



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2025-1361; Project Identifier AD-2025-00217-T; Amendment 39-23232; AD 2026-01-04]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain The Boeing Company Model 787-9 and 787-10 airplanes. This AD was prompted by reports of multiple supplier notices of escapement (NOEs) indicating that ram air turbine (RAT) forward fittings were possibly manufactured with an incorrect titanium alloy material. This AD requires a high frequency eddy current (HFEC) or handheld X-ray fluorescence (XRF) spectrometer inspection of the RAT forward fitting to determine the titanium alloy material and applicable on-condition actions. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2025-1361; 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 address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

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

- 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. It is also available at regulations.gov under Docket No. FAA-2025-1361.

FOR FURTHER INFORMATION CONTACT: Joseph Hodgin, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; phone: 206-231-3962; email: joseph.j.hodgin@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 787-9 and 787-10 airplanes. The NPRM was published in the *Federal Register* on July 28, 2025 (90 FR 35486). The NPRM was prompted by a report indicating reports of multiple supplier NOEs indicating that RAT forward fittings were possibly manufactured with an incorrect titanium alloy material. In the NPRM, the FAA proposed to require an HFEC or handheld XRF spectrometer inspection of the RAT forward fitting to determine the titanium alloy material and applicable on-condition actions. The FAA is issuing this AD

to address RAT forward fittings that were possibly manufactured with the incorrect titanium alloy material. This condition, if not addressed, could result in loss of backup hydraulic and/or electrical power as well as the RAT module departing from the airplane.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from Air Line Pilots Association, International (ALPA), Boeing, United Airlines, and an individual who supported the NPRM without change.

The FAA received an additional comment from American Airlines (American). The following presents the comment received on the NPRM and the FAA's response to each comment.

Request to Clarify Inspection Instructions

American requested the FAA revise paragraph (g) of the proposed AD to state that either an XRF or HFEC is acceptable for compliance with the proposed AD. The commenter expressed concern that paragraph (g) of the proposed AD specifies doing all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin B787-81205-SB530090-00 RB, Issue 001, dated February 24, 2025, but the inspection instructions in the requirements bulletin do not clearly state that doing an HFEC inspection to determine the type of titanium alloy material negates the need for an XRF inspection (for example, see task 1, table 1, More Data notes 1 and 2). The commenter stated it cannot accomplish the XRF inspection because the equipment is unavailable.

The FAA disagrees with the request. Table 1 ("Ram Air Turbine (RAT) forward fitting at Station (STA) 1329 – Inspection and Replacement) of the Accomplishment Instructions of the requirements bulletin, specifies to do an HFEC or handheld XRF spectrometer inspection of RAT forward fitting to determine titanium alloy material. In

addition, More Data note 2 of the Method of Compliance task table 1 states to do, as an option, an HFEC inspection of the RAT forward fitting to determine the material in accordance with the 787 NDT Manual Part 6, 51-00-13. More Date note 2 denotes that the HFEC inspection is an alternative to the XRF spectrometer inspection specified in More Data note 1. Therefore, operators may accomplish either an HFEC or XRF spectrometer inspection to comply with the AD requirement to determine the type of titanium alloy material. No change has been made to this AD in this regard.

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Material Incorporated by Reference Under 1 CFR Part 51

The FAA reviewed Boeing Alert Requirements Bulletin B787-81205-SB530090-00 RB, Issue 001, dated February 24, 2025. This material specifies procedures for an HFEC or handheld XRF spectrometer inspection of the RAT forward fitting to determine the titanium alloy material and applicable on-condition actions. On-condition actions include an open hole HFEC for cracking of all fastener hole locations common to titanium parts of the interfacing structure of each affected RAT forward fitting, replacing any RAT forward fitting that was not manufactured with the correct titanium alloy material, and repair.

This material 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.

Costs of Compliance

The FAA estimates that this AD affects 9 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
Inspection	3 work-hours X \$85 per hour = \$255	\$0	\$255	\$2,295

The FAA estimates the following costs to do any necessary inspections or replacements that would be required based on the results of the inspection. The agency has no way of determining the number of aircraft that might need these inspections or replacements:

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Open hole inspection	3 work-hours X \$85 per hour = \$255	\$0	\$255
Replacement	3 work-hours X \$85 per hour = \$255	\$30,260	\$30,515

The FAA has received no definitive data on which to base the cost estimates for the on-condition repairs specified in this AD.

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, some or all of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected operators.

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,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) 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 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:

2026-01-04 The Boeing Company: Amendment 39-23232; Docket No. FAA-2025-1361; Project Identifier AD-2025-00217-T.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to The Boeing Company Model 787-9 and 787-10 airplanes, certificated in any category, as identified in Boeing Alert Requirements Bulletin B787-81205-SB530090-00 RB, Issue 001, dated February 24, 2025.

(d) Subject

Air Transport Association (ATA) of America Code 53, Fuselage.

(e) Unsafe Condition

This AD was prompted by reports of multiple supplier notices of escapement (NOEs) indicating that ram air turbine (RAT) forward fittings were possibly manufactured with an incorrect titanium alloy material. The FAA is issuing this AD to address RAT forward fittings that were possibly manufactured with the incorrect titanium alloy material. The unsafe condition, if not addressed, could result in loss of backup hydraulic and/or electrical power as well as the RAT module departing from the airplane.

(f) Compliance

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

(g) Required Actions

Except as specified by paragraph (h) of this AD: At the applicable times specified in the “Compliance” paragraph of Boeing Alert Requirements Bulletin B787-81205-SB530090-00 RB, Issue 001, dated February 24, 2025, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin B787-81205-SB530090-00 RB, Issue 001, dated February 24, 2025.

Note 1 to paragraph (g): Guidance for accomplishing the actions required by this AD can be found in Boeing Alert Service Bulletin B787-81205-SB530090-00, Issue 001, dated February 24, 2025, which is referred to in Boeing Alert Requirements Bulletin B787-81205-SB530090-00 RB, Issue 001, dated February 24, 2025.

(h) Exceptions to Requirements Bulletin Specifications

(1) Where the Compliance Time column of the table in the “Compliance” paragraph of Boeing Alert Requirements Bulletin B787-81205-SB530090-00 RB, Issue 001, dated February 24, 2025, refers to the Issue 001 date of Requirements Bulletin B787-81205-SB530090-00 RB, this AD requires using the effective date of this AD.

(2) Where Boeing Alert Requirements Bulletin B787-81205-SB530090-00 RB, Issue 001, dated February 24, 2025, specifies contacting Boeing for repair and installation instructions: This AD requires doing the repair and installation using a method approved in accordance with the procedures specified in paragraph (i) of this AD.

(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 Continued Operational Safety Branch, send it to the

attention of the person identified in paragraph (j)(1) of this AD. Information may be emailed to: AMOC@faa.gov. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(2) 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) Additional Information

(1) For more information about this AD, contact Joseph Hodgins, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; phone: 206-231-3962; email: joseph.j.hodgin@faa.gov.

(2) Material identified in this AD that is not incorporated by reference is available at the address specified in paragraph (k)(3) of this AD.

(k) Material Incorporated by Reference

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

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

(i) Boeing Alert Requirements Bulletin B787-81205-SB530090-00 RB, Issue 001, dated February 24, 2025.

(ii) [Reserved]

(3) For the Boeing material identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister 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 December 30, 2025.

Peter A. White,
Deputy Director, Integrated Certificate Management Division,
Aircraft Certification Service.
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