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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-0571; Project Identifier AD-2021-00101-T; Amendment 39-21835; AD 2021-24-14]

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 787-8, 787-9, and 787-10 airplanes. This AD was prompted by reports of damage to the thrust reverser (TR) translating sleeve secondary sliders due to contact between the slider and the slider track liner. This damage could reduce the fatigue life of the slider below its full design life for the TRs installed on certain engines. This AD requires determining the serial number of the TR and performing applicable on-condition actions; or replacing the TR with a serviceable TR. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective February 15, 2022.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of February 15, 2022.

ADDRESSES: For service information identified in this final rule, 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; internet <https://www.myboeingfleet.com>. You may view this service information 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 <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0571.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0571; 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.

FOR FURTHER INFORMATION CONTACT: Tak Kobayashi, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3553; email: takahisa.kobayashi@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 787-8, 787-9, and 787-10 airplanes. The NPRM published in the Federal Register on August 9, 2021 (86 FR 43443). The NPRM was prompted by reports of damage to the TR translating sleeve secondary sliders due to contact between the slider and the slider track liner. This damage was found on TR sleeves installed only on certain engines. In the NPRM, the FAA proposed to require determining the serial number of the TR and performing applicable on-condition actions; or replacing the TR with a serviceable TR. The FAA is issuing this AD to address this damage, which could result in failure of the TR translating sleeve secondary slider and possible detachment of the outer cowl, which could strike the fuselage, causing damage to the airplane, and could result in reduced control or performance of the airplane.

Discussion of Final Airworthiness Directive

Comments

The FAA received a comment from the Air Line Pilots Association, International (ALPA), who supported the NPRM without change.

The FAA received additional comments from one commenter, Boeing. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request To Clarify Unsafe Condition

The Background section of the NPRM and paragraph (e) of the proposed AD stated that damage was found on TR sleeves installed only on certain engines. Boeing requested that the FAA clarify the description of the unsafe condition to state that this damage can result in an unsafe condition on TR sleeves installed on certain engines. Boeing added that, although this damage (gouging and grooving) is possible on pre- and post-mission improvement TRs installed on General Electric and Rolls-Royce engines, it was determined by the Boeing safety process that the damage could result in an unsafe condition only for the mission improvement TRs on Rolls-Royce engines.

The FAA agrees with Boeing's assertions, but disagrees with the proposed wording because it does not explain why the TRs installed on certain other engines are not affected by this safety issue. To clarify the description of the unsafe condition, the FAA has revised the SUMMARY and paragraph (e) of this AD to indicate that damage to the TR translating sleeve secondary sliders could reduce the fatigue life of the slider below its full design life for the TRs installed on certain engines.

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Except for minor editorial changes, and any other

changes described previously, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Related Service Information Under 1 CFR Part 51

The FAA reviewed Boeing Alert Requirements Bulletin B787-81205-SB780043-00 RB, Issue 001, dated January 15, 2021. This service information specifies procedures for determining the serial number of the TR, and applicable on-condition actions; or replacing the TR with a serviceable TR. On-condition actions include reworking affected TR slider track liners; determining the serial number of the TR translating sleeves; checking to determine if certain TR translating sleeves have been installed on certain TRs; performing a detailed inspection of the secondary sliders of affected TR translating sleeves for cracking, grooving, gouging damage, and any existing repair; performing a dye penetrant inspection on any cracking, grooving or gouging damage, and any existing repair for cracking; and repairing any discrepancy found. 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 ADDRESSES.

Costs of Compliance

The FAA estimates that this AD affects 14 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated Costs for Required Actions

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Serial number inspection	6 work-hours × \$85 per hour = \$510	\$0	\$510	Up to \$7,140.
Replacement (per T/R half)	12 work-hours × \$85 per hour \$1,020	0	1,020	Up to \$14,280.

The FAA estimates the following costs to do the following on-condition actions. The FAA has no way of determining the number of aircraft that might need these on-condition actions:

Estimated Costs of On-Condition Actions

Action	Labor cost	Parts cost	Cost per product
Repair	Up to 100 work-hours × \$85 per hour = Up to \$8,500	\$0	Up to \$8,500.
Dye-penetrant inspection	Up to 4 work-hours × \$85 per hour = Up to \$340	0	Up to \$340.
TR sleeve serial number check	1 work-hour × \$85 per hour = \$85	0	\$85.
Check to determine if TR translating sleeve has been installed on certain TRs	1 work-hour × \$85 per hour = \$85	0	\$85.

The FAA has received no definitive data on which to base the cost estimates for the on-condition rework and detailed inspections 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:



2021-24-14 The Boeing Company: Amendment 39-21835; Docket No. FAA-2021-0571; Project Identifier AD-2021-00101-T.

(a) Effective Date

This airworthiness directive (AD) is effective February 15, 2022.

(b) Affected ADs

None.

(c) Applicability

This AD applies to The Boeing Company Model 787-8, 787-9, and 787-10 airplanes, certificated in any category, powered by Rolls-Royce Trent 1000 engines.

(d) Subject

Air Transport Association (ATA) of America Code 78, Thrust Reverser.

(e) Unsafe Condition

This AD was prompted by reports of damage to the thrust reverser (TR) translating sleeve secondary sliders due to contact between the slider and the slider track liner. This damage could reduce the fatigue life of the slider below its full design life for the TRs installed on certain engines. The FAA is issuing this AD to address this damage, which could result in failure of the TR translating sleeve secondary slider and possible detachment of the outer cowl, which could strike the fuselage, causing damage to the airplane, and could result in reduced control or performance of the airplane.

(f) Compliance

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

(g) Required Actions

For airplanes with an original airworthiness certificate or original export certificate of airworthiness issued on or before the effective date of this AD: 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-SB780043-00 RB, Issue 001, dated January 15, 2021, do all applicable actions for Group 1, Configuration 1 airplanes as identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin B787-81205-SB780043-00 RB, Issue 001, dated January 15, 2021.

Note 1 to paragraph (g): Guidance for accomplishing the actions required by this AD can be found in Boeing Alert Service Bulletin B787-81205-SB780043-00, Issue 001, dated January 15, 2021, which is referred to in Boeing Alert Requirements Bulletin B787-81205-SB780043-00 RB, Issue 001, dated January 15, 2021.

(h) Exceptions to Service Information Specifications

(1) Where Boeing Alert Requirements Bulletin B787-81205-SB780043-00 RB, Issue 001, dated January 15, 2021, uses the phrase “the issue 001 date of Requirements Bulletin B787-81205-SB780043-00 RB,” this AD requires using “the effective date of this AD.”

(2) Where Boeing Alert Requirements Bulletin B787-81205-SB780043-00 RB, Issue 001, dated January 15, 2021, specifies contacting Boeing for repair instructions or for instructions to address certain conditions: This AD requires doing the repair or doing the instructions using a method approved in accordance with the procedures specified in paragraph (j) of this AD.

(i) Parts Installation Limitations

(1) As of the applicable compliance time specified in paragraph (i)(1)(i) or (ii) of this AD, no person may install on any airplane a TR with serial number between 00110001 and 00312001 inclusive, on which all applicable inspections and corrective actions required by paragraph (g) of this AD have not been accomplished.

(i) For airplanes with an original airworthiness certificate or original export certificate of airworthiness issued on or before the effective date of this AD: After accomplishing the actions required by paragraph (g) of this AD.

(ii) For airplanes with an original airworthiness certificate or original export certificate of airworthiness issued after the effective date of this AD: As of the effective date of this AD.

(2) As of the applicable compliance time specified in paragraph (i)(2)(i) or (ii) of this AD, no person may install on any airplane a TR translating sleeve with serial number 00125001 and subsequent, on which all applicable inspections and corrective actions required by paragraph (g) of this AD have not been accomplished.

(i) For airplanes with an original airworthiness certificate or original export certificate of airworthiness issued on or before the effective date of this AD: After accomplishing the actions required by paragraph (g) of this AD.

(ii) For airplanes with an original airworthiness certificate or original export certificate of airworthiness issued after the effective date of this AD: As of the effective date of this AD.

(3) As of the effective date of this AD, no person may install a TR translating sleeve that was originally installed on any airplane with an original airworthiness certificate or original export certificate of airworthiness issued after the effective date of this AD; or a TR translating sleeve with serial number 00125001 and subsequent, on which all applicable inspections and corrective actions specified in Boeing Alert Requirements Bulletin B787-81205-SB780043-00 RB, Issue 001, dated January 15, 2021, have been accomplished; on any airplane with a TR with a serial number between 00110001 and 00312001 inclusive, unless all applicable inspections and corrective actions specified in Boeing Alert Requirements Bulletin B787-81205-SB780043-00 RB, Issue 001, dated January 15, 2021, have been accomplished on that TR, except as specified in paragraph (h)(2) of this AD.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle ACO 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 Related Information. 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, Seattle ACO 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.

(k) Related Information

For more information about this AD, contact Tak Kobayashi, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3553; email: takahisa.kobayashi@faa.gov.

(l) 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 Alert Requirements Bulletin B787-81205-SB780043-00 RB, Issue 001, dated January 15, 2021.

(ii) [Reserved]

(3) 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 90740-5600; telephone 562-797-1717; internet <https://www.myboeingfleet.com>.

(4) You may view this service information 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 service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, fr.inspection@nara.gov, or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on November 17, 2021.

Lance T. Gant,

Director, Compliance & Airworthiness Division, Aircraft Certification Service.

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