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The service information referenced in this AD may be obtained from Boeing Commercial Aircraft Group, Long Beach Division, 3855 Lakewood Boulevard, Long Beach, California 90846, Attention: Data and Service Management, Dept. C1-L5A (D800-0024). This information may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Philip C. Kush, Aerospace Engineer, Propulsion Branch, ANM-140L, FAA, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California 90712-4137; telephone (562) 627-5263; fax (562) 627-5210.

SUPPLEMENTARY INFORMATION: The FAA has received two reports of evidence of heat damage to the reprime impeller area found during a visual inspection of the fuel pumps on certain Boeing Model 747 series airplanes. The heat discoloration of the damaged parts indicates that the fuel pumps were exposed to high temperatures due to frictional heating between pump components. Such conditions within the pumps can create a potential ignition source and auto-ignition of vapors could occur, which could result in fire or explosion in a fuel tank.

A review of design data by the manufacturer revealed that a fuel boost/transfer pump having Hydro-Aire part number (P/N) 60-847-1A has less internal fuel retention capability than other fuel boost/transfer pumps. It was determined that the smaller fuel retention capability of the Hydro-Aire fuel pumps may intensify the frictional heating. Replacement of the Hydro-Aire fuel pumps with the improved pumps will minimize the risk of a potential ignition source in the fuel tank.

Similar Models

The fuel boost/transfer pumps of the reprime impeller area of the Hydro-Aire P/N 60-847-1A on McDonnell Douglas Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F (KC10A and KDC-10), DC-10-40, DC-10-40F, MD-10-10F, and MD-10-30F airplanes are similar to those on Boeing Model 737-600, -700, -700C, -800, and -900 series airplanes, Model 747 series airplanes, and Model 757 series airplanes.

Therefore, all of these models may be subject to the same unsafe condition.

Other Relevant Rulemaking

The FAA has previously issued the following two ADs that concern the fuel boost/transfer pumps on Boeing Model 737-600, -700, -700C, -800, and -900 series airplanes, Model 747 series airplanes, and Model 757 series airplanes:

1. AD 2002-24-51, amendment 39-12992 (68 FR 10, January 2, 2003), applicable all Boeing Model 737-600, -700, -700C, -800, and -900 series airplanes, Model 747 series airplanes, and Model 757 series airplanes, requires revising the Airplane Flight Manual (AFM) to require the flightcrew to maintain certain minimum fuel levels in the center fuel tanks, and, for certain airplanes, to prohibit the use of the horizontal stabilizer fuel tank and certain center auxiliary fuel tanks.

2. AD 2002-24-52, amendment 39-12993 (68 FR 14, January 2, 2003), applicable to all Boeing Model 747-400, -400D, and -400F series airplanes, requires revising the AFM to require the flightcrew to maintain certain minimum fuel levels in the center fuel tanks, and to prohibit the use of the horizontal stabilizer fuel tank. That AD also removes the reference to placards that was specified in the operating limitations required by AD 2002-24-51.

This AD will not affect the current requirements of any of those previously issued ADs.

Explanation of Relevant Service Information

The FAA has reviewed and approved Boeing Alert Service Bulletin (ASB) DC10-28A241, dated April 24, 2003, which describes, among other things, the following:

- Condition 1—Procedures for reviewing the airplane maintenance records to determine if any fuel boost/transfer pump having P/N 60-847-1A is installed. If the records show that none of the pumps have P/N 60-847-1A, no further action is necessary.

- Condition 2—Procedures for a visual inspection to determine if a pump having P/N 60-847-1A is installed. If the inspection shows that no pump having P/N 60-847-1A is installed, no further action is necessary.

- Condition 3, Option 1a.—Procedures to replace the pump with a new pump, if the records or visual inspection verify that a pump having P/N 60-847-1A is installed and replacement pumps are available.

- Condition 3, Option 2a.—Procedures to deactivate any pump

having P/N 60-847-1A if replacement pumps are not available.

- Condition 3, Option 2b.—Procedures to relocate pumps having P/N 60-847-1A, if replacement pumps are not available.

In addition, Appendix A, Recommended Operating Limitations, of the ASB describes certain operating procedures, limitations, and related maintenance actions intended to prevent fuel vapors from coming into contact with a possible ignition source in the fuel tanks.

The accomplishment of certain actions specified in the service bulletin is intended to adequately address the identified unsafe condition.

Explanation of the Requirements of the Rule

Since an unsafe condition has been identified that is likely to exist or develop on other airplanes of the same type design registered in the United States, this AD requires accomplishment of certain actions specified in the service bulletin described previously, except as discussed below.

Differences Between This AD and the Service Bulletin

The service bulletin recommends a review of the airplane maintenance records to determine if a certain P/N for the fuel boost/transfer pump is installed. This AD requires a general visual inspection to determine the P/N. In lieu of the inspection, a review of the airplane maintenance records is acceptable if the P/N of the pump can be positively determined from that review.

While Option 2.b. of the service bulletin recommends replacement of all relocated pumps within 18 months after issue date of the service bulletin, this AD requires only the relocation of the pumps, or deactivation of the pumps having P/N 60-847-1A per the McDonnell Douglas DC-10 Minimum Equipment List.

Appendix A of the service bulletin contains operating limitations and related maintenance actions for fuel boost/transfer pumps having P/N 60-847-1A that are installed in all locations except those boost pumps located in the aft position of the main tanks. This AD does not specify implementation of the operating limitations and related maintenance actions for boost pumps in the aft position of the main tanks since these pumps are always covered with fuel during takeoff, which prevents heated localized temperatures from occurring within the fuel boost/transfer pump due to frictional heating.