

Discussion

The FAA has received a report indicating that the primary brake of a horizontal stabilizer trim actuator (HSTA) removed from a Boeing Model 757-200 series airplane did not perform at the expected level during a pre-overhaul test at a repair facility. The HSTA brake system is made up of one primary brake and two secondary brakes; these brakes are used to hold the stabilizer against air loads. The secondary brakes provide a backup function to the primary brake.

Investigation revealed that the diminished brake performance was caused by grease from the thrust bearings, which was found on the primary brake surface. Since the first report of grease contamination, the FAA has also received reports of grease contamination on the HSTA primary brake(s) during overhaul on several Model 757-200 series airplanes. In addition, the FAA has received reports that all ballscrew assemblies on HSTAs that have been recently overhauled showed corrosion or wear; and that corrosion or cracking was found during HSTA overhaul in some differential assemblies.

Grease contamination on the primary HSTA brake, if not corrected, could result in the loss of the primary brake function, which, in combination with the loss of the secondary HSTA brake function, could result in loss of control of the airplane.

Explanation of Relevant Service Information

The FAA has reviewed and approved Boeing Alert Service Bulletin, 757-27A0142, Revision 2, dated October 23, 2003 (for Model 757-200, -200CG, and -200PF series airplanes), which describes procedures for repetitive testing of the secondary HSTA brakes, and repetitive overhauls of the primary brake, ballscrew assembly, and differential assembly of the HSTA. The service bulletin recommends compliance times for the overhaul that range between two years and five years depending upon the total hours accumulated on the HSTA since delivery or since the most recent overhaul of the primary brake, ballscrew assembly, and differential assembly.

The FAA has also reviewed and approved Boeing Alert Service Bulletin 757-27A0143, Revision 1, dated October 23, 2003 (for Model 757-300 series airplanes), which describes procedures for repetitive overhauls of the primary brake, ballscrew assembly, and differential assembly of the HSTA.

Accomplishment of the actions specified in the service bulletins are

intended to adequately address the identified unsafe condition.

Explanation of Requirements of Proposed Rule

Since an unsafe condition has been identified that is likely to exist or develop on other products of this same type design, the proposed AD would require accomplishment of the actions specified in the service bulletins described previously, except as discussed below.

Difference Between the Proposed Rule and Service Bulletin 757-27A0142

The manufacturer has noted that Boeing Alert Service Bulletin, 757-27A0142, Revision 2, dated October 23, 2003 contains an inadvertent misstatement of compliance times in paragraph D. of Table 1.E., "Compliance." The statement "Test the HSTA secondary brake when the HSTA reaches 24,000 hours (4C) (this is currently a scheduled maintenance task)," should state: "For HSTAs that have accumulated 15,000 to 23,999 hours, test the HSTA secondary brake when the HSTA reaches 24,000 hours (4C) (this is currently a scheduled maintenance task), or within 500 hours after the effective date of this AD, whichever occurs later." Paragraph D. of the table should also include, as the second bulleted item, the following statement: "For HSTAs that have accumulated 24,000 to 29,999 hours, test the HSTA secondary brake within 500 hours."

Clarification Between Proposed Rule and Service Bulletins

Both service bulletins state that no more work is necessary on airplanes changed per previous releases of the service bulletins. We find this statement to be incorrect because it contradicts the procedures specified in those service bulletins. Both service bulletins added new procedures for overhaul of the ballscrew assembly and differential assembly of the HSTA that were not specified in the previous releases. Therefore, more work is necessary on airplanes changed per previous releases of the service bulletins.

Further, Boeing Service Bulletin 757-27A0142 states that the total hours accumulated on the HSTA should be calculated "since delivery (of the airplane)." However, paragraph (d) of this proposed AD would require compliance "prior to the accumulation of the applicable number of flight hours since the date of issuance of the original Airworthiness Certificate or the date of issuance of the Export Certificate of Airworthiness, whichever occurs first."

This decision is based on our determination that different operators may interpret "since delivery" differently. We find that our proposed terminology is generally understood within the industry and records will always exist that establish these dates with certainty.

Cost Impact

There are approximately 1,085 airplanes of the affected design in the worldwide fleet. The FAA estimates that 754 airplanes of U.S. registry would be affected by this proposed AD; 722 of the affected airplanes of U.S. registry are Model 757-200, -200PF, and -200CB series airplanes, and 32 are Model 757-300 series airplanes.

For the affected Model 757-200 and Model 757-300 series airplanes, the FAA estimates that it would take approximately 96 work hours per airplane to accomplish the proposed overhaul, and that the average labor rate is \$65 per work hour. Based on these figures, the cost impact of the proposed AD on U.S. operators is estimated to be \$4,704,960, or \$6,240 per airplane, per overhaul cycle.

For the affected Model 757-200 series airplanes, the FAA estimates that it would take approximately 1 work hour per airplane to accomplish the proposed test of the HSTA secondary brake, and that the average labor rate is \$65 per work hour. Based on these figures, the cost impact of the proposed AD on U.S. operators is estimated to be \$46,930, or \$65 per airplane, per secondary brake test.

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the proposed requirements of this AD action, and that no operator would accomplish those actions in the future if this proposed AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

Regulatory Impact

The regulations proposed herein would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this proposal would not have federalism implications under Executive Order 13132.