**[4910-13-P]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2013-0421; Directorate Identifier 2013-NM-003-AD]**

**RIN 2120-AA64**

**Airworthiness Directives;** The Boeing Company

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

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to adopt a new airworthiness directive (AD) for certain The Boeing Company Model 737-300, -400, and -500 series airplanes. This proposed AD was prompted by fuel system reviews conducted by the manufacturer. This proposed AD would require, depending on airplane configuration, replacing fuel pump power control relays with new relays having a ground fault interrupter (GFI) feature, installing ground studs and a bonding jumper, doing certain bonding resistance measurements, and changing the GFI relay position. This proposed AD would also require revising the maintenance program to incorporate certain airworthiness limitations. We are proposing 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:** We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to http://www.regulations.gov. Follow the instructions for submitting comments.

• Fax: 202-493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; 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, WA. 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 proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

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

## SUPPLEMENTARY INFORMATION:

### Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2013-0421; Directorate Identifier 2013-NM-003-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to http://www.regulations.gov, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

### Discussion

The FAA has examined the underlying safety issues involved in fuel tank explosions on several large transport airplanes, including the adequacy of existing regulations, the service history of airplanes subject to those regulations, and existing maintenance practices for fuel tank systems. As a result of those findings, we issued a regulation titled "Transport Airplane Fuel Tank System Design Review, Flammability Reduction and Maintenance and Inspection Requirements" (66 FR 23086, May 7, 2001). In addition to new airworthiness standards for transport airplanes and new maintenance requirements, this rule included Special Federal Aviation Regulation No. 88 ("SFAR 88," Amendment 21-78, and subsequent Amendments 21-82 and 21-83).

Among other actions, SFAR 88 requires certain type design (i.e., type certificate (TC) and supplemental type certificate (STC)) holders to substantiate that their fuel tank systems can prevent ignition sources in the fuel tanks. This requirement applies to type

design holders for large turbine-powered transport airplanes and for subsequent modifications to those airplanes. It requires them to perform design reviews and to develop design changes and maintenance procedures if their designs do not meet the new fuel tank safety standards. As explained in the preamble to the rule, we intended to adopt airworthiness directives to mandate any changes found necessary to address unsafe conditions identified as a result of these reviews.

In evaluating these design reviews, we have established four criteria intended to define the unsafe conditions associated with fuel tank systems that require corrective actions. The percentage of operating time during which fuel tanks are exposed to flammable conditions is one of these criteria. The other three criteria address the failure types under evaluation: single failures, combination of failures, and unacceptable (failure) experience. For all three failure criteria, the evaluations included consideration of previous actions taken that may mitigate the need for further action.

We have determined that the actions identified in this proposed AD are necessary to reduce the potential of ignition sources inside fuel tanks, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

We received a report of incorrect operation of a new GFI relay having part number (P/N) 9524G-10674 after AD 2011-12-09, Amendment 39-16716 (76 FR 33988, June 10, 2011), was incorporated. Subsequent investigation found that electromagnetic interference (EMI) between the new P/N 9524G-10674 relays and adjacent P/N KCG-X4L-001 relays could cause problems with the function of the new relays and the operation of the GFI system. The GFI system might not function correctly after installation on certain airplanes.

**Related Rulemaking**

The requirements of AD 2011-12-09, Amendment 39-16716 (76 FR 33988, June 10, 2011), affect all airplanes of this proposed AD. This proposed AD provides terminating actions for those airplanes.

**Relevant Service Information**

We reviewed Boeing Alert Service Bulletin 737-28A1212, Revision 2, dated October 18, 2012. For information on the procedures and compliance times, see this service information at http://www.regulations.gov by searching for Docket No. FAA-2013-0421.

**FAA's Determination**

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

**Proposed AD Requirements**

This proposed AD would require accomplishing the actions specified in the service information described previously.

The phrase "related investigative actions" might be used in this proposed AD. "Related investigative actions" are follow-on actions that: (1) are related to the primary actions, and (2) are actions that further investigate the nature of any condition found. Related investigative actions in an AD could include, for example, inspections.

In addition, the phrase "corrective actions" might be used in this proposed AD. "Corrective actions" are actions that correct or address any condition found. Corrective actions in an AD could include, for example, repairs.

This proposed 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 (l) of this proposed AD. The request should include a description of changes to the required inspections that will ensure the continued operational safety of the airplane.

**Costs of Compliance**

We estimate that this proposed AD affects 14 airplanes of U.S. registry. We estimate the following costs to comply with this proposed AD:

**Estimated costs**

| Action | Labor cost | Parts cost | Cost per product | Cost on U.S. operators |
|---|---|---|---|---|
| Replace fuel pump power control relays, install ground studs and a bonding jumper, and do certain bonding resistance measurements, and change the GFI relay position, depending on airplane configuration | Up to 31 work-hours X $85 per hour = $2,635 | Up to $21,338 | Up to $23,973 | Up to $335,622 |
| Maintenance program revision | 1 work-hour X $85 per hour = $85 | $0 | $85 | $1,190 |

**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**

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD 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.

For the reasons discussed above, I certify this proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Is not a "significant rule" under the 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.

**The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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):

**The Boeing Company:** Docket No. FAA-2013-0421; Directorate Identifier 2013-NM-003-AD.

**(a) Comments Due Date**

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

**(b) Affected ADs**

Certain requirements of this AD terminate certain requirements of AD 2011-12-09, Amendment 39-16716 (76 FR 33988, June 10, 2011).

**(c) Applicability**

This AD applies to The Boeing Company Model 737-300, -400, and -500 series airplanes; certificated in any category; identified as Groups 5, 6, 7, and 9 in Boeing Alert Service Bulletin 737-28A1212, Revision 2, dated October 18, 2012.

**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 2822, Fuel boost pump.

**(e) Unsafe Condition**

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.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Installation of Ground Studs and Bonding Jumper and Fuel Boost Pump Relays Replacement**

For airplanes in Groups 5, 6, 7, and 9, Configuration 1, as identified in Boeing Alert Service Bulletin 737-28A1212, Revision 2, dated October 18, 2012 (airplanes on which Boeing Alert Service Bulletin 737-28A1212 was not done): Within 60 months after the effective date of this AD, install ground studs and a bonding jumper, replace fuel boost pump relays, and do certain bonding resistance measurements, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1212, Revision 2, dated October 18, 2012. Doing the actions required by this paragraph terminates the requirements of paragraph (g) of AD 2011-12-09, Amendment 39-16716 (76 FR 33988, June 10, 2011), for Groups 5, 6, 7, and 9, Configuration 1 only, provided that the requirements of paragraph (g) of this AD are done at the time given in AD 2011-12-09.

**(h) Ground Studs and Bonding Jumper Installation and GFI Relay Position Change**

For airplanes in Groups 5, 6, 7, and 9, Configuration 2, as identified in Boeing Alert Service Bulletin 737-28A1212, Revision 2, dated October 18, 2012 (airplanes on which Boeing Alert Service Bulletin 737-28A1212, dated July 23, 2009 was done): Within 60 months after the effective date of this AD, install ground studs and a bonding jumper, change the GFI relay position, and do certain bonding resistance measurements, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1212, Revision 2, dated October 18, 2012. Doing the actions required by this paragraph terminates the requirements of paragraph (h) of AD 2011-12-09,

Amendment 39-16716 (76 FR 33988, June 10, 2011), for airplanes identified as Groups 5, 6, 7, and 9, Configuration 2 only, provided that the requirements of paragraph (h) of this AD are done at the time given in AD 2011-12-09.

**(i) Ground Fault Interrupt (GFI) Relay Position Change**

For airplanes in Groups 5, 6, 7, and 9, Configuration 3, as identified in Boeing Alert Service Bulletin 737-28A1212, Revision 2, dated October 18, 2012 (certain airplanes on which Boeing Alert Service Bulletin 737-28A1212, Revision 1, dated August 27, 2010 was done): Within 60 months after the effective date of this AD, change the GFI relay position and do certain bonding resistance measurements, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-28A1212, Revision 2, dated October 18, 2012.

**(j) Maintenance Program Revision**

Concurrently with accomplishing the actions required by paragraph (g), (h), or (i) of this AD, or within 30 days after the effective date of this AD, whichever occurs later: Revise the maintenance program by incorporating Airworthiness Limitation 28-AWL-22 of Boeing 737-100/200/200C/300/400/500 AWL and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision August 2012. The initial compliance time for the actions specified in AWL 28-AWL-22 of Boeing 737-100/200/200C/300/400/500 AWL and Certification Maintenance Requirements (CMRs), Document D6-38278-CMR, Revision August 2012, 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.

**(k) No Alternative Actions, Intervals, and/or Critical Design Configuration Control Limitations (CDCCLs)**

After accomplishing the revision required by paragraph (j) of this AD, no alternative actions (e.g., inspections) or intervals may be used unless the actions or

intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (l) of this AD.

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

(1) The Manager, Seattle Aircraft Certification Office (ACO), 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 manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD. Information may be emailed 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.

**(m) Related Information**

(1) For more information about this AD, contact Georgios Roussos, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6482; fax: 425-917-6590; email: georgios.roussos@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; 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, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on May 8, 2013.

Jeffrey E. Duven,
Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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