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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2022-0799; Project Identifier AD-2022-00611-T; Amendment 39-22251; AD 2022-24-11]**

**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 indicating that foreign object debris (FOD) could have been introduced during rework of certain engine fire shutoff switches (EFSSs). This AD requires determining the serial number of the left and right EFSS and replacing affected parts. This AD also limits the installation of affected parts under certain conditions. The FAA is issuing this AD to address the unsafe condition on these products.

#### **DATES:**

This AD is effective January 18, 2023.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of January 18, 2023.

#### **ADDRESSES:**

*AD Docket:* You may examine the AD docket at *regulations.gov* under Docket No. FAA-2022-0799; 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 Blvd., 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 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-2022-0799.

**FOR FURTHER INFORMATION CONTACT:**

Tak Kobayashi, Aerospace Engineer, Propulsion Section, FAA Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone: 206-231-3553; email [Takahisa.Kobayashi@faa.gov](mailto: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 Model 787-8, 787-9, and 787-10 airplanes. The NPRM published in the **Federal Register** on July 8, 2022 ([87 FR 40747](#)). The NPRM was prompted by a report indicating that FOD could have been introduced during rework of certain EFSSs. In the NPRM, the FAA proposed to require determining the serial number of the left and right EFSSs and replacing affected parts. The FAA also proposed to limit the installation of affected parts under certain conditions. The FAA is issuing this AD to address FOD in an EFSS, which, if not addressed, could result in a latent failure and loss of intended functions, including the inability to pull the engine fire handle and uncommanded activation of the engine fuel shutoff function. The inability to pull the engine fire handle when an engine fire is detected could lead to an uncontrolled engine fire and subsequent wing failure, and uncommanded activation of the fuel shutoff function for an engine, combined with in-flight shutdown of the remaining engine, could lead to total loss of engine thrust.

**Discussion of Final Airworthiness Directive**

**Comments**

The FAA received comments from The Airline Pilots Association, International (ALPA) and United Airlines who both supported the NPRM without change.

The FAA received additional comments from Qatar Airways and Boeing. The following presents the comments received on the NPRM and the FAA's response.

## **Request for Guidance if an EFSS Has Two Labels**

Qatar Airways requested the FAA's guidance regarding how to handle an EFSS having two identification labels. The commenter explained that it has done "spot checks" of EFSS spares and discovered parts with both "pre-modification" and "post-modification" nameplates/labels. The commenter stated that having two identification labels on the EFSS could create confusion and lead to erroneous updating of airplane records, leading to a possible non-compliance with the final AD. The commenter indicated that the EFSS manufacturer should be able to provide the list of EFSS parts that have both "pre-modification" and "post-modification" labels.

The FAA acknowledges that some EFSSs could have both "pre-modification" and "post-modification" labels, which could be confusing. However, having both labels on a part would not affect an operator's ability to comply with the requirements of this AD. This AD requires determining the serial number of the left EFSS having P/N 417000-104 and the right EFSS having P/N 417000-105, and replacing any EFSS that has an affected serial number with an EFSS that does not have an affected serial number, or with an EFSS that has an affected serial number but is marked with "Inspection Record SB D533-1X-003." The "post-modification" label on an EFSS specifies the part number, either P/N 417000-104 or PN 417000-105. The serial number remains the same regardless of modification.

The modification referred to on the EFSS labels addresses the requirements of AD 2021-02-06, Amendment 39-21389 ([86 FR 10790](#), February 23, 2021), which required replacement of EFSSs having P/Ns 417000-101 and 417000-102 with EFSSs having P/Ns 417000-104 and 417000-105, respectively. This modification was made to EFSSs having P/Ns 417000-101 and 417000-102, followed by re-identification of those part numbers as P/Ns 417000-104 and 417000-105. It addresses a design issue that caused a latent failure of the EFSS and is not the subject of this AD. When this modification was accomplished at a sub-tier supplier, however, FOD could have been introduced inside the EFSS, and this FOD issue is the subject of this AD. The FAA has not changed this AD in response to this comment.

## **Request To Clarify Affected Airplanes**

Boeing requested a revision to the FAA's Determination section in the NPRM, which stated that the unsafe condition is "likely to exist or develop on other products of the same type design." Boeing recommends that the NPRM instead clarify that the unsafe condition is "contained to only 787-8, 787-9, and 787-10 airplanes having certain line numbers identified to be impacted by the unsafe condition." Boeing asserted that the nonconformance applies only to a specific group of EFSS serial numbers that were affected at the rework site, and is not endemic to the type design.

The FAA acknowledges that FOD inside the EFSS is not endemic to the type design since it was introduced during rework at a sub-tier supplier. However, because the Determination section in the preamble of the NPRM is not repeated in this AD, the FAA cannot provide the clarification requested by the commenter. Furthermore, the affected EFSS serial numbers can be installed on any Model 787 airplane, therefore the unsafe condition is not limited to certain Model 787-8, 787-9, and 787-10 airplane line numbers. The FAA has not changed this AD in response to this comment.

## **Conclusion**

The FAA reviewed the relevant data, considered the comments received, and determined that air safety requires adopting this AD as proposed. 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.

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

The FAA reviewed Boeing Alert Requirements Bulletin B787-81205-SB260010-00 RB, Issue 001, dated May 2, 2022. This service information specifies procedures for determining the serial number of the left EFSS having P/N 417000-104 and the right EFSS having P/N 417000-105, and replacing any EFSS having an affected serial number with an EFSS that does not have an affected serial number, or with an EFSS that has an affected serial number but is marked with “Inspection Record SB D533-1X-003.” 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 132 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

**Estimated Costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Determination of EFSS serial number	1 work-hour × \$85 per hour = \$85	\$0	\$85	\$11,220

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**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
Replacement of EFSS	2 work-hours × \$85 per hour = \$170	\$9,685	\$9,855 (for one EFSS).

**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:

**2022-24-11 The Boeing Company:** Amendment 39-22251; Docket No. FAA-2022-0799; Project Identifier AD-2022-00611-T.

#### (a) Effective Date

This airworthiness directive (AD) is effective January 18, 2023.

#### (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 26, Fire protection.

**(e) Unsafe Condition**

This AD was prompted by a report indicating that foreign object debris (FOD) could have been introduced during rework of certain engine fire shutoff switches (EFSSs). The FAA is issuing this AD to address FOD in an EFSS, which if not addressed, could result in a latent failure and loss of intended functions, including the inability to pull the engine fire handle and uncommanded activation of the engine fuel shutoff function. The inability to pull the engine fire handle when an engine fire is detected could lead to an uncontrolled engine fire and subsequent wing failure, and uncommanded activation of the fuel shutoff function for an engine, combined with in-flight shutdown of the remaining engine, could lead to total loss of engine thrust.

**(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 time specified in the “Compliance” paragraph of Boeing Alert Requirements Bulletin B787-81205-SB260010-00 RB, Issue 001, dated May 2, 2022, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin B787-81205-SB260010-00 RB, Issue 001, dated May 2, 2022.

**Note 1 to paragraph (g):**

Guidance for accomplishing the actions required by this AD can be found in Boeing Alert Service Bulletin B787-81205-SB260010-00, Issue 001, dated May 2, 2022, which is referred to in Boeing Alert Requirements Bulletin B787-81205-SB260010-00 RB, Issue 001, dated May 2, 2022.

**(h) Exceptions to Service Information Specifications**

Where the Compliance Time column of the table in the “Compliance” paragraph of Boeing Alert Requirements Bulletin B787-81205-SB260010-00 RB, Issue 001, dated May 2, 2022, uses the phrase “the Issue 001 date of Requirements Bulletin B787-81205-SB260010-00 RB,” this AD requires using “the effective date of this AD.”

### **(i) Parts Installation Limitation**

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, no person may install a left EFSS P/N 417000-104 or a right EFSS P/N 417000-105, having a serial number specified in Boeing Alert Requirements Bulletin B787-81205-SB260010-00 RB, Issue 001, dated May 2, 2022, unless that EFSS is marked with “Inspection Record SB D533-1X-003.”

### **(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 paragraph (k) of this AD. Information may be emailed to: [9-ANM-Seattle-ACO-AMOC-Requests@faa.gov](mailto: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: 206-231-3553; email [Takahisa.Kobayashi@faa.gov](mailto: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-SB260010-00 RB, Issue 001, dated May 2, 2022.

(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; website [myboeingfleet.com](http://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](mailto:fr.inspection@nara.gov), or go to: [www.archives.gov/federal-register/cfr/ibr-locations.html](http://www.archives.gov/federal-register/cfr/ibr-locations.html).

Issued on November 16, 2022.

Christina Underwood,

Acting Director, Compliance & Airworthiness Division, Aircraft Certification Service.

[[FR Doc. 2022-27020](#) Filed 12-13-22; 8:45 am]

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