

PRIVATE PILOT

II. AREA OF OPERATION: PREFLIGHT PROCEDURES

A. TASK: PREFLIGHT INSPECTION

OBJECTIVE

To determine that the applicant:

1. Exhibits knowledge of the elements related to preflight inspection. This shall include which items must be inspected, the reasons for checking each item, and how to detect possible defects.
2. Inspects the airplane with reference to an appropriate checklist.
3. Verifies the airplane is in a condition for safe flight.

ELEMENTS

1. Use the manufacturer's recommended preflight inspection checklist.
2. Purpose is twofold: Establish legal airworthiness and ensure a condition for safe flight.
3. Required certificates and documents are present:
 - a. Airworthiness certificate.
 - b. Registration certificate.
 - c. Radio license (if required by type of operation or location).
 - d. Operating limitations (POH / AFM or placards).
 - e. Weight and balance records.
4. Inside the cockpit:
 - a. Door alignment and ease of opening / closing - CHECK.
 - b. Windshield and windows free of cracks and crazing - CHECK.
 - c. Seats, seat rails, lock pins and attach points free from wear or cracks - CHECK.
 - d. Alternator, battery and ignition switches - OFF.
 - e. Control column locks - REMOVED.
 - f. Landing gear control - DOWN AND LOCKED.
 - g. Fuel selectors - CHECK EACH POSITION.
 - h. Primer - EXERCISE.
 - i. Primer - LOCK.
 - j. Engine control - MOVE THROUGH FULL RANGE.
 - k. Airspeed indicator reading - ZERO.
 - l. Vertical speed indicator reading - ZERO.
 - m. Compass securely mounted - CHECK.
 - n. Compass deviation card in place - CHECK.
 - o. Compass full of fluid - CHECK.
 - p. Gyro-driven attitude indicator condition - CHECK.
 - q. Altimeter reading versus field elevation with current altimeter setting - CHECK (if altitude is off by more than 75 feet, accuracy is questionable).
 - r. Battery master switch - ON.
 - s. Fuel quantity indicators - CHECK (a visual inspection of the tanks is also required).
 - t. Required lights - CHECK.
 - u. Electric stall warning indicator (if installed) - CHECK.
 - v. Battery master switch - OFF.
5. Outer wing surfaces and tail section:
 - a. Skin free of deterioration, distortion and loose / missing rivets or screws - CHECK.
 - b. Wingtips (usually fiberglass) free from damage - CHECK.
 - c. Crack drill stops free of further crack propagation - CHECK.
 - d. Bottom of wing free of fuel stains - CHECK.
6. Fuel and oil:
 - a. Fuel level of each tank - VISUALLY CHECK.
 - b. Fuel type and grade of each tank and sump (identified by color) - CHECK.
 - c. Fuel of each tank and sump free of water and sediment contamination - CHECK.
 - d. Fuel tank caps of each tank - SECURED.
 - e. Fuel tank vent free of damage - CHECK.
 - f. Engine oil level - CHECK.
 - g. Dipstick, oil cap, oil access door - SECURED.

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7. Landing gear tires and brakes:
 - a. Tires properly inflated and free from damage - CHECK.
 - b. Brakes free of rust, corrosion, loose nuts / bolts, brake pad wear / cracks, signs of hydraulic fluid leaks and abrasion - CHECK.
 - c. Nose gear shimmy damper and torque link - CHECK.
 - d. Shock struts properly inflated - CHECK.
8. Engine and propeller:
 - a. Engine cowling free of damage - CHECK.
 - b. Spinner free of dents and bends - CHECK.
 - c. Propeller free of nicks, cracks, pitting, corrosion and faulty security - CHECK.
 - d. Propeller hub free of oil leaks - CHECK.
 - e. Alternator belt at proper tension - CHECK.
 - f. Inside cowling free of fuel and oil leak indications - CHECK.
 - g. General condition inside cowling (including lack of FOD) - CHECK.
 - h. Exhaust stacks free from cracking - CHECK.
 - i. Cowling fasteners secure - CHECK.

COMMON ERRORS

- a. Failure to use or the improper use of checklist.
- b. Allowing distractions to interrupt a visual inspection.
- c. Inability to recognize discrepancies to determine airworthiness.
- d. Failure to ensure servicing with the proper fuel and oil.
- e. Failure to ensure proper loading and securing of baggage, cargo, and equipment.

REFERENCES

1. FAA-H-8083-3A, Airplane Flying Handbook, Chapter 2.
2. POH / AFM, Pilot Operating Handbook / FAA-Approved Airplane Flight Manual.