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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-1037; Project Identifier AD-2023-00511-T; Amendment 39-22655; AD 2024-01-04]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY:

Federal Aviation Administration (FAA), DOT.

ACTION:

Final rule.

SUMMARY:

The FAA is superseding Airworthiness Directive (AD) 2020-26-08, which applied to The Boeing Company Model 787-8, 787-9, and 787-10 airplanes powered by Rolls-Royce Trent 1000 engines. AD 2020-26-08 required repetitive inspections of the inner fixed structure (IFS) forward upper fire seal and thermal insulation blankets in the forward upper area of the thrust reverser (TR) for damage and applicable on-condition actions. Since the FAA issued AD 2020-26-08, the FAA determined that a new upper splitter fairing assembly is needed to prevent damage to the fire seal and thermal insulation blanket. This AD continues to require the actions specified in AD 2020-26-08 and requires determining if an affected part number of the upper splitter fairing assembly is installed on the engine, replacing an affected upper splitter fairing assembly part number with a new upper splitter fairing assembly part number, inspecting the IFS forward upper fire seal and thermal insulation blanket for any damage, and applicable on-condition actions. This AD also prohibits the installation of affected parts. The FAA is issuing this AD to address the unsafe condition on these products.

DATES:

This AD is effective March 7, 2024.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of March 7, 2024.

The Director of the Federal Register approved the incorporation by reference of a certain other publication listed in this AD as of January 27, 2021 ([85 FR 83755](#), December 23, 2020).

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA–2023–1037; 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 service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Boulevard, MC 110–SK57, Seal Beach, CA 90740–5600; telephone 562–797–1717; website *myboeingfleet.com*.
- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th Street, 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–2023–1037.

FOR FURTHER INFORMATION CONTACT:

Tak Kobayashi, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; telephone 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](#) to supersede AD 2020–26–08, Amendment 39–21363 ([85 FR 83755](#), December 23, 2020) (AD 2020–26–08). AD 2020–26–08 applied to The Boeing Company Model 787–8, 787–9, and 787–10 airplanes powered by Rolls-Royce Trent 1000 engines. AD 2020–26–08 required repetitive inspections of the IFS forward upper fire seal and thermal insulation blankets in the forward upper area of the TR for damage and applicable on-condition actions.

The NPRM published in the **Federal Register** on May 25, 2023 ([88 FR 33851](#)). The NPRM was prompted by a determination that a new upper splitter fairing assembly part number (P/N) KH99185 should be required to prevent damage to the fire seal and thermal insulation blanket. In the NPRM, the FAA proposed to continue to require the actions specified in AD 2020–26–08 and require determining if upper splitter fairing assembly P/N KH60375 is installed on the engine, replacing upper splitter fairing assembly P/N KH60375 with a new upper splitter fairing assembly part number,

inspecting the IFS forward upper fire seal and thermal insulation blanket for any damage, and applicable on-condition actions.

The FAA issued a supplemental NPRM (SNPRM) to amend [14 CFR part 39](#) to supersede AD 2020–26–08. The SNPRM published in the **Federal Register** on October 31, 2023 ([88 FR 74372](#)). The SNPRM was prompted by the FAA identifying an additional affected upper splitter fairing assembly, P/N KH11560, that must be replaced to address the unsafe condition. In the SNPRM, the FAA revised the NPRM by proposing replacement of the additional upper splitter fairing assembly. The FAA is issuing this AD to address the damage to the IFS forward upper fire seal and the thermal insulation blankets of the TR due to airflow through structural gapping that could occur at the interface between the leading edge of the IFS and the engine splitter structure during flight. Failure of the IFS forward upper fire seal could cause the loss of seal pressurization and degrade the ability to detect and extinguish an engine fire, resulting in an uncontrolled fire. Damage to the TR insulation blanket could result in thermal damage to the TR inner wall, the subsequent release of engine exhaust components, and consequent damage to critical areas of the airplane. Furthermore, damage to the TR inner wall and IFS forward upper fire seal could compromise the integrity of the firewall and its ability to contain an engine fire, resulting in an uncontrolled fire.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from The Air Line Pilots Association, International and The Boeing Company, who both supported the SNPRM without change.

Conclusion

The FAA reviewed the relevant data, considered the 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. This AD is adopted as proposed in the SNPRM.

Related Service Information Under [1 CFR Part 51](#)

The FAA reviewed Boeing Alert Requirements Bulletin B787–81205–SB720007–00 RB, Issue 001, dated December 12, 2022. This service information specifies replacing the upper splitter fairing assembly with a new upper splitter fairing assembly with ramp fairing incorporated and doing a general visual inspection of the IFS forward upper fire seal and thermal insulation blanket of the left and right TR halves for any damage. This service information also specifies applicable on-condition actions, including replacing the IFS forward upper fire seal and thermal insulation blanket of each TR half if damage is found. The procedures in the service information apply to each affected engine.

The FAA also reviewed Boeing Alert Requirements Bulletin B787–81205–SB780041–00 RB, Issue 002, dated December 21, 2021. This service information contains procedures for repetitive inspections of the IFS forward upper fire seal and thermal insulation blanket of the left and right TR halves for any damage. This service information also specifies applicable on-condition actions, including replacing the IFS forward upper fire seal and thermal insulation blanket of each TR half if damage is found. The procedures in the service information apply to each affected engine.

This AD also requires Boeing Alert Requirements Bulletin B787–81205–SB780041–00 RB, Issue 001, dated March 31, 2020, which the Director of the Federal Register approved for incorporation by reference as of January 27, 2021 ([85 FR 83755](#), December 23, 2020).

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 13 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 (retained actions from AD 2020–26–08)	2 work-hours × \$85 per hour = \$170 per inspection cycle	\$0	\$170 per inspection cycle	\$2,210 per inspection cycle.
Inspection or records review (new action)	1 work-hour × \$85 per hour = \$85	0	\$85	\$1,105.
Replacement of each upper splitter fairing assembly (new action)	71 work-hours × \$85 per hour = \$6,035	230,000	\$236,035	\$3,068,455.
Inspection (new action)	2 work-hours × \$85 per hour = \$170	0	\$170	\$2,210.

The FAA estimates the following costs to do any necessary 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 replacements:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Fire seal replacement	2 work-hours × \$85 per hour = \$170 per TR half	\$1,383 per TR half.	\$1,553 per TR half (4 TR halves per airplane).
Thermal insulation blanket replacement	1 work-hour × \$85 per hour = \$85 per TR half	\$18,214 per TR half	\$18,299 per TR half.

According to the manufacturer, some of the costs of this AD may be covered under warranty by Goodrich, thereby reducing the cost impact on affected operators. The FAA does not control warranty

coverage for affected operators. As a result, the FAA has included all known costs in the cost estimate.

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:

a. Removing Airworthiness Directive 2020–26–08, Amendment 39–21363 ([85 FR 83755](#), December 23, 2020); and

b. Adding the following new Airworthiness Directive:

2024–01–04 The Boeing Company: Amendment 39–22655; Docket No. FAA–2023–1037; Project Identifier AD–2023–00511–T.

(a) Effective Date

This airworthiness directive (AD) is effective March 7, 2024.

(b) Affected ADs

This AD replaces AD 2020–26–08, Amendment 39–21363 ([85 FR 83755](#), December 23, 2020) (AD 2020–26–08).

(c) Applicability

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

(d) Subject

Air Transport Association (ATA) of America Code 72, Turbine/turboprop engine.

(e) Unsafe Condition

This AD was prompted by reports of Rolls-Royce Trent 1000 powered airplanes having damage to the thrust reverser inner fixed structure (IFS) forward upper fire seal and damage to thermal insulation blankets in the forward upper area of the thrust reverser (TR). The FAA is issuing this AD to address the damage to the IFS forward upper fire seal and the thermal insulation blankets of the TR due to airflow through structural gapping that could occur at the interface between the leading edge of the IFS and the engine splitter structure during flight. Failure of the IFS forward upper fire seal could cause the loss of seal pressurization and degrade the ability to detect and extinguish an engine fire, resulting in an uncontrolled fire. Damage to the TR insulation blanket could result in thermal damage to the TR inner wall, the subsequent release of engine exhaust components, and consequent damage to critical areas of the airplane. Furthermore, damage to the TR inner wall and IFS forward upper fire seal could compromise the integrity of the firewall and its ability to contain an engine fire, resulting in an uncontrolled fire.

(f) Compliance

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

(g) Retained Actions, With Additional Service Information, Revised Affected Airplanes, and New Terminating Action

This paragraph restates the requirements of paragraph (g) of AD 2020–26–08, with additional service information, revised affected airplanes, and new terminating action. For airplanes with an original airworthiness certificate or original export certificate of airworthiness issued on or before the effective date of this AD and for airplanes listed in the “Effectivity” section of Boeing Alert Requirements Bulletin B787–81205–SB720007–00 RB, Issue 001, dated December 12, 2022: 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–SB780041–00 RB, Issue 001, dated March 31, 2020, or Boeing Alert Requirements Bulletin B787–81205–SB780041–00 RB, Issue 002, dated December 21, 2021, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin B787–81205–SB780041–00 RB, Issue 001, dated March 31, 2020, or Boeing Alert Requirements Bulletin B787–81205–SB780041–00 RB, Issue 002, dated December 21, 2021. Accomplishing the actions required by paragraph (i)(2) of this AD terminates the actions required by this paragraph.

Note 1 to paragraph (g):

Guidance for accomplishing the actions required by paragraph (g) of this AD can be found in Boeing Alert Service Bulletin B787–81205–SB780041–00, Issue 001, dated March 31, 2020, which is referred to in Boeing Alert Requirements Bulletin B787–81205–SB780041–00 RB, Issue 001, dated March 31, 2020; or in Boeing Alert Service Bulletin B787–81205–SB780041–00, Issue 002, dated December 21, 2021, which is referred to in Boeing Alert Requirements Bulletin B787–81205–SB780041–00 RB, Issue 002, dated December 21, 2021.

(h) Retained Exceptions to Service Information Specifications for Paragraph (g) of This AD, With Additional Service Information

This paragraph restates the exceptions specified in paragraph (h) of AD 2020–26–08, with additional service information. Where Boeing Alert Requirements Bulletin B787–81205–SB780041–00 RB, Issue 001, dated March 31, 2020, or Boeing Alert Requirements Bulletin B787–81205–SB780041–00 RB, Issue 002, dated December 21, 2021, uses the phrase “the Issue 001 date of Requirements Bulletin B787–81205–SB780041–00 RB,” this AD requires using January 27, 2021, (the effective date of AD 2020–26–08).

(i) New Required Actions

(1) For airplanes with original airworthiness certificate or original export certificate of airworthiness issued on or before the effective date of this AD and for airplanes listed in the “Effectivity” section of Boeing Alert Requirements Bulletin B787–81205–SB720007–00 RB, Issue 001, dated December 12, 2022: Within 7 years after the effective date of this AD, or within 7 years after the date of issuance of the original airworthiness certificate or original export certificate of airworthiness, whichever occurs later, inspect the airplane to determine the part number of the upper splitter fairing assembly installed on each engine. A review of airplane maintenance records is acceptable in lieu of this inspection if the part number of the upper splitter fairing assembly can be conclusively determined from that review.

For engines on which no upper splitter fairing assembly part number (P/N) KH60375 or P/N KH11560 is installed, the actions required by paragraph (g) of this AD are no longer required for that engine.

(2) If, during any inspection or records review required by paragraph (i)(1) of this AD, an upper splitter fairing assembly P/N KH60375 or P/N KH11560 is found on any engine of an airplane: Except as specified by paragraph (j) of this AD, at the applicable times specified in the “Compliance” paragraph of Boeing Alert Requirements Bulletin B787–81205–SB720007–00 RB, Issue 001, dated December 12, 2022, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin B787–81205–SB720007–00 RB, Issue 001, dated December 12, 2022, for each affected engine. Accomplishing the actions required by this paragraph on all affected engines of an airplane terminates the actions required by paragraph (g) of this AD for that airplane.

Note 2 to paragraph (i)(2):

Guidance for accomplishing the actions required by paragraph (i)(2) of this AD can be found in Boeing Alert Service Bulletin B787–81205–SB720007–00, Issue 001, dated December 12, 2022, which is referred to in Boeing Alert Requirements Bulletin B787–81205–SB720007–00 RB, Issue 001, dated December 12, 2022.

(j) Exceptions to Service Information Specifications for Paragraph (i)(2) of This AD

(1) Where the Compliance Time column of table 5 in the “Compliance” paragraph of Boeing Alert Requirements Bulletin B787–81205–SB720007–00 RB, Issue 001, dated December 12, 2022, uses the phrase “the Issue 001 date of Requirements Bulletin B787–81205–SB720007–00 RB,” this AD requires using “the effective date of this AD.”

(2) Where the service information referenced in Boeing Alert Requirements Bulletin B787–81205–SB720007–00 RB, Issue 001, dated December 12, 2022, specifies to remove the existing upper splitter fairing assembly P/N KH60375, this AD requires removing the existing upper splitter fairing assembly P/N KH60375 or P/N KH11560.

(k) Parts Installation Prohibition

(1) For airplanes with an original airworthiness certificate or original export certificate of airworthiness issued after the effective date of this AD, except for airplanes listed in Boeing Alert Requirements Bulletin B787–81205–SB720007–00 RB, Issue 001, dated December 12, 2022: As of the effective date of this AD, no person may install an engine with an upper splitter fairing assembly P/N KH60375 or P/N KH11560 on any airplane.

(2) For airplanes with original airworthiness certificate or original export certificate of airworthiness issued on or before the effective date of this AD and for airplanes listed in Boeing Alert Requirements Bulletin B787–81205–SB720007–00 RB, Issue 001, dated December 12, 2022, on which, during the actions required by paragraph (i)(1) of this AD, no upper splitter fairing assembly P/N KH60375 or P/N KH11560 was installed on both engines: After accomplishing the inspection or records review required by paragraph (i)(1) of this AD, no person may install an engine with an upper splitter fairing assembly P/N KH60375 or P/N KH11560 for replacement of an engine on those airplanes.

(l) 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 AIR-520, Continued Operational Safety Branch, send it to the attention of the person identified in paragraph (m) 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, 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.

(m) Related Information

For more information about this AD, contact Tak Kobayashi, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; telephone 206-231-3553; email takahisa.kobayashi@faa.gov.

(n) 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 this AD specifies otherwise.

(3) The following service information was approved for IBR on March 7, 2024.

(i) Boeing Alert Requirements Bulletin B787-81205-SB720007-00 RB, Issue 001, dated December 12, 2022.

(ii) Boeing Alert Requirements Bulletin B787-81205-SB780041-00 RB, Issue 002, dated December 21, 2021.

(4) The following service information was approved for IBR on January 27, 2021 ([85 FR 83755](#), December 23, 2020).

(i) Boeing Alert Requirements Bulletin B787-81205-SB780041-00 RB, Issue 001, dated March 31, 2020.

(ii) [Reserved]

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

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

(7) 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 January 6, 2024.

Caitlin Locke,

Director, Compliance & Airworthiness Division, Aircraft Certification Service.

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