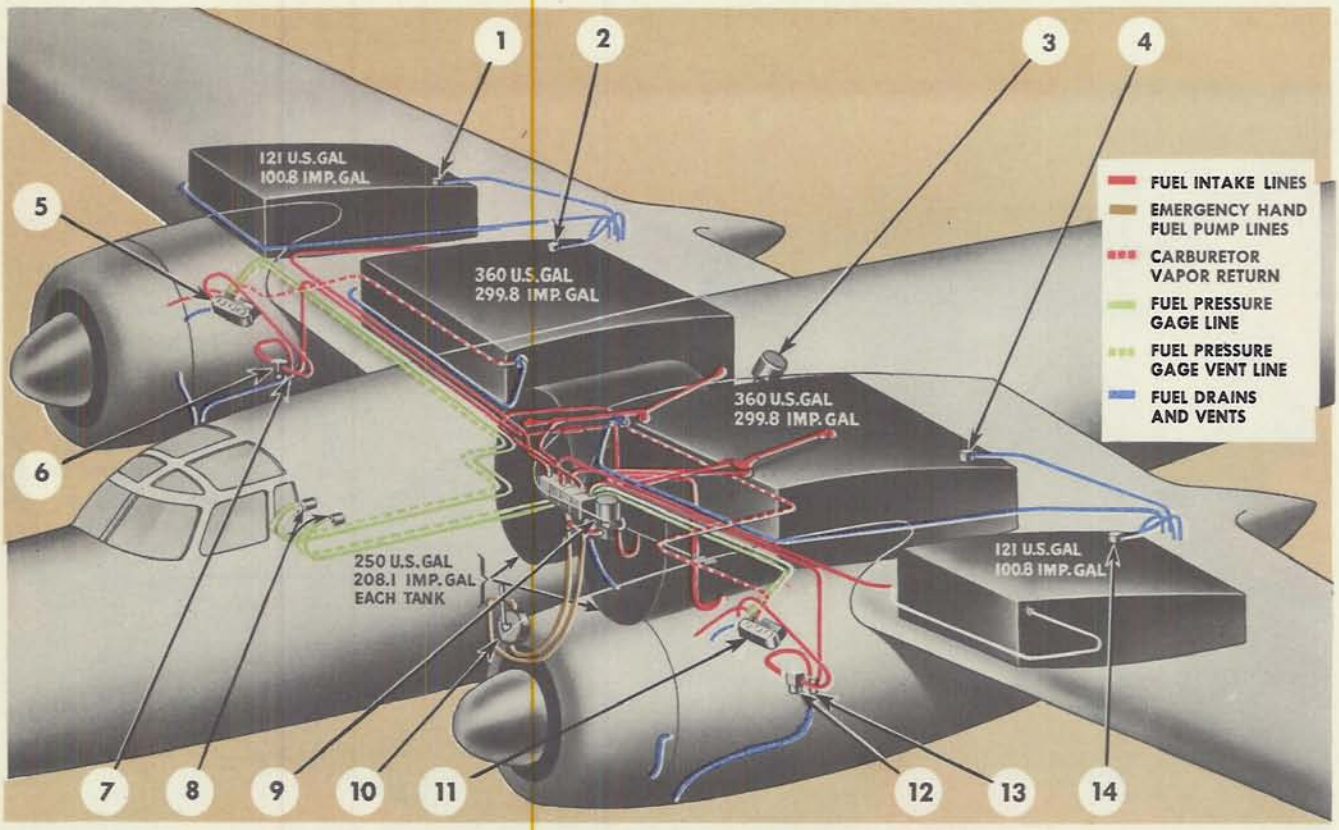
FOR THE B-26 ONLY



1. Right Auxiliary Tank Filler
2. Right Main Tank Filler
3. Bomb Bay Tank Filler
4. Left Main Tank Filler
5. Carburetor, Right Engine
6. Fuel Pump, Right Engine
7. Fuel Strainer
8. Fuel Pressure Gages
9. Fuel Transfer Pump
10. Carburetor, Left Engine
11. Fuel Pump, Left Engine
12. Fuel Strainer
13. Left Auxiliary Tank Filler

Figure 89—Fuel System Diagram B-26

FOR THE B-26 A&B



1. Right Auxiliary Tank Filler
2. Right Main Tank Filler
3. Bomb Bay Tank Filler
4. Left Main Tank Filler
5. Carburetor, Right Engine
6. Fuel Pump, Right Engine
7. Fuel Strainer
8. Fuel Pressure Gages
9. Fuel Transfer Pump
10. Emergency Hand Pump
11. Carburetor, Left Engine
12. Fuel Pump, Left Engine
13. Fuel Strainer
14. Left Auxiliary Tank Filler

Figure 90—Fuel System Diagram B-26 A&B

FOR THE B-26 ONLY

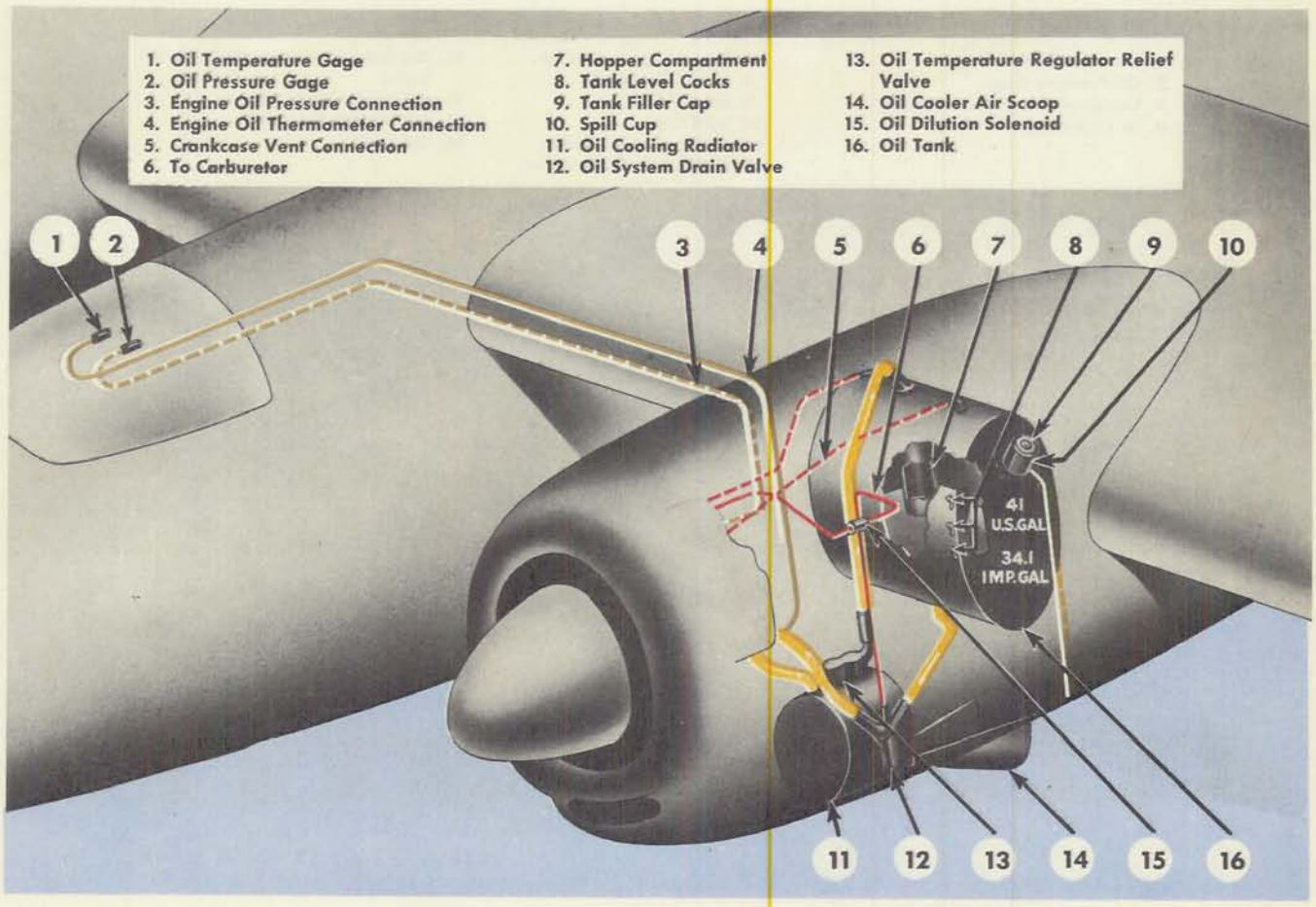


Figure 91—Oil System Diagram B-26

FOR THE B-26 A&B

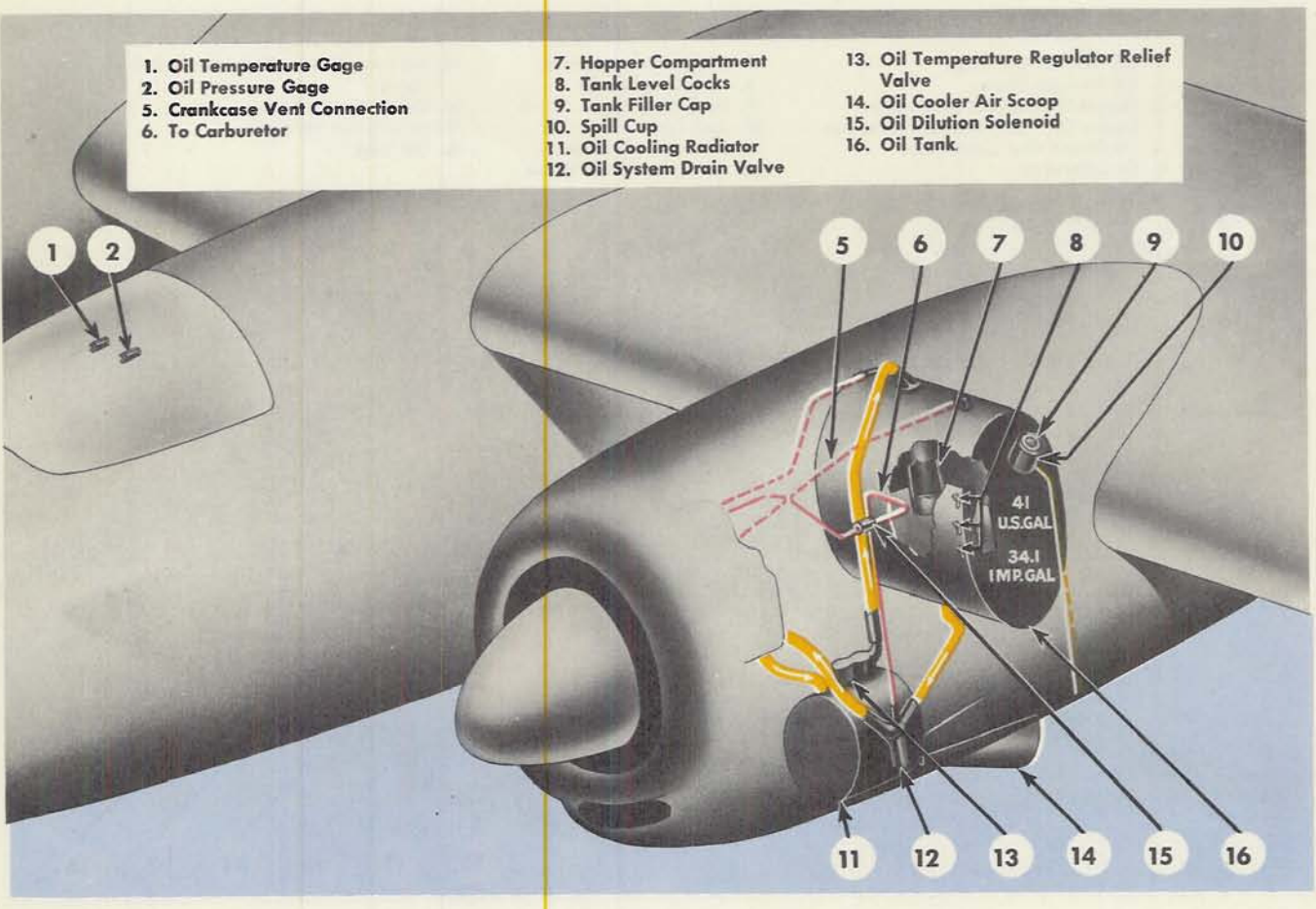


Figure 92—Oil System Diagram B-26 A&B

APPENDIX II
EMERGENCY OPERATIONS

1. BRAKES.

a. With all hydraulic controls in neutral depress brake pedals and operate hand pump (fig. 26-13). If no pressure is felt on brake pedals use the following method.

b. Lose ALL POSSIBLE speed on the ground run. PULL "T" handle (fig. 17-3). This releases 1000 lb of air through separate lines to the brake cylinders, which lock the wheels. Brake pedals need not be depressed. Bleed valve, over doorway, must be closed. Pilot should be ready to use throttle to correct any uneven brake action.

CAUTION: After using air brake the hydraulic system must be bled.

2. HYDRAULIC EMERGENCIES.

These become apparent in several ways, such as: Failure of the landing gear to retract fully after the take-off, or a below-normal or zero reading of the hydraulic pressure gage.

a. NORMAL HYDRAULIC PRESSURE. — When the hydraulic pressure is normal before take-off, but the landing gear fails to retract after take-off. This generally indicates an air lock around the hydraulic pumps, but it may be a more serious condition, so, if possible, follow this procedure:

(1) Return the landing gear handle to "DOWN" position.

(2) Pump the landing gear down and lock with the hydraulic hand pump (fig. 26-13).

(3) Pump the flaps down as desired.

(4) Put all the white handles in "NEUTRAL" position.

(5) Check the landing gear indicator to see that gear is down and locked.

(6) DEPRESS the brakes; pump up the pressure to approximately 1200 lb/sq in. Release and repeat this operation several times.

(7) Land, with the brakes *slightly* depressed and copilot steadily pumping the hand pump.

WARNING: Do not land with the brakes locked. Do not fully release the brake pedals at any time during the glide and landing run, for this will release the pressure being built up by the hand pump. With this procedure, it should be possible to make a normal braking stop. If not, use emergency air brake handle (fig. 17-3).

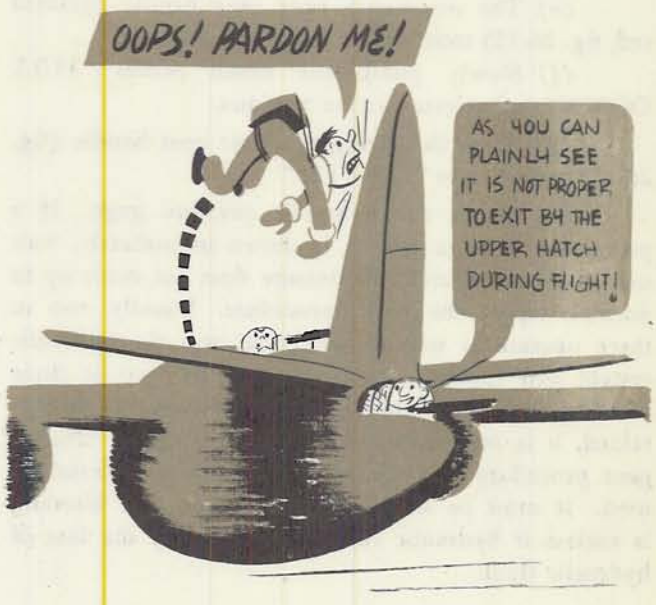
(8) Have the hydraulic system checked for malfunctioning. If the hand pump fails to pump the landing gear down, a "BLEEDING" procedure, while the plane is in the air, may be tried as follows:

WARNING: Make sure there is enough hydraulic fluid in the system before bleeding.

(a) Climb to a safe altitude (2000 to 4000 ft) and trim the airplane for level flying.

(b) Have a member of the crew check for leaks and see there is sufficient hydraulic fluid in the reservoir (forward righthand corner, forward bomb bay).

(c) Reduce rpm to 1600 or 1800, increasing the power to hold the speed at approximately 150 mph. Pilot must not forget to hold altitude and air speed while he is busy with the bleeding procedure. Preferably



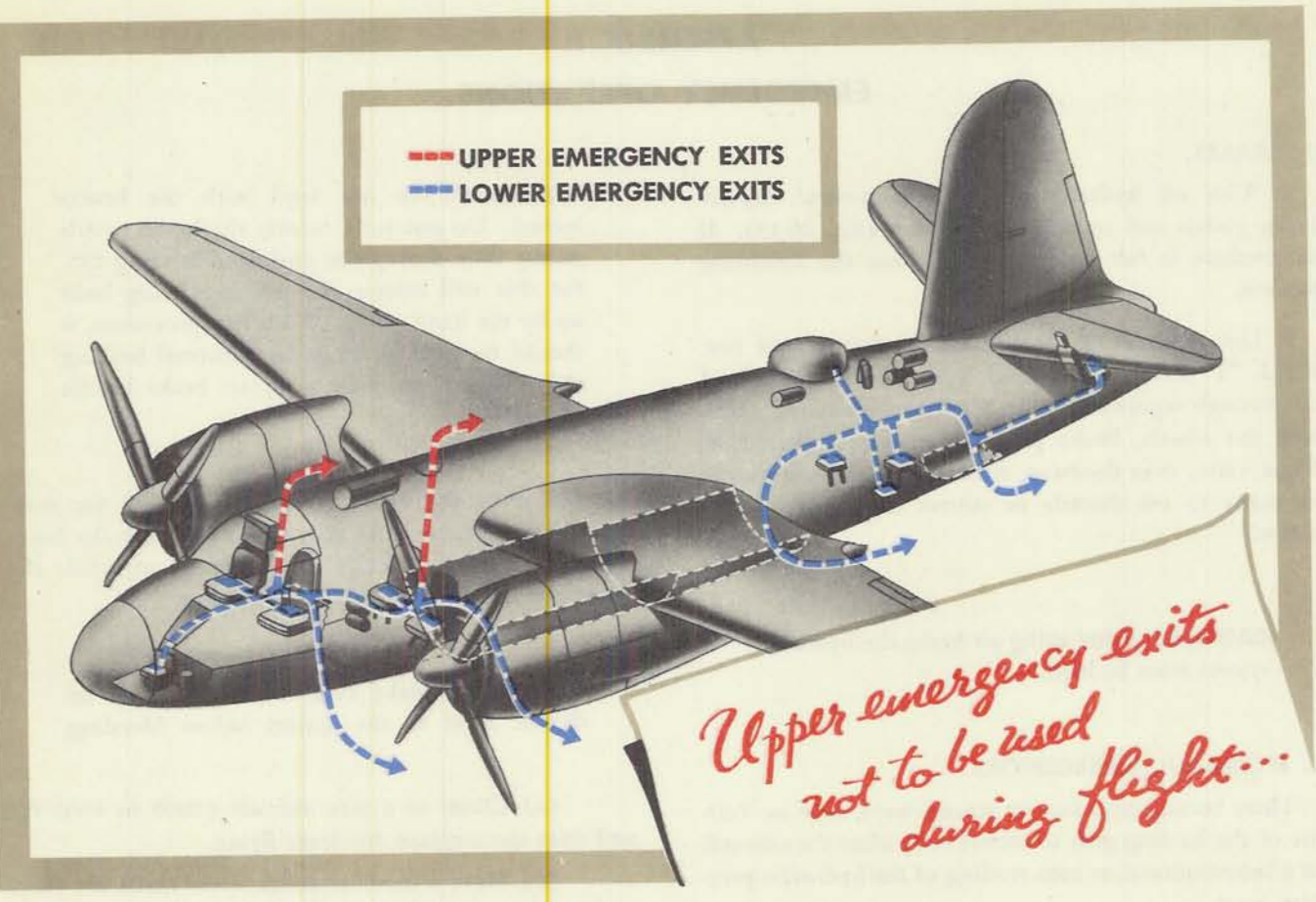


Figure 93—Emergency Exits Diagram

make no turns but, if necessary, turns of gentle bank are permissible.

(d) See that all white painted handles are "NEUTRAL."

(e) The emergency nose gear handle (painted red, fig. 26-15) must be in "DOWN" position.

(f) Slowly pump the brake pedals "FULL DOWN" and release,—20 to 30 times.

(g) Then the emergency nose gear handle (fig. 26-15) must be put "FULL UP."

(h) Check the hydraulic pressure gage. If a pressure of 100 to 300 lb is shown immediately, wait one to three minutes. If pressure does not come up to normal, repeat the above procedure. Usually, two to three operations will be successful and the hydraulic system will function normally. If after two or three bleeding operations, no hydraulic pressure can be obtained, it is recommended that the emergency landing gear procedure as outlined on the pilot's pedestal be used. It must be stressed at this point, that bleeding is useless if hydraulic failure is caused by the loss of hydraulic fluid.

b. LOSS OF HYDRAULIC FLUID.

(1) Move the emergency landing gear levers (fig. 26-14) to the "EMERGENCY" position, and make certain that these levers are in the extreme position for emergency.

(2) See that the main landing gear handle (fig. 26-16) is in the "DOWN" position.

(3) Push the emergency nose wheel handle (fig. 26-15) to "DOWN" position.

(4) Pump hand pump until the nose gear is down and locked.

(5) Turn the emergency main gear handle (fig. 26-14) to the "DOWN" position.

(6) Pump the hand pump until the main gear is down and locked.

NOTE: One main gear usually will unlock and go to the down position first. Keep pumping the hand pump and the other will go down and lock.

(7) Return the emergency main gear handle and emergency nose wheel handle to the "UP" position.

(8) Place the main landing gear handle in the "NEUTRAL" position.

(9) With the flap handle "DOWN," pump the flaps down and return the handle to "NEUTRAL." If there is not sufficient pressure remaining to pump the flaps down, place the flap control handle in "DOWN" position. Then direct a member of the crew to crank the flaps down mechanically (turn counterclockwise), by means of a crank (fig. 50) stowed on the aft bulkhead of the forward bomb bay (see Sect. VII, Forward Bomb Bay Compartment).

(10) Check the air bottle forward of the navigator's seat to see that the valve is open and that the pressure is normal (1000 lb/sq in.).

(11) Use air brake only if hydraulic brakes will not operate and then only after losing as much speed on the ground as possible.

WARNING: Be sure main gear is down and locked before lowering nose gear by emergency means.

c. NOSE WHEEL LOAD AND FIRE VALVE.—Failure of the nose wheel to lower is usually due to malfunctioning of the emergency load and fire valve. In this case proceed as follows: Slide open the floor door in the pilot's and copilot's compartment. Locate the load and fire valve, which is out of sight, but can be felt by reaching forward and slightly to the right of the bell crank on the upper end of the left nose wheel door and on the forward side of the cross member casting. The valve lies parallel to the cross member, with the plunger facing toward the left.

To make the valve fire manually, place the index and third fingers on the valve, holding it as illustrated in the accompanying photograph.

CAUTION: While it is essential that crew members practice finding and firing this valve by hand, care must be taken that the landing gear handle is not in the "DOWN" position, because the valve operating the cam may pinch the fingers.

(1) Practice Procedure.

(a) Jack up the plane.

(b) Place landing gear handle in "UP" position.

(c) Have one of the crew, while standing in navigator's compartment, open the sliding hatches, resting body weight on left hand placed on cockpit floor.

CAUTION: Do not rest weight on nose wheel which will be directly under you.

(d) Reach right hand through the opening and under the floor until the valve is located.

(e) Place the index and third fingers on the valve as shown in figure 19.

(f) Press the plunger in and hold. Signal the pilot to immediately return the landing gear handle to the "DOWN" position. Hold the valve until the nose wheel goes to "DOWN" and is locked in position.

(2) Second Practice Procedure.—If you can't find the valve by the first method, use the following:

NOTE: Flying must be done from the copilot's seat.

(a) Measure back five inches from the bottom rear of the brake control cover (this is the raised cover extending back from between the rudder pedals on the pilot's side) and one inch over to the left from the wide edge of the right hand track of the pilot's sliding seat. This point will be approximately over the load and fire valve.

(b) Carefully *gouge* a small hole 3 to 4 in. through the dural floor. Extreme caution must be used, as the engine control cables and hydraulic lines are under this point.

(c) Place the main landing gear handle in the "UP" position.

(d) Use screwdriver to press in the load and fire valve and hold, placing the main landing gear handle to "DOWN" position.

(e) Hold the load and fire valve in until the nose gear is "DOWN" and locked.

(f) Check the landing gear indicator for gear "DOWN" and locked.

d. MAIN GEAR.—There may be a condition, though rare, where with hydraulic pressure normal, the main gear load and fire valve refuses to operate. Proceed as follows:

(1) Try retracting and lowering the main gear several times, to see if it can be made to work.

(2) Climb to fairly high altitude (10,000 to 12,000 ft).

(3) Set the propeller governor controls to full low rpm (approximately 1300) with as much power as is safe, but not in excess of 25 in. Hg above 6000 ft, or 31 in. Hg below 6000 ft.

(4) Move the landing gear handle to "UP" position.

(5) Bleed the hydraulic pressure as low as possible (300-600 lb/sq in.) by placing the emergency nose gear handle "DOWN" slowly and pump the brakes.

(6) While continuing the "bleeding" to hold the pressure as low as possible, put the main landing gear handle to "DOWN" position. If the malfunctioning wheel has not released before 2000 ft is reached, advance rpm and power and climb up to altitude again. Repeat the procedure. If not successful, make a belly landing.

3. BELLY LANDING.

WARNING: A landing with nose gear down and main gear up should not be attempted. If this condition occurs the nose gear should be retracted and a full belly landing should be made.

a. Retract the gear. Leave the landing gear handle in the "UP" position.

b. Turn off all electrical equipment not necessary for flight.

c. Before contact with the ground, cut off mixture control and ignition switches.

d. Close fuel valves and turn off all electrical circuits after landing.

4. NOSE GEAR UNLOCKED.

When the nose wheel is down but the lock pin does not fall in place (due to faulty alignment), the condition is indicated by the sounding of a warning horn when the throttles are retarded, also by the position of the nose gear indicator on the pilot's instrument panel. Successful landings have been made with no damage by following this procedure:

a. Move cg rearward (within allowable limits) by moving ballast or crew members rearward.

b. Have the copilot build up the hydraulic pressure as high as possible by hand pump (usually about 1200 lb).

c. Make a normal two-point (nose up) landing on main gear as close to the end of the runway as is consistent with safety, with the copilot steadily pumping the hand pump during the entire landing run and keeping the hydraulic pressure as high as possible (hydraulic pressure keeps nose gear from collapsing). Immediately after landing, lower the nose wheel gently for a slight tap on the runway, and raise the nose wheel again slightly, holding off as long as possible. (This should cause the lock pin to fall in place.) Use as much of the runway as possible without applying the brakes, keeping control column all the way back. When necessary, apply the brakes smoothly, avoiding sudden application.

WARNING: After landing do not move airplane again until lock pin is checked and found in place or some other means of locking used.

5. INOPERATIVE NOSE GEAR.

Landing should not be made if main gear is down and nose gear up, however, if such a situation should occur and the main gear cannot be retracted for a full belly landing the following procedure may be used:

a. Pick a hard surface runway.

b. Fly the airplane with cg position aft of normal.

c. Move the members of the crew aft in order to get the most rearward cg position possible.

d. The pilot should hold the nose up as long as possible.

e. Brakes should be used with caution to prevent nose over.

6. EMERGENCY BOMB BAY DOOR OPERATION.

"T" handle overhead in pilot's compartment (fig. 17-1). Power is supplied by an emergency air bottle. Pull handle out and hook. When doors are open all bombs will fall. To close doors release "T" handle. Hydraulic pressure will close the doors automatically.

7. EMERGENCY OPERATION OF WING FLAPS.

Manual lowering:

a. Reduce the speed of the airplane to 135 mph before operating the flaps by means of the emergency system. Do not fly at a speed in excess of 185 mph after the flaps are lowered.

b. Move the pilot's hydraulic flap control handle to the extreme "DOWN" position.

c. Locate the special crank stowed at the top of the rear bulkhead of the forward bomb bay.

d. Insert the crank in a hole which is directly forward

and above the passageway in the aft bulkhead of the forward bomb bay.

e. Rotate the crank in counterclockwise direction to lower the flaps.

f. To lock the flaps in any desired position, stop rotation and leave the crank in place.

g. To raise the flaps, turn the crank clockwise.

8. ELECTRICAL SYSTEM EMERGENCIES.

a. COMPLETE FAILURE OF ELECTRICAL SYSTEM.—Complete failure of the generators with the batteries almost failing, will usually be indicated by oscillation of the landing gear and flap indicators and/or oscillation of the autosyn instruments. Proceed as follows:

(1) Place propeller toggle switches in "FIXED PITCH."

(2) IMMEDIATELY turn off both generator switches.

(3) IMMEDIATELY turn off both battery switches. Propellers then become fixed pitch propellers and will operate as such. After 15 to 30 minutes flying, the batteries should rebuild sufficient energy to allow approximately five minutes to set the propellers to desired rpm by use of "INCREASE RPM" and/or "DECREASE RPM" switches. A good setting for landing is 2200 rpm with 25 in. MP at 150 mph. This will give plenty of power if needed to drag the field or if landing is missed.

NOTE: If generators have failed, the auxiliary power plant may be started at altitudes below 10,000 ft (equalizer switch "OFF"). Use only minimum electrical requirements as its capacity is about half that of an engine generator.

b. GENERATORS FAILED BUT BATTERIES NOT DISCHARGED.—Possibly 30 minutes operation remains. If several hours from a landing, use the following:

(1) Set power and rpm to desired cruising.

(2) Place propeller toggle switches to "FIXED PITCH."

(3) Turn off both generator switches.

(4) Turn off both battery switches.

Turn on battery switches every 10 to 15 minutes, to check the engine instruments. Reserve sufficient energy to make a normal landing with propellers in "AUTOMATIC."

9. PROPELLER GOVERNOR EMERGENCY.

When throttles are opened for take-off, engines may over-rev momentarily.

a. If the rpm does not return to normal:

(1) Cut throttles if possible and stop.

(2) Check propeller control settings and if all are correct, governor setting must be checked.

b. If a governor fails after take-off:

(1) Should the propeller "run away" (build up excessive rpm), indicating that the governor has failed, the "Decrease RPM" switch very likely will have failed also. "Blip" (turn on and then off very quickly) the feathering switch until the desired rpm is reached and then set the toggle switch in "FIXED PITCH" position. There is no way in which the rpm can be increased again (assuming that the "Increase RPM" switch is not effective), so care must be used to avoid reducing the rpm too much.

(2) If that procedure fails, set toggle switch to "FIXED PITCH" and reduce manifold pressure on the run-away engine to hold rpm at a maximum of 3000.

WARNING: Watch for yaw toward run-away engine—don't forget to fly airplane.

10. EXIT DURING FLIGHT.

The pilot will give all signals to abandon. Interphone, call lamps, or alarm bells may be used. Suggested signals:

1 long ring (6 seconds) . . . . . Stand by to abandon

2 long rings (4 seconds each) . . . . . Emergency lifted

3 short rings (2 seconds each, repeated) . . . . Abandon

The pilot will decide whether to shut off:

Master switch (fig. 25-19)

Battery switches (fig. 25-17)

Fuel shut-off valves (fig. 48-5 and 47-2)

The pilot may desire navigator to determine position and/or radio operator to send distress message.

WARNING: In flight, NEVER leave by upper hatches. PRACTICE DRILLS ON THE GROUND SHOULD BE HELD FREQUENTLY.

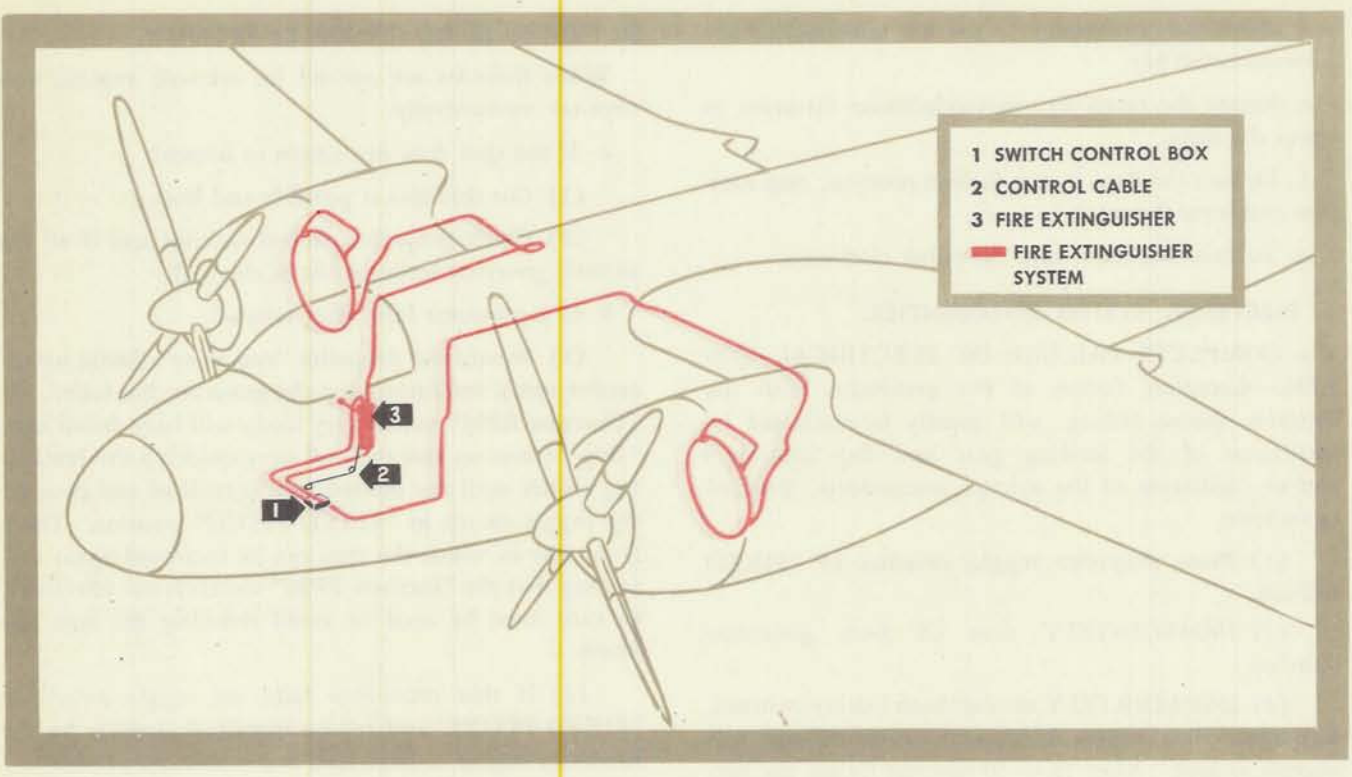


Figure 94—Engine Fire Extinguisher System

11. EXIT ON GROUND.

All persons will remain seated with safety belts fastened securely, until landed.

12. EMERGENCY EQUIPMENT.

a. FIRE EXTINGUISHERS.—On CO_2 fire extinguisher at the rear of the copilot, and another in the waist gunner's compartment, aft side of the upper rear turret coaming. The Lux system for the engines is reached by lifting a small trap door between the pilot and copilot. Turn selector valve to desired engine and pull handle.

b. PARACHUTE STOWAGE.—Quick attachable type parachutes are stowed close at hand for all members of the crew. See escape diagram (fig. 93).

c. LIFERAFT.—The liferaft is stowed in the crown of the navigator's compartment and can be launched either from the inside or outside of the airplane.

(1) OPERATOR INSIDE.—Pull the red handle. This releases the door. Continue pulling the handle until it is all the way out and *hold* until the raft is inflated. Now the wire cable connected to CO_2 bottle will disengage from the bottle, setting the raft free.

(2) OPERATOR OUTSIDE.—Turn the handle. Remove the door and pull the ball. Hold the ball until the raft is inflated, when it will be set free.

WARNING: Liferaft must be OUTSIDE before inflation.

d. PORTABLE TRANSMITTER.—Stowed in navigator's compartment.

13. DITCHING (FORCED DESCENT OF LANDPLANES AT SEA).

a. PREVENTION OF DITCHING.

(1) Many ditchings could have been avoided if proper use of manifold pressure, rpm, and air speed had been made. Operations and limitations of the fuel system should be thoroughly understood.

(2) Practice flying the airplane at different weights at heights about 5000 ft with one engine out of action. Find the best speed and altitude for maintaining flight at reduced power in all circumstances. As an aid, charts are provided for single engine operation. See Sect. III.

(3) If height cannot be maintained above a reasonable altitude because of failure of one engine or because

of icing up or other defect, lighten the load of the airplane by dumping the bomb load.

b. PREPARATION FOR DITCHING.

(1) If doubt exists in the pilot's mind whether he can reach shore, preparation for ditching MUST BEGIN, particularly the radio procedure.

(2) Give the S.O.S. or "May Day," and time and position of the signal. It is better to make a distress call than to remain silent. A distress call can always be cancelled when no longer applicable and, of course, this must be done.

(3) The pilot must insure that the bomb doors are opened, the bombs and containers dumped and the doors closed again. It takes approximately 30 seconds to open and close doors and, if there is any doubt that there is time to do this, it is better to keep the doors closed; in this case it is essential for the pilot to check that the bombs are SAFE.

(4) Lower hatches must be checked for security and upper ones dumped. Hatches may jam upon impact and it is important that the crew leave the ship without a moment's delay.

(5) At night all bright internal lights should be put out in order to accustom the eyes to darkness. After ditching, all lights should be left on to facilitate search, in the event the airplane should float.

c. THE APPROACH.—Wind velocity and direction and surface conditions are important.

(1) CALM SEA.—There may be little or no wind, so that it is essential to ditch with the lowest IAS possible. Such a sea is deceptive with regard to judgment of height, particularly if the surface is "glassy." Surface ripples make judgment of height easier.

(2) WAVES.—These always move with the wind except when close inshore and in fast flowing currents. Waves are the direct result of the wind which creates them and maintains them.

(3) SWELL.—An undulating movement of the surface caused by past or distant disturbances. It does not necessarily move with the wind and it has no breaking crests. The pilot must land along the swell and as near into the wind as possible.

(4) FIXED MARKS.—Smoke blowing is good indication of wind velocity and direction. Remember that a ship also has forward speed and that the wind lies somewhere between the forward path of the ship and the smoke trail. The pilot should practice judging wind velocity and direction.

d. DITCHING CHARACTERISTICS.

(1) If the airplane alights tail down as it should, there will be a primary slight impact as the rear of the airplane strikes. This will be followed by a severe impact with quick stop in most cases. If the alighting has been made too fast, a bounce will occur. As the airplane comes to rest the nose will bury, but if the alighting has been carried out correctly, the effect of the nose burying will be minimized.

WARNING: From your height even a rough sea appears to be calm.

(2) In a crosswind approach along a swell the ship should be ditched on the upslope of the swell.

(3) In a steep swell, the pilot should ditch along the top of the swell unless there is a very strong crosswind. In ditching across the swell, the airplane should be put down on an upslope toward the top.

(4) USE OF POWER.—Use of power is advisable, as even one engine will aid in flattening out the approach. Care must be taken to keep ample rudder control at all times during descent. The value of power in ditching is so great that the pilot should always ditch before fuel is quite exhausted, if it is certain that land cannot be reached.

e. BOARDING THE LIFERAFT.

(1) After ditching, each member of the crew should carry out his allotted duties. The navigator should pull out the liferaft and see that it is in proper order. If the ditching has been made into the wind, the liferaft should float toward the tail plane and boarding should not be difficult. GET OUT FAST as this plane sinks quickly.

(2) Don't jump into the liferaft. By so doing it may become damaged and the whole crew endangered.

(3) Don't get any wetter than absolutely necessary. Wet clothing must NOT be taken off; it is far warmer with wet clothes on than off. In hot weather this may not apply, but the body should be protected from the sun.

f. ABOARD THE LIFERAFT.—Each man should proceed to his appointed duty. Upon order, the bombardier should paddle away from the aircraft as the pilot casts off. If the ship floats, keep nearby to increase the chance of being spotted. But do not remain made fast to the airplane when there is any chance of the liferaft being punctured or in rough conditions where the liferaft is likely to be damaged by the rise and fall of the ship.

g. USE OF THE EMERGENCY RADIO.

(1) DESCRIPTION.—A complete self-contained portable emergency transmitter, Type SCR-578-A, is provided for operation anywhere away from the airplane. It is primarily designed for use in a small boat or liferaft but may be placed in operation anywhere a kite can be flown, or where water may be found. It is equipped with a small parachute to permit dropping from the airplane in event of an emergency. No receiver is provided.

(2) REMOVAL FROM AIRPLANE.—If the airplane has made an emergency landing on water, the emergency set should be removed at the same time that the liferaft is removed. The set is waterproof and will float and, therefore, it is not necessary to take any precautions in keeping the equipment out of the water. Be sure that it does not float out of sight.

(3) OPERATION.—Complete operating instructions are contained in one of the bags which contain the equipment. Complete instructions for the use of transmitter are also located on the transmitter itself. When operated, the transmitter emits an MCW signal and is tuned to the international distress frequency of 500 kc. Automatic transmission of a predetermined signal is provided. Any searching party can "home" on the signal with the aid of a radio compass. If desired, the manual sending key may be used.

h. ASSISTING RESCUE.

(1) Don yellow skull caps immediately, before ditching if possible.

(2) When craft are in a position to see signals, fire the liferaft pistol or any available pyrotechnics, but conserve them as much as possible.

(3) Marine distress signals should be kept dry and handled with care.

(4) Very cartridges should be kept dry.

i. AWAITING RESCUE.—If the proper distress signals were made, there is every chance of an early rescue. The crew must be prepared to remain at sea for at least six days, although this seldom happens. This is only achieved by severe discipline and comes under three main headings:

(1) RATIONING OF FOOD AND WATER.—This is the duty of the pilot.

(a) WATER. — For the preservation of life, water is more valuable than food. It is of the greatest importance that the drinking water available reaches the liferaft and that care is taken to avoid any loss.

(b) SOLID FOODS.—The pilot will take stock of available rations in the liferaft and make provision for rationing on a basis of three meals a day for at least six days. The number of days over six for which the pilot makes provision will depend on the distance from shore and the success of airplane wireless signals.

(c) ENERGY TABLETS.—Use of these tablets must conform strictly to instructions marked on the container.

(d) Rum or other alcoholic drinks used by those who are exposed to severe cold and wet conditions increases the dangers of such exposure. They should not be carried for use in liferafts.

(2) EXERCISES TO PROMOTE WARMTH.—These require a minimum muscular effort:

(a) Exercise should afford relief from strain and improve circulation when the body would otherwise be suffering from fatigue and cold through remaining for long periods in cramped conditions.

(b) Specified breathing exercises are not recommended because they may cause undue strain and increase hunger and thirst.

(c) Exercises should be performed slowly, one contraction and subsequent relaxation taking approximately 6 seconds.

(d) Frequently the performance of hands and feet working at the same time will produce greater warmth in a shorter time. The joints on the extremities of the body should be exercised first and then the joints such as shoulders and hips.

(e) The pilot should insure that exercises begin before intense cold or stiffness has set in. It is as well to take a little exercise at frequent periods.

(f) When a crew is in a liferaft, the exercises should develop into a periodic drill timed to a popular tune. Quality rather than quantity of exercises will prove more beneficial; the main desire is that movement shall occur at frequent intervals.

(3) MORALE.

(a) If the crew is continually exercising and taking rations at regular intervals and at the same time keeping a good watch, morale should look after itself. After a few days, nerves may begin to fray, and it is then that the good example of each man will aid the behavior of his fellow. The need for more food and drink will increase and it will require greater effort to restrain the desire.

(b) The effect of continually having something

to do is most favorable, and it is the pilot's duty to see that this is so. The crew should remember that others have been rescued from the sea after fourteen days, one crew from the Mediterranean after eleven days, while a U. S. Navy crew survived after thirty-four days.

j. RESCUE.

(1) When the rescue craft comes alongside, do not assume that you will be able to get aboard easily. Remember that if you have been at sea for several days, you will be very weak.

(2) Insure that the information of rescue will be transmitted to the proper authorities to stop further search.

k. ABANDONING AIRPLANE BY PARACHUTE.

(1) The pilot will determine when this is advisable.

(2) When descending into water, the life jacket must be fully inflated once the descent is under control. As the surface is approached, straighten the body with the feet together. When the feet touch the water, release the harness with one hand and pinch the nostrils together with the other, keeping the elbows close to the sides. Land with the back toward the direction of travel.

APPENDIX III
EXTREME WEATHER OPERATION

1. COLD WEATHER.

a. STARTING.—Cold weather starting will be accomplished the same as during warm weather, except: It may be necessary to operate the primer (fig. 26-17), *after* the engine has started in extremely cold weather.

NOTE: If the engine doesn't start in three or four tries, moisture may have accumulated on the plugs. Remove one plug from each cylinder and heat plugs until they are comfortably warm in the hand.

b. WARM UP.—Do not gun engine to more than 900 rpm until oil has reached a temperature of 40°C (104°F).

c. TAKE-OFF.

(1) Do not take off with frost or snow on the wings. Remove any accumulation by melting a small area of the ice-covered surface at a time using hot water, then flush this area with denatured alcohol before the hot water freezes. Pay particular attention to the hinges and controls. Alcohol is used for cleaning frost off windows and windshields.

CAUTION: Hot water alone will not be satisfactory, as it will leave a thin film of ice on which more ice readily accumulates.

(2) Under severe conditions of frosting, it may be necessary to taxi to the take-off position before removing protective covers from airplane.

(3) Don't take off on soft snow. Taxi along the runway a few times to pack down the snow.

(4) Wing de-icer shoes, propeller de-icers and slinger rings, carburetor heater and alcohol carburetor de-icers, windshield de-frosters and immersion oil heaters are provided. See Section I for detailed description.

d. DURING FLIGHT.

(1) Following the take-off from snow or slush covered fields, operate landing gear, flaps, and bomb bay doors through a complete cycle two or three times to prevent freezing in their "up" position.

(2) Momentarily increase propeller speed by about 200 rpm every half-hour, to assure continued operation of the propeller governors. Return propeller to the desired cruising rpm.

(3) Operate power turret occasionally to keep it free.

(4) Stay on prearranged flight course so searchers will be able to find you if you are forced down. Except in extreme emergency, it is better to land or crash-land than bail out. This airplane does a beautiful, safe, belly landing.

(5) Ice formation can cause engine failure by clogging the carburetor filters. Under icing conditions or before long flights and flights over water, air filters should be removed, even though take-off must be made from a dusty field.

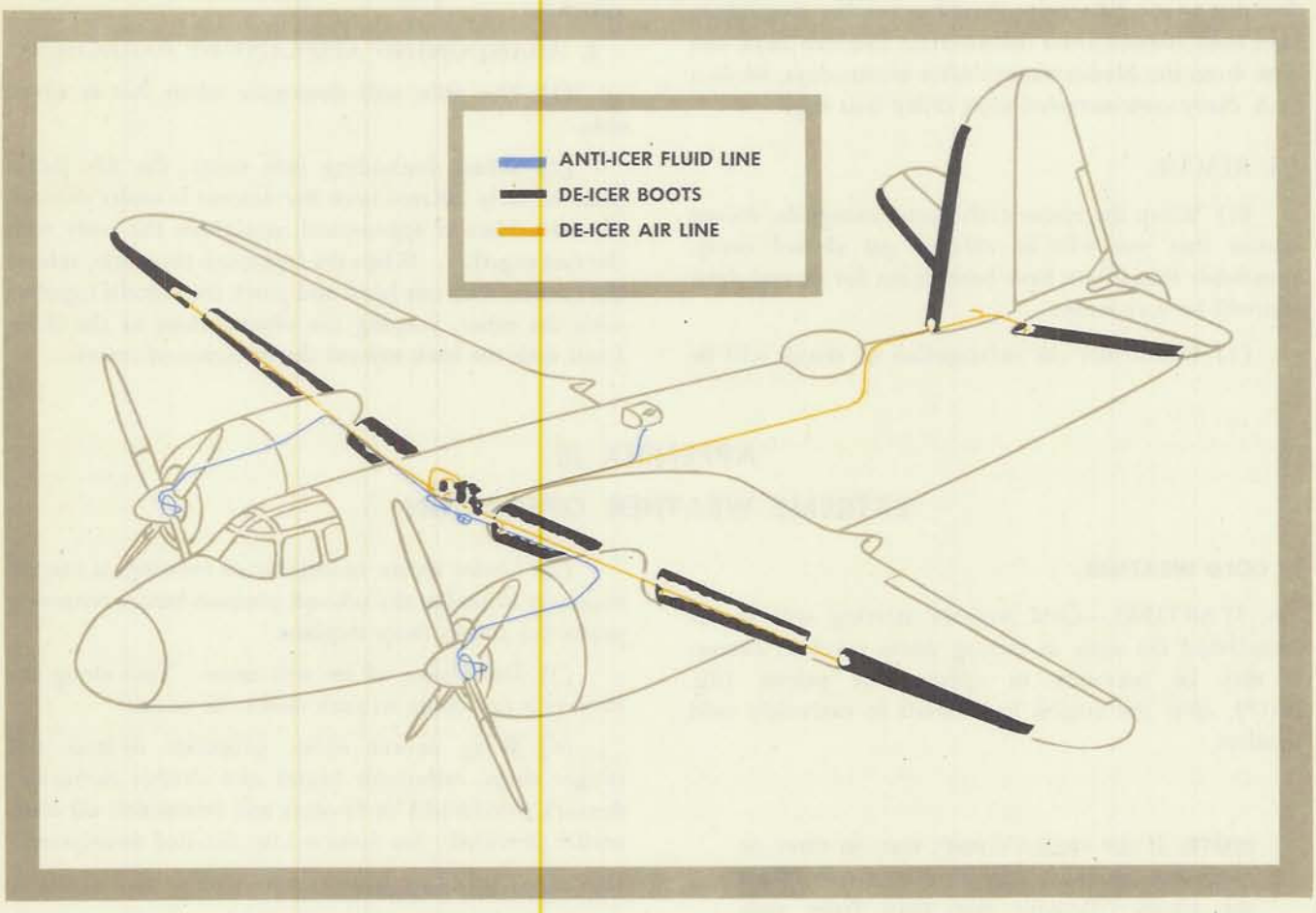


Figure 95—Anti-Icer System

(6) While letting down for a landing watch engine temperatures closely. Temperature inversions are likely to be present in winter, and the ground air temperature may be 15 to 30°C (59-86°F) colder than at altitude.

e. AFTER LANDING.

(1) Oil Dilution.

(a) DESCRIPTION.—This system provides a method of diluting or thinning the engine oil with gasoline at the end of each engine run in order to facilitate starting the engine in cold weather. The engine oil should be diluted prior to stopping the engines when there is a possibility of the engine oil temperature dropping below approximately 5°C (41°F). Oil should be drained if temperature of —29°C (—20°F) or lower is expected, or immersion heaters may be used to heat the oil prior to starting.

CAUTION: Heat is USELESS when applied to self-sealing tanks and will only harm the tanks.

(b) OPERATION.—Maintain an engine speed of 800 rpm, oil temperature of 50°C (122°F) or below. Desired temperature is 40°C (104°F).

NOTE: It is impossible to dilute the engine oil unless engine is running.

Hold oil dilution switches (fig. 25-24) ON for four minutes. Move mixture control (fig. 26-11) to IDLE CUT-OFF. When engines stop rotating, release oil dilution switches. AVOID exceeding oil temperature of 50°C (122°F), as fuel vapor blown from the breather

outlets will create a fire hazard. If temperature rises too high, fuel will vaporize so that no oil dilution will be obtained. In such a case, stop engines until the oil cools to approximately 35°C (95°F). Restart and proceed with dilution.

NOTE: If especially effective dilution is desired, stop the engine after first dilution; cool to 35°C (95°F). Restart and redilute.

(2) PORTABLE GROUND HEATERS.—When operating under freezing conditions, and, if available, use type D-1 portable heater or heaters as the weather conditions may require, to preheat the engines and compartments prior to first flight.

CAUTION: Extreme care must be taken to prevent accidental ignition of the gas fumes from the engine breathers due to vaporization of the gasoline in the oil. Heat alone won't ignite the fumes but any spark or flame will do so.

(3) BATTERIES.—Energizers or battery carts are generally used for cold weather starting, as this is more practicable than heating the batteries. Batteries should be maintained at not less than —12°C (+10°F). Lower voltage at extremely low temperatures causes malfunctioning of all electrical equipment.

NOTE: To safeguard batteries, when airplane is not on the alert, remove them from the airplane and store them in a heated location.

(4) PROTECTIVE COVERS.—The entire airplane should be covered with tarpaulins to prevent snow, ice, and frost accumulation.

(5) TIRES.—Put some insulating material under the wheels to prevent freezing tires to the surface of ice or snow.

(6) BRAKES.—Parking brakes should be OFF to prevent locking by ice formed through condensation.

(7) FROSTING.—When not heated, keep a hatch or panel open to prevent windshield and window frosting due to lack of ventilation.

2. OPERATION IN SANDY OR DUSTY CONDITIONS.

a. OPERATIONS.

(1) Never run up engines for a pre-flight.

(2) Reduce idling time on ground to a minimum.

(3) Avoid take-offs in the wake of other airplanes.

NOTE: Sand and coarse dust form a grinding compound which greatly accelerates wear on all parts of a ship, and particularly cylinder walls, rings, valve stems and guides.

b. MOORING.

(1) Place hold down stakes as deep as they will go or they may pull out.

(2) Close and cover all openings to keep sand out of the airplane.

(3) Cover windows and all plexiglass to avoid sand scratching.

(4) TIGHTLY cover pitot tubes and engines, including carburetor intakes, breathers, and exhaust ports.

Protect your eyes from glare over snow or sand...

APPENDIX IV
GLOSSARY

AMERICAN	BRITISH
A	
Accumulator (hydraulic)	Should not be confused with electrical accumulator or battery
Airdrome, Airfield, Airport	Aerodrome
B	
Battery, storage	Accumulator, storage battery
Beacon, airport	Aerodrome-proximity beacon
Beam, landing	Approach beam
Bombardier	Bomb aimer
C	
Ceiling	Cloud height
Check valve (hydraulic)	Non-return valve
Controls, air or cable	Flying controls
Copilot	Second pilot
Course	Track angle
Course, true	True track-angle
Cylinder (hydraulic)	Jack
D	
Drift	Drift-angle
E	
Empennage	Tail unit
Engine, power plant	Aero-engine
Engine section (complete)	Power plant or power egg
F	
Field, landing	Landing ground
Filter, air	Air cleaner
Flare, signal	Signal star, or signal projectile
Flight indicator	Artificial horizon
Float, drift	Sea marker
G	
Gasoline (gas)	Petrol
Glass, bullet-proof	Armour glass
Gross weight	All up weight
Ground (electrical)	Earth
Gyro, directional	Gyroscopic turn indicator
H	
Hardware	Ironmongery
Head, air speed	Pressure head
Hood (engine)	Bonnet
Horizon, gyro	Artificial horizon
I	
Indicator, direction	Gyroscopic turn indicator
Inflate	Top up
Interphone	Inter-communication
K	
Kerosene	Paraffin
L	
Land (to)	Alight
Landing gear	Undercarriage
Lean	Weak
Left	Port
Level off	Flatten out
Lift, useful	Disposable lift
Line, handling (grab line)	Handling guy
Line, mean	Centre line
Line, mooring	Mooring guy
Loop, radio	Loop aerial
M	
Mast, radio	Rod aerial
Meter, drift	Drift sight
Meter, frequency	Wavemeter
Muffler	Silencer
N	
Navigation, air	Avigation
O	
Operator, radio	Wireless operator
P	
Panel, outboard	Outer plane
Pelorus	Bearing plate
Piston pin	Gudgeon pin
Pitot	Spigot
Pitot tube	Pressure head
Pressure, manifold	Boost pressure or boost

AMERICAN	BRITISH
R	
Raft, life	Dinghy
Reticle	Graticule
Right	Starboard
Rings, mooring (mooring lugs)	Picketing rings
Roll, snap	Flick roll
S	
Set, command	Pilot controller set
Set, liaison	General purpose set
Set screw	Grub screw
Speed, calibrated air	Indicated air-speed (A.S.I.)
Speed, indicated air (I.A.S.)	Air-speed indicator reading
Speed, rated engine	Maximum rpm for continuous cruising
Stabilizer, horizontal	Tail plane
Stabilizer, vertical	Fin
Stack	Pipe (single)
Surface control lock	Locking gear
Surface controls	Flying controls
Sylphon	Aneroid
T	
Tab, trim	Trimming tab
Tachometer	Engine speed indicator (E.S.I.)
Thrust, effective propeller	Net thrust
Tube (radio)	Valve
V	
Valve, dump	Jettison valve
Valve (fuel or oil)	Cock
W	
Weight, empty	Tare weight or tare
Windshield	Windscreen
Wing	Main plane

WARNINGS

1. COWL FLAPS must be OPEN for all ground operation except for warm-up during extremely cold weather.
2. PROPELLERS must be at "AUTOMATIC" and "INC. RPM" for STARTING, WARM-UP, and TAKE-OFF.
3. WING FLAPS must not be lowered above 185 mph IAS.
4. LANDING GEAR must not be extended above 185 mph IAS.
5. LOCK PINS of landing gear are INDICATED IN PLACE by indicators on instrument panel (fig. . . .).
6. WARNING HORN sounds when gear is extended but NOT LOCKED, either or both throttles closed.
7. Maneuvers prohibited: all acrobatics, including vertical banks, SIDE SLIPS, and dives above placarded IAS (28,800 lb — 345 mph; 31,800 lb — 325 mph).
8. During flight, return landing gear, flaps, oil cooler, and cowl flap controls to neutral when not in use, except leave OIL COOLER and COWL FLAPS in OPEN position for take-off and climb.
9. Landing gear lever remains DOWN whenever gear is down except for emergency operation.
10. AVOID SIDE SLIPS, as the fuel system will not supply adequate fuel to each engine.
11. When you put landing gear lever up or down, allow gear to go completely up or down before moving lever again.
12. EXIT during flight *only* from lower hatches, NEVER from upper hatches.
13. EXTERNAL BATTERY CART *and* airplane's batteries, or AUXILIARY POWER PLANT *and* airplane's batteries MUST BE USED for cranking engine.
14. DON'T operate the gun turret without the guns installed.

The good pilot is the safe pilot...