

INSPECTION

25-HOUR INSPECTION

Before beginning the inspection, determine that engine and propeller performance is normal and that all systems function properly.

1. Engine and engine compartment for fuel and oil leaks, security of parts, correct engine and propeller control travel, proper safetying, and visible defects.
2. Propeller and spinner for apparent damage or defects.
3. Remainder of airplane for security of attaching bolts, screws, and rivets, broken spot-welds, fuel leaks, and apparent exterior damage or defects.
4. Items for servicing and lubrication in accordance with Figure 2-4 as required at 25-hour intervals.

NOTE

50-hour and 75-hour inspections are 25-hour inspections repeated at these intervals. Also check any items of servicing and lubrication required at these intervals.

100-HOUR INSPECTION

The 100-hour (periodic) inspection is a thorough, searching inspection of the entire airplane. Unless the progressive inspection method is used, it is required every twelve months as a periodic inspection or every 100 hours, if the airplane is operated for hire, in accordance with Civil Air Regulations.

ENGINE RUN-UP.

Before beginning the inspection proper, start, run up, and shut down the engine in accordance with instructions in the Owner's Manual. During the run-up observe the following, making note of any discrepancies or abnormalities:

1. Engine temperatures and pressures. ✓
2. Static rpm. ✓
3. Magneto drop; note particularly any difference between the drop on the two magnetos. ✓
4. Engine response to changes in power. ✓
5. Any unusual engine noises. ✓
6. Propeller response through pitch range. ✓
7. Fuel tank selector or shut-off valve; operate engine on each tank and off positions long enough to make sure the valve functions properly. ✓
8. Idling speed and mixture; proper idle cut-off. ✓
9. Generator warning light or ammeter. ✓
10. Suction gage. ✓
11. Fuel flow indicator. ✓

After the inspection has been completed, an engine run-up should again be performed to ascertain that any discrepancies or abnormalities have been corrected.

PREPARATION.

Remove engine cowlings, and loosen or remove all fuselage, wing, empennage, and upholstery inspection doors, plates, and fairings as necessary to accomplish the inspection. Replace after the inspection has been completed.

ENGINE COMPARTMENT.

1. Engine oil for changing, screen for cleaning; filler cap, dipstick, drain plug, and screen for security and safetying as required. Refer to Figure 2-4 for aircraft equipped with external oil filters. ✓

NOTE

Examine oil screens, filters, and sump oil for metal particles or contamination that could indicate internal damage to the engine.

2. Oil cooler for security, leaks, and obstructed air passages. ✓
3. Induction air filter for servicing, proper fit, security, cracks in frame, and tears or bare spots in filter element. Paper element "dry" filters for replacement every 300 hours. *REPLACE*
4. Entire engine assembly for cleanliness. ✓
5. Induction airbox for internal cleanliness, cracks, and security; air valve and doors for operation and sealing; controls for security and operation. ✓
6. Cold air and hot air flexible hoses for security, kinks, holes, chafing, and burnt spots. ✓
7. Engine baffles for security, sealing, cracks, metal deformation, and attachment of sealing strips. ✓ *REPAIR*
8. Cylinders for security, cracks, broken cooling fins; rocker box covers and push rod housings for security, oil leaks, cracks, and dents. ✓
9. Crankcase, oil pan, reduction gear housing, and accessory section for security, oil leaks, safetying; front crankshaft seal for oil leakage. ✓
10. All lines and hoses for security, leaks, cracks, dents, kinks, corrosion, hose deterioration, and chafing. ✓
11. Intake system for security, leaks, deteriorated hoses, and loose or corroded clamps; manifold drains for proper operation, drain lines and hoses for security, leaks, and chafing. ✓
12. Exhaust system for security, leaks, cracks, and burned-out spots. Refer to paragraph 12-74. *REMOVED + REINSTALLED*
13. Ignition harness for security, chafing, burning, defective insulation, and loose or broken terminals. ✓
14. Spark plugs for proper gap, cleanliness, and evidence of reliable operation. (Also see paragraph 12-40.) ✓
15. Crankcase and vacuum system breather lines for security, obstructions, corrosion, cracks, and chafing. ✓
16. All electrical wiring in the engine compartment for security, chafing, defective insulation, and loose or broken terminals. ✓
17. Vacuum pump for security, oil leaks, and safetying. ✓
18. Vacuum relief valve for security and the inlet screen for cleanliness, holes, corrosion, and safetying. ✓
19. Vacuum system oil separator for security, cracks, oil leaks, and servicing. ✓
20. Engine and propeller controls and linkage for security, proper rigging, binding, excessive wear, cracks, misalignment, corrosion, safetying, and chafing. ✓
21. Engine shock mounts for security, safetying, deterioration; engine mount for cracks, corrosion, dents, bends, and evidence of overheating; ground straps for security, corrosion, fraying of braided straps, and cracking of metal straps. ✓
22. Cabin heater valve and door for proper operation, sealing, cracks, and deformation; controls for security, binding, proper rigging, and alignment. ✓
23. Starter for security, oil leaks, tight electrical connections; engagement lever for proper rigging and return spring tension. Every 200 hours, check starter brushes for sufficient length, binding; brush leads for fraying, chafing; commutator for glaze, pits, grooves, high mica, and cleanliness. *OWN*
24. Generator for security and oil leaks if generator is fastened to accessory case; drive belt for cuts, fraying, and excessive wear; electrical connections for security. Every 200 hours, check generator brushes for sufficient length, binding; brush leads for fraying, chafing; commutator for glaze, pits, grooves, high mica, and cleanliness. ✓
25. Voltage regulator for security and tight electrical connections. Every 200 hours, check contact points for discoloration, pits, and corrosion. ✓
26. Starting vibrator for security and tight electrical connections. Every 500 hours, check vibrator contact points for discoloration, pits, and corrosion. ✓

27. Bendix-Scintilla Magnetos.
 - a. Breaker compartment for dirt and grease.
 - b. Breaker points for security, pits, burns, and carbon deposits.
 - c. Cam followers for correct lubrication.
 - d. Ventilator screens for cleanliness and security.
 - e. Magnetos for correct internal timing, timing to engine, and security of attachment.
28. Slick (formerly Case) Magnetos.
 - a. Magnetos for correct timing to engine and security of attachment.

NOTE

As long as Slick magneto timing is correct, the magnetos need be checked internally only at 500-hour intervals. Check the following items whenever a magneto is disassembled.

- b. Breaker points for security, pits, burns, and carbon deposits.
- c. Cam oiler pad for correct lubrication.
- d. Ventilator screens for cleanliness and security.
- e. Carbon brush for excessive wear. The brush should protrude a minimum of 1/32" from the shaft.
- f. Each end of the distributor gear shaft for correct lubrication.
- g. The magnetos for correct internal timing during reassembly, timing to the engine, and security of attachment.
29. Carburetor for security, cracks, corrosion, fuel leaks, cleanliness of inlet screen and proper safetying.
30. Fuel/air control unit for security, cracks, corrosion, fuel leaks, cleanliness of inlet screen, proper safetying, and security of cooling shrouds.
31. Engine-driven fuel pump for security, cracks, leaks, proper safetying, and security of cooling shrouds.
32. Fuel manifold valve (fuel injection distributor) for security, proper safetying, and leaks.
33. Fuel injection lines for security, kinks, cracks, dents, leaks, and chafing.
34. Fuel injection nozzles for cleanliness and security.
35. Engine cowling for cleanliness, proper fit, security, cracks, dents, cuts, tears, loose or broken hinges, defective latches or fasteners, and deteriorated paint.
36. Cowl flaps for cleanliness, proper fit, security, cracks, dents, cuts, tears, loose or broken hinges, and deteriorated paint; control for security, proper rigging, and binding.

PROPELLER.

1. Fixed-pitch propeller for track, nicks, cracks, corrosion, bends, dents, security, and proper safetying.
2. Constant-speed propellers for nicks, cracks, corrosion, bends, dents, loose nuts and bolts, oil leaks, freedom of blade movement, excessive looseness of blades, security, and proper safetying.
3. Hartzell constant-speed propeller for correct lubrication.
4. Propeller governor for security, safetying, cracks, oil leaks; control for correct rigging, security, binding, and proper safetying.
5. Spinner and spinner bulkhead for cracks, dents, alignment, security, and condition of paint.

FUEL SYSTEM.

1. Fuel strainer for internal cleanliness, security, leaks, and safetying; drain valve and control for proper rigging, operation, leaks, and security.
2. Electric fuel pumps for cleanliness of filter screens, security, leaks, proper operation, and tight electrical connections.
3. Fuel tank sump drains for water and sediment, leaks, security, and safetying; quick-drain valves for proper operation.
4. Underside of wings for evidence of fuel leaks; rubber fuel cells for loose fasteners attaching upper surface to wing; fuel tank filler cap placards for legibility; caps for leaks and security.