



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-0500; Directorate Identifier 2017-NM-009-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

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 MD-11 and MD-11F airplanes. This proposed AD was prompted by fuel system reviews conducted by the manufacturer. This proposed AD would require a one-time inspection of the wire assemblies of the tail fuel tank transfer pumps to determine if metallic transitions are installed at the wire harness breakouts, and corrective actions if necessary. We are proposing this AD to address the unsafe condition on these products.

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 NPRM, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740; telephone 562-797-1717; Internet <https://www.myboeingfleet.com>. You may view this 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. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0500.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0500; 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: Sérj Harutunian, Aerospace Engineer, Propulsion Branch, ANM-140L, FAA, Los Angeles Aircraft Certification Office (ACO), 3960 Paramount Boulevard, Lakewood, California 90712-4137; phone: 562-627-5254; fax: 562-627-5210; email: serj.harutunian@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section.

Include “Docket No. FAA-2017-0500; Directorate Identifier 2017-NM-009-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 final rule 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 that rule included Amendment 21-78, which established Special Federal Aviation Regulation No. 88 (“SFAR 88”) at 14 CFR part 21. Subsequently, SFAR 88 was amended by: Amendment 21-82 (67 FR 57490, September 10, 2002; corrected at 67 FR 70809, November 26, 2002) and Amendment 21-83 (67 FR 72830, December 9, 2002; corrected at 68 FR 37735, June 25, 2003, to change “21-82” to “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.

This proposed AD was prompted by fuel system reviews conducted by the manufacturer. In addition, during one event on a Model MD-11 airplane that occurred during flight, a level 1 message “TAIL L PUMP OFF” was annunciated; investigation of the wire bundles in the horizontal stabilizer next to the tail fuel tank revealed burned and broken wires, which showed severe signs of overheating and arcing. This is considered a quality control issue because the type design harnesses were not installed properly during the required SFAR 88 modifications.

We are proposing this AD to detect and correct potential ignition sources inside the tail fuel tank, which, in combination with flammable vapors, could result in a fuel tank fire or explosion, and consequent loss of the airplane.

Related Service Information under 1 CFR part 51

We reviewed Boeing Alert Service Bulletin MD11-28A150, dated October 6, 2016. The service information describes procedures for a one-time detailed inspection of the wire assemblies of the tail fuel tank transfer pumps to determine if metallic transitions

are installed at the wire harness breakouts, and corrective actions that include repair and replacement of the wire assembly. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Related Rulemaking

On May 14, 2010, we issued AD 2010-11-12, Amendment 39-16317 (75 FR 30274, June 1, 2010) (“AD 2010-11-12”), for certain Model MD-11 and MD-11F airplanes. AD 2010-11-12 requires a one-time inspection to determine if metallic transitions are installed on wire harnesses of the tail fuel tank transfer pumps, and to inspect for and repair damaged wires. AD 2010-11-12 also requires repetitive inspections of repaired areas; and a permanent modification of the wire harnesses if metallic transitions are not installed, which would terminate the repetitive inspections. AD 2010-11-12 also requires modifying the case grounding for the alternate fuel pump of the tail fuel tank, the leak detection thermal switch grounding for the number 2 engine, and wire braid grounding in the empennage and number 2 engine inlet. We issued AD 2010-11-12 to prevent insufficient grounding of the fuel pump, which, in combination with an electrical failure within the fuel pump and a compromised electrical bond, could cause a fuel tank ignition, resulting in consequent fire or explosion.

On January 3, 2011, we issued AD 2011-02-01, Amendment 39-16574 (76 FR 1983, January 12, 2011) (“AD 2011-02-01”), for certain Model MD-11 and MD-11F airplanes. AD 2011-02-01 requires a one-time inspection to detect damage of the wire assemblies of the tail fuel tank fuel system, a wiring change, and corrective actions if necessary. AD 2011-02-01 also requires, for certain airplanes, a general visual inspection for correct installation of the self-adhering high-temperature electrical insulation tape; installation of a wire assembly support bracket and routing wire assembly; changing of certain wire supports; and installation of a wire protection bracket. We issued

AD 2011-02-01 to detect and correct a potential of ignition sources inside fuel tanks, which, in combination with flammable vapors, could result in a fuel tank fire or explosion, and consequent loss of the airplane.

This proposed AD would not supersede or terminate the actions required by AD 2010-11-12 and AD 2011-02-01. Certain airplanes identified in the related rulemaking may not have the correct wire harness with metallic transitions installed; therefore this proposed AD would address the unsafe condition on those airplanes.

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 “corrective actions” is 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.

Costs of Compliance

We estimate that this proposed AD affects 110 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
Inspection	4 work-hours X \$85 per hour = \$340	\$0	\$340	\$37,400

We estimate the following costs to do any necessary repairs/replacements that would be required based on the results of the proposed inspection. We have no way of determining the number of aircraft that might need these repairs/replacements:

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Repair	9 work-hours X \$85 per hour = \$765	\$0	\$765
Replacement	16 work-hours X \$85 per hour = \$1,360	\$57,526	\$58,886

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-2017-0500; Directorate Identifier 2017-NM-009-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

None.

(c) Applicability

This AD applies to the Boeing Company Model MD-11 and MD-11F airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin MD11-28A150, dated October 6, 2016.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by fuel system reviews conducted by the manufacturer. We are issuing this AD to detect and correct potential ignition sources inside the tail fuel tank, which, in combination with flammable vapors, could result in a fuel tank fire or explosion, and consequent loss of the airplane.

(f) Compliance

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

(g) One-Time Inspection and Corrective Actions

Within 27 months after the effective date of this AD: Do a one-time detailed inspection of the wire assemblies of the tail fuel tank transfer pumps to determine if metallic transitions are installed at the wire harness breakouts, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin MD11-28A150, dated October 6, 2016. If metallic transitions are installed, no further action is required by this paragraph. If metallic transitions are not installed, do the corrective actions required by paragraphs (g)(1) and (g)(2) of this AD, as applicable, except as required by paragraphs (h)(1), (h)(2), and (h)(3) of this AD.

(1) Repair any affected wire assembly before further flight, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin

MD11-28A150, dated October 6, 2016, or replace any affected wire assembly with a new assembly before further flight, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin MD11-28A150, dated October 6, 2016. If the replacement is done, no further action is required for that wire assembly only.

(2) Within 24 months after accomplishment of the repair required by paragraph (g)(1) of this AD: Replace any repaired wire assembly with a new assembly, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin MD11-28A150, dated October 6, 2016.

(h) Service Information Exceptions

(1) Where Part 4.1.f. of the Accomplishment Instructions of Boeing Alert Service Bulletin MD11-28A150, dated October 6, 2016, specifies “CONTROLLER FUEL SYSTEM – ADJUSTMENT/TEST refer to MD-11, AMM (Airplane Maintenance Manual) 28-28-01 as an accepted procedure”: Adjust and test the controller fuel system. If the test fails do corrective actions, repeat the test, and do applicable corrective actions until the system passes the test.

(2) Where Part 4.1.g. of the Accomplishment Instructions of Boeing Alert Service Bulletin MD11-28A150, dated October 6, 2016, specifies “OPERATIONAL TEST OF THE FILL SHUTOFF VALVE CONTROLLER refer to MD-11 AMM 26-21--02, as an accepted procedure”: Do the operational test of the part. If the part fails the test, do corrective actions, repeat the test, and do applicable corrective actions until the part passes the test.

(3) Where Part 4.1.h. of the Accomplishment Instructions of Boeing Alert Service Bulletin MD11-28A150, dated October 6, 2016, specifies “SWITCH, PUMP LOW PRESSURE - ADJUSTMENT/TEST, refer to MD-11 AMM 28-44-01, as an accepted procedure”: Do the operational test of the part. If the part fails the test, do corrective actions, repeat the test, and do applicable corrective actions until the part passes the test.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Los Angeles 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 paragraph (j)(1) of this AD. Information may be emailed to:

9-ANM-LAACO-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.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Los Angeles ACO, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (i)(4)(i) and (i)(4)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. If a step or substep is labeled “RC Exempt,” then the RC requirement is removed from that step or substep. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(j) Related Information

(1) For more information about this AD, contact Sérj Harutunian, Aerospace Engineer, Propulsion Branch, ANM-140L, FAA, Los Angeles ACO, 3960 Paramount Boulevard, Lakewood, California 90712-4137; phone: 562-627-5254; fax: 562-627-5210; email: serj.harutunian@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740; telephone 562-797-1717; Internet <https://www.myboeingfleet.com>. You may view this 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 17, 2017.

Michael Kaszycki,
Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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