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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2024-0231; Project Identifier AD-2023-01037-T; Amendment 39-22779; AD 2024-13-05]

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 all The Boeing Company Model 787-8, 787-9, and 787-10 airplanes. This AD was prompted by a report of heat damage on multiple engine inlets around the engine anti-ice (EAI) duct within the inlet aft compartment. This AD requires doing a records check and updating the operator's existing minimum equipment list (MEL), inspecting the left and right engine inlet cowl assembly for signs of heat damage around the EAI duct, installing or replacing the EAI duct seals, repairing any damage, and replacing the engine inlet if necessary. This AD also prohibits the installation of engine inlets under certain conditions. The FAA is issuing this AD to address the unsafe condition on these products.

DATES:

This AD is effective September 24, 2024.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of September 24, 2024.

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA-2024-0231; 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-2024-0231.

FOR FURTHER INFORMATION CONTACT:

Tak Kobayashi, Aviation Safety Engineer, FAA, 2200 South 216th St., 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](#) by adding an AD that would apply to all The Boeing Company (Boeing) Model 787-8, 787-9, and 787-10 airplanes. The NPRM published in the **Federal Register** on February 20, 2024 ([89 FR 12785](#)). The NPRM was prompted by a report of heat damage on multiple engine inlets around the EAI duct within the inlet aft compartment. A subsequent investigation found that the seals between the inner and outer ducts and between the outer duct and the aft compartment were degraded or missing, which led to EAI air leaking into the aft compartment, exposing inlet components to high temperatures.

In the NPRM, the FAA proposed to require doing a records check and updating the operator's existing MEL, inspecting the left and right engine inlet cowl assembly for signs of heat damage around the EAI duct, installing or replacing the EAI duct seals, repairing any damage, and replacing the engine inlet if necessary. The FAA is issuing this AD to address reduced structural strength and departure of the inlet from the airplane, resulting in subsequent loss of continued safe flight and landing or injury to occupants from a departed inlet contacting the airplane.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from nine commenters. The commenters were the Air Line Pilots Association, International (ALPA), American Airlines (AAL), Boeing, British Airways, Qantas, United Airlines (UAL), and three individual commenters.

ALPA and two individuals supported the NPRM without change.

One commenter expressed concern about the effect on safety of certain internal Boeing practices. This comment is outside the scope of the NPRM.

The following presents the remaining comments received on the NPRM and the FAA's response to each comment.

Request for Additional Definition of a Serviceable Engine Inlet

In the NPRM, the FAA proposed to require complying with Boeing Alert Requirements Bulletin B787-81205-SB540023-00 RB, Issue 001, dated September 22, 2023, or B787-81205-SB540024-00 RB, Issue 001, dated September 22, 2023, both of which specify replacing the engine inlet with a new or serviceable engine inlet under certain conditions. The requirements bulletins define a serviceable engine inlet as an engine inlet that has been inspected and had applicable corrective actions done in accordance with the requirements bulletins. AAL requested that the FAA consider, as an alternative serviceable engine inlet, one that has been inspected and had applicable corrective actions done in accordance with Collins Service Bulletin 787-G71-013, Revision 00, dated August 3, 2023, or later approved revisions.

The FAA does not agree. The instructions in Collins Aerospace Service Bulletin 787-G71-013 or 787-R71-034 are insufficient to ensure a damaged engine inlet is restored to a serviceable condition. Where indications of heat damage are discovered on metallic components, the Collins service bulletins specify performing conductivity and hardness tests. When the results of the conductivity or hardness test are outside acceptable limits, the Collins service bulletins specify submitting the test results to Collins with no further procedures or instructions to accomplish a repair. The FAA has not changed this AD in this regard.

Request for Inspection Instructions in the AD

In the NPRM, the FAA proposed to require complying with Boeing Alert Requirements Bulletin B787-81205-SB540023-00 RB, Issue 001, dated September 22, 2023, or B787-81205-SB540024-00 RB, Issue 001, dated September 22, 2023, both of which specify inspecting the engine inlet cavity in accordance with those requirements bulletins and with Collins Service Bulletin 787-G71-013 or 787-R71-034, both dated August 3, 2023, or later-approved revisions. AAL requested that the FAA revise the AD by adding the inspection procedures from the Boeing and Collins bulletins instead of incorporating those procedures by reference. As support for its request, AAL stated the bulletins are not readily available and accessible to the line mechanics.

The FAA disagrees with AAL's request to revise the proposed AD to include the inspection instructions instead of incorporating the service information by reference. Including all inspection instructions in the AD is inefficient and defeats the purpose of incorporation by reference. The referenced Boeing and Collins service bulletins are readily available to operators through their normal courses of business or from the manufacturers. The FAA has not changed this AD in this regard.

Request for Later-Approved Revisions of Structural Repair Manual

In the NPRM, the FAA proposed to require complying with Boeing Requirements Bulletin B787-81205-SB540023-00 RB, Issue 001, dated September 22, 2023, or B787-81205-SB540024-00 RB, Issue 001, dated September 22, 2023, both of which reference specific sections, by revision number, of

the Boeing structural repair manual (SRM) for certain information. Boeing and UAL requested that the FAA revise the proposed AD to allow the use of later-approved revisions of the SRM. Boeing stated that operators do not recall historical SRM revisions, and therefore they can incorporate only the latest revision of the SRM at the time of accomplishment.

The FAA disagrees with the request. The SRM sections cited in the requirements bulletins define heat damage in a way that the FAA finds will address the unsafe condition in this AD. If future revisions of those SRM sections also define heat damage in a way that adequately addresses the unsafe condition in this AD, the commenters can request approval of those sections as an alternative method of compliance (AMOC). The FAA has not changed this AD as a result of this comment.

Request for Change to Background and Unsafe Condition

Boeing requested that the FAA revise the Background section of the NPRM and paragraph (e) of the proposed AD to clarify that partially degraded seals were found in addition to missing seals.

The FAA agrees and has revised the preamble and the unsafe condition statement in paragraph (e) of this AD accordingly.

Request for Clarification of Description of Proposed Requirements

The preamble of the NPRM explained that the FAA proposed to require doing a records check and updating the operator's MEL, among other actions. Boeing requested that the FAA revise the preamble to clarify that the update is actually within the Dispatch Deviations Guide (DDG) and not with any actual equipment on the list. Boeing stated that this change would avoid confusion regarding the actual MEL changes.

The FAA disagrees with the request. This AD requires revising the operator's MEL by incorporating the DDG update. Although the commenter is correct that the MEL revision is not intended to change any equipment listed on the MEL, since the DDG is part of the MEL, the statement in the NPRM is accurate. The FAA has not changed this AD in this regard.

Request for Corrected Paragraph Reference

Boeing, AAL, and UAL requested that the FAA revise paragraph (h)(3) of the proposed AD, which incorrectly referred to paragraph (k) for approval of AMOCs. The correct reference is paragraph (j).

The FAA agrees and has revised paragraph (h) of this AD accordingly.

Request To Extend Compliance Time for Inspection

In the NPRM, the FAA proposed to require complying with Boeing Requirements Bulletin B787-81205-SB540023-00 RB, Issue 001, dated September 22, 2023, or B787-81205-SB540024-00 RB, Issue 001, dated September 22, 2023. Table 10 of the requirements bulletins specifies doing an inspection of the engine inlet cavity at or prior to the expiration of the time interval under MEL 30-21-01-02 or MEL 30-21-01-07 (the interval for repair category C, which is 10 consecutive calendar days (240 hours) with a single extension, if authorized, as defined in the DDG).

British Airways requested that the FAA revise the compliance time to allow an additional 125 days after the expiration of the MEL interval period to do the inspections and any corrective actions. British Airways acknowledged the safety concerns surrounding inlets that have been exposed to high temperatures during the time period allowed under MEL 30-21-01-02 or MEL 30-21-01-07 but stated the compliance time in the NPRM would cause considerable maintenance concerns for operators as it does not give sufficient time to plan for and carry out the required actions in a controlled environment.

The FAA disagrees with the request for a longer compliance time. The FAA anticipates the potential structural damage incurred by the airplane due to dispatch under the MEL to increase as the engine inlet accumulates more operational time under those specific MEL conditions. Since accumulated structural damage on each engine inlet is unknown, the FAA determined that the inspection of the engine inlet at the completion of the dispatch interval period was necessary. Operators who can justify that, after completion of the MEL dispatch interval period, an engine inlet can maintain its structural integrity over a longer time period may propose that time period as an alternative method of compliance under the process specified in paragraph (j) of this AD.

Request To Change Location of MEL Inspection Procedure

In the NPRM, the FAA proposed to require complying with Boeing Requirements Bulletin B787-81205-SB540023-00 RB, Issue 001, dated September 22, 2023, or B787-81205-SB540024-00 RB, Issue 001, dated September 22, 2023, both of which specify revising the operator's MEL by incorporating the DDG 30-21-01-02 update. The MEL, with the DDG update incorporated, allows dispatch with inoperative equipment specified under items 30-21-01-02 and 30-21-01-07 provided the engine inlet cavity is inspected and applicable corrective actions are taken in accordance with the requirements bulletins and with Collins Service Bulletin 787-G71-013 or 787-R71-034, both dated August 3, 2023, or later approved revisions.

Qantas and UAL requested that the FAA change the location of the required inspection instructions for dispatch under the MEL from the bulletins to the airplane maintenance manual (AMM). Alternatively, UAL requested that the inspection instructions be included in the DDG update itself instead of having the DDG refer to the service bulletins. Qantas, UAL, and British Airways all stated that operators' maintenance systems are not set up to provide maintenance personnel with access to service bulletins. Qantas expressed a concern that maintenance personnel could inadvertently fail to carry out the required inspection as part of the MEL process.

The FAA disagrees. The concern about accessibility of the requirements bulletins to maintenance personnel is not unique to this AD. The FAA commonly issues ADs that mandate service documents containing instructions that must be carried out to resolve an unsafe condition. Operators and repair stations are required to provide those mandatory service documents to their maintenance personnel. In addition, for this AD, the requirement through the MEL is necessary because compliance may be based on the need for dispatch with inoperative equipment. The FAA has not changed this AD as a result of these comments.

Request for Instructions for Engine Inlets With Unknown History

Qantas requested that the FAA clarify how to comply with the AD for engine inlets that are not installed on an airplane and for which the last installation is unknown. Qantas stated that since engine

inlets can be moved from airplane to airplane, operators may not know whether an engine inlet was installed on airplane and dispatched under the MEL.

The requirements bulletins specify that, if an operator cannot determine whether the airplane was dispatched under MEL 30-21-01-02 or MEL 30-21-01-07, the engine inlet must be inspected or replaced. No change to this AD is necessary as a result of this comment.

Request for Information To Determine Heat Damage of Primer

UAL stated that the SRM sections referenced in the requirements bulletins do not provide pass/fail criteria for the amount of discoloration when assessing for heat damage. UAL requested clarification of whether any browning of primer would be an indication of a missing seal.

The commenter is correct that the SRM sections referenced in the requirements bulletins do not provide pass/fail criteria. However, the SRM sections do provide appropriate information to determine heat damage. Under the criteria in the SRM, the FAA expects that any discoloration of primer would be treated as evidence of heat damage. The FAA has not changed this AD as a result of this comment.

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. 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-SB540023-00 RB, Issue 001, dated September 22, 2023; and Boeing Alert Requirements Bulletin B787-81205-SB540024-00 RB, Issue 001, dated September 22, 2023. This material specifies procedures for incorporating (or verifying incorporation of) an updated DDG for item 30-21-01-02 into the operator's existing MEL, checking records to determine whether the inlet has been dispatched under MEL item 30-21-01-02 or 30-21-01-07 before incorporation of the DDG 30-21-01-02 update, and applicable related investigative and corrective actions, including general visual inspection for signs of heat damage around the EAI duct, conductivity measurement and hardness test of areas with heat damage, replacement/installation of the periseal and aft seal, and repair or replacement of the engine inlet. These documents are distinct since they apply to different airplane configurations. 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 **ADDRESSES**.

Interim Action

The FAA considers that this AD would be an interim action. An investigation is ongoing. If final action is later identified, the FAA might consider further rulemaking then.

Costs of Compliance

The FAA estimates that this AD affects 110 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
MEL update and records check	5 work-hours × \$85 per hour = \$425	\$0	\$425	\$46,750

The FAA estimates the following costs to do any investigative actions or repairs/replacements that would be required based on the results of the records check. The agency has no way of determining the number of airplanes that might need these actions:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Inspection	3 work-hours × \$85 per hour = \$255	\$0	\$255

The FAA has received no definitive data on which to base the cost estimates for the conductivity measurement, the hardness test, inlet replacement, and installation of a new periseal and aft seal, as 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:

2024-13-05 The Boeing Company: Amendment 39-22779; Docket No. FAA-2024-0231; Project Identifier AD-2023-01037-T.

(a) Effective Date

This airworthiness directive (AD) is effective September 24, 2024.

(b) Affected ADs

None.

(c) Applicability

This AD applies to all The Boeing Company Model 787-8, 787-9, and 787-10 airplanes, certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 54, Nacelles/pylons.

(e) Unsafe Condition

This AD was prompted by a report of heat damage on multiple engine inlets around the engine anti-ice (EAI) duct within the inlet aft compartment due to missing or degraded seals between the inner and outer ducts and between the outer duct and the aft compartment. The FAA is issuing this AD to address EAI air leaking into aft compartment exposing inlet components to high temperatures, which could result in damage around the EAI duct. This condition, if not addressed, could lead to reduced structural strength and departure of the inlet from the airplane, resulting in subsequent loss of continued safe flight and landing or injury to occupants from a departed inlet contacting 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-SB540023-00 RB or B787-81205-SB540024-00 RB, both Issue 001 and both dated September 22, 2023, as applicable, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin B787-81205-SB540023-00 RB or B787-81205-SB540024-00 RB, both Issue 001 and both dated September 22, 2023, as applicable.

Note 1 to paragraph (g):

Guidance for accomplishing the actions required by this AD can be found in Boeing Alert Service Bulletin B787-81205-SB540023-00, dated September 22, 2023, which is referred to in Boeing Alert Requirements Bulletin B787-81205-SB540023-00 RB, Issue 001, dated September 22, 2023.

Note 2 to paragraph (g):

Guidance for accomplishing the actions required by this AD can also be found in Boeing Alert Service Bulletin B787-81205-SB540024-00, dated September 22, 2023, which is referred to in Boeing Alert Requirements Bulletin B787-81205-SB540024-00 RB, Issue 001, dated September 22, 2023.

(h) Exceptions to Service Information Specifications

(1) Where the “Boeing Recommended Compliance Time” column in the tables under the “Compliance” paragraph of Boeing Alert Requirements Bulletin B787-81205-SB540023-00 RB, Issue 001, dated September 22, 2023, use the phrase “the Issue 001 date of Requirements Bulletin B787-81205-SB540023 RB,” this AD requires using the effective date of this AD.

(2) Where the “Boeing Recommended Compliance Time” columns in the tables under the “Compliance” paragraph of Boeing Alert Requirements Bulletin B787-81205-SB540024-00 RB, Issue

001, dated September 22, 2023, use the phrase “the Issue 001 date of Requirements Bulletin B787-81205-SB540024 RB,” this AD requires using the effective date of this AD.

(3) Where Boeing Alert Requirements Bulletin B787-81205-SB540023-00 RB, Issue 001, dated September 22, 2023, and Boeing Alert Requirements Bulletin B787-81205-SB540024-00 RB, Issue 001, dated September 22, 2023, specify contacting Boeing for repair instructions, this AD requires doing the repair before further flight, using a method approved in accordance with the procedures specified in paragraph (j) of this AD.

(i) Parts Installation Prohibition

After accomplishment of all applicable actions required by paragraph (g) of this AD on an airplane, no person may install on that airplane any engine inlet that meets a condition specified in paragraph (i)(1) or (2) of this AD, unless the engine inlet has been inspected and applicable corrective actions taken as specified in Boeing Alert Requirements Bulletin B787-81205-SB540023-00 RB, Issue 001, dated September 22, 2023; or Boeing Alert Requirements Bulletin B787-81205-SB540024-00 RB, Issue 001, dated September 22, 2023.

(1) If the engine inlet was installed on an airplane that was dispatched under a dispatch deviation for the operator's existing minimum equipment list (MEL) item 30-21-01-02 or 30-21-01-07 prior to incorporation of Boeing 787 Dispatch Deviation Guide (DDG) 30-21-01-02, as required by this AD.

(2) If the engine inlet was installed on an airplane for which dispatch under a dispatch deviation for the operator's existing MEL item 30-21-01-02 or 30-21-01-07 prior to incorporation of Boeing 787 DDG 30-21-01-02, as required by this AD, cannot be determined.

(j) 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 (k) of this AD. Information may be emailed to: AMOC@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.

(k) Related Information

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

(I) 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-SB540023-00 RB, Issue 001, dated September 22, 2023.

(ii) Boeing Alert Requirements Bulletin B787-81205-SB540024-00 RB, Issue 001, dated September 22, 2023.

(3) 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.

(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-locationsoremailfr.inspection@nara.gov.

Issued on July 29, 2024.

Peter A. White,

Deputy Director, Integrated Certificate Management Division, Aircraft Certification Service.

[[FR Doc. 2024-18625](#) Filed 8-19-24; 8:45 am]

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