

Appendix B ES Annual Inspection Worksheet

B.1 Inspection Worksheet

This appendix contains the annual condition or 100 hour aircraft inspection report checklist.

Owner's name: _____

FAA registration number: _____

100 hour: _____ Annual: _____ Date: _____ Tach time: _____

Total aircraft time: _____

Power plant inspection – Engine

- _____ 1) Remove the engine cowling and make a visual inspection of the entire engine section for evidence of fuel, oil and hydraulic leaks. Check the cowling for aluminum (black) marks around the inlet area.
- _____ 2) Drain the oil while the engine is warm. (Because of the location of the oil filter, we put an air hole in the top of the filter to allow the oil to drain out.) Replace the oil filter and the drain plug safety bolt. Safety wire both. Refil the oil sump.
- _____ 3) While the engine is still hot, check the internal conditions of the cylinders by a compression check.
 Cyl 1. /80
 Cyl 2. /80
 Cyl 3. /80
 Cyl 4. /80
 Cyl 5. /80
 Cyl 6. /80
- _____ 4) Remove, clean and regap the spark plugs. Rotate the plugs from the upper to the lower positions, and the lower to the upper positions, to lengthen the plug life.
- _____ 5) Inspect the spark plug terminal ends and the wiring.
- _____ 6) Check the engine compartment fuel and oil lines for leaks, loose hose clamps, fittings and general condition.
- _____ 7) Check and clean the gascolator screen and bowl. Check for safety.

Power plant inspection – Engine (Continued)

- _____ 8) Check that the fuel filter is clean. Check the safety wire.
- _____ 9) Remove and inspect the air filter in the cowling.
- _____ 10) Check alternate air doors.
- _____ 11) Inspect the cylinders, fins and baffles.
- _____ 12) Inspect the fuel induction system and tighten the intake pipes and hose clamps. Look for fuel stains.
- _____ 13) Inspect the magneto points, armature shaft for looseness and oil leakage. Mags need to be rebuilt or replaced after 500 hours.
- _____ 14) Check the fuel injection system for loose fittings and chaffing.
- _____ 15) Check the alternator and/or generator. Make sure the wires are tight and are not chaffing.
- _____ 16) Wash down the engine.
- _____ 17) Inspect and lubricate all the engine controls.
- _____ 18) Check the engine accessories for defects and security.
- _____ 19) Check the brake fluid level.
- _____ 20) Examine the flexible vibration dampeners condition.
- _____ 21) Check the heater control mechanism and heat ducts.
- _____ 22) If needed, remove the muffler shrouds and inspect the muffler. Check the stacks for cracks, leaks and security of installation.
- _____ 23) Check the condition of the heat ducts.
- _____ 24) Check the engine mount and mount bushings for condition and security.
- _____ 25) Check the engine for loose nuts, bolts, screws, studs, etc.



Power plant inspection – Engine (Continued)

- _____ 26) Check the engine cowling and baffles; repair when necessary. Install the cowling and check the security of the installation.
- _____ 27) Review the engine airworthiness directive notes for compliance.
- _____ 28) Check the general maintenance aid notes applicable to the engine.

Propeller Group

- _____ 1) Inspect the propeller blades for nicks, bends, cracks and check the condition of the tips.
- _____ 2) Remove the spinner.
- _____ 3) Inspect the hub and the attaching parts for defects, tightness and safety.
- _____ 4) Check the propeller hub for oil leaks.
- _____ 5) Check the propeller governor for security of the mounting and for oil leakage.
- _____ 6) Check the propeller control mechanisms operation, security of installation and operation through the full range of travel.
- _____ 7) Check the blades for looseness in the hub.
- _____ 8) Lubricate the propeller hub. Refer to the owner’s manual.
- _____ 9) Review the Airworthiness Directive Notes on the propeller for compliance.
- _____ 10) Check the spinner backing plate and brackets. Install the spinner.

Cabin and Cockpit Group

- _____ 1) Check the brake master cylinders for leaks and security. Fill with fluid.
- _____ 2) Check the cabin latches, handles, chains and sprockets for condition and security. Luricate.
- _____ 3) Inspect the cabin and cockpit for loose equipment with might foul up the controls.
- _____ 4) Inspect the back of the instrument panel for security of lines and wiring.
- _____ 5) Check the condition of the attachment of all instruments and the instrument panel.
- _____ 6) Inspect for hydraulic and oil leaks.
- _____ 7) Check all engine and cockpit controls.
- _____ 8) Check the control stick for excessive play, security and ease of operation.
- _____ 9) Inspect all the cable attachments, cables, push/pull tubes, rod ends and attachment points for controls.
- _____ 10) Inspect all the safety belts and the security of attachment.
- _____ 11) Inspect the upholstery and the rugs for attachment.
- _____ 12) Check the seats for breakage and distortion. Luricate the slides.
- _____ 13) Clean the windows and the windshield.
- _____ 14) Check all the windows and the windshield for cracks and crazing condition.
- _____ 15) Check all flight controls for proper operations.
- _____ 16) Check the instrument markings and placards. (See items required for flight,)



Cabin and Cockpit Group (Continued)

- _____ 17) Clean the faces of the instruments.
- _____ 18) Clean the interior of the airplane.
- _____ 19) Check the heating and ventilating system.
- _____ 20) Check the boost pump for fuel stains and attachment.
- _____ 21) Inspect the cabin door, locks and hinges. Remove one hinge at a time and inspect the hinge pin for condition. Lubricate and install the pins and hinge.
- _____ 22) Check the flapper door for operation and condition of the hinge.

Wing Group

- _____ 1) Check the surface of the skin for overall condition, deterioration, distortion, cracks and evidence of failure and attachment security.
- _____ 2) Check the wing attachment bolts.
- _____ 3) Check the wing tip fuel vent line.
- _____ 4) Inspect the internal structure of the wings through the access holes.
- _____ 5) Check the flaps and the ailerons. Inspect all pushrods, clearances, rod ends, bellcranks, brackets and actuating devices for condition and freedom of operation. Lubricate.
- _____ 6) Check the ailerons, flap hinge brackets and hinge pins for looseness and condition.
- _____ 7) Inspect the drain holes for blockage in the flaps and the ailerons.
- _____ 8) Inspect the pitot mast and airspeed lines. Test pitot heat. Turn off.
- _____ 9) Check all the fairings, access panels and screws.

Empennage Group

- _____ 1) Check the surface condition of the skin for general condition, deterioration, cracks any other evidence of failure and the security of attachment.
- _____ 2) Remove all access panels. Inspect all surface attachments and adjacent areas.
- _____ 3) Check the rudder cables for chaffing, safety and general condition.
- _____ 4) Check the trim tabs for excessive looseness and proper operation.
- _____ 5) Inspect the fudder and elevator hinge fittings, pins and horns for cracks, looseness and the proper installation.
- _____ 6) Operate the rudder and the elevator. Check for ease of operation and proper travel and stops.
- _____ 7) Inspect the trim tabs and the push rods for looseness and for full travel clearances.
- _____ 8) Inspect the fairings and screws.

Electrical System

- _____ 1) Inspect the batter box condition. Clean and paint if deteriorated by acid. Check drains and vents for proper operation.
- _____ 2) Check cables for corrosion and proper insulation for the battery box cover and structure.
- _____ 3) Fill the battery with distilled water to the proper level and check the tightness of the terminals.
- _____ 4) Check the electrical wiring and cables for possible chaffing, security and proper installation.



Electrical System (Continued)

- _____ 5) Check the electrical switches for proper operation and the fuses for abnormalities.
- _____ 6) Check the strobe lights for operation and the condition of the flash tubes.
- _____ 7) Check the Nav lights for operation and the condition of the bulbs and lenses.
- _____ 8) Check the landing and/or taxi lights for operation and condition.
- _____ 9) Inspect the cabin lights for operation and condition.
- _____ 10) Check the door seal pump condition.

Landing Gear Group

- _____ 1) Inspect the landing gear for general condition and security of attachment.
- _____ 2) Check the condition of the nose strut.
- _____ 3) Check all linkage, trusses, and members for evidence of excessive wear, fatigue, safety, distortion and security of attachment.
- _____ 4) Remove the wheels. Examine for cracks and other defects. Check the bearings and races. Clean and repacks.
- _____ 5) Check the tires for wear, bruises, cuts and other defects.
- _____ 6) Check the brakes for condition, adjustment, blocks, lining and discs.
- _____ 7) Check the oleo for correct inflation and height. (Approx. 1.5" compression which leaves about 3" of shaft showing.)
- _____ 8) Remove and inspect the nose gear gas strut. Test by pushing the strut against a scale. It should actuate at 95-100 pounds.
- _____ 9) Check the nose gear for alignment.

Landing Gear Group (Continued)

- _____ 10) INSpect the main and nose gear bearing blocks and supports for looseness and general condition.
- _____ 11) Check the shimmy dampener inside the nose wheel. While the A/C is off of the ground, turn the nose wheel by hand. It should turn slow and smooth through its travel.
- _____ 12) Inflat all the tires to the proper pressure and inspect the safety of the axle nuts. Main gear tires inflate to 50-60 lbs, Nose gear tire inflate to 40 lbs.
- _____ 13) Clean the landing gear.

Fuel System

- _____ 1) Check both tanks and filler caps.
- _____ 2) Drain the sumps.
- _____ 3) Check all the fuel lines for leaks at the connections and the security of the mounting.
- _____ 4) Check the fuel tank vents.
- _____ 5) Check the condition and operation of the fuel tank selector valve.
- _____ 6) Check the placard at the fuel tank filler caps.

Fuselage and Hull Group

- _____ 1) Check the surface condition of the skin for general condition, deterioration, distortion, caracks and other evidence of failure and security of attachment.
- _____ 2) Inspect the fuselage primary structure for damage.
- _____ 3) Inspec the internal condition of the fuselage.



Fuselage and Hull Group (Continued)

- _____ 4) Check for defects, security and safety of all attachment fittings of the various systems attached to the fuselage.
- _____ 5) Inspect and check the condition of the baggage door hinges and locks.
- _____ 6) Inspect the antennas for attachment and condition.
- _____ 7) Clean off the belly.

Radio Group (Installation)

- _____ 1) Inspect the radio and electronic equipment for proper installation and security of mounting.
- _____ 2) Check the equipment and wiring for proper clearance and routing.
- _____ 3) Inspect the wiring and conduits for proper routing and security of the mounting to prevent chaffing and short circuiting.
- _____ 4) Check the bonding and shielding for proper installation and condition.
- _____ 5) Check all the antennas for condition and security of mounting.

Emergency Locator Transmitter

- _____ 1) Check the batteries and note the date that they should be replaced: Replacement date:
- _____ 2) Remove ELT from A/C. Install the portable antenna. Test between five minutes before the hour until five minutes after the hour.
- _____ 3) Lightly smack the ELT into your other hand, increasing the intensity of the impacts until it starts to transmit. Check for reception on 121.5. Reset the ELT.

Emergency Locator Transmitter (Continued)

- _____ 4) Install the ELT back into the A/C, attach the ships ELT antenna and push the test button. Check for reception. Reset the ELT.
- _____ 5) Reset the ELT.

Miscellaneous Group

- _____ 1) Inspect any miscellaneous items of installed equipment. Inspect for proper installation, security of the mounting and proper operation.
- _____ 2) Compass correction card in view of the pilot.



B.2 Items Required for Flight

- _____ 1) Airworthiness certificate.
- _____ 2) Registration.
- _____ 3) Radio license.
- _____ 4) Operating manual.
- _____ 5) Weight and balance.
- _____ 6) Fuel grade and capacity (by filler cap).
- _____ 7) Passenger warning in cabin.
- _____ 8) "Experimental" on door.
- _____ 9) Identification on the tail.
- _____ 10) Oil capacity on the dip stick.

B.3 Work Performed

B.4 Power Plant Operational Preflight Check

Engine make: _____

Model: _____

Serial No: _____

Time: _____

Warm up the engine and check the following:

- 1) Generator output _____
- 2) Oil pressure _____
- 3) Oil temperature _____
- 4) Fuel pressure _____
- 5) Head temperature _____
- 6) Magnetos: Left drop:_____ Right Drop:_____
- 7) Run the propeller through its range _____
- 8) Check all engine controls _____
- 9) Brakes and parking brakes _____
- 10) Idle RPM _____
- 11) Idle cut-off _____
- 12) Static RPM _____
- 13) Idle mixture _____
- 14) Check the engine for oil leaks. _____

