

4.0 Airworthiness Limitations

The Airworthiness Limitations Section is FAA approved and specifies maintenance required under 14 CFR 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

Approved: 

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4.1 Maintenance Limitations

Aileron Hinge Support

The aileron hinge support structure requires inspection at 400 hours time in service. After 400 hours time in service, inspect at every 100-hour / annual inspection. The required inspection of the aileron hinge support is described in Section 5.1.6. Components found to have cracks or other damage are not airworthy. The inspection must be recorded in the aircraft logbook including findings and time of next inspection.

Aircraft modified with Service Letter 444 gussets require inspection per Section 5.1.6 at every 100-hour / annual inspection. Service Letter 444 is required for aircraft and wings manufactured on or prior to 2-3-2017 with part number 4-2142 ailerons. Components found to have cracks or other damage are not airworthy. The inspection must be recorded in the aircraft logbook including findings and time of next inspection.

4.2 Replacement Limitations

There are no life limits on the engine, engine components, propeller, or propeller components. Reference Table 5-2 Recommended Replacement Times for the overhaul schedule.

4.3 Structural Limitations

Wing Strut Attach Fittings

Wing strut attach fittings, part number 3-1691, require 1000 hour inspection or replacement. The required maintenance of the strut attach fittings is described in Section 5.1.3. Fittings found to have cracks, corrosion, or elongated holes are not airworthy. The inspection must be recorded in the aircraft logbook including serial numbers inspected, findings, and time of next inspection.

Exhaust 500 hour inspection:

1. Remove and disassemble exhaust.
2. Inspect slip joints for wear as indicated by galling. Minimum tube wall for .035 wall tubes is 0.028. Minimum tube wall for .049 wall tubes is 0.039. Wear up to these limits is acceptable.
3. Inspect tubes for chafing with shroud components and adjacent tubes.
4. Inspect tubes and collector for cracks, holes, or burned spots.
5. Replace or repair exhaust components if integrity is compromised in any manner.
6. Lubricate slip joints per section 9.15.

5.1.6 Aileron Hinge Support

Aileron hinge support 100 hour / annual inspection:

1. Remove 64 screws securing left and right wing tips.
2. Remove wing tip by disconnecting tip light molex.
3. Remove four inspection covers per wing at rear spar (77.5, 114.0 (2 locations), and 119.0 as measured from the butt rib).
4. Visually inspect condition of hinge support, hinge bracket, and associated fasteners at middle and tip hinge locations. Emphasis should be placed on the bend in the hinge support and fastener locations.
5. Visually inspect condition of aileron sector casting at the inner hinge location. Emphasis should be placed on the casting where the hinge arm joins the sector body.
6. Visually inspect condition of the hinge ribs and spar-to-rib gussets. Emphasis should be placed at bends and fastener locations.
7. Visually inspect condition of rear spar at hinge locations. Emphasis should be placed on the middle hinge location. Verify condition of spar, spar cap doublers, spar web doublers, and fasteners.
8. Reinstall four inspection covers removed in step 3.
9. Connect tip light molex.
10. Secure left and right wing tips to wing with 64 screws.
11. Verify navigation, position, and strobe light function by viewing with welding goggles.

5.2 Unscheduled Maintenance Checks

5.2.1 Preflight Inspection

A preflight inspection should be conducted before each flight. Complete preflight and operational checklists are provided in the Airplane Flight Manual. The Airplane Flight Manual is part of the required equipment and must remain in the airplane at all times.

5.2.2 Over Limit Inspections

If the airplane has been operated such that any of its components have exceeded their maximum operational limits, check with the appropriate component manufacturer for inspection and maintenance requirements. Appropriate notation of the over limit inspection shall be made in the aircraft or engine logbook. These inspections are not inclusive of major damage to the aircraft; i.e. nose over, propeller strike, ground loop, wing tip strike, etc. Conditions that are not described below require thorough inspection of the entire airframe and repair of all damage. The following inspections are to assist the mechanic by providing a description of the minimum required inspection and maintenance following an over-limits condition.

Excessive Indicated Airspeed

Considerable margin for overspeed is present due to position errors of the aircraft static system. The inspection and maintenance described herein is not necessary if the indicated airspeed was a result of static system blockage and it is determined that the aircraft was not operated outside of the normal limits.

Operation of the aircraft at indicated airspeed from 207 to 232 mph requires the following inspections:

1. Verify windshield is not cracked at the forward attach bracket. Inspection will require removal of the glare shield.