

# FLIGHT MANUAL

A-700 AIRPLANE



CONSOLIDATED AIRCRAFT CORPORATION

SAN DIEGO, CALIFORNIA

free copy from [WWW.GERMANLUFTWAFFE.COM](http://WWW.GERMANLUFTWAFFE.COM)

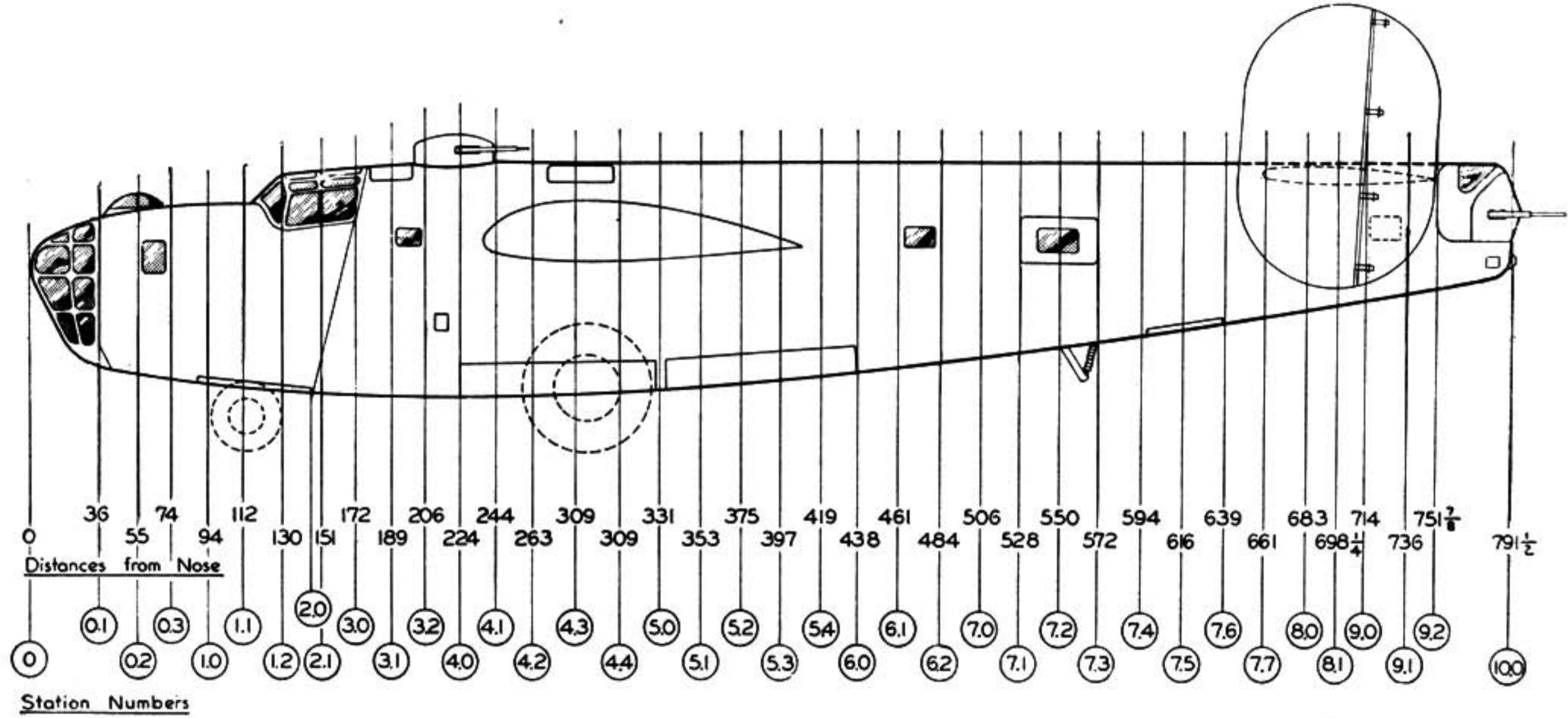
CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below

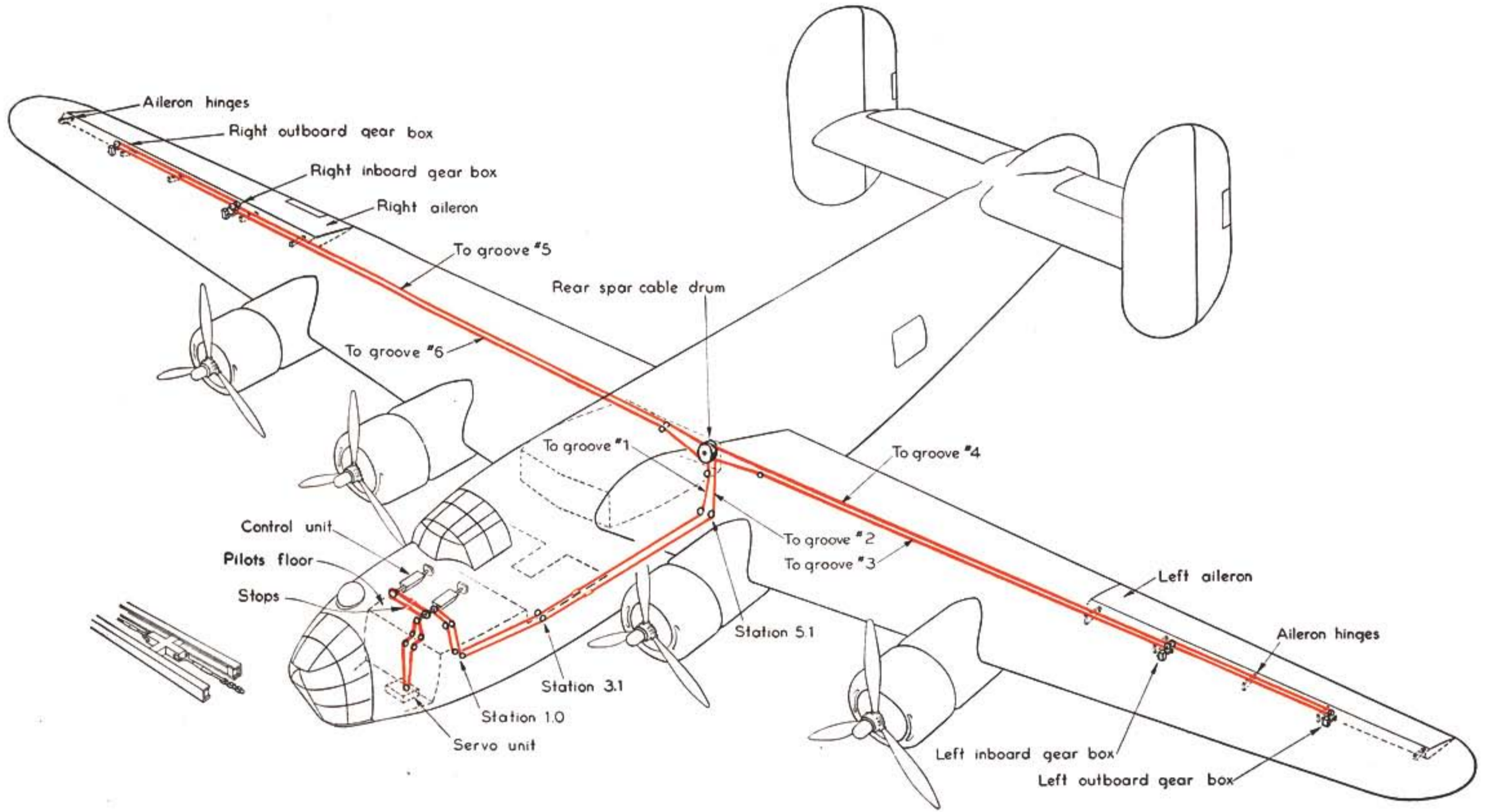


- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL



**FUSELAGE STATION DIAGRAM  
B-24D**



**AILERON CONTROL ROUTING**

trimmed by use of the trim tabs. If the Pilot attempts to hold the full stick load, his sudden relaxing can apply a destructive force to the airplane.

**Brakes and Taxiing**—The brakes are operated by two sets of interconnected pedals from either the Pilot's or Co-Pilot's side. The hydraulic brakes operate on both an inboard and outboard drum on each main wheel. Failure of either the inboard or outboard system will leave  $\frac{1}{2}$  braking power. The operation of the hydraulic brakes is smooth and not "touchy." Increasing pedal pressure increases braking pressure proportionately.

The nose wheel is free to swivel  $45^\circ$  each way and is damped against shimmying. Any shimmy should not be tolerated for it can be cured by proper servicing of the dampers. Turning too sharply will damage the nose gear.

The airplane can and should be taxied by using outboard motors without the brakes.

Avoid overheating of brakes caused by applying them for long periods. Do not make small radius turns. Do not lock the inside wheel as it tears the rubber. Allow the inside wheel to roll. When necessary to use the brakes, they should be coordinated with applications of power.

The airplane has no inherent tendency to ground-loop and can be turned to either side while taxiing at a fast rate.

If the brakes have been used to any great extent prior to taxiing up to the line, allow the brakes to cool before applying the parking brake.

The main landing gear is located at approximately 40% of the M.A.C. C.G. locations forward of this point obviously will have no tendency to rock the airplane so as to lift the nose wheel off the ground, while movement of C.G. aft will prevent nose wheel contact.

**Take-off**—Take-off procedure is consistent with that of other large airplanes of the tri-cycle landing gear type and the ship will come off the ground easily at 110 MPH (175 KmPH; 95 Knots) for gross weights up to approximately 45,000 pounds (20,412 Kg.) to 130 MPH (210 KmPH; 115 Knots) for heavier loads.

After opening the throttle hold the brakes until the manifold pressure reaches 25" Hg. This permits the turbo regulator to stabilize and results in a smooth flow of power from all engines, and makes it much easier to maintain a straight course on take-off. (See "Turbo Supercharger.")

**Climb**—The most practical speed for the best average rate of climb is 150 MPH (240 KmPH; 130 Knots), 2550 RPM—41" to 45 $\frac{1}{2}$ " Hg.)—See "Climb Chart" for accurate data.

**Stall**—The stalling characteristics of the airplane depend, in addition to the inherent design, on wing flap setting, cowl flap position, landing gear position, the power setting, and whether de-icer system is operating.

The stalling point of the B-24D and B-24E airplanes is clean and forewarned by a tail shake and slight pitching. The complete stall is followed by the airplane falling off to either side without a tendency to spin. Due to the aerodynamic cleanliness of the design, the airplane will pick up speed rapidly. Correct the slight yawing produced by falling to one side or the other by application of rudder, **the use of ailerons to lift a wing under this condition is forbidden until flying speed is recovered.**

Extended wing flaps will reduce the stalling speed, as will also the use of power. Cowl flaps should be closed prior to stalling to avoid tail buffeting.

## **BEFORE TAKEOFF:**

1. Cabin and Bomb Doors "Closed"
2. Surface Controls—Checked for Freedom & Direction
3. Trim Tabs—Set for "Take-off"
4. Mixtures—Auto Rich
5. Check Fuel Pressure with Booster Pumps "OFF"—"ON" after Check
6. Check Engines at 2000 RPM after head temperature reaches 150° C.
7. Check Switches and Instrument Readings (Vacuum Pressure On—No. 1 and No. 2 Engines— $4 \pm \frac{1}{4}$  at 1000 RPM)
8. Check High RPM Lights "ON"
9. Check Manifold Pressure Full Throttle
10. Supercharger Set and Locked (49" @ 2700 RPM)
11. Wing Flaps—"DOWN" 20° on No. 3 Run Up
12. Cowl Flaps 1/3 "OPEN" (Greater Opening Buffets Tail)
13. Auxiliary Power Unit "OFF"
14. Generators "ON"
15. Landing Gear Lever "DOWN" Position to Check Kick-Out Pressure (should be 825 Lbs. to 875 Lbs.)
16. Gyro Instruments Uncaged
17. Nose Clear of Crew

## **READ BEFORE TAKE-OFF**

### **AFTER TAKE-OFF AND DURING CLIMB:**

1. Gear Up on Pilot's Signal (Brakes Applied to Stop Wheels)
2. Turbo Superchargers Reduced to 45.5"
3. Reduce RPM to 2550
4. Raise Flaps only after gear up lever returns to neutral
5. Fuel Booster Pumps "OFF" (Unless Required for High Altitude Flying)
6. Cowl Flaps adjusted
7. Auxiliary Hydraulic "OFF" on other than local flight

## **BEFORE LANDING:**

1. Notify Crew
2. Nose Clear of Crew
3. Auxiliary Hydraulic Power "ON"
4. Brakes Check Pressure (850 Lbs. to 1050 Lbs.)
5. Automatic Pilot—"OFF"
6. Cowl Flaps—"CLOSED"
7. Mixtures—"Auto Rich"
8. Intercooler shutters "OPEN" (Unless Carburetor is Icing)
9. Booster Pumps—"ON"
10. Wing De-Icer—"OFF"
11. Landing Gear Lever "UP" to Check Kick-out Pressure (Should be 1050 to 1100 P.S.I.)
12. Landing Gear "DOWN" (Air Speed not to Exceed 155 MPH)

### Sequence of Operation:

- a. Pressure Builds up Suddenly then Drops
- b. Green Light Turns On

trol, resulting in leaner fuel/air ratios than Automatic Rich. The two illustrations on Page 37 show the reduction in mixture strength resulting from changing the control from Automatic Rich to Automatic Lean. During the favorable conditions of stabilized level flight or a cruising descent, Automatic Lean may be used in the cruising power range when fuel economy is of primary importance and when cooling is adequate. However, for conservative operation, Automatic Rich is the preferable mixture control setting.

**Full Rich**—Full Rich setting of the mixture control renders inactive the altitude compensating device built into the carburetor. Without compensation for density of air flowing through the venturis, the fuel/air ratio will become increasingly richer with altitude. The Full Rich mixture control setting is recommended only when the automatic mixture control unit is believed to be faulty.

**Idle Cut-Off**—Moving the mixture control past Automatic Lean to the end of its travel will stop all fuel flow, regardless of fuel pressure. Idle Cut-Off is intended principally for stopping the engine without the hazard of backfiring.

As suggested by the graph representing relative mixture strength, plotted beneath the control quadrant in Figure 1 (Page 37), manual adjustment of the mixture control between the four positions will provide a fairly uniform transition in the mixture delivered to the engine. **Manual control**, if necessitated by malfunctioning of the automatic altitude compensating unit, **should be used cautiously, and leaning of the mixture should not exceed that required for smooth operation.**

Referring again to Figure 2 (Page 37), mixture strength is increased below the cruising power range. This enrichment provides easier starting and the dependable acceleration needed in taxiing and the approach for a landing. Fuel metering in this power range is accomplished largely by throttle opening.

The accelerating pump is operated by, and in proportion to, the momentary changes in air pressure in the supercharger entrance. The accelerating pump is not connected with the throttle or throttle controls. Hence, when the engine is not running, no fuel is pumped from the carburetor when the throttle is moved, no matter how rapidly.

**Mixture Control Quadrant Requirements**—The mixture control quadrant should have a stop or movable catch at the "Automatic Rich" position. "Full Rich" is seldom used and is provided only to care for emergency operation in case the automatic unit is not functioning. A second stop or catch is desirable at the "Automatic Lean" position to guard against inadvertent movement toward the "Idle Cut-Off" position.

**Starting—With Electric Inertia Starters**—Where engines are warm from previous running or where outside air temperatures are 60° F. (15° C.) or above, only 4-5 seconds priming will be necessary.

1. Have the throttle approximately 1/5 open (after the springiness of the control system has been taken up).
2. Mixture control in the "Idle Cut-Off" position.
3. Turn Ignition Switches to "Both ON."
4. Be sure booster pump is "OFF" after priming.

---

## TURBO SUPERCHARGER

---

**General**—The power which an internal combustion engine develops decreases as the pressure of the charge entering the cylinders decreases. The density (weight per unit volume) of the atmosphere decreases with increase in altitude. The pressure in the cylinders of an unsupercharged aircraft engine will, therefore, decrease with altitude, with a corresponding reduction of engine power. The function of the supercharger is to overcome this loss of power by supplying air to the engine, at or above sea level pressure (27" to 30" Hg.) from sea level to critical altitude of 25,000 feet.

The turbine supercharger is a centrifugal compressor which derives its operating power from the exhaust of the engine. The engine exhaust gas is conducted to a nozzle box and directed against buckets on the turbine wheel.

The impeller or rotor, on the same shaft as the turbine wheel, is the only major moving part. The speed of the rotor is controlled by a waste-gate in the exhaust system which controls the pressure of the exhaust against the impellers. The speed control is, therefore, very accurately controlled.

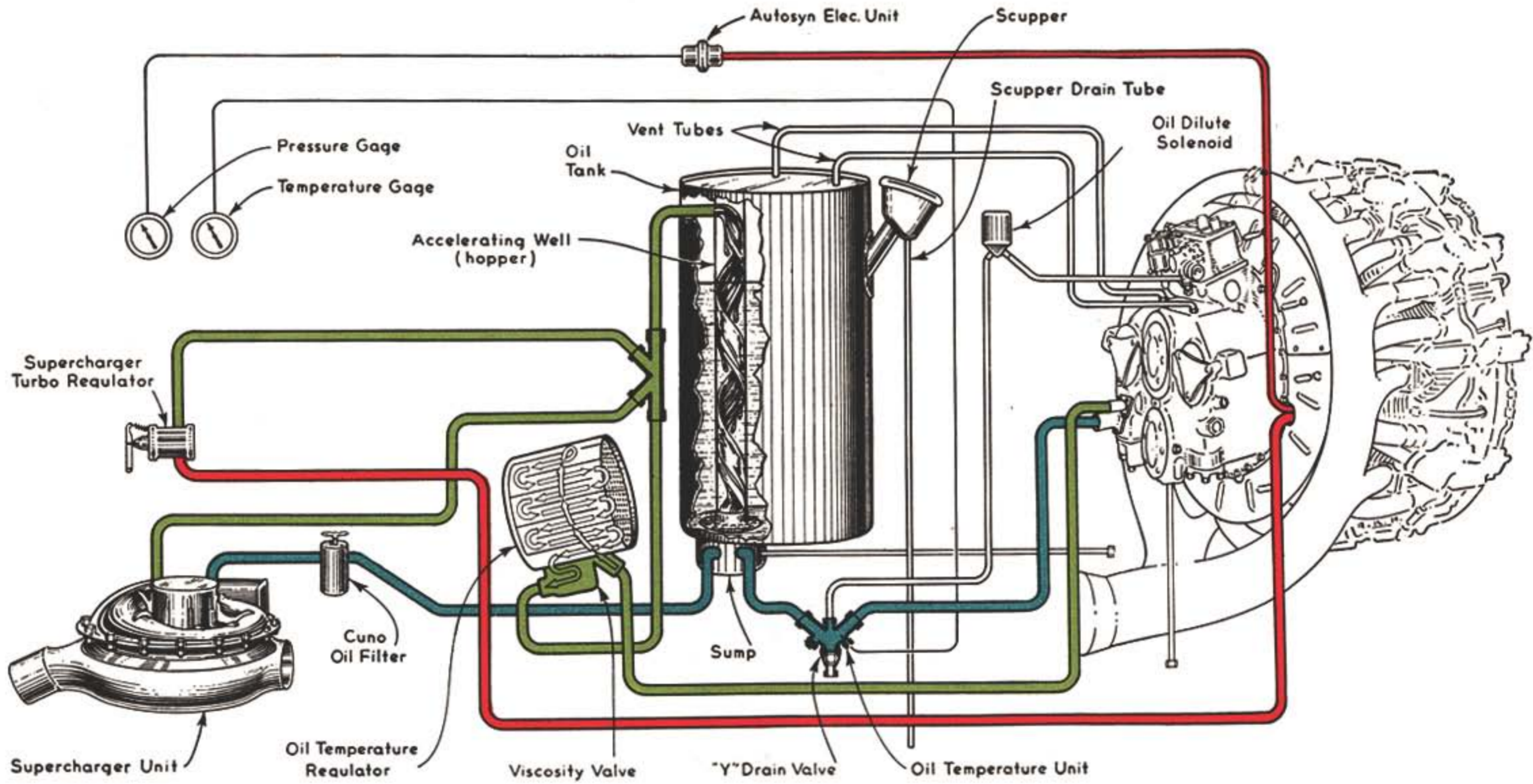
The engine supercharger would normally be sufficient to give full take-off power at sea level, but because of the intercoolers and ducts it is necessary to use the turbo superchargers for take-off to overcome the air drag within the installation. In climbing from sea level to altitude more and more boost is required (due to decreased atmospheric pressures 30" Hg. at sea level to 12" Hg. at 25,000 feet) in order to maintain approximately sea level pressure on the carburetor inlet.

If a flight is to be made above critical altitude it must be made at a sacrifice in horsepower. (The manifold pressure reduction will be  $1\frac{1}{2}$ " Hg. per 1000 feet above 25,000 feet.) This reduction of manifold pressure will keep within the maximum turbine RPM limits.

Because of exhaust back pressure, the engine with the exhaust-driven turbo supercharger must run at a slightly higher manifold pressure in order to obtain the same indicated or brake plus supercharger horsepower requirements.

If the engine RPM is reduced excessively the turbine will have insufficient gases to work with and a complete collapse of the cycle may occur. This type of operation gives the impression of improper supercharger regulation and in cases where this occurs the engine RPM should be increased.

**Intercoolers**—Heat of compression of air by the superchargers must be taken off before it reaches the engine; otherwise, the normal carburetor intake temperature limits will be exceeded. This is accomplished by intercoolers or radiators in the air intake duct between the turbo supercharger and the carburetor. Shutters on the intercooler are provided to regulate the carburetor air temperature to prevent icing. Intercooler shutters should only



OIL SYSTEM  
B-24D

LEGEND  
 Suction from Tank —  
 Return to Tank —  
 Pressure —

**FUSE BOX AT STATION 4.0**

---

Bomb Bay Lights.....	5A
Bomb Door Indicator Lts.....	15A
De-Icer Motors.....	10A
Flap Trans. & Warning Horn.....	5A
Flight Deck Light.....	5A
Nose Wheel Compt. Light.....	5A

---

**FUSE BOX AT STATION 5.4**

---

Bottom Turret F. Suit Heater.....	20A
Bottom Turret Safety Sw.....	5A
Tail Compt. Lt.....	5A
Fuel Transfer Pump.....	15A
Radio Compt. Exten. Light.....	2A
Tail Turret F. Suit Heater (up to 41-11938).....	20A
Tunnel Gunner & Radio Cmpt. Lt.....	5A

---

**FUSE BOX AT STATION 5.4 (Cont'd)**

---

Bomb Bay F. Suit Heater (41-23640 & on).....	20A
---	-----

---

**RELAY PANEL**

---

SK 22A Relay: AC.....	5A
SK 22A Relay: DC.....	2A

---

**TUNNEL FUSE BOX—STA. 6.1 (41-23640 & ON)**

---

Side Gun. F. Suit Htrs. (2).....Ea.	20A
Tail Tur. Ext. Lt.....	2A
Bot. Tur. Ext. Lt.....	2A
Tail F. Suit Htr.....	20A
Camera F. Suit Htr. (41-23640 & on).....	20A

---

\* = Ships #41-11587 to #41-11756

\*\* = Ships #41-11757 and on

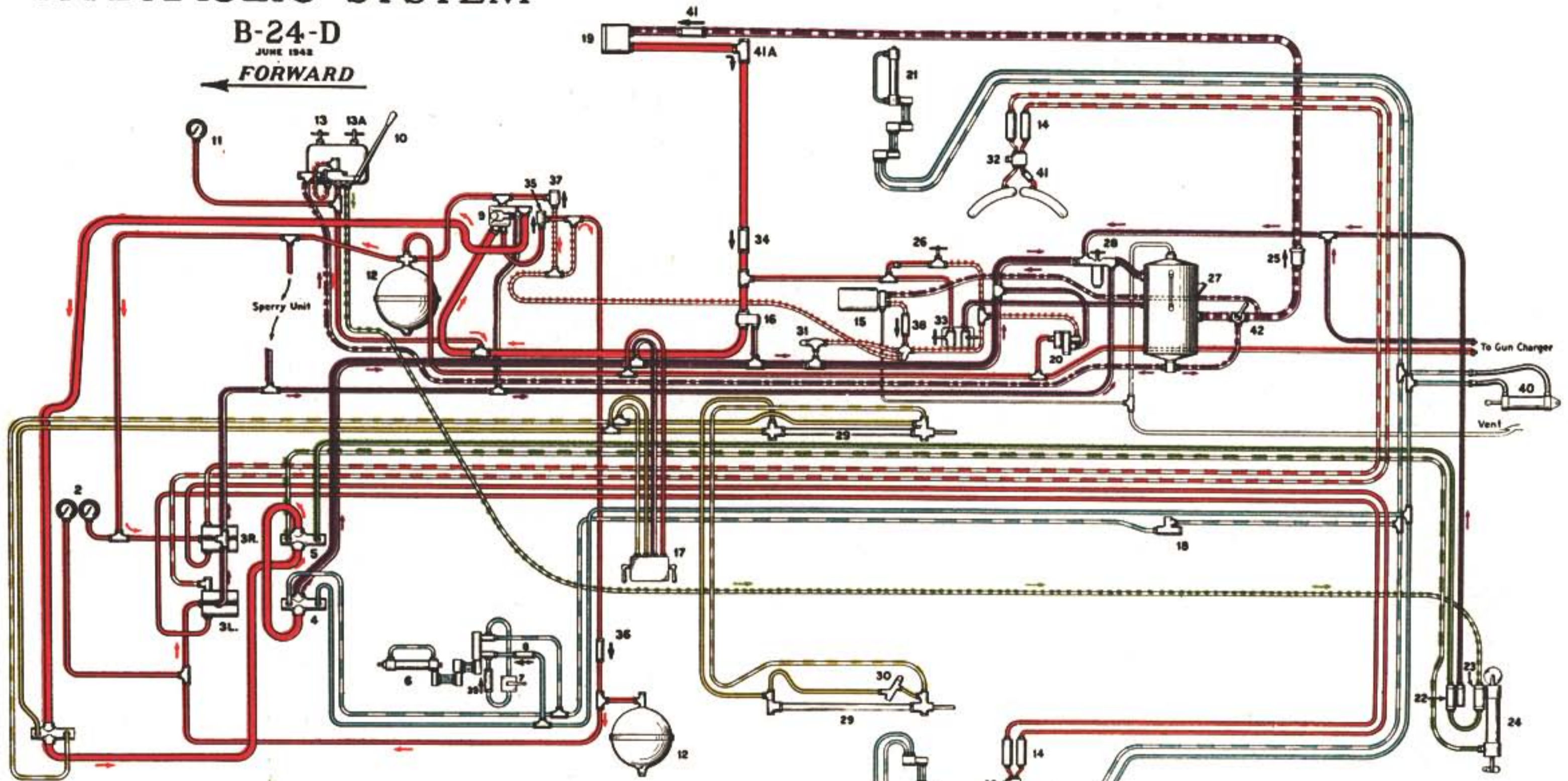
\*\*\* = Ships #41-11587 to #41-11671

# HYDRAULIC SYSTEM

B-24-D

JUNE 1942

← FORWARD



## HYDRAULIC UNITS

- |                                |  |                                 |
|--------------------------------|--|---------------------------------|
| 1 Bomb Door Control Valve      | 15 Electric Pump                               | 29 Bomb Door Cylinders (L.&R.)  |
| 2 Brake Pressure Gages         | 16 Relief Valve                                | 30 Relief Valve                 |
| 3 Brake Control Valves (L.&R.) | 17 Bomb Door Emergency & Utility Control Valve | 31 Relief Valve                 |
| 4 Landing Gear Control Valve   | 18 Main Landing Gear Restrictor                | 32 Brake Bleeder Valve          |
| 5 Flap Control Valve           | 19 Engine Driven Pump                          | 33 Test Stand                   |
| 6 Nose Wheel Cylinder          | 20 Pressure Switch                             | 34 Engine Pump Check Valve      |
| 7 Nose Wheel Dump Valve        | 21 Landing Gear Cylinder (L.&R.)               | 35 Check Valve                  |
| 8 Nose Wheel Restrictor        | 22 Relief Valve                                | 36 L. Accumulator Check Valve   |
| 9 Unloading Valve              | 23 Shuttle Valve                               | 37 R. Accumulator Check Valve   |
| 10 Hand Pump                   | 24 Flap Cylinder                               | 38 Auxiliary Pump Check Valve   |
| 11 Hydraulic Pressure G        | 25 Suction Line Check Valve                    | 39 Nose Wheel Cylinder          |
| 12 Accumulators (L.&R.)        | 26 Emergency Shut Off Valve                    | 40 Tail Skid Operating Cylinder |
| 13 Emergency Pump Valve        | 27 Fluid Reservoir                             | 41 Automatic Seal Coupling      |
| 13A Emergency Flap Valve       | 28 Filter                                      | 41A Automatic Seal Coupling     |
| 14 Brake Deboosters (L.&R.)    |  | 42 Suction Valve                |

## LEGEND

- |                    |                     |
|--------------------|---------------------|
| MAIN PRESSURE      | LANDING GEAR DOWN   |
| AUXILIARY PRESSURE | LANDING GEAR UP     |
| EMERGENCY PRESSURE | FLAP DOWN           |
| RETURN             | FLAP EMERGENCY DOWN |
| SUCTION            | FLAP UP             |
| VENT               | BRAKES LEFT         |
| BOMB DOOR OPEN     | BRAKES RIGHT        |
| BOMB DOOR CLOSED   |                     |



CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

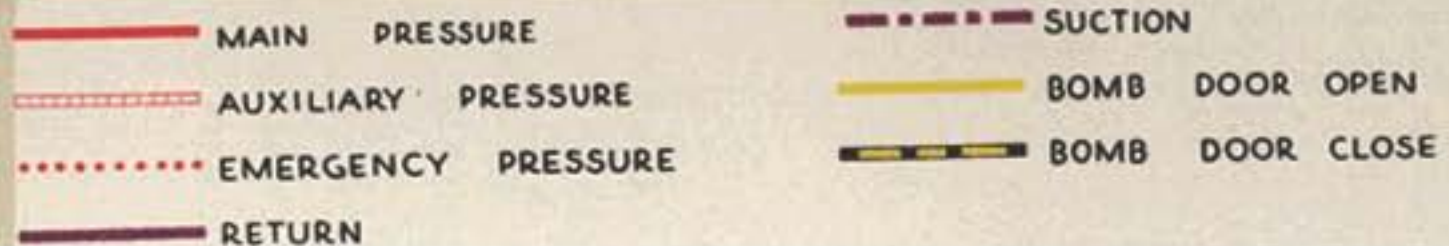
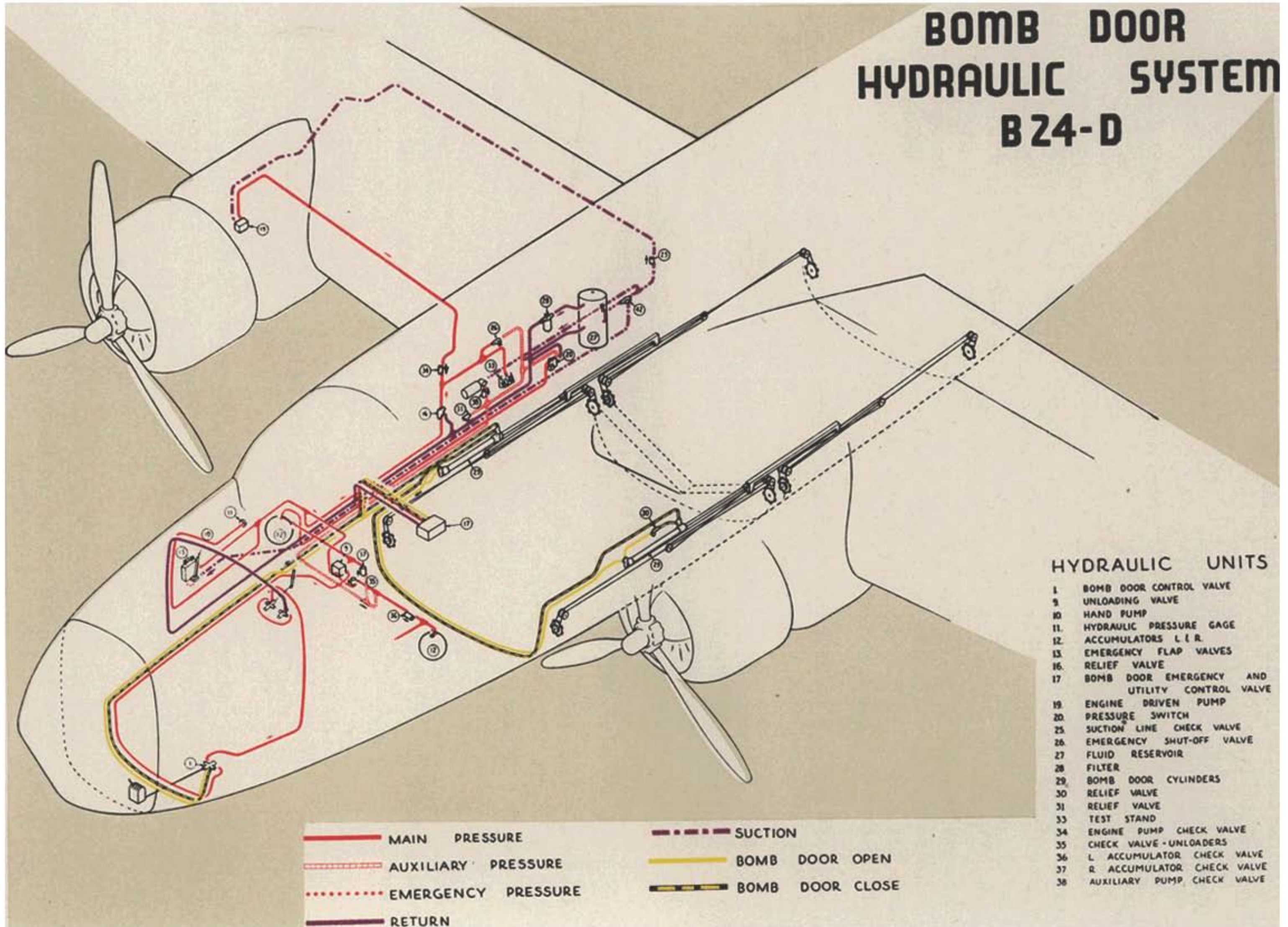
- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

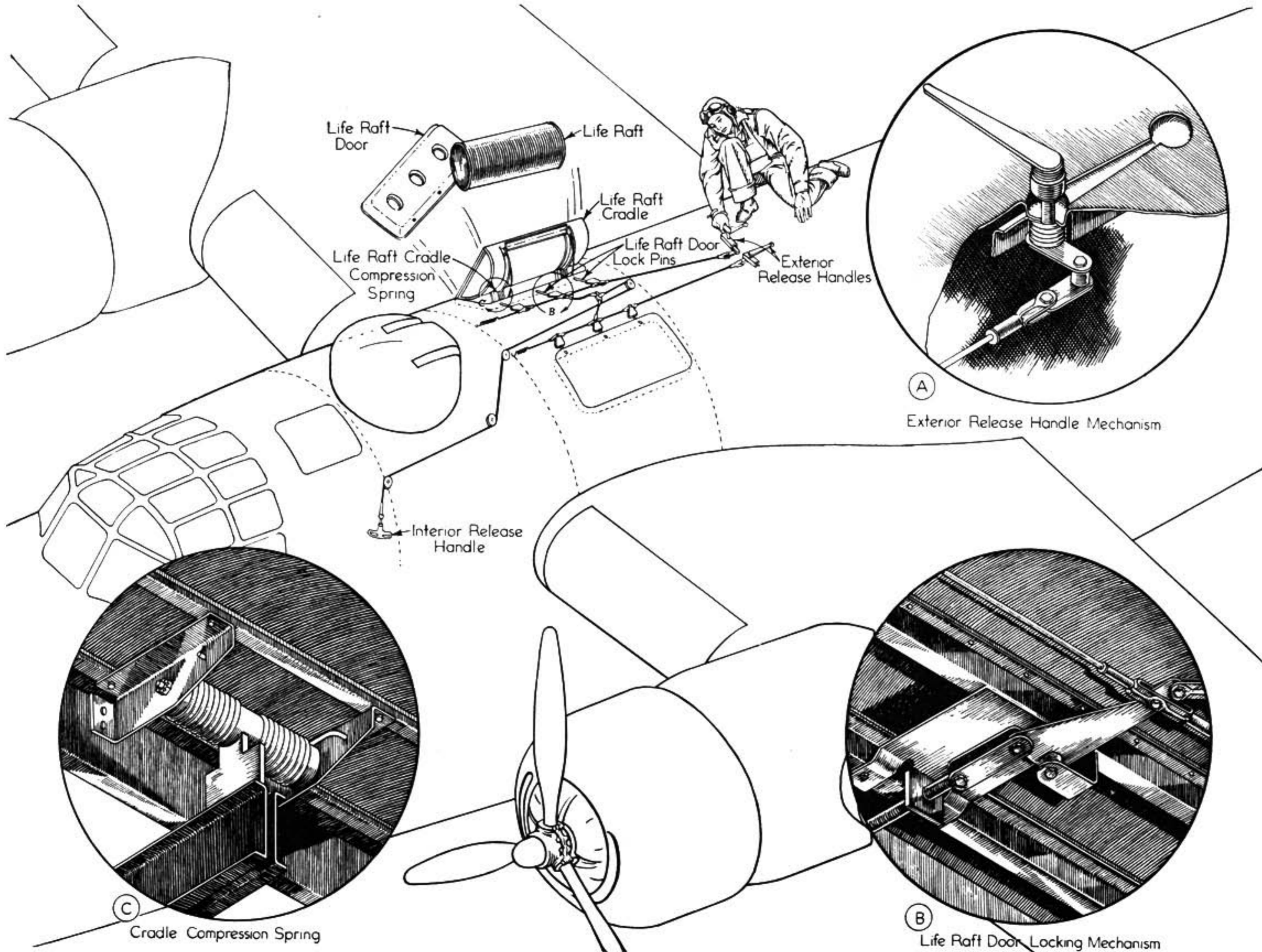
CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

# BOMB DOOR HYDRAULIC SYSTEM B24-D



## HYDRAULIC UNITS

- 1 BOMB DOOR CONTROL VALVE
- 9 UNLOADING VALVE
- 10 HAND PUMP
- 11 HYDRAULIC PRESSURE GAGE
- 12 ACCUMULATORS L/R
- 13 EMERGENCY FLAP VALVES
- 16 RELIEF VALVE
- 17 BOMB DOOR EMERGENCY AND UTILITY CONTROL VALVE
- 19 ENGINE DRIVEN PUMP
- 20 PRESSURE SWITCH
- 25 SUCTION LINE CHECK VALVE
- 26 EMERGENCY SHUT-OFF VALVE
- 27 FLUID RESERVOIR
- 28 FILTER
- 29 BOMB DOOR CYLINDERS
- 30 RELIEF VALVE
- 31 RELIEF VALVE
- 33 TEST STAND
- 34 ENGINE PUMP CHECK VALVE
- 35 CHECK VALVE - UNLOADERS
- 36 L ACCUMULATOR CHECK VALVE
- 37 R ACCUMULATOR CHECK VALVE
- 38 AUXILIARY PUMP CHECK VALVE



(A) Exterior Release Handle Mechanism

(B) Life Raft Door Locking Mechanism

(C) Cradle Compression Spring

**LIFE RAFT OPERATION**

---

# CONTROL LOCATIONS

---

The location of the majority of the controls listed below are shown on the following photo pages:

## FLIGHT CONTROLS:

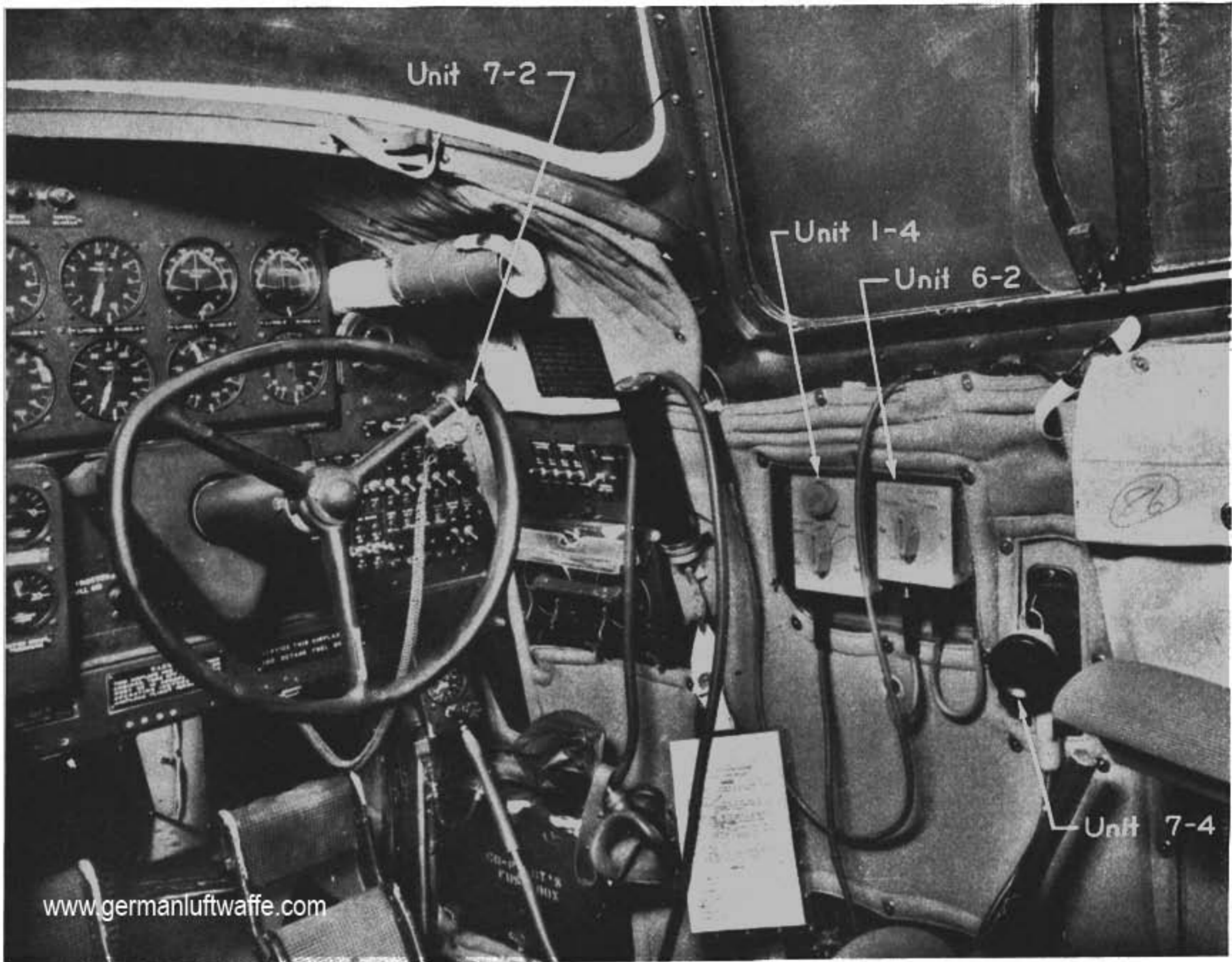
Page No.	Ref. No.	
2		Aileron—Control Column in Pilot's Compartment
2		Elevator—Control Column in Pilot's Compartment
2	55	Rudder—Rudder pedals in Pilot's Compartment
2	65	Aileron Trim—Aft of Pilot's Pedestal
2	76	Elevator Trim—Left of Pilot's Pedestal
2	61	Rudder Trim—On top of Pilot's Pedestal
2	59	Wing Flaps—Right of Pilot's Pedestal
73	99	Emergency Hand Pump Handle—Right of Co-Pilot on floor
73	98	Emergency Hand Pump Valves—Outboard of Handle

## LANDING GEAR AND BRAKE CONTROLS

Page No.	Ref. No.	
2	67	Landing and Tail Skid Gear—Left rear of Pilot's Pedestal
100	115	Emergency Landing Gear Crank—Centerline of front spar
2	74	Horn Interruption Switch—On Pilot's Pedestal
2	54	Brake Pedals—On top of rudder pedals
2	66	Parking Brake—Aft of Pilot's Pedestal

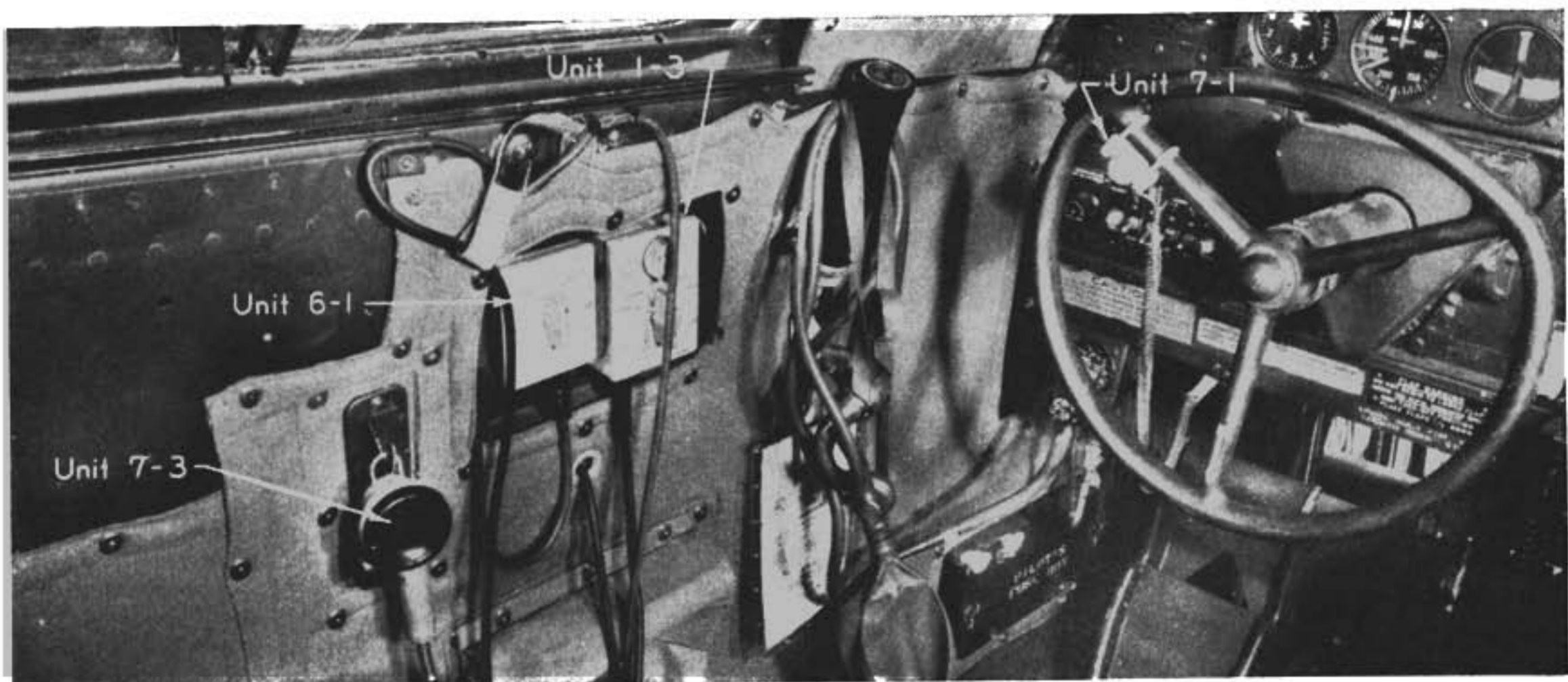
## POWER PLANT CONTROLS

Page No.	Ref. No.	
2	30	Throttle—Quadrant on Pilot's Pedestal
2	34	Mixture—Quadrant on Pilot's Pedestal
2	46	Throttle Lock—Right of above quadrant. (This lock is No. 46 at the <b>right</b> of photo)
2	53	Cowl Flap Switches—On Pilot's Pedestal
2	47	Battery Switches—Auxiliary Switch Panel
2	50	Magneto Switches—Ignition Switch Panel
2	41	Starter Switches—Co-Pilot's Switch Panel



**Co-Pilot's Controls**

Unit 1-4, Interphone Control; Unit 6-2, Filter Switch Box; Unit 7-2, Push Button  
Microphone SW; Unit 7-4, Microphone



**Pilot's Controls**

---

## LIAISON RADIO EQUIPMENT

---

**Unit 3—The Liaison Radio Equipment** is identified as SCR-287-A equipment and includes the following units:

**Unit 3-1**—One BC-375-D Transmitter. Page 126

3-3	One TU-26	Transmitter Tuning Unit Frequency Range	200 to 500 KC	} See Page 134
3-4	One TU-5B	Transmitter Tuning Unit Frequency Range	1500 to 3000 KC	
3-5	One TU-6B	Transmitter Tuning Unit Frequency Range	3000 to 4500 KC	
3-6	One TU-7B	Transmitter Tuning Unit Frequency Range	4500 to 6200 KC	
3-7	One TU-8B	Transmitter Tuning Unit Frequency Range	6200 to 7700 KC	
3-8	One TU-9B	Transmitter Tuning Unit Frequency Range	7700 to 10000 KC	
3-9	One TU-10B	Transmitter Tuning Unit Frequency Range	10000 to 12500 KC	

**NOTE:** Units 3-3 to 3-9 inclusive are removable units installed in Unit 3-1 to change frequency range.

Six CS-48 Stowage cases for transmitter tuning units.

3-11 One BC-306-A Antenna tuning unit. Page 131

3-12 SCR-211-D Frequency meter. Page 131

3-2 One BC-348-H Receiver. Tuning range 1500 KC to 18,000 KC. Page 128

3-10 One PE-73-C Dynamotor (Liaison). Page 133

3-13 One J-37 Transmitting Key. Page 128

3-14 One RL-42 Antenna reel. Page 140

3-15 One MC-163 Antenna Fairlead. Page 140

3-16 One F-10 Trailing Antenna

One W-T-7A, SC-D-3338 Antenna weight.

3-17 One X41-B10A16 Antenna Transfer Switch. Page 131

3-18 One BC-461 Antenna reel control box. Page 128

These units are located through the airplane as follows:

BC-375-D Transmitter Unit 3-1—Under radio table, right side of flight deck behind Co-Pilot.

Two CS-48 Stowage boxes for transmitter tuning units—Left rear of flight deck.

Two TU Tuning Units in flight deck stowage.

Four CS-48 Stowage boxes—Above bomb bay, left side, aft of wing center section.

Four TU units in stowage above bomb bay.

One BC-348-H Receiver—On operator's table behind Co-Pilot.

One PE-73-C Dynamotor—Under flight deck, forward of anti-icer motors.

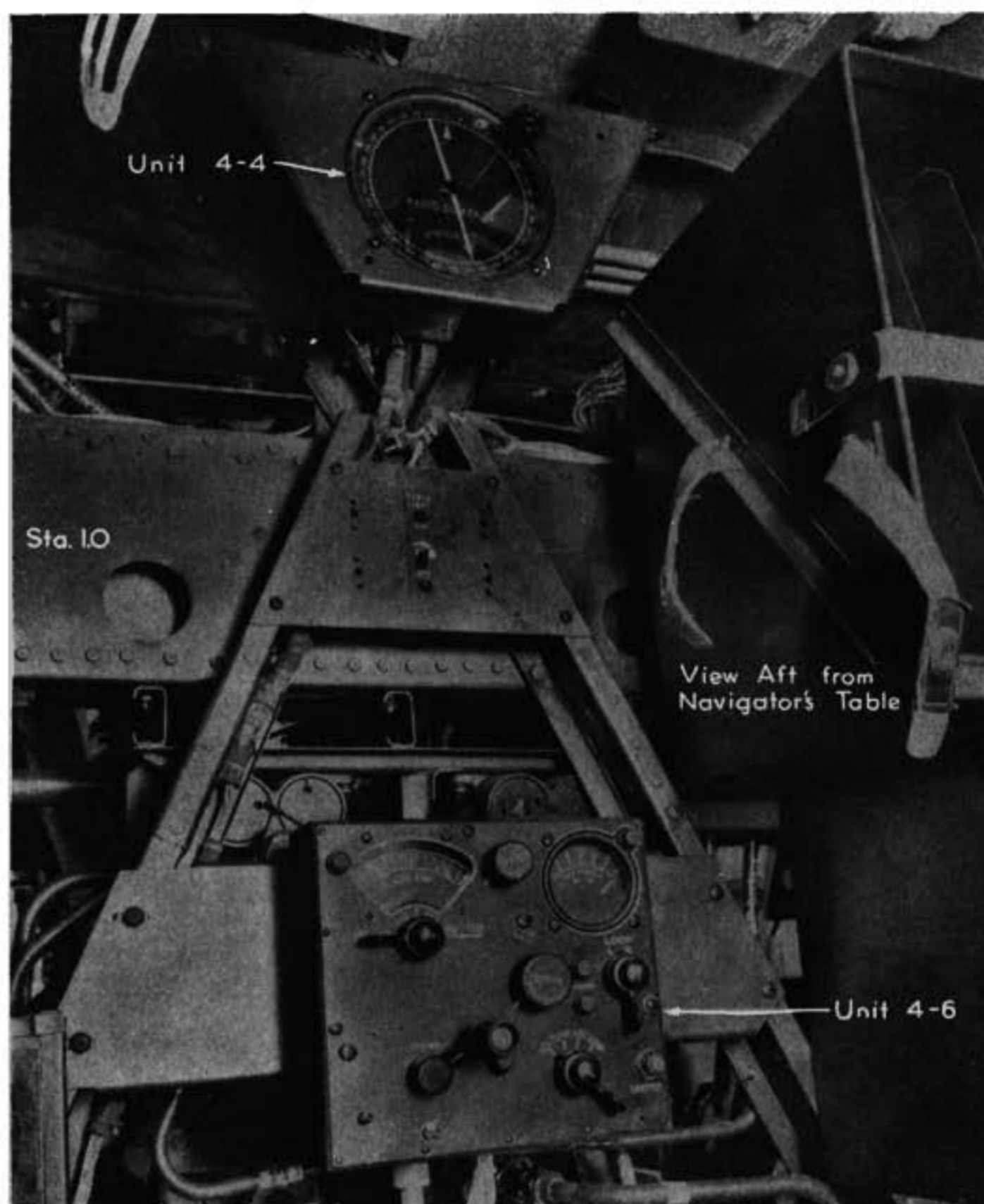
One J-37 Key—On operating table.

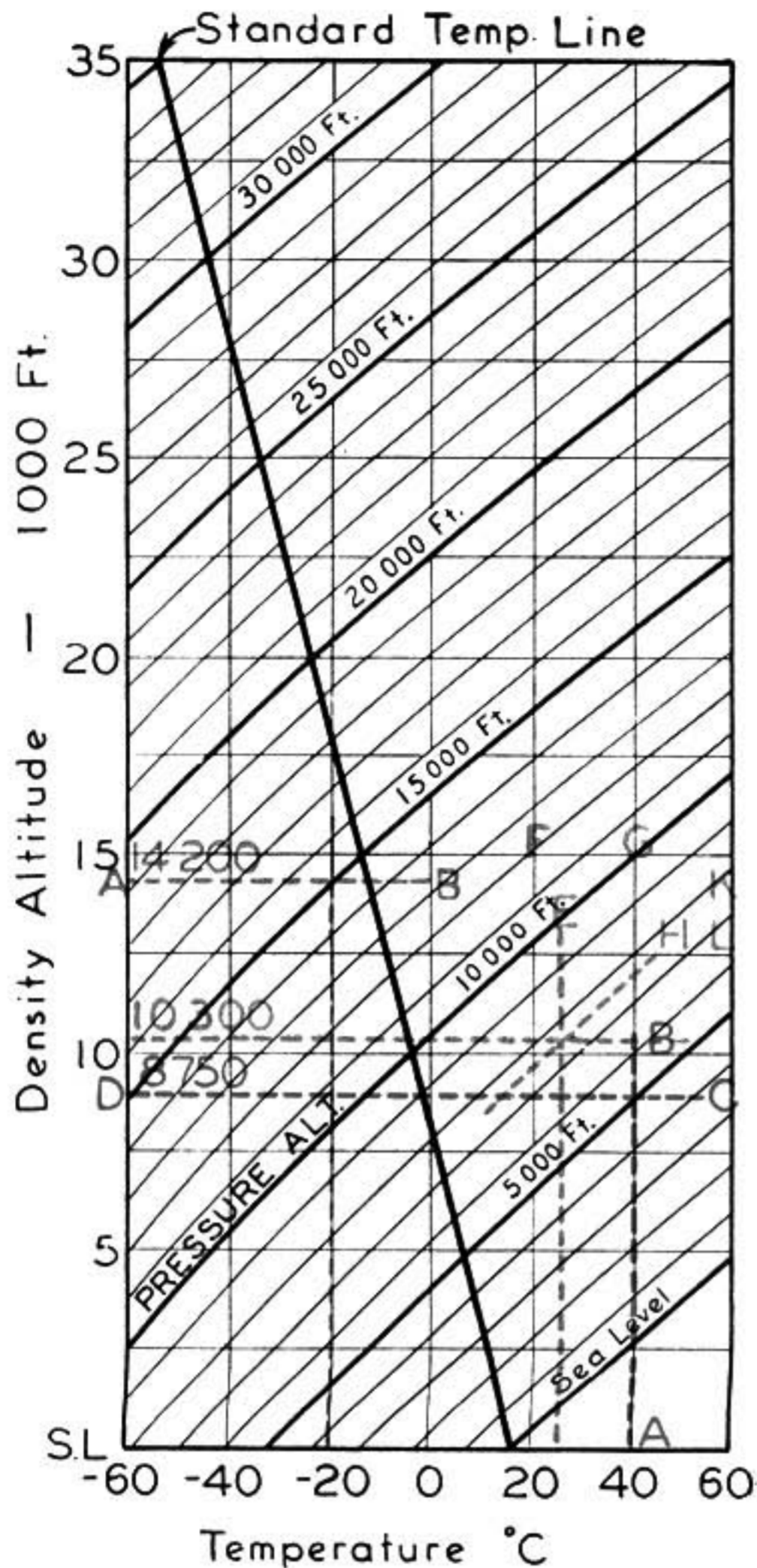
One RL-42 Antenna reel—Under flight deck, forward of dynamotor on flight deck floor brace.

operated electrically or manually, but not by both simultaneously, from the remote control boxes Pages 122, 139. For electrical control depress the button marked "Control" (8) in the lower right corner. When control is established, a green indicating light (10) will be illuminated on the face of the remote control panel.

Referring to page 122 the equipment is turned "ON" and "OFF" with a four position switch (11) on the face of the remote control units. This switch (11) is marked "OFF"—"COMPASS"—"ANT."—"LOOP." In the compass position, both the loop and the fixed antenna are connected. In the antenna position, the fixed antenna only is used. In the loop position, only the loop is used. Band selection is accomplished by rotating the selector switch (5) to the frequency band desired as indicated

on the dial (2) followed by tuning to desired frequency by operation of tuning control (9). Brilliancy of dial illumination is controlled by the rheostat (3) on the face of the control box. Always tune for maximum swing of the carrier meter (4) located in the upper right corner of the control box, Page 122.





### Pressure and Density Altitude

#### Example 1:

Pressure altitude = 5000'  
 Temperature = 40° C.  
 Read from chart—density altitude = 8900'

To use chart: Select temperature line 40°—vertical line AB. Follow this line until it intersects the **pressure** altitude 5000 foot line CD—(interpolate for intermediate altitude where necessary). (See Example 3 below.) Extend this intersection point to the left to the density altitude line and read; density altitude 8900'.

#### Example 2:

Pressure altitude = 15,000'  
 Temperature = -20° C.  
 Read from chart—density altitude "AB." = 14,400'

#### Example 3:

Pressure altitude = 7500'  
 Temperature = 25° C.  
 Interpolate line E between F and G  
 Interpolate line H between K and L  
 Extend intersection of E and H to density altitude and read density altitude + 10,300'

NOTE: Pressure altitude is the altimeter reading when the barometric scale on the altimeter is set to 29.92" Hg. (1013 millibars).

### AIRSPEED ALTITUDE CORRECTION

NOTE: The location of the pitot static heads on the B-24D Airplane is such that there is a small position error in indicated airspeed which is the same for all airplanes of this model regardless of the instrument error. A calibration of the Pilot's Airspeed Indicator for each airplane should be made in an instrument laboratory. The position error has been taken into account in all the charts in this manual so that only the correction for the individual Pilot's instrument error need be made.

Conversion from indicated airspeed to true airspeed for any density altitude may be accomplished by using this chart.

**Example 1:** Pilot's indicated airspeed = 160 MPH  
 Density altitude = 7500'  
 Find true airspeed = 175 MPH

On chart, follow 160 MPH IAS line AB to intersection E with 7500' density altitude line CD. Read true airspeed 175 MPH on curve EF.

## EXAMPLE SHEET

### RANGE & ENDURANCE VS. GROSS WEIGHT

(Document #32-5A & B-3)

(Document #32-5C & D-3)

**Note:** Since maximum allowable use of normal rated power is limited to one hour duration, the curve of range at normal rated power is shown on the following charts for the purpose of finding the decrease in weight for the time during which this condition is necessary.

**Case I:** Enter chart with Initial Gross Weight at Point A and Read  $R_1$ . A-B along weight scale = weight of fuel used during the flight.  $R_2 - R_1$  = Range for amount of fuel used.

**Case II:** In this case, bombs are dropped at some point during the flight. C-D along weight scale = Weight of fuel used before dropping bombs.

$R_4 - R_3$  = Range before dropping bombs.

D-E along weight scale = Weight of bombs dropped.

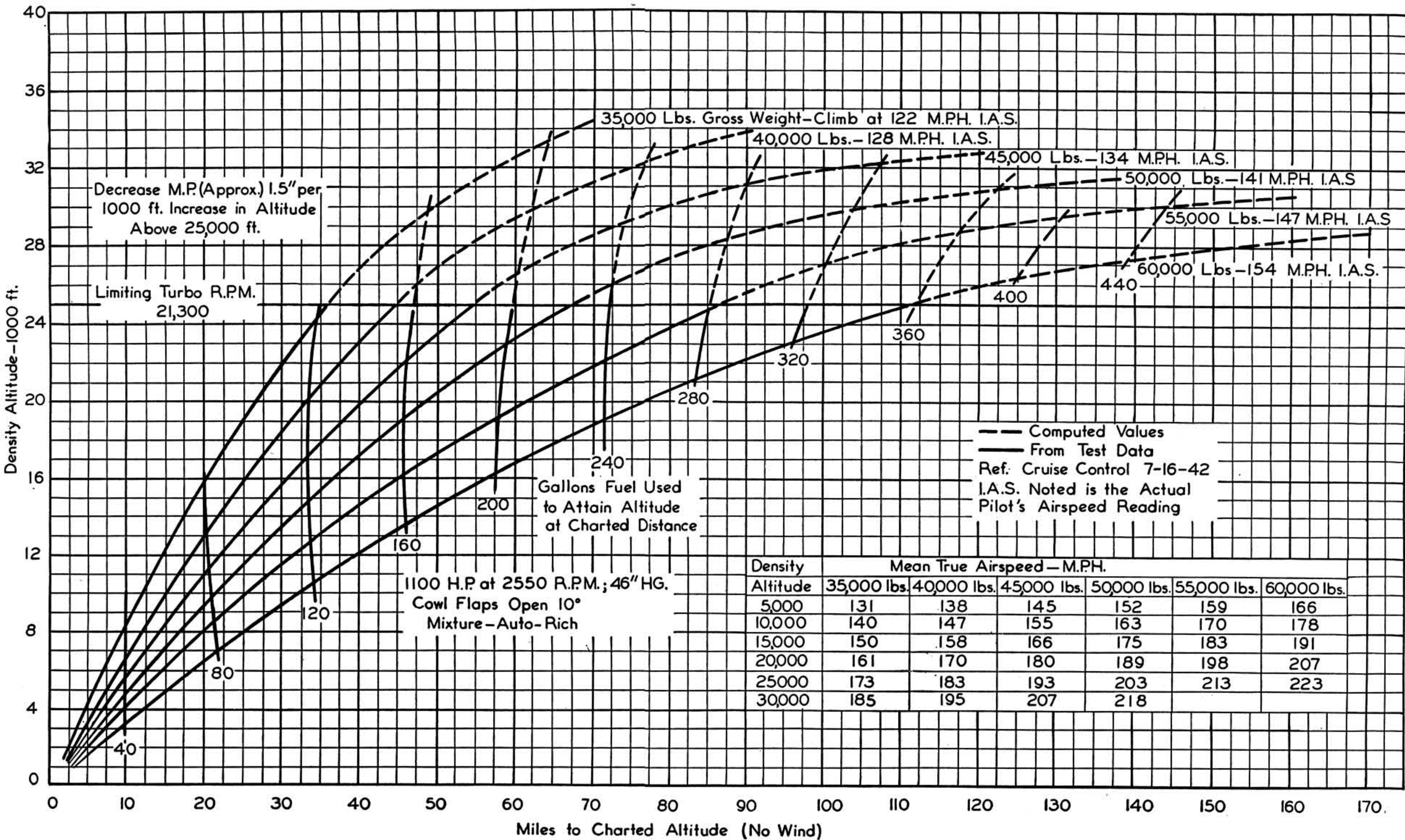
E-F along weight scale = Weight of fuel used after dropping bombs.

$R_6 - R_5$  = Range after dropping bombs.

$(R_4 - R_3) = (R_6 - R_5)$  = Total Range.

**Endurance:** Use same method as for range.

**MODEL B-24D**  
**Maximum Range Climb Control**  
**OPTIMUM CONDITION**  
 DOC. NO. 32-4-2



---

## HOW TO START – TAXI – WARM-UP – TAKE-OFF AND LAND THE B-24D AIRPLANE

---

**THE B-24D AIRPLANE**—The B-24 is a large airplane but it is neither difficult nor tricky to fly. The operation of any airplane, single or multi-engine, requires certain operations performed in a definite sequence. This sequence, as it applies to the B-24, is covered by a complete and explicit Pilot's Check-off List. This Check List must be followed exactly and intelligently. Even the most experienced Pilots can not remember a long detailed list. The Pilot's Check List, as included in the airplane and in this "Pilot's Flight Manual," is for the experienced B-24 Pilots as a reminder and a sequence check-off. Certain other ordinary routine operations, which the experienced Pilot does instinctively, must be performed in connection with this list and it is the purpose of this text to fill in these gaps so that the inexperienced Pilot who has never seen a B-24 can learn the entire operation in detail and follow the Check-off List intelligently. We will follow through each step from the time the crew first approaches the airplane until the airplane returns to the field from its flight.

**OPENING THE BOMB BAY DOORS**—As the crew approaches the airplane the Flight Engineer opens up by unlocking and opening a small access door on the right side of the fuselage. Reaching in through this door he opens the bomb doors by pulling outward on the handle of the auxiliary bomb door valve.

**CHECKING REMOVAL OF THE PITOT COVERS**—While this is being accomplished the seasoned and wise Pilot steps forward to make doubly certain that the covers on the pitot heads have been removed. He knows that these covers can not be removed in the air and that with them "ON" the Airspeed Indicator is inoperative. An airplane of this size can not be operated safely by guessing airspeeds. With the ship open, the Pilot and Co-Pilot enter first and go forward to the cockpit.

**TURN THE FUEL VALVES "ON"**—The Flight Engineer then enters. His first act is to turn on the four fuel selector valves, one for each engine. These are labeled to connect an engine to a corresponding numbered system or to the cross-connection to which all tanks units and engines may be connected. These valves are located overhead, forward of the main center section spar, two on the right of the centerline controlling the flow to Engines 3 and 4; and two on the left side controlling the flow to Engines 1 and 2. They are so numbered, 1, 2, 3, and 4.

**CHECK THE QUANTITY OF FUEL IN THE TANKS**—The Engineer next checks the fuel load. This is shown by the two visual gauges located on the left forward face of the bomb bay bulkhead at the rear of the flight deck. Each gauge is connected by a two-way valve with two of the four main fuel systems so that by operation of these valves the quantity of fuel in each of the four systems may be determined; 1 and 2 on the outboard gauge, 3 and

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL