EMERGENCY AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

www.faa.gov/aircraft/safety/alerts/

ISSUE DATE: November 18, 2008
AD 2008-24-51; Docket No. FAA-2008-1199; Directorate Identifier 2008-NM-207-AD

Emergency airworthiness directive (AD) 2008-24-51 is sent to certain owners and operators of Boeing Model 737-600, -700, -700C, -800, and -900 series airplanes.

Background

We received a report of failure of the left-hand fuel pump of the center wing tank (CWT) to shut off after being selected "OFF" by the flightcrew during flight on a Boeing Model 737-700 airplane. Subsequent to that report, the failure was found on two additional airplanes. Information indicates that the autoshutoff system appears to function normally; however, when the flightcrew manually turns off the CWT pump switches, that action turns off the right-hand pump, but re-energizes the left-hand pump due to incorrect wiring. The low-pressure lights turn off, incorrectly indicating to the flightcrew that power to both pumps has been removed. The failure condition results in continual running of the left-hand fuel pump without indication to the flightcrew, which could lead to localized overheating of parts inside the fuel pump, and which could produce an ignition source inside the fuel tank.

Investigation revealed that incorrect wiring could occur on airplanes on which an autoshutoff system was installed in accordance with Boeing Alert Service Bulletin 737-28A1206. Functional tests conducted in accordance with that service bulletin are not adequate to detect the incorrect wiring condition.

We approved installation of the autoshutoff system as an alternative method of compliance to AD 2002-24-51, amendment 39-12992 (68 FR 10, January 2, 2003). That AD was issued to address reports indicating that two fuel tank pumps showed evidence of extreme localized overheating of parts in the priming and vapor pump section of the fuel pump. That AD required revising the airplane flight manual (AFM) to require the flightcrew to maintain certain minimal fuel levels in the center fuel tanks.

FAA's Findings

In light of the information discussed previously, we have determined that it is necessary to require a wiring test of the autoshutoff system to verify continuity and a visual verification that the wiring is correctly installed; doing corrective actions, if necessary; and doing a functional test of the autoshutoff system, and applicable maintenance actions. These maintenance actions, which are specified in Chapter 28, Section 28-22 of the Boeing 737-600/700/800/900 Fault Isolation Manual, Revision 37, dated October 15, 2008, include (but are not limited to) doing a fault isolation procedure, checks of the left center wing tank boost pump functions, relays and wiring checks, and repairs.

Explanation of Relevant Service Information

We have reviewed Boeing Alert Service Bulletin 737-28A1248, Revision 1, dated January 9, 2008. The service bulletin describes procedures for installing a power failed 'ON' protection system (i.e., uncommanded pump 'ON' protection system) for the center tank fuel boost pump.

FAA's Determination and Requirements of this AD

We have evaluated all pertinent information and identified an unsafe condition that is likely to exist or develop on other airplanes of this same type design. Therefore, we are issuing this AD to prevent extended dry-running of the fuel pumps, which could lead to localized overheating of parts inside the fuel pump, and which could produce an ignition source inside the fuel tank. This AD requires accomplishing a wiring test of the autoshutoff system to verify continuity and a visual verification that the wiring is correctly installed; doing corrective actions, if necessary; and doing a functional test of the autoshutoff system, and applicable maintenance actions.

This AD also requires reporting the inspection results, both positive and negative, to Boeing.

In lieu of doing those actions, the left-hand fuel pump of the CWT may be deactivated. If the pump is deactivated, dispatch under the minimum equipment list is allowed for 10 days, but dispatch in this configuration may restrict operational capability for extended-range twin-engine operational performance standards (ETOPS) missions in accordance with existing minimum equipment list limitations.

Operators should note that, for airplanes on which the installation specified in Boeing Alert Service Bulletin 737-28A1248 has been accomplished, no further action is required by this AD. The installed protection system identifies when a pump is powered with the switches commanded 'OFF" in the flight deck and removes power to the pump, thus mitigating the extended dry-running threat of the left-hand CWT fuel-pump.

Interim Action

This AD is considered to be interim action. The inspection report that is required by this AD will enable the manufacturer to obtain better insight into the nature, cause, and extent of the failure of the left-hand fuel pump of the CWT to shut off after being selected "OFF" by the flightcrew, and eventually to develop final action to address the unsafe condition. Once final action has been identified, we might consider further rulemaking.

In addition, for airplanes on which the uncommanded pump "ON" protection system is installed in accordance with Boeing Alert Service Bulletin 737-28A1248, we are considering further rulemaking that might require additional testing.

Examining the Docket

You may examine the contents of this AD docket on the Internet at http://www.regulations.gov; (on the next business day after we have issued the AD), or in person at the Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street SW., Room PL-401, on the plaza level of the Nassif Building, Washington, DC. This docket number is FAA-2008-1199; the directorate identifier for this docket is 2008-NM-207-AD.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Determination of Rule's Effective Date

This emergency AD is issued under 49 U.S.C. Section 44701 according to the authority delegated to me by the Administrator, and is effective immediately upon receipt.

Because an unsafe condition exists that requires the immediate adoption of this emergency AD, we find that notice and opportunity for prior public comment hereon are impracticable and that good cause exists for making this emergency AD effective in less than 30 days.

2008-24-51 BOEING: Docket No. FAA-2008-1199; Directorate Docket No. 2008-NM-207-AD.

Effective Date

(a) Emergency airworthiness directive (AD) 2008-24-51, issued on November 18, 2008, is effective immediately upon receipt.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Boeing Model 737-600, -700, -700C, -800, and -900 series airplanes, certificated in any category; on which Boeing Alert Service Bulletin 737-28A1206 has been accomplished.

Unsafe Condition

(d) This AD results from a report of a failure of the left-hand fuel pump of the center wing tank (CWT) to shut off after being selected "OFF" by the flightcrew during flight on a Boeing Model 737-700 airplane. Subsequent to that report, the failure was found on two additional airplanes. The failure condition results in continual running of the pump without indication to the flightcrew. We are issuing this AD to prevent extended dry-running of the fuel pump, which could lead to localized overheating of parts inside the fuel pump, and which could produce an ignition source inside the fuel tank.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

Test

(f) Within 48 clock-hours after receipt of this AD, or prior to further flight, whichever occurs later: Except as provided by paragraphs (g) and (h) of this AD, do the autoshutoff system wiring test specified in paragraphs (f)(1) through (f)(10) of this AD.

(1) Remove electrical power from the airplane.

(2) Open the following circuit breakers, and install collars and 'DO-NOT-CLOSE' tags on the circuit breakers.

(i) Circuit breaker (CB) C3012, XFR BUS 2 SECT 2, on the P92 panel.

(ii) CB C3002, XFR BUS 1 SECT 2, on the P91 panel.

(iii) CB C1639, Fuel Auto S/O BST PUMP CTR TNK L AC, on the P6-3 panel.

(3) Verify continuity between TB5060F in terminal 5 and the bus side terminal of CB C1639 in the P6-3 circuit breaker panel.

(4) Check that wire number W0040-6402-14 is installed in terminal 5 of TB5060F.

(5) If, during the action required by paragraph (f)(3) of this AD, there is no continuity; or if, during the check required by paragraph (f)(4) of this AD, the wire is found not installed in TB5060F terminal 5: Before further flight, trace wire W0040-6402-14 from CB C1639 and re-terminate the other end of the wire to TB5060F terminal 5. After re-terminating the wire, before further flight**,** do the actions specified in paragraphs (f)(3) and (f)(4) of this AD.

(6) Remove the tags and collars from the following circuit breakers and close the circuit breakers.

(i) CB C3012, XFR BUS 2 SECT 2, on the P92 panel.

(ii) CB C3002, XFR BUS 1 SECT 2, on the P91 panel.

(iii) CB C1639, Fuel Auto S/O BST PUMP CTR TNK L AC, on the P6-3 panel.

(7) Supply electrical power to the airplane.

(8) Verify the voltage at CB C1639 is 115 volts alternating current +/- 5 volts.

(9) If the voltage is not within the limits specified in paragraph (f)(8) of this AD, before further flight, repeat the actions required by paragraphs (f)(1) through (f)(8) of this AD.

(10) Test the autoshutoff system as follows:

(i) On P5-4 panel, switch Bus Transfer to OFF.

(ii) Using only one power source (auxiliary power unit (APU) or an engine generator), power only AC Bus 1 with no power to AC Bus 2.

(iii) Do the "Center Tank Boost Pump Auto Shutoff Functional Test" in accordance with paragraphs 9.A. through 9.G. of the Boeing 737-600/700/800/900 Aircraft Maintenance Manual task 28-22-00-720-805, Revision 37, dated October 15, 2008. Accomplishment of paragraphs 9.H. and 9.I. of the functional test should not be accomplished.

(iv) If the autoshutoff test fails the test required by paragraph (f)(10)(iii) of this AD: Within 48 clock hours after receipt of this AD, or before further flight, whichever occurs later, do either paragraph (f)(10)(iv)(A) or (f)(10)(iv)(B) of this AD.

(A) Do all applicable maintenance actions in accordance with Chapter 28, Section 28-22 of the Boeing 737-600/700/800/900 Fault Isolation Manual, Revision 37, dated October 15, 2008, and repeat the action required by paragraph (f)(10)(iii) of this AD.

(B) Deactivate the left-hand fuel pump of the CWT as specified in paragraph (g) of this AD.

Optional Deactivation/Reactivation

(g) Deactivation of the left-hand fuel pump of the CWT and operation in accordance with Item 28-02, 'Fuel Boost Pumps (Center Tank),' of the Boeing 737-100/200/300/400/500/600/700/800/900 Master Minimum Equipment List (MMEL), Revision 52, dated April 29, 2008, may be accomplished in lieu of the requirements of paragraph (f) of this AD until the left-hand fuel pump of the CWT is reactivated. If the pump is deactivated, dispatch under this configuration is allowed for 10 days. For airplanes on which the left-hand fuel pump of the CWT is deactivated under the provision of this paragraph: Prior to further flight after reactivating the pump, do the autoshutoff system wiring test and applicable corrective actions specified in paragraphs (f)(1) through (f)(10) of this AD.

Optional Installation

(h) Accomplishing the installation of the power failed 'ON' protection system (i.e., uncommanded pump "ON" protection system) for the center tank fuel boost pump in accordance with Boeing Alert Service Bulletin 737-28A1248, dated December 21, 2006; or Revision 1, dated January 9, 2008; terminates the autoshutoff system wiring test required by paragraphs (f) and (g) of this AD.

Reporting

(i) Submit a report of the findings (both positive and negative) of the actions required by paragraph (f) of this AD to Boeing via e-mail at RSE.BOECOM@BOEING.COM; or via fax at (206) 766-5682; at the applicable time specified in paragraph (i)(1) or (i)(2) of this AD. The report must include: a description of the test failure; a description of the action taken to correct the failure; the total number of flight cycles/flight hours accumulated on the airplane at the time of inspection; and the date of accomplishment of Boeing Alert Service Bulletin 737-28A1206 and total number of flight hours/flight cycles accumulated on the airplane on the date of accomplishment of that service bulletin.

Under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), the Office of Management and Budget (OMB) has approved the information collection requirements contained in this AD and has assigned OMB Control Number 2120-0056.

(1) If the test is done after receipt of this AD: Submit the report within 10 days after accomplishing the test.

(2) If the test was accomplished prior to receipt of this AD: Submit the report within 10 days after receipt of this AD.

Alternative Methods of Compliance (AMOCs)

(j)(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, ATTN: Samuel Spitzer, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 917-6510; fax (425) 917-6590; has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

(2) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

Contact Information

(k) For technical information about this AD, contact: Samuel Spitzer, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 917-6510; fax (425) 917-6590. For service information identified in this AD, contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207; telephone 206-544-9990; fax 206-766-5682; e-mail DDCS@boeing.com; Internet https://www.myboeingfleet.com.

Issued in Renton, Washington, on November 18, 2008.

Original signed by:
Stephen P. Boyd

Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.