

91st Bombardment Group B-17G - Checklist



PDF Kneeboard - Captain Bert *Shadow* Goumans -

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PRE-FLIGHT

- Weights and Fuel: **CHECK**
- Parking Brakes: **SET**
- Control Locks: **OFF**
- Fuel Transfer Valve Switch: **OFF**
- Intercoolers: **COLD**
- Flaps and Gear Switches: **NEUTRAL**
- Automatic Pilot Switches: **OFF**
- Wing De-Icer and Prop Anti-Icer: . . . **OFF**
- Inverter: **ALTERNATE**
- Batteries: Check each separately. . . **ON**
- 3** Master Battery Switches: **ON**
- Inverter: **NORMAL**
- Generators: **OFF**
- APU: **START**
- Check Hydraulic Pressure: **600-800 Lbs.**
- (MANUAL PUMP: If under 200psi).** . **PUMP**
- Fuel Cut-Off Switches: **OPEN**
- Carburetor Air Filters: **ON**
- Cabin Heat: **OFF or COLD**
- Master Ignition: **ON**
- Manifold Pressure Selector: **Set to "0"**

ENGINE START

- START SEQUENCE:** **3- 4-1- 2**
- Magnetos: **BOTH**
- Fuel Boost Pumps: **ON**
- Fuel Pressure: Check at: **6-8 PSI**
- Mixture: **AUTO-RICH**
- Cowl Flaps: **Open**
- Cowl Flaps Set to: **LOCKED**
- Throttle: Set to hold **1000 RPM**
- Propeller Controls: **HIGH RPM**
- Fire extinguisher: Set to engine being started.
- Select **START**, wait **12** seconds.
- When in **START** position, give one shot of primer
- Select: **MESH**
- When the engine is meshed (turning), continue to prime, until engine fires.
- After the engine starts, idle at **1,000 RPM** and check the Oil Pressure.
- Generator: **ON**
- Repeat the above steps for Engines **4, 1, and 2.**

INSTRUMENT OPERATING RANGES

- 2,500 rpm** must not be maintained for more than **30** seconds.

OIL PRESSURE

- Desired: **70 Lbs.**
- Maximum: **85 Lbs.**
- Minimum: **50 Lbs.**

OIL TEMPERATURE

- Desired: **70 C.**
- Maximum: **88 C.**
- Minimum: **60 C.**

CYLINDER-HEAD TEMPERATURE

- Desired: **170 C.**
- Maximum: **232 C.**
- Minimum: **125 C.**

FUEL PRESSURE

- Desired: **16-18 Lbs.**

CARBURETOR AIR TEMPERATURE

- Maximum: **38 C.**

TACHOMETERS

- Steady Indication.

MANIFOLD PRESSURE

- Steady Indication.

HYDRAULIC PRESSURE

- Desired: **600-800 Lbs.**

ENGINE ACCESSORIES GROUND TEST

- Set Altimeter.
- Hydraulic Pressure: **600-800 PSI**. If under **200 PSI**, hold Hydraulic Pump Switch on **MANUAL** until **200 PSI** is reached, then release.
- All engine Generators and Batteries set to: **ON**.
- Tail Wheel: **UNLOCKED** (red light on panel).
- Landing Gear (green light on panel).
- Propellers: **HIGH**.
- Check fuel quantities.
- Intercoolers: **COLD**.
- Flight controls: **UNLOCKED**.
- Wing Flaps: **UP**.
- Mixture Controls set to: **AUTO-RICH**.
- Check Ignition at **2,000 rpm**.
- RPM drop should be no more than **200 rpm** from two magnetos to one.
- Fuel Pressure: **12-16 PSI**
- Oil Pressure: **70- 80 PSI**
- Oil Temperature: **88°C MAX**
- Cylinder Head Temperature: **235°C MAX**
- Bring engines back to idle: **1,000 RPM**
- Increase Manifold Pressure Selector to: **8**
- Increase to Full Throttle, one engine at a time.
- Verify each engine is producing **45" MP**
- Adjust Turbo Trim Pots if necessary.
- If adjustments are required, these must be made quickly (**30 SEC MAX**) to avoid exceeding maximum Cylinder Head Temperatures.

TAKEOFF

- Tail Wheel: **LOCKED** (Red panel light **OFF**)
- Flaps: **UP**
- Cowl Flaps: **1/3**
- Oil Temp: **40 deg C** MIN
- Cylinder Head Temp: **205** deg Celsius **MAX.**
- Set Turbo to: **8** (**7** for 91 octane fuel).
- Open throttles slowly to Full Throttle.
- Runaway Turbo: **THROTTLE BACK FIRST**,
- then move Manifold Pressure Selector to "**0**".
- Apply power smoothly and gradually.
- Walk throttles forward evenly until reaching
- full takeoff power in the first **1/3** of the runway.
- Use right rudder or differential throttle to correct natural tendency to pull to the left.
- Good rudder control is achieved by **80 mph IAS.**
- Allow the tail to lift naturally.
- Take off from a two-point, tail-low attitude.
- The aircraft will fly itself off the runway at about
- 115 mph** with just moderate back pressure on the
- controls, depending on the gross weight.
- Retract Gear as soon as a positive rate of climb is established.
- Accelerate to climb speed: **135-150 mph.**
- After reaching **140 mph IAS**, reduce power
- to **38" Hg** and **2300 rpm.**
- Retract Flaps before reaching **147 mph IAS.**
- Hold the aircraft in a very shallow climb until
- an IAS of **150 mph** is achieved.

TAKEOFF OVER 50 FT OBSTACLE

- Weight: **62,000 Lbs** Distance: **4,190 Ft**
- Weight: **62,000 Lbs** Distance: **2,850* F**
- Three-point takeoff using **1/3** flaps and full War
- Emergency Power: Full Throttle and **2,760 RPM**.

SHORT FIELD TAKEOFF

- Manifold Pressure may be set to the maximum
- War Emergency setting of **55" Hg**.
- Manifold Pressure Selector: "**10**".
- Set Propeller Governor Control to **2760 RPM**.
- Use **1/3** flaps, three point takeoff technique.
- Climb at full War Emergency Power.
- Do not use War Emergency Power for more
- than **2** minutes.

CLIMB

- Reduce Manifold Pressure using Turbo dial.
- Reduce RPM as required.
- Set Cowl Flaps to maintain a desired **205 deg C**
- Cylinder Head Temp.
- Adjust trim as required.
- Close Carburetor Air Filters above **8,000 feet**.
- Booster Pumps **OFF** at **1000 Ft**.
- Booster Pumps **ON** at **10,000 Ft**.
- Climb at **140 mph** IAS, with a power setting of
- 38" Hg** and **2300 rpm**.
- 150 mph** IAS if on instruments.
- For lower weights use **35" Hg** and **2300 RPM**.
- Cowl Flaps set to **1/2** open or less.
- Max Cylinder Head Temperature is **218 C**.
- Aircraft is equipped with an automatic mixture control.
- No** mixture adjustment is necessary.

LEVEL FLIGHT

- Use Full Throttle, set power with turbo: **4"- 6"**.
- Allow Engines to cool down to slightly below desired cruising temperatures.
- Mixture: **AUTO-LEAN**.
- Close Cowl Flaps progressively as airspeed builds up to aid in cooling.
- The B-17 must cruise "On The Step" in order to get the maximum possible range.
- To get "On The Step", climb to at least **500** feet above your desired cruising altitude and allow the aircraft to accelerate to cruising speed while descending to the cruising altitude.
- Normal cruising speeds for the B-17 are
- 140-150 mph** IAS, depending upon the aircraft
- weight and altitude.
- The aircraft will cruise in a slightly nose-up attitude at heavier weights and higher altitudes.
- The maximum Cylinder Head Temperature is
- 218 C**. The ideal temperature is **205 C**.
- This aircraft is equipped with an automatic mixture control.
- No** mixture adjustment is necessary.

APPROACH & LANDING

- Set Mixture to **AUTO-RICH**.
- Carburetor Air Filters: **ON**.
- Booster Pumps: **ON**
- Turbo “8” for **100** octane fuel
- Turbo “7” for **91** octane fuel.
- Lower Landing Gear.
- Check Brakes.
- Check Hydraulic Pressure: **600-800 PSI**.
- After speed is below **147** mph, lower Flaps.
- Adjust trim as required.
- Calculate the power-off stalling speed based
- on the aircraft weight.
- Set the engines to **2100 RPM**, adjust power
- to achieve an airspeed of **140-150 mph**.
- Enter the pattern at either the crosswind or downwind leg
- at **800-1000** feet AGL.
- Enter the pattern on the crosswind leg, and fly **2-3** miles
- out from the runway.
- Turn base **2-3** miles beyond the runway threshold at **145**
- mph IAS**.
- Lower Flaps to **1/3** down.
- Reduce airspeed to **135 mph IAS**.
- Maintain a constant altitude on the base leg.
- Turn on final at this airspeed.
- On final, move the Propeller Controls to
- 2500 RPM**.
- Lower the Flaps fully when the runway is made.
- Maintain a glide speed of about **120 mph IAS** for
- the final approach.
- Final approach is made with **20”Hg** of power at **120 mph**
- with a descent rate of **500 fpm**.
- Make a three-point landing, gliding onto the runway at this
- speed.

GO AROUND

- Walk up throttles slowly.
- Check RPM before power is increased.
- Retract Gear.
- Retract Flaps to **1/3** immediately after applying power.
- At **140 mph**, fully retract Flaps.
- Reduce Turbo and Throttles to desired setting.
- Reduce **RPM**
- Adjust Turbo and sync props.
- Booster Pumps **OFF** above **1000 Ft.**

TAXIING

- Check Hydraulic Pressure: **600-800 Lbs**
- APU** or **Generators: ON**
- Hydraulic Pump Operating, Switch in **AUTO**
- Taxi from parking area with all **4** Engines running.
- Use Outboard Engines for turning.
- Turbo Controls: **OFF**
- Never Taxi faster than Ground Crew can walk.
- Use Brakes only when necessary.
- Straight ahead taxiing: Tail Wheel: **LOCKED.**
- Prior to turning: Tail Wheel: **UNLOCKED.**
- Turn with inside wheel rolling

SHUTDOWN

- Turbo: **OFF**.
- Rev up to **1000 RPM**, Mixture to **CUT-OFF**,
- OPEN** Throttle completely.
- Magnetos: **OFF**, once blades stop turning.
- Radio: **OFF**.
- All Switches set to: **OFF**.
- Batteries: **OFF**.
- Inverters: **OFF**, after all other instruments
- have been returned to neutral.
- Lock** controls.

LONG-RANGE CRUISING

- Below 20,000 Ft:**
- Set RPM to maintain an IAS of 150 mph.
- MP 29" Hg (+ or - 1").
- 1400-2000 RPM as required.
- Above 20,000 Ft:**
- Set RPM to maintain an IAS of 140 mph.
- MP 29" Hg (+ or - 1").
- If long-range cruising** speed cannot be maintained up to 2000 RPM, use higher RPM with corresponding higher recommended Manifold Pressure
- Grade 100 Fuel:**
- AUTO-LEAN: At or below 2100 RPM, 31" Hg.
- Grade 91 Fuel:**
- AUTO-LEAN: At or below 1800 RPM, 28" Hg.
- Close or adjust Cowl Flaps for CHT of 205 C or below
- Hold power setting and allow airspeed to increase up to 155 Mph as fuel is used.
- Re-set RPM every 3 hrs to maintain desired speed.

CARBURETOR ICING

- Carburetor icing may occur in outside air temperatures of up to **50°** in high humidity.
- Ice formation in the carburetor or at the fuel nozzle is indicated by a drop in Manifold Pressure and possibly some engine roughness.
- Ice may be eliminated, by moving the Intercooler Shutters to **“HOT”**.
- If this is not successful, set the Turbo Manifold Pressure Selector to **“8”** and adjust Manifold Pressure with the Throttles.
- This will increase turbo fan speed, compressing more air, therefore heating it up.
- The Turbo fulfills the role of the Carburetor Heater.
- Below **15,000 Ft.** the Carb Air Filters may be used to provide drier warmer air from inside the wings.
- If the Supercharger is not effective in eliminating carburetor icing with reduced power settings, keep up the power and reduce speed by lowering the Landing Gear and using partial Flaps.

MIXTURE CONTROLS

AUTO-RICH

- Proportion of fuel to air is relatively high to suppress detonation and aid in cooling.
- Used for all ground operations.
- Takeoff, climb, landing.
- Certain cruising conditions.

AUTO-LEAN

- Leaner fuel/air ratios than Auto-Rich.
- Used when fuel economy is of primary importance.
- When cooling is adequate.

IDLE CUT-OFF

- Stops all fuel flow, regardless of fuel pressure.
- Stops the engine without the hazard of backfiring.

OIL PRESSURE

- The colder the Oil Temperature, the thicker it will be, and Oil Pressure is increased in the engine.
- When starting the engines in very cold temperatures, Oil Pressures may be as high
- as **150 PSI**.
- This exceeds the limit and it is critical that
- the engine is not pushed with cold, thick oil.
- Pushing an engine with thick, cold oil can
- weaken or even burst oil lines and oil fittings.
- Let the engine warm up without pushing the
- Oil Pressure into the red.
- Upon starting a cold engine, there are two options:
- Idle below **1,200 RPM** and wait until the Oil Temperature warms and pressure drops.
- Turn Oil Dilution on.

OIL DILUTION PROCEDURE

- Oil Dilution is performed after an engine run and immediately prior to shutting off.
- When Oil Dilution is turned on, fuel is injected into the oil, causing the oil to break down and thin out.
- To dilute the oil, make sure the engine is idling and turn Oil Dilution **ON** for **2- 4 minutes**, or until Oil Pressure is at the desired level.
- Once the Oil Pressure is within the safe range and the aircraft is in the air, the oil will heat up and burn off the fuel, returning it to it's normal condition.
- When stopping the engines, if it is anticipated that they will be around freezing or below, idle the engine, turn Oil Dilution on for **4 MINUTES**, then stop the engine.
- If the Oil Temp is over **70** degrees, Oil Dilution is not effective as the fuel burns off too fast.
- In this case, wait until the Oil Temp gets between
- 40-60** degrees, then dilute.
- If the Oil Temp cannot get that low, stop the
- engine, and wait until the oil cools.
- Re-start the engine.
- Dilute the oil, and then shut the engine down.
- Save the flight.

HYDRAULIC SYSTEM

- The Hydraulic System consists of an Electric Hydraulic pump maintaining **600-800 PSI** of pressure throughout a network of hydraulic lines, holding tanks, and valves.
- This system is used to power the Wheel Brakes and move the engine's Cowl Flaps.
- The Hydraulic Pump is controlled via a switch on the pilot's Electrical Panel.
- With this switch in the **AUTO** position, pressure is automatically regulated between **600- 800 Lbs.**
- If the Hydraulic Pressure falls below **200 PSI**, **AUTO** mode will be disabled.
- In the event the aircraft was idle long enough, or has recently been serviced, and the pressure is below **200 PSI**, you must either:
 - Use the hand pump to raise the pressure above
 - 200 PSI.**
 - Hold the hydraulic switch in **MANUAL** until **200**
 - PSI** is reached, then release it back to **AUTO**.

TEMPERATURES

CHT (CYLINDER HEAD TEMPERATURE)

- To keep **CHT** in check:
- Open Cowl Flaps
- Reduce power immediately after takeoff to climb power
- Do not climb too steeply to ensure adequate airflow
- Keep speeds over **145mph**
- Set Cowl Flaps to maintain temps at or below **205C**

OIL TEMPS

- Decrease engine RPM and Manifold Pressure together.
- Shallow the climb **5-10 mph** faster than normal climbing airspeed.

CARB AIR TEMPS

- Control temps with Intercooler Shutters.
- Check temps either above or below **- 5C to +20C**
- Temps above **38C** are likely to cause detonation.

POWER CHANGE SEQUENCE

POWER INCREASE

- Mixture Controls
- Propellers
- Throttles
- Turbo Superchargers

POWER REDUCTION

- Turbo Superchargers
- Throttles
- Propellers
- Mixture Controls

POWER SETTINGS: GRADE 91 FUEL

TAKEOFF:

- 2500 RPM, MP 41, AUTO-RICH,
- 260 C max CHT, 480 GPH (estimated).

CLIMB:

- 2300 RPM, MP 35, AUTO-RICH,
- 232 C max CHT, 370 GPH (estimated).

FAST CRUISE:

- 2200 RPM, MP 31, AUTO-RICH,
- 218 C max CHT, 300 GPH (estimated).

MED CRUISE:

- 2100 RPM, MP 30, AUTO-RICH,
- 218 C max CHT, 265 GPH (estimated).

LONG RANGE:

- 2000 RPM, MP 28, AUTO-RICH,
- 218 C max CHT, 215 GPH (estimated).
- 1800 RPM, MP 28, AUTO-LEAN,
- 218 C max CHT, 160 GPH (estimated).
- 1600 RPM, MP 28, AUTO-LEAN,
- 218 C max CHT, 150 GPH (estimated).
- 1400 RPM, MP 28, AUTO-LEAN,
- 218 C max CHT, 120 GPH (estimated).
- Power as required
- Fly to target at 155 IAS.
- Return from target at 140 IAS.

POWER SETTINGS: GRADE 100 FUEL

TAKEOFF:

- 2500 RPM, MP 46, AUTO-RICH,
- 260 C max CHT, 555 GPH (estimated).

CLIMB:

- 2300 RPM, MP 38, AUTO-RICH,
- 232 C max CHT, 400 GPH (estimated).

FAST CRUISE:

- 2200 RPM, MP 34, AUTO-RICH,
- 218 C max CHT, 335 GPH (estimated).

MED CRUISE:

- 2100 RPM, MP 31, AUTO-LEAN,
- 218 C max CHT, 255 GPH (estimated).

LONG RANGE:

- 2000 RPM, MP 28, AUTO-LEAN,
- 218 C max CHT, 190 GPH (estimated).
- 1800 RPM, MP 28, AUTO-LEAN,
- 218 C max CHT, 160 GPH (estimated).
- 1600 RPM, MP 28, AUTO-LEAN,
- 218 C max CHT, 150 GPH (estimated).
- 1400 RPM, MP 28, AUTO-LEAN,
- 218 C max CHT, 120 GPH (estimated).
- Power as required
- Fly to target at 155 IAS.
- Return from target at 140 IAS.

EMERGENCY PROCEDURES

ENGINE FAILURE DURING TAKEOFF

- Failure of an engine during take-off may not be noticed immediately except for a resultant swing.
- If a swing develops, and there is room, close the throttles and stop.
- If it is necessary to continue with the take-off
- Hold the airplane straight by immediate application of rudder.
- Gain speed as rapidly as possible.
- After Takeoff, see that the Landing Gear is up, or coming up, and feather the propeller of the dead engine.
- Re-trim as necessary.

EMERGENCY OPERATION OF LANDING GEAR

- Each main Landing Gear may be operated separately by a hand crank connection in the bomb bay.
- Upon Landing Gear motor failure, instruct the crew to hand crank the Gear either up or down.
- Both main wheels and the tail wheel are cranked independently of each other.
- If the Landing Gear linkage is damaged, it is possible that it still will not be able to be lowered or raised with a hand crank.

EMERGENCY OPERATION OF LANDING FLAPS

- The Landing Flaps may be operated separately by means of a hand crank connection in the radio compartment.
- Upon failure of the Flaps motor, instruct the crew to hand crank the Flaps either up or down.

- If the Flaps do not move due to high stress forces and are subsequently jammed, hand cranking may not be possible.

EMERGENCY BOMB RELEASE

- An Emergency Release Handle is located at the pilot's left.
- Pull the handle to release whatever is in the bomb bay (bombs or bomb bay fuel tanks).
- Ensure the bomb bay doors are opened before
- pulling this release handle.

ENGINE FIRE IN FLIGHT

- Close the Fuel Shut-off Valve for the affected engine
- Feather the prop immediately.
- Slow the air speed as much as possible.
- Close the Cowl Flaps.
- Set the Fire Extinguishers on the co-pilot's side to the engine on fire and pull the CO2 Handle.
- Caution - Leave propeller feathered.
- Do not attempt restarting the engine while hot.

PROP FEATHERING

- Throttle Back
- Feather
- Mixture and Fuel Booster: **OFF**
- Turbo: **OFF**
- Prop: **Low RPM**
- Ignition: **OFF**
- Generator: **OFF**
- Fuel Valve: **OFF**

PROP UNFEATHERING

- Fuel Valve: **ON**
- Ignition: **OFF**
- Prop: **Low RPM**
- Throttle: **CRACKED**
- Supercharger: **OFF**
- Un-Feather
- Mixture: **AUTO-RICH**
- Warm up Engine.
- Generator: **ON**

CRASH LANDINGS

- Notify bombardier to release bombs or bomb bay tanks. (If possible, drop them in uninhabited or enemy territory.) Then close the Bomb Bay Doors.
- Make a normal slow landing, with Flaps **DOWN** and Landing Gear **UP**
- Turn Master Switch and Battery Switches "**OFF**" after operation of necessary electrical equipment such as flaps, radio, gear, landing lights, etc., when it is certain that there will be no further need for the operating engines.

TURBO OVERSPEED

- When flying at high altitude, a point may be reached where further turning of the Selector Dial fails to produce an increase in Manifold Pressure.
- Turn Selector Dial **COUNTER-CLOCKWISE** until it controls Manifold Pressure again.
- Do not wait longer than **5** minutes before turning back the dial.
- Be sure to take off the **1.5" Hg** for each **1000 ft** above critical altitude by dialling back the Turbos.

STALL RECOVERY

- Regain airspeed for normal flight by smooth operation of the Elevators. May require a dive up to **30** degrees.
- Use Rudder to maintain laterally level flight.
- Once airspeed is regained, use Ailerons also for lateral control, but not until airspeed is regained.

POWER OFF STALLING SPEEDS: WHEELS UP

<u>Gross Weight</u>	<u>Flaps Up</u>	<u>1/3 Flaps</u>	<u>Full Flaps</u>
65,000	114 MPH	109 MPH	101 MPH
60,000	110 MPH	105 MPH	97 MPH
55,000	105 MPH	101 MPH	92 MPH
50,000	100 MPH	96 MPH	88 MPH
45,000	95 MPH	91 MPH	84 MPH

- Wheels down **INCREASES** Stall Speed by **5 MPH**.
- Wheels and Flaps down **DECREASE** Stall Speed by **10 MPH**.
- De-Icer boots operating **INCREASE** Stall Speed **10-15 MPH**.
- With De-Icer boots operating, regain slightly more than the usual **20 MPH** needed for recovery.

C-1 AUTOPILOT IMAGE



C-1 AUTOPILOT CONTROLS

Master/Stabilizer Switch [1]

- The red pilot light at the bottom left will light.
- This simply powers up the unit and will not engage any of the functions.

Channel Switches [2]

- Aileron
- Rudder
- Elevator servos.

Servo PDI Switch [3]

- Connects the PDI indicator in the cockpit and the torque motor that fights stabilizer gyro precession.

Turn Control Knob [4]

- Used to perform coordinated turns by the pilot.

Centering Knobs [5]

- Adjust control surfaces neutral positions.

Sensitivity Knobs [6]

- Adjust the 'dead-zone' before the autopilot orders a correction. Higher sensitivity means more precision, but if it is too high controls will shake due to constant corrections applied by the autopilot.

Ratio Knobs [7]

- Control the amount of control surface movement applied for a given deviation. Too high ratio will cause over-steer, too low ratio will cause slow and inadequate response.

Turn Compensation [8]

- Further adjusts the control surface movement ratios applied in a turn. These are used to tune the autopilot so that coordinated turns can be made.

Tell Tale Lights[9]

- Indicate when a control surface position is different from the position required by autopilot. If the aircraft and autopilot are properly trimmed, tell tale lights are off.

Control Transfer [10]

- This switch allows the transfer of control to a second station in navigator compartment. It was optional and this particular airplane is not equipped with second control station, so this switch does nothing.

Bombardier Commands [11]

- Various commands for bombardier.

PDI [Main Panel, Front]

- A gauge that indicates deviation from ordered course. The autopilot always steers the plane to keep the PDI centered (with an exception of turns ordered by pilot with turn knob)

C1 AUTOPILOT ENGAGEMENT PROCEDURE

- Master Switch [1]: **ON**
- Servo PDI Switch [3]: **ON**
- Tell-Tale Lights [9]: **ON**
- Manually trim the airplane for straight and level flight.
- Center PDI: Direct the bombardier to do so by using the 2D panel [11]. Or **Manually** steer the plane to the direction the PDI shows.
- Aileron Centering Knob [5]: Put out Aileron Tell Tale Lights. Check that wings are leveled; adjust with centering knob if necessary. If you fail to do that, cross control will occur and the autopilot will apply rudder to hold banking airplane on a straight course.
- Aileron Control Switch [2] :**ON**
- Rudder Centering Knob [5]: Put out Rudder Tell-Tale lights.
- Rudder Channel Switch [2] :**ON**.
- Elevator Centering Knob [5]: Put out Elevator Tell-Tale lights. Check vertical speed and fine-tune with centering knob again.
- Elevator Channel Switch [2] :**ON**.
- Direct bombardier to release PDI by clicking on "Center PDI" command on 2D panel again [11]. Now directional gyro will correct any deviations from course. Adjust by centering knob if necessary.

TURBO GROUND CALIBRATION

- Start engines and go through usual low power engine run up check.
- Check **INVERTORS** are on.
- If engine run up check shows all four engines to be operating normally, commence calibration.
- Set propellers to maximum.
- Set **MANIFOLD PRESSURE SELECTOR** to "8" (100 octane fuel)
- Advance throttles to full open position and take off RPM.
- Calibrate each engine individually by turning the calibrations screw:
 - CLOCKWISE:** Increase manifold pressure
 - COUNTER CLOCKWISE:** Decrease manifold pressure.
- Calibrate each engine to within **1** inch of **Takeoff**
- Manifold Pressure (45 inches).**
- NOTE:** It is not recommended that calibration settings be changed in flight unless absolutely necessary.

B-17 AIRCRAFT SPECIFICATIONS:

- Top Speed @ SL: 220 mph TAS (45,000 lbs)
- Top Speed @ Alt: 287 mph TAS @ 25,000 feet (45,000 lbs)
- Cruise @ 5,000 ft: 150 mph IAS/ mph TAS @ 29" Hg/1650 rpm (60,000 lbs.)
- Cruise @ 25,000 ft: 140 mph IAS/207 mph TAS @ 29" Hg/1750 rpm (60,000 lbs.)
- Climb: 38 minutes to 20,000 ft (62,000 lbs.)
- Climb: 62 minutes to 30,000 ft (62,000 lbs.)
- Fuel to climb (25,000 feet): 232 gallons
- Distance to climb (25,000 feet): 140 miles
- Takeoff distance to clear 50 feet: 4,190 feet (62,000 lbs.)
- 1 g stall speed, clean: 102 mph IAS (50,000 lbs.)
- 1 g stall speed, land: 90 mph IAS (50,000 lbs.)
- Slow flight: stable with good rudder control up to the point of stall.
- Stall: Very mild wing drop. Recovery is routine.
- Empty weight: 36,135 lbs.
- Ramp Weight (fully equipped): 38,849 lbs.
- Maximum takeoff wt: 64,500 pounds
- Vmax: 270 mph IAS
- To Gear Down: mild pitch down
- To Flaps Down: mild pitch up
- Engines: Four Wright R-1820-97 air-cooled 9-cyl. radials
- Takeoff power: 1200 BHP @ 46" Hg/2500 RPM
- Emergency power: 1350 BHP @ 55" Hg/2760 RPM
- Normal climb power: 850 BHP @ 38" Hg/2550 RPM
- Max cruise power: 820 BHP/35" Hg/2300 RPM
- (Auto Rich)
- Normal cruise power: 610 HP/30" Hg/2000 RPM (Auto Lean)
- Fuel capacity: 3,600 gallons with bomb bay tanks