

Discussion

A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to add an airworthiness directive (AD), applicable to certain McDonnell Douglas Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F, DC-10-30F (KC10A and KDC-10), MD-10-10F, and MD-10-30F airplanes, was published as a notice of proposed rulemaking (NPRM) in the **Federal Register** on August 23, 2002 (67 FR 54593). That NPRM would have required inspections of the linear variable differential transducers (LVDTs) of the autopilot for discrepancies, and follow-on actions, if necessary. That NPRM was prompted by information received from the manufacturer that certain McDonnell Douglas airplanes having LVDTs were delivered with undersize nylok elements on the threaded extension end. That condition, if not corrected, could result in failure of the LVDTs and an automatic pitch trim malfunction or an autopilot disconnect, and consequent reduced controllability of the airplane.

Actions Since Issuance of Previous Proposal

The applicability statement of the NPRM specified that it would apply to certain McDonnell Douglas Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F, DC-10-30F (KC10A and KDC-10), MD-10-10F, and MD-10-30F airplanes; as listed in Boeing Alert Service Bulletin DC10-22A126, dated October 31, 2001; and Boeing Alert Service Bulletin DC10-22A127, dated December 17, 2001. We inadvertently omitted specifying Model DC-10-40 and DC-10-40F airplanes; however, those airplanes are listed in the specified service bulletins. In addition, it has been determined that Model MD-10-10F and MD-10-30F airplanes have a different design and are not affected by the NPRM. For the convenience of affected operators, the FAA has changed the applicability statement of this supplemental NPRM to reflect these changes.

Comments

Due consideration has been given to the comments received in response to the NPRM:

Request To Change Paragraph (a)(1)

One commenter asks that the language in paragraph (a)(1) of the NPRM which specifies, "including replacing the LVDT with a new LVDT and doing an automatic pitch trim adjustment/test" be changed. The commenter states that the manufacturer has repaired several LVDTs with the affected serial numbers

and those LVDTs are being installed on the airplanes. The commenter suggests that the language state, "including replacing the LVDT with a new LVDT, or LVDT with an affected serial number that was repaired after January 22, 2001, by the parts manufacturer; and doing an automatic pitch trim adjustment/test."

We do not agree with the commenter. There is no specific designation or modification level for identifying the correct nylok strip size to be installed on a repaired LVDT; only a label titled "Rework" and the date are engraved on those units. All returned LVDT units are marked "Rework" after repair, regardless of the reason for repair, and returned to operators with the same serial number. We acknowledge that certain LVDT units have been repaired by the parts manufacturer by adding the correct nylok strip size. However, we do not have any data validating proper control and identification of the nylok strip size required for installation in an LVDT with an affected serial number. In light of these factors, we find that no change to the supplemental NPRM is necessary in this regard.

The same commenter requests clarifying the text in paragraph (a)(1) of the NPRM which specifies, "If no discrepancy is found, install a shield assembly per Condition 2 of the service bulletin." The commenter states that Condition 2 of the service bulletin specifies that no further action is needed if no discrepancy is found. The commenter believes that if no discrepancy is found, the existing shield on the LVDT would be reinstalled if removed during any inspection/repair process. The commenter adds that the text in the NPRM implies installing something additional, which is not the case.

We agree with the commenter and have clarified paragraph (a)(1) of this supplemental NPRM.

Request To Change Paragraph (b)

The same commenter asks that paragraph (b) of the NPRM be changed to state, "As of the effective date of this AD, no one may install a LVDT on any airplane autopitch trim system with a serial number listed in the 'Affected Serial Numbers' table in Figure 1 of Boeing Alert Service Bulletin DC10-22A127, dated December 17, 2001; unless the LVDT serial number has been repaired by OEM Kavlico after January 22, 2001."

We do not agree with the commenter. The intent of paragraph (b) of this supplemental NPRM is to prohibit any LVDT with a serial number listed in the "Affected Serial Numbers" table in Figure 1 of the service bulletin from

being installed on any airplane after the effective date of this AD. No change to the supplemental NPRM is necessary in this regard.

Explanation of Editorial Change

We have changed the service bulletin citations in this supplemental NPRM to exclude the Evaluation Forms. The forms are intended to be completed by operators and submitted to the manufacturer to provide input on the quality of the service bulletins; however, this AD does not include such a requirement.

Conclusion

Since the change in applicability expands the scope of the originally proposed rule, we have determined that it is necessary to reopen the comment period to provide additional opportunity for public comment.

Cost Impact

There are approximately 394 airplanes of the affected design in the worldwide fleet. The FAA estimates that 252 airplanes of U.S. registry would be affected by this proposed AD.

It would take approximately 1 work hour per airplane to accomplish the inspection specified in Boeing Alert Service Bulletin DC10-22A126, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of this proposed inspection on U.S. operators is estimated to be \$15,120, or \$60 per airplane.

It would take approximately 1 work hour per airplane to accomplish the inspections specified in Boeing Alert Service Bulletin DC10-22A127, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of these proposed inspections on U.S. operators is estimated to be \$15,120, or \$60 per airplane.

Should an operator be required to perform the follow-on actions specified in Boeing Alert Service Bulletin DC10-22A126, the cost estimates are as follows:

- Condition 2—Repair/inspect: 1 work hour per airplane at \$60 per work hour.
- Condition 4—Realign: 1 work hour per airplane at \$60 per work hour.
- Condition 5—Replace LVDT: 1 work hour per airplane at \$60 per work hour; estimated parts cost of \$900.
- Condition 6—Replace hangar: 1 work hour per airplane at \$60 per work hour; estimated parts cost of \$100.

Should an operator be required to perform the follow-on actions specified in Boeing Alert Service Bulletin DC10-22A127, the cost estimates are as follows:

- Option 1—Replace LVDT and do adjustment/test: 2 work hours per