



NOTE

Visually check airplane for general condition during walk-around inspection. Use of the refueling steps and assist handles (if installed) will simplify access to the upper wing surfaces for visual checks and refueling operations. In cold weather, remove even small accumulations of frost, ice or snow from wing, tail and control surfaces. Also, make sure that control surfaces contain no internal accumulations of ice or debris. Prior to flight, check that pitot heater (if installed) is warm to touch within 30 seconds with battery and pitot heat switches on. If a night flight is planned, check operation of all lights, and make sure a flashlight is available.

Figure 4-1. Preflight Inspection

CHECKLIST PROCEDURES

PREFLIGHT INSPECTION

① CABIN

1. Pilot's Operating Handbook -- AVAILABLE IN THE AIRPLANE.
2. Landing Gear Lever -- GEAR DOWN.
3. Parking Brake -- SET.
4. Control Wheel Lock -- REMOVE.
5. Ignition Switch -- OFF.
6. Master Switch -- ON.

WARNING

When turning on the master switch, using an external power source, or pulling the propeller through by hand, treat the propeller as if the ignition switch were on. Do not stand, nor allow anyone else to stand, within the arc of the propeller since a loose or broken wire or a component malfunction could cause the propeller to rotate.

7. Avionics Power Switch -- ON.
8. Avionics Cooling Fan -- CHECK AUDIBLY FOR OPERATION.
9. Avionics Power Switch -- OFF.
10. Low-Vacuum Warning Light -- CHECK ON.
11. Landing Gear Position Indicator Light (green) -- ILLUMINATED.
12. Fuel Quantity Indicators -- CHECK QUANTITY.
13. Master Switch -- OFF.
14. Static Pressure Alternate Source Valve (if installed) -- OFF.
15. Fuel Selector Valve -- BOTH.
16. Baggage Door -- CHECK for security, lock with key if child's seat is to be occupied.

② EMPENNAGE

1. Left Main Gear Wheel Well -- CHECK for cleanliness.
2. Rudder Gust Lock -- REMOVE.
3. Tail Tie-Down -- DISCONNECT.
4. Control Surfaces -- CHECK freedom of movement and security.
5. Right Main Gear Wheel Well -- CHECK for cleanliness.

③ RIGHT WING Trailing Edge

1. Aileron -- CHECK freedom of movement and security.

④ RIGHT WING

1. Wing Tie-Down -- DISCONNECT.
2. Fuel Tank Vent Opening -- CHECK for stoppage.
3. Main Wheel Tire -- CHECK for proper inflation and condition.
4. Fuel Tank Sump Quick-Drain Valve -- DRAIN fuel (using sampler cup) to check for water, sediment, and proper fuel grade before first flight of day and after each refueling. If water is observed, take further samples until there is no evidence of water contamination.
5. Fuel Selector Quick-Drain Valve (on bottom of fuselage) -- DRAIN fuel (using sampler cup) to check for water, sediment, and proper fuel grade before first flight of day and after each refueling. If water is observed, take further samples until there is no evidence of water contamination.
6. Fuel Quantity -- CHECK VISUALLY for desired level.
7. Fuel Filler Cap -- SECURE and vent unobstructed.

⑤ NOSE

1. Static Source Openings (both sides of fuselage) --CHECK for stoppage.
2. Engine Oil Dipstick -- CHECK oil level, then check dipstick SECURE. Do not operate with less than five quarts. Fill to eight quarts for extended flight.
3. Fuel Strainer Drain Knob -- PULL OUT for about four seconds to clear strainer of possible water and sediment before first flight of day and after each refueling. Return drain knob full in and check strainer drain CLOSED. If water is observed, the fuel system may contain additional water, and further draining of the system at the strainer, fuel tank sumps, and fuel selector quick-drain valve must be accomplished.
4. Propeller and Spinner -- CHECK for nicks, security and oil leaks.
5. Engine Cooling Air Inlets -- CLEAR of obstructions.
6. Landing Lights -- CHECK for condition and cleanliness.
7. Nose Wheel Tire, Strut and Wheel Well -- CHECK tire and strut for proper inflation and wheel well for condition and cleanliness.
8. Nose Tie-Down -- DISCONNECT.
9. Engine Oil Filler Cap -- CHECK secure.
10. Carburetor Air Inlet -- CHECK for restrictions.

⑥ LEFT WING

1. Fuel Quantity -- CHECK VISUALLY for desired level.
2. Fuel Filler Cap -- SECURE and vent unobstructed.
3. Fuel Tank Sump Quick-Drain Valve -- DRAIN fuel (using sampler cup) to check for water, sediment, and proper fuel grade before

first flight of day and after each refueling. If water is observed, take further samples until there is no evidence of water contamination.

4. Main Wheel Tire -- CHECK for proper inflation and condition.

⑦ LEFT WING Leading Edge

1. Pitot Tube Cover -- REMOVE and check opening for stoppage.
2. Fuel Tank Vent Opening -- CHECK for stoppage.
3. Stall Warning Vane -- CHECK for freedom of movement. While master switch is turned ON, horn should sound when vane is pushed upward.
4. Wing Tie-Down -- DISCONNECT.

⑧ LEFT WING Trailing Edge

1. Aileron -- CHECK freedom of movement and security.

BEFORE STARTING ENGINE

1. Preflight Inspection -- COMPLETE.
2. Passenger Briefing -- COMPLETE.
3. Seats, Seat Belts, Shoulder Harnesses -- ADJUST and LOCK.
4. Brakes -- TEST and SET.
5. Avionics Power Switch -- OFF.

CAUTION

The avionics power switch must be OFF during engine start to prevent possible damage to avionics.

6. Electrical Equipment -- OFF.
7. Circuit Breakers -- CHECK IN.
8. Landing Gear Lever -- DOWN.
9. Radar (if installed) -- OFF.
10. Autopilot (if installed) -- OFF.
11. Cowl Flaps -- OPEN (move lever out of locking hole to reposition).
12. Fuel Selector Valve -- BOTH.

STARTING ENGINE

1. Prime -- AS REQUIRED.
2. Carburetor Heat -- COLD.

3. Throttle -- PUMP once, or as much as six times if engine is very hot; leave open 1/4 inch.
4. Propeller -- HIGH RPM.
5. Mixture -- RICH.
6. Propeller Area -- CLEAR.
7. Master Switch -- ON.
8. Auxiliary Fuel Pump -- ON (check for rise in fuel pressure), then OFF.
9. Ignition Switch -- START (release when engine starts).
10. Oil Pressure -- CHECK.
11. Starter -- CHECK DISENGAGED (if starter were to remain engaged, ammeter would indicate full scale charge with engine running at 1000 RPM).
12. Avionics Power Switch -- ON.
13. Navigation Lights and Flashing Beacon -- ON as required.
14. Radios -- ON.

BEFORE TAKEOFF

1. Parking Brake -- SET.
2. Seats, Seat Belts, Shoulder Harnesses -- CHECK SECURE.
3. Cabin Doors -- CLOSED and LOCKED.
4. Flight Controls -- FREE and CORRECT.
5. Flight Instruments -- CHECK and SET.
6. Auxiliary Fuel Pump -- ON (check for rise in pressure), then OFF.

NOTE

In flight, gravity feed will normally supply satisfactory fuel flow if the engine-driven fuel pump should fail. However, if a fuel pump failure in flight causes the fuel pressure to drop below 0.5 PSI, use the auxiliary fuel pump to assure proper engine operation.

7. Mixture -- RICH.
8. Fuel Quantity -- CHECK.
9. Fuel Selector Valve -- RECHECK BOTH.
10. Elevator and Rudder Trim -- SET for takeoff.
11. Throttle -- 1700 RPM.
 - a. Magnetos -- CHECK (RPM drop should not exceed 175 RPM on either magneto or 50 RPM differential between magnetos).
 - b. Carburetor Heat -- CHECK (for RPM drop).
 - c. Propeller -- CYCLE from high to low RPM; return to high RPM (full in).
 - d. Suction Gage -- CHECK.
 - e. Engine Instruments and Ammeter -- CHECK.
12. Throttle -- 800-1000 RPM.
13. Throttle Friction Lock -- ADJUST.

14. Electric Trim (if installed) -- PREFLIGHT TEST (See Section 9).
15. Strobe Lights (if installed) -- AS DESIRED.
16. Radios and Avionics -- SET.
17. Autopilot (200A, 300A) -- OFF.
(400B) -- PREFLIGHT TEST (See Section 9), then OFF.
18. Air Conditioner (if installed) -- OFF.
19. Wing Flaps -- SET for takeoff (see Takeoff checklists).
20. Cowl Flaps -- OPEN.
21. Brakes -- RELEASE.

TAKEOFF

NORMAL TAKEOFF

1. Wing Flaps -- 0° - 20°.
2. Carburetor Heat -- COLD.
3. Power -- FULL THROTTLE and 2400 RPM.
4. Mixture -- FULL RICH (mixture may be leaned above 3000 feet).
5. Elevator Control -- LIFT NOSE WHEEL AT 50 KIAS.

NOTE

When the nose wheel is lifted, the gear motor may run 1-2 seconds to restore hydraulic pressure.

6. Climb Speed -- 70 KIAS (flaps 20°).
80 KIAS (flaps UP).
7. Brakes -- APPLY momentarily when airborne.
8. Landing Gear -- RETRACT in climb out.
9. Wing Flaps -- RETRACT.

SHORT FIELD TAKEOFF

1. Wing Flaps -- 20°.
2. Carburetor Heat -- COLD.
3. Brakes -- APPLY.
4. Power -- FULL THROTTLE and 2400 RPM.
5. Mixture -- FULL RICH (below 3000 feet).
LEANED (above 3000 feet).
6. Brakes -- RELEASE.
7. Elevator Control -- MAINTAIN SLIGHTLY TAIL-LOW ATTITUDE.
8. Climb Speed -- 59 KIAS until all obstacles are cleared.
9. Brakes -- APPLY momentarily when airborne.
10. Landing Gear -- RETRACT after obstacles are cleared.
11. Wing Flaps -- RETRACT slowly after reaching 70 KIAS.