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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2023–2228; Project Identifier AD–2023–01095–T; Amendment 39–22616; AD 2023–23–14]

RIN 2120–AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY:

Federal Aviation Administration (FAA), DOT.

ACTION:

Final rule; request for comments.

SUMMARY:

The FAA is adopting a new airworthiness directive (AD) for all The Boeing Company Model 747 airplanes. This AD was prompted by reports of latent failures of the lightning protection features for the engine fuel feed system. This AD requires an inspection for damage and a measurement of the electrical bonding resistance of the out-tank fuel feed tube bonding jumper in the strut for each of the four engines, a measurement of the electrical bonding resistance of the forward side of the front spar bulkhead fitting adapter for each of the four engines, and applicable related investigative and corrective actions. The FAA is issuing this AD to address the unsafe condition on these products.

DATES:

This AD is effective December 15, 2023.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of December 15, 2023.

The FAA must receive comments on this AD by January 16, 2024.

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 *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.

AD Docket: You may examine the AD docket at *regulations.gov* by searching for and locating Docket No. FAA–2023–2228; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The street address for Docket Operations is listed above.

Material Incorporated by Reference:

• For Boeing material identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster Blvd., MC 110–SK57, Seal Beach, CA 90740–5600; telephone 562–797–1717; website *myboeingfleet.com*.

• You may view this referenced material at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206–231–3195. It is also available at *regulations.gov* by searching for and locating Docket No. FAA–2023–2228.

FOR FURTHER INFORMATION CONTACT:

Samuel Dorsey, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; phone: 206–231–3415; email: *Samuel.j.dorsey@faa.gov*.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under **ADDRESSES** . Include Docket No. FAA–2023–2228 and Project Identifier AD–2023–01095–T at the beginning of your comments. The most helpful comments reference a specific portion of the final rule, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this final rule because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to *regulations.gov*, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this final rule.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this AD contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this AD, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this AD. Submissions containing CBI should be sent to Samuel Dorsey, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; phone: 206–231–3415; email: *Samuel.j.dorsey@faa.gov*. Any commentary that the FAA receives that is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The electrical bonding of the engine fuel feed tube penetrating the fuel tanks of Boeing Model 747–8 series airplanes and other models is the primary design feature to prevent the development of an ignition source inside the fuel tank during a lightning strike to the engine nacelle. The fuel feed lightning protection features include the spar fitting that redirects the majority of current during a lightning event. A separate bonding jumper outside the fuel tank provides a

second electrical path for current from lightning strikes. The encapsulation sealant over the fuel tank wall fitting inside the fuel tank provides additional protection.

However, Boeing has recently discovered that the bonding jumper outside the fuel tank is failing at an excessive rate in addition to the known degradation of the primary electrical bonding path through the spar fitting. Furthermore, Boeing has reported finding a complete crack around the circumference of the fuel feed fitting encapsulation inside a fuel tank of a Model 747–8 series airplane. This encapsulation is designed to isolate any sparks/arcing generated during a lightning strike because of failed electrical bonds from flammable fuel vapors in the tank. This is an urgent safety issue, as all fuel feed lightning protection features now have evidence of compromise. The FAA has determined that all Model 747 airplanes are affected by the unsafe condition.

A lightning strike to an engine nacelle combined with a latent failure of the lightning protection features for the engine fuel feed system, if not addressed, could result in the potential for 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. The FAA is issuing this AD to address the unsafe condition on these products.

FAA's Determination

The FAA is issuing this AD because the agency has determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Related Service Information Under 1 CFR Part 51

The FAA reviewed the following service information. These documents are distinct since they apply to different airplane models.

- For Model 747–8 and 747–8F series airplanes: Boeing Multi Operator Message MOM–MOM–23–0885–01B–R1, dated November 13, 2023.
- For Model 747–400, 747–400D, and 747–400F series airplanes: Boeing Multi Operator Message MOM–MOM–23–0899–01B–R1, dated November 13, 2023. (For the 747–400D, see the Differences Between this AD and the Service Information section below.)
- For Model 747–100, 747–100B, 747–100B SUD, 747–200B, 747–200C, 747–200F, 747–300, 747SR, and 747SP series airplanes: Boeing Multi Operator Message MOM–MOM–23–0907–01B, dated November 13, 2023.

This service information specifies procedures for a detailed inspection for damage and a measurement of the electrical bonding resistance of the out-tank fuel feed tube bonding jumper in the strut for each of the four engines, and a measurement of the electrical bonding resistance of the forward side of the front spar bulkhead fitting adapter for each of the four engines. The detailed inspection for damage includes making sure the bonding jumper installation is secure.

This service information also specifies related investigative actions, which include, depending on the airplane configuration, a general visual inspection of the aft side of the front spar to identify the configuration of the fuel feed tube and bulkhead fitting adapter, a detailed inspection for damage and measurements of the electrical bonding resistance of the in-tank bonding jumper, a general visual inspection of the wet-side front spar bulkhead fitting adapter for missing and damaged sealant or for missing sealant and damage to the encapsulation seal, and a general visual inspection of the seal for the welded tube fitting configuration for missing and damaged sealant.

This service information also specifies corrective actions, which include, depending on the airplane configuration, adjusting the installation and reworking the bonding jumper bonding path, replacement of the bonding jumper; and re-installing the front spar bulkhead fitting and applying sealant.

This service information also specifies reporting findings of the inspections and measurements to Boeing.

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.

AD Requirements

This AD requires an inspection for damage and a measurement of the electrical bonding resistance of the out-tank fuel feed tube bonding jumper in the strut for each of the four engines, a measurement of the electrical bonding resistance of the forward side of the front spar bulkhead fitting adapter for each of the four engines, applicable related investigative and corrective actions, and reporting inspection and measurement findings to Boeing.

Differences Between This AD and the Service Information

For Boeing Multi Operator Message MOM–MOM–23–0899–01B–R1, dated November 13, 2023, which applies to Model 747–400 and 747–400F series airplanes, the FAA has determined that Model 747–400D airplanes can also accomplish the required actions using that service information. Model 747–400D airplanes are similar in design to Model 747–400 and 747–400F series airplanes.

Interim Action

This AD is considered to be interim action. The inspection reports that are required by this AD will enable the manufacturer to obtain better insight into the nature, cause, and extent of the bonding degradation and failures, and eventually to develop final action to address the unsafe condition. Once final action has been identified, the FAA might consider further rulemaking.

Justification for Immediate Adoption and Determination of the Effective Date

Section 553(b)(3)(B) of the Administrative Procedure Act (APA) (5 U.S.C. 551 *et seq.*) authorizes agencies to dispense with notice and comment procedures for rules when the agency, for "good cause," finds that those procedures are "impracticable, unnecessary, or contrary to the public interest." Under this section, an agency, upon finding good cause, may issue a final rule without providing notice and seeking comment prior to issuance. Further, section 553(d) of the APA authorizes agencies to make rules effective in less than thirty days, upon a finding of good cause.

An unsafe condition exists that requires the immediate adoption of this AD without providing an opportunity for public comments prior to adoption. The FAA has found that the risk to the flying public justifies forgoing notice and comment prior to adoption of this rule because the lightning protection features for the engine fuel feed system could fail without being detected. This could result in no lightning protection features remaining due to the latent failure. A lightning strike to an engine nacelle, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane. Accordingly, notice and opportunity for prior public comment are impracticable and contrary to the public interest pursuant to 5 U.S.C. 553(b)(3)(B).

In addition, the FAA finds that good cause exists pursuant to 5 U.S.C. 553(d) for making this amendment effective in less than 30 days, for the same reasons the FAA found good cause to forgo notice and comment.

Regulatory Flexibility Act

The requirements of the Regulatory Flexibility Act (RFA) do not apply when an agency finds good cause pursuant to 5 U.S.C. 553 to adopt a rule without prior notice and comment. Because the FAA has determined that it has good cause to adopt this rule without notice and comment, RFA analysis is not required.

Costs of Compliance

The FAA estimates that this AD affects 211 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspections/measurements of the out-tank bonding	Up to 6 work-hours × $85 per hour = Up to	$0	Up to $510 per inspection/measurement	Up to $107,610 per inspection/measurement

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
jumper and front spar bulkhead fitting adapter	$510 per inspection/measurement cycle		cycle	cycle.
Reporting	1 work-hour × 85 per hour = 85 per inspection/measurement cycle	0	85 per inspection/measurement cycle	85 per inspection/measurement cycle.

The FAA estimates the following costs to do any necessary related investigative and corrective actions that would be required based on the results of the inspections/measurements. The FAA has no way of determining the number of aircraft that might need these actions:

On-Condition Costs

Action	Labor cost	Parts cost
Related Investigative Actions	Up to 2 work-hours × $85 per hour = $170	$0.
Corrective Actions	Up to 34 work-hours × 85 per hour = 2,890	Up to 1,000.

Paperwork Reduction Act

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120–0056. Public reporting for this collection of information is estimated to be approximately 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX 76177–1524.

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.

The FAA is 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, and

(2) Will not affect intrastate aviation in Alaska.

List of Subjects in 14 CFR Part 39

- Air transportation
- Aircraft
- Aviation safety
- Incorporation by reference
- Safety

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:

2023–23–14 The Boeing Company: Amendment 39–22616; Docket No. FAA–2023–2228; Project Identifier AD–2023–01095–T.

(a) Effective Date

This airworthiness directive (AD) is effective December 15, 2023.

(b) Affected ADs

None.

(c) Applicability

This AD applies to all The Boeing Company Model 747–100, 747–100B, 747–100B SUD, 747–200B, 747–200C, 747–200F, 747–300, 747–400, 747–400D, 747–400F, 747SR, 747SP, 747–8F, and 747–8 series airplanes, certificated in any category.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by reports of latent failures of the lightning protection features for the engine fuel feed system. The FAA is issuing this AD to address latent failures of the lightning protection features for the engine fuel feed system. A lightning strike to an engine nacelle combined with latent failures of the lightning protection features for the engine fuel feed system, if not addressed, could result in the potential for 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.

(f) Compliance

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

(g) Repetitive Inspections/Measurements, Related Investigative, and Corrective Actions

Within 90 days after the effective date of this AD for Model 747 airplanes operated in a passenger configuration, and within 120 days after the effective date of this AD for Model 747 airplanes operated in an all-cargo configuration: Do a detailed inspection for damage and measure the electrical bonding resistance of the out-tank fuel feed tube bonding jumper in the strut for each of the four engines, measure the electrical bonding resistance of the forward side of the front spar bulkhead fitting adapter for each of the four engines, and do all applicable related investigative and corrective actions, in accordance with Part 2 of the applicable Boeing multi operator message specified in paragraphs (g)(1) through (3) of this AD. Do all applicable related investigative and corrective actions before further flight. Repeat the inspection and measurements thereafter at intervals not to exceed 12 months.

(1) For Model 747–8 and 747–8F series airplanes: Boeing Multi Operator Message MOM–MOM–23–0885–01B–R1, dated November 13, 2023.

(2) For Model 747–400, 747–400D, and 747–400F series airplanes: Boeing Multi Operator Message MOM–MOM–23–0899–01B–R1, dated November 13, 2023.

(3) For Model 747–100, 747–100B, 747–100B SUD, 747–200B, 747–200C, 747–200F, 747–300, 747SR, and 747SP series airplanes: Boeing Multi Operator Message MOM–MOM–23–0907–01B, dated November 13, 2023.

(h) Repetitive Reporting Requirement for All Airplanes

At the applicable compliance times specified in paragraphs (h)(1) and (2) of this AD: Submit a report of all findings from each work package performed as required by paragraph (g) of this AD, in accordance with Appendix C of the applicable Boeing multi operator message identified in paragraphs (g)(1) though (3) of this AD.

(1) For the initial inspections and measurements required by paragraph (g) of this AD, submit the report at the applicable compliance time specified in paragraph (h)(1)(i) or (ii) of this AD.

(i) For Model 747 airplanes operated in a passenger configuration: Within 120 days after the effective date of this AD.

(ii) For Model 747 airplanes operated in an all-cargo configuration: Within 150 days after the effective date of this AD.

(2) For each repetitive inspection and measurement required by paragraph (g) of this AD, submit the report at intervals not to exceed 30 days after completing all four work packages.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, AIR–520, Continued Operational Safety Branch, 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 responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (j) 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 responsible Flight Standards 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 Company Organization Designation Authorization (ODA) that has been authorized by the Manager, AIR–520, Continued Operational Safety Branch, FAA, 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.

(j) Related Information

For more information about this AD, contact Samuel Dorsey, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; phone: 206–231–3415; email: *Samuel.j.dorsey@faa.gov*.

(k) Material Incorporated by Reference

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

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Boeing Multi Operator Message MOM–MOM–23–0885–01B–R1, dated November 13, 2023.

(ii) Boeing Multi Operator Message MOM–MOM–23–0899–01B–R1, dated November 13, 2023.

(iii) Boeing Multi Operator Message MOM–MOM–23–0907–01B, dated November 13, 2023.

(3) For Boeing material identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster Blvd., MC 110–SK57, Seal Beach, CA 90740–5600; telephone 562–797–1717; website *myboeingfleet.com*.

(4) You may view this material at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206–231–3195.

(5) You may view this material at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, visit *www.archives.gov/federal-register/cfr/ibr-locations*, or email *fr.inspection@nara.gov*.

Issued on November 20, 2023.

Caitlin Locke,

Director, Compliance & Airworthiness Division, Aircraft Certification Service.

[FR Doc. 2023–26367 Filed 11–27–23; 4:15 pm]

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