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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2011-0028; Directorate Identifier 2009-NM-228-AD; Amendment 39-16716; AD 2011-12-09]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 Series Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for the products listed above. This AD requires, depending on airplane configuration, doing certain wiring changes, replacing the fuel pump power control relays for the main, center, and auxiliary tanks, as applicable, with new relays having a ground fault interrupter (GFI) feature, performing certain bonding resistance measurements, and modifying relay module assemblies. This AD also requires revising the maintenance program to incorporate certain Airworthiness Limitations. This AD was prompted by fuel system reviews conducted by the manufacturer. We are issuing this AD to prevent damage to the fuel pumps caused by electrical arcing that could introduce an ignition source in the fuel tank, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

**DATES:** This AD is effective July 15, 2011.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of July 15, 2011.

**ADDRESSES:** For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, PO Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Georgios Roussos, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue, SW., Renton, Washington 98057-3356; phone: 425-917-6482; fax: 425-917-6590; e-mail: [georgios.roussos@faa.gov](mailto:georgios.roussos@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an airworthiness directive (AD) that would apply to the specified products. That NPRM published in the Federal Register on January 21, 2011 (76 FR 3856). That NPRM proposed to require, depending on airplane configuration, doing certain wiring changes, replacing the fuel pump power control relays for the main, center, and auxiliary tanks, as applicable, with new relays having a GFI feature, performing certain bonding resistance measurements, and modifying relay module assemblies. That NPRM also proposed to require revising the maintenance program to incorporate Airworthiness Limitations (AWLs) 28-AWL-23 (for Model 737-100, 737-200, and 737-200C series airplanes) and 28-AWL-22 (for Model 737-300, 737-400, and 737-500 series airplanes).

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal and the FAA's response to each comment. Boeing concurs with the content of this AD.

### **Request To Correct Typographical Errors**

Alaska Airlines requested that corrections be made to certain accomplishment instructions of Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010. Alaska Airlines requested that Boeing Information Notice 737-28A1212 IN 01, dated October 7, 2010, which specifies those corrections, be incorporated into the AD.

We agree that typographical errors in that service bulletin need to be corrected. Where paragraph 3.B.1.s. of Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010, states that the affected airplanes are "Group 11, Configuration 1," that paragraph also applies to "Group 13, Configuration 1." The action specified in paragraph 3.B.1.s. of that service bulletin (changing a wire bundle) is a logical outgrowth of the actions specified in that service bulletin. Paragraph (j) of this AD addresses this change. Also, the figure in Appendix A, paragraph 1., of Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010, is not identified, but should be identified as "Figure 1." Paragraph (k) of this AD addresses this change. That information notice includes additional changes to that service bulletin; however, they are not part of the accomplishment instructions, and therefore are not addressed in our response.

## Additional Change

Boeing has issued Section 9 of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWL) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision August 2010, to update certain AWLs other than those specified in this AD. The document reference has been updated in paragraph (l) of this AD.

We have also clarified the intent of paragraph (n) of this AD by revising the heading.

We have also added paragraph (o) of this AD to give credit for revising the maintenance program by incorporating AWLs 28-AWL-22 (for Model 737-300, -400, and -500 series airplanes) and 28-AWL-23 (for Model 737-100, -200, and -200C series airplanes), in accordance with Section 9 of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWL) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision May 2009.

## Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes:

- Are consistent with the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

We also determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

## Costs of Compliance

We estimate that this AD affects 750 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

**Table—Estimated costs**

Action	Work hours	Average labor rate per hour	Parts	Cost per product	Number of U.S.-registered airplanes	Fleet cost
Replacement of power control relays	4 to 9 <sup>1</sup>	\$85	\$14,500	\$14,840 to \$15,265 <sup>1</sup>	750	\$ 11,130,000 to \$11,448,750 <sup>1</sup>
Modification	5	\$85	\$0	\$425	750	\$318,750
Maintenance program revision	1	\$85	\$0	\$85	750	\$63,750

<sup>1</sup> Depending on airplane configuration.

## 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.

### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will 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.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39—AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):



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**2011-12-09 The Boeing Company:** Amendment 39-16716; Docket No. FAA-2011-0028; Directorate Identifier 2009-NM-228-AD.

**Effective Date**

(a) This AD is effective July 15, 2011.

**Affected ADs**

(b) None.

**Applicability**

(c) This AD applies to The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes, certificated in any category; as identified in Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010.

Note 1: This AD requires revisions to certain operator maintenance documents to include new inspections. Compliance with these inspections is required by 14 CFR 91.403(c). For airplanes that have been previously modified, altered, or repaired in the areas addressed by these inspections, the operator may not be able to accomplish the inspections described in the revisions. In this situation, to comply with 14 CFR 91.403(c), the operator must request approval for an alternative method of compliance according to paragraph (p) of this AD. The request should include a description of changes to the required inspections that will ensure the continued operational safety of the airplane.

**Subject**

(d) Air Transport Association (ATA) of America Code 28: Fuel.

**Unsafe Condition**

(e) This AD results from fuel system reviews conducted by the manufacturer. The Federal Aviation Administration is issuing this AD to prevent damage to the fuel pumps caused by electrical arcing that could introduce an ignition source in the fuel tank, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

**Compliance**

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

## **Part 1: Wiring Changes, Relay Replacements, and Certain Bonding Resistance Measurements for Certain Airplanes**

(g) For airplanes on which Boeing Alert Service Bulletin 737-28A1212, dated July 23, 2009, has not been incorporated as of the effective date of this AD: Within 60 months after the effective date of this AD, do the applicable actions required by paragraph (g)(1) or (g)(2) of this AD.

(1) Airplanes without the M181, M182, and M183 supplier relay modules installed: Do the wiring changes; replace the fuel pump power control relays for the main, center, and auxiliary tanks, as applicable, with new relays having a ground fault interrupter (GFI) feature; and do certain bonding resistance measurements to verify that certain bonding requirements are met; in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010, except as provided by paragraphs (j) and (k) of this AD.

(2) Airplanes with the M181, M182, and M183 supplier relay modules installed: Modify the M181, M182, and M183 relay module assemblies, and do certain bonding resistance measurements to verify that certain bonding requirements are met, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010, except as provided by paragraphs (j) and (k) of this AD.

Note 2: Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010, refers to BAE Systems Service Bulletin 65-49808-24-01, Revision 1, dated July 19, 2010, as an additional source of guidance for doing the modification and certain bonding resistance measurements on the M181, M182, and M183 supplier relay modules.

## **Part 2: Wiring Changes and Certain Bonding Measurements for Certain Airplanes**

(h) For airplanes on which Boeing Alert Service Bulletin 737-28A1212, dated July 23, 2009, has been incorporated as of the effective date of this AD, and on which the M181, M182, and M183 supplier relay modules are not installed: Within 60 months after the effective date of this AD, do the wiring changes and certain bonding measurements to verify that certain bonding requirements are met, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010, except as provided by paragraphs (j) and (k) of this AD.

## **Part 3: Certain Bonding Measurements for Certain Airplanes**

(i) For airplanes on which Boeing Alert Service Bulletin 737-28A1212, dated July 23, 2009, has been incorporated as of the effective date of this AD, and on which the M181, M182, and M183 supplier relay modules are installed: Within 60 months after the effective date of this AD, do certain bonding measurements to verify that certain bonding requirements are met, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010, except as provided by paragraphs (j) and (k) of this AD.

Note 3: Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010, refers to BAE Systems Service Bulletin 65-49808-24-01, Revision 1, dated July 19, 2010, as an additional source of guidance for doing the modification and certain bonding resistance measurements on the M181, M182, and M183 supplier relay modules.

## **Exceptions to the Service Information**

(j) Where paragraph 3.B.1.s. of Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010, states the applicability as "Group 11, Configuration 1," that paragraph also applies to "Group 13, Configuration 1."

(k) The figure in Appendix A, paragraph 1., of Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010, should be identified as Figure 1 (immediately following the text).

### **Maintenance Program Revisions**

(l) Concurrently with accomplishing the actions required by paragraph (g), (h), or (i) of this AD, as applicable, or within 30 days after the effective date of this AD, whichever occurs later, revise the maintenance program by incorporating the applicable airworthiness limitation (AWL) specified in paragraph (l)(1) or (l)(2) of this AD.

(1) For Model 737-100, -200, and -200C series airplanes: AWL 28-AWL-23 of Section 9 of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision August 2010. The initial compliance time for the actions specified in AWL 28-AWL-23 is within 1 year after accomplishing the installation required by paragraph (g), (h), or (i) of this AD, or within 1 year after the effective date of this AD, whichever occurs later.

(2) For Model 737-300, -400, and -500 series airplanes: AWL 28-AWL-22 of Section 9 of Boeing 737-100/200/200C/300/400/500 AWL and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision August 2010. The initial compliance time for the actions specified in AWL 28-AWL-22 is within 1 year after accomplishing the installation required by paragraph (g), (h), or (i) of this AD, or within 1 year after the effective date of this AD, whichever occurs later.

### **No Alternative Inspections or Inspection Intervals**

(m) After accomplishment of the actions required by paragraph (g), (h), or (i) of this AD, as applicable, no alternative inspections or inspection intervals may be used, unless the inspections or intervals are approved as an alternative method of compliance in accordance with the procedures specified in paragraph (p) of this AD.

### **Optional Terminating Action**

(n) Revising the maintenance program to incorporate AWLs 28-AWL-22 (for Model 737-300, -400, and -500 series airplanes) and 28-AWL-23 (for Model 737-100, -200, and -200C series airplanes) in accordance with paragraphs (g)(1) and (g)(2) of AD 2008-10-09 R1, amendment 39-16148, terminates the requirements of paragraph (l) of this AD.

### **Credit for Actions Accomplished in Accordance With Earlier Revisions of AWLs**

(o) Revising the maintenance program to incorporate AWLs 28-AWL-22 (for Model 737-300, -400, and -500 series airplanes) and 28-AWL-23 (for Model 737-100, -200, and -200C series airplanes) before the effective date of this AD, in accordance with Section 9 of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision May 2009, is acceptable for compliance with the requirements of paragraph (l) of this AD.

### **Alternative Methods of Compliance (AMOCs)**

(p)(1) The Manager, Seattle Aircraft Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the ACO, sent it to ATTN: Georgios Roussos, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft

Certification Office (ACO), 1601 Lind Avenue, SW., Renton, Washington 98057-3356; phone: 425-917-6482; fax: 425-917-6590; e-mail: georgios.roussos@faa.gov. Or, e-mail information to 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office. The AMOC approval letter must specifically reference this AD.

### **Material Incorporated by Reference**

(q) You must use Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010; and Section 9 of the Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision August 2010; as applicable; to do the actions required by this AD, unless the AD specifies otherwise. This document is identified as Section 9 only on the List of Effective Pages.

(1) The Director of the Federal Register approved the incorporation by reference of the service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; Internet <https://www.myboeingfleet.com>.

(3) You may review copies of the service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(4) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at an NARA facility, call 202-741-6030, or go to [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Renton, Washington, on May 27, 2011.

Ali Bahrami,  
Manager, Transport Airplane Directorate,  
Aircraft Certification Service.