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This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) advises you, owners and operators of **Boeing Company Model 707 airplanes**, to inspect the freeplay of the outboard aileron tabs.

Background

Service history has shown that unbalanced flight control surfaces are susceptible to limit cycle flutter after excessive wear and corrosion of certain components of the surface control system. Boeing has issued Service Bulletins to address this issue with most of their models, but there has not been one issued for the 707 model. This SAIB will address the recommended procedure to check the freeplay of the outboard aileron tabs to ensure it is within specification according to Military Specification MIL-A-8870A Section 3.2.7.3.2.

Recommendations

Required tools and equipment:

- Dial indicator with magnetic base and adjustable rods (0.001 inch resolution, 1 inch range minimum)
- Push/pull force scale (0-10 pound minimum range, 0.5 pound resolution or better, and 10% minimum accuracy)
- Scissor lift (or other lifting device) positioned under the left or right outboard aileron tab
- Ferrous plate
- Speed tape (to hold ferrous plate onto surface of outboard aileron)

Set up:

- Verify that Aileron system has been rigged correctly.
- Mark locations (using masking tape and pen/pencil) for force application and position measurements as identified in procedure below.
- Install ferrous metal plate to outboard aileron just inboard of the outboard tab using speed tape. Ensure plate cannot move even slightly with 5-10 pounds of force in any direction.
- Ensure flaps are retracted fully (so ailerons are locked out).
- Immobilize the outboard aileron by clamping the aileron to the adjacent wing near the trailing edge using wooden plates. Some spacers may be necessary between the blocks and the surface due to the flap not being exactly in-line with the aileron.
- Attach dial indicator to ferrous plate using magnetic base.

Test Procedures:

- Apply 10 +/- 0.5 pound downward force to outboard aileron tab opposite the outboard tab rod and 1.0 +/- 0.25 inches forward of trailing edge. (Note: If using push/pull scale, be sure to use fitting on end of scale to distribute force and prevent damage to tab.)
- Hold force for 5 seconds.
- Remove downward force. (Note: Use care not to touch tab until step 7 below. If the outboard aileron tab is touched before step 7, restart this test.)
- Adjust dial indicator so the plunger makes contact with aileron tab at location 1.00 +/- 0.25 inches forward of trailing edge and 1.00 +/- 0.25 inches outboard of corner at inboard trailing edge.
- Zero the dial indicator. Ensure plunger is still in contact with control surface per above.
- Take measurements by recording dial indicator readout at specified trailing edge location.
- Apply 10 pound upward force at the same location 1.0 +/- 0.25 inches forward of trailing edge in line with the inboard row of rivets corresponding to the tab rod support structure.
- Hold/maintain specified force until position readings have remained unchanged for 5 seconds (If reading won't stabilize, find source of instability before continuing).
- Record dial indicator readout at trailing edge.
- Max freeplay is 0.1 inches. If freeplay is greater than 0.1 inches, then remove, replace and recheck parts until freeplay is less than 0.1 inches.
- Repeat the freeplay check for the opposite aileron tab.

For Further Information, Contact

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