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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2022-1417; Project Identifier AD-2022-00731-T; Amendment 39-22419; AD 2023-08-04]

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 787-8, 787-9, and 787-10 airplanes. This AD was prompted by reports of a loss of water pressure during flight and water leaks that affected multiple pieces of electronic equipment. This AD requires a detailed visual inspection of all door 1 and door 3 lavatory and galley potable water systems for any missing or incorrectly installed clamshell couplings, and applicable on-condition actions. The FAA is issuing this AD to address the unsafe condition on these products.

#### DATES:

This AD is effective June 29, 2023.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of June 29, 2023.

#### ADDRESSES:

*AD Docket:* You may examine the AD docket at *regulations.gov* under Docket No. FAA-2022-1417; 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](http://myboeingfleet.com). It is also available at [regulations.gov](http://regulations.gov) by searching for and locating Docket No. FAA-2022-1417.
- 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](http://regulations.gov) under Docket No. FAA-2022-1417.

#### **FOR FURTHER INFORMATION CONTACT:**

Courtney Tuck, Aerospace Engineer, Cabin Safety and Environmental Systems Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3986; email: [Courtney.K.Tuck@faa.gov](mailto:Courtney.K.Tuck@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 December 13, 2022 ([87 FR 76158](#)). The NPRM was prompted by reports of a loss of water pressure during flight and water leaks that affected multiple pieces of electronic equipment. In the NPRM, the FAA proposed to require a detailed visual inspection of all door 1 and door 3 lavatory and galley potable water systems for any missing or incorrectly installed clamshell couplings, and applicable on-condition actions. The FAA is issuing this AD to address incorrectly installed or missing lavatory and galley clamshell couplings that could lead to water leaks and water migration to critical flight equipment, which may affect the continued safe flight and landing of the airplane.

##### **Discussion of Final Airworthiness Directive**

##### **Comments**

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

The FAA received additional comments from four commenters, including American Airlines (AAL), Boeing, Turkish Technic, and All Nippon Airways. The following presents the comments received on the NPRM and the FAA's response to each comment.

## Request To Modify the Applicability of the Proposed AD

AAL, Boeing, and All Nippon Airways requested that the applicability of the proposed AD be changed to include only airplanes listed in the effectivity of Boeing Alert Requirements Bulletin B787-81205-SB380021-00 RB, Issue 001, dated August 12, 2022, which does not include undelivered airplanes. The commenters stated that Boeing has taken several steps to prevent missing or misinstalled lavatory and galley clamshell couplings on airplanes not listed in the effectivity of the Boeing Alert Requirements Bulletin B787-81205-SB380021-00 RB, Issue 001, dated August 12, 2022. A request for discrepancy check (RDC) was issued to inspect all stored airplanes as outlined in Boeing Alert Requirements Bulletin B787-81205-SB380021-00 RB, Issue 001, dated August 12, 2022, at the same door 1 and 3 locations. For future production airplanes, Quality Assurance (QA) verification of clamshell coupling installations has been added for lavatories (11/18/2019) and galleys (7/22/2022). As an alternative, if the proposed AD includes undelivered airplanes, All Nippon Airways requested that the compliance time be changed to 180 days after the date of issuance of the original standard certificate of airworthiness or the original export certificate of airworthiness.

The FAA agrees with the request to change the applicability to include only airplanes listed in the effectivity of Boeing Alert Requirements Bulletin B787-81205-SB380021-00 RB, Issue 001, dated August 12, 2022, for the reasons provided by the commenters. Paragraph (c) of this AD has been changed.

## Comment Regarding Insufficient Addressing of the Unsafe Condition

AAL commented that the actions of the proposed AD do not sufficiently address the unsafe condition nor do they prevent reoccurrence when future maintenance is accomplished on the clamshell. AAL noted that the leaks are the result of improper installation by individual operators and not a design failure, according to the manufacturer, who has not recommended replacement of the couplings on the majority of the fleet. AAL asserted that the maintenance manual currently provides extensive details on proper installation of the coupling, and that an incorrectly installed coupling is not a latent failure, and is detectable prior to operation of the aircraft. AAL observed that the same couplings are installed on their Model 737 and 777 fleet with a high level of reliability and no recorded installation errors in the previous 12 months.

The FAA partially agrees with the assertions of the commenter. As specified in the NPRM, this AD does not provide a long-term solution to fully address the unsafe condition, but is intended to be interim action that will adequately address leak events until an appropriate design change is developed and additional AD action is proposed. Part of the interim solution is updating the lavatory and galley Fleet Team Digest for missing or incorrectly installed couplings. In addition, maintenance procedures have been updated to correct errors and add tasks directing maintenance in areas where couplings are installed to return the area to its normal condition, which will include inspecting couplings for proper installation prior to leaving the area. Although the commenter asserts that incorrectly installed couplings are detectable, there have been several cases of a loss of water pressure during flight, as well as water leaks, discovered after landing, that caused water to migrate into the forward electronic equipment (EE) bay and affect multiple pieces of EE. The inspections or improved strapped coupling installations have not been completed on all affected airplanes yet, so the unsafe condition still exists within the fleet. This AD will ensure that all couplings are inspected per the updated maintenance procedures and will ensure the safety of the entire fleet. The FAA has therefore determined that this

AD is necessary to address the unsafe condition. The FAA has not changed this AD with regard to this comment.

### Request To Allow Alternative Service Information

Boeing has issued Multi-Operator Message MOM–MOM–21–0554–01B, dated December 14, 2021 (for lavatory inspections), and MOM–MOM–22–0229–01B, dated April 29, 2022 (for galley inspections). Turkish Technic asserted that the MOMs will address the unsafe condition identified in the proposed AD. The commenter reported that it had performed the actions specified in the MOMs, and subsequently Boeing issued Alert Requirements Bulletin B787–81205–SB380021–00 RB, Issue 001, dated August 12, 2022, which indicates that no further action is necessary after accomplishment of the actions in the MOMs. The commenter considered the actions in the MOMs to satisfactorily complete the proposed requirements, and requested that the proposed AD be revised to add the MOMs as an alternative to Boeing Alert Requirements Bulletin B787–81205–SB380021–00 RB, Issue 001, dated August 12, 2022, or alternatively, to provide credit for inspections previously complied as per the MOMs.

The FAA agrees that inspections completed as specified in the MOMs address the unsafe condition. A paragraph has been added to this AD to provide credit for accomplishing the MOMs prior to the effective date of this AD.

### 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, 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–SB380021–00 RB, Issue 001, dated August 12, 2022. This service information specifies procedures for a detailed visual inspection of all door 1 and door 3 lavatory and galley potable water systems for any missing or incorrectly installed clamshell couplings, and applicable on-condition actions. On-condition actions include installing clamshell couplings, doing a leak test, and performing corrective actions until the leak test is passed.

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**.

### Interim Action

The FAA considers this AD an interim action. If a final action is later identified, the FAA might consider further rulemaking.

### Costs of Compliance

The FAA estimates that this AD affects 134 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
Detailed visual inspection (DVI) (per lavatory or galley)	1 work-hour × \$85 per hour = \$85	\$0	\$85	\$11,390

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

### 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:

**2023-08-04 The Boeing Company:** Amendment 39-22419; Docket No. FAA-2022-1417; Project Identifier AD-2022-00731-T.

#### **(a) Effective Date**

This airworthiness directive (AD) is effective June 29, 2023.

#### **(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, as specified in Boeing Alert Requirements Bulletin B787-81205-SB380021-00 RB, Issue 001, dated August 12, 2022.

#### **(d) Subject**

Air Transport Association (ATA) of America Code 38, Water/waste.

#### **(e) Unsafe Condition**

This AD was prompted by reports of a loss of water pressure during flight and water leaks that affected multiple pieces of electronic equipment. The FAA is issuing this AD to address incorrectly installed or missing lavatory and galley clamshell couplings that could lead to water leaks and water migration to critical flight equipment, which may affect the continued safe flight and landing of 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-SB380021-00 RB, Issue 001, dated August 12, 2022, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin B787-81205-SB380021-00 RB, Issue 001, dated August 12, 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-SB380021-00, Issue 001, dated August 12, 2022, which is referred to in Boeing Alert Requirements Bulletin B787-81205-SB380021-00 RB, Issue 001, dated August 12, 2022.

### (h) Exceptions to Service Information Specifications

Where the Compliance Time columns of the table in the “Compliance” paragraph of Boeing Alert Requirements Bulletin B787-81205-SB380021-00 RB, Issue 001, dated August 12, 2022, uses the phrase “the Issue 001 date of Requirements Bulletin B787-81205-SB380021-00 RB,” this AD requires using “the effective date of this AD.”

### (i) Credit for Previous Actions

This paragraph provides credit for the actions specified in paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Multi-Operator Message MOM-MOM-21-0554-01B, dated December 14, 2021 (for lavatory inspections); and MOM-MOM-22-0229-01B, dated April 29, 2022 (for galley inspections).

### (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 Courtney Tuck, Aerospace Engineer, Cabin Safety and Environmental Systems Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA

98198; phone and fax: 206–231–3986; email: [Courtney.K.Tuck@faa.gov](mailto:Courtney.K.Tuck@faa.gov).

## (I) 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–SB380021–00 RB, Issue 001, dated August 12, 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 April 18, 2023.

Christina Underwood,

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

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