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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2021-1168; Project Identifier AD-2021-00825-T; Amendment 39-22138; AD 2022-16-09]**

**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 737-8 airplanes. This AD was prompted by a report that, during production, a small number of fasteners in certain locations of the center fuel tank were cap sealed on top of a black stripe of ink with a clear overcoat. This clear overcoat is not an approved surface for sealing and can potentially compromise sealant adhesion. Compromised sealant adhesion can, over time, affect the lightning-protection properties of the airplane. This AD requires preparation of the affected surface areas to ensure that there is adequate sealant adhesion, and complete encapsulation of the discrepant fastener locations with the approved production sealant. The FAA is issuing this AD to address the unsafe condition on these products.

#### **DATES:**

This AD is effective October 20, 2022.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of October 20, 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 [www.myboeingfleet.com](http://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 [www.regulations.gov](http://www.regulations.gov) by searching for and locating Docket No. FAA-2021-1168.

## Examining the AD Docket

You may examine the AD docket at [www.regulations.gov](http://www.regulations.gov) by searching for and locating Docket No. FAA-2021-1168; 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:

Chris Baker, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3552; email: [christopher.r.baker@faa.gov](mailto:christopher.r.baker@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 737-8 airplanes. The NPRM published in the **Federal Register** on February 23, 2022 ([87 FR 10110](#)). The NPRM was prompted by a report that, during production, a small number of fasteners common to upper wing panel stringers U-S1, U-S10, U-S12, U-S20, and U-S21 and lower wing panel stringer L-S14 were cap sealed on top of a black stripe of ink with a clear overcoat. The black stripe of ink and clear overcoat were applied during airplane assembly to certain interior areas of the center fuel tank to ensure proper alignment of components, and this discrepancy was not identified by Boeing prior to the delivery of certain airplanes. The purpose of cap sealing is to provide a secondary layer of lightning protection to the metal-to-metal rivet installation bond. The clear overcoat is not an approved surface for sealing and can potentially compromise sealant adhesion.

Compromised sealant adhesion can, over time, affect the lightning protection properties of the airplane. In the NPRM, the FAA proposed to require preparation of the affected surface areas to ensure that there is adequate sealant adhesion, and complete encapsulation of the discrepant fastener locations with the approved production sealant. This condition, if not addressed and combined with a flammable center tank ullage and an independent failure of the primary lightning protection feature, could result in ignition of the fuel vapors and subsequent explosion in the event of a lightning strike to that fastener.

## Discussion of Final Airworthiness Directive

## Comments

The FAA received comments from Air Line Pilots Association, International (ALPA) and an anonymous commenter, who supported the NPRM without change.

The FAA received additional comments from two commenters, Boeing and Southwest Airlines (SWA). The following presents the additional comments received on the NPRM and the FAA's response to each comment.

### Request To Add Alternative Methods of Compliance to the Final Rule

SWA requested that the FAA provide an option to operators that would allow removal of the current application of BMS5-45 sealant in the affected areas and removal of the black stripe of ink in accordance with certain operator procedures (or other acceptable procedures), then allowing for refinishing and sealing of the affected area in accordance with certain other operator instructions. SWA reasoned that these additional methods would address the unsafe condition and would allow airworthiness limitation (AWL) inspections and standard maintenance to be accomplished as intended in the structural repair manual (SRM) and maintenance planning document (MPD).

SWA explained that it is concerned that extending BMS5-45 sealant 0.6 inches beyond the current production application area could prevent inspections performed in accordance with 737-7/8/8200/9/10 Airworthiness Limitations (AWL) D626A011-9-04 and MPD principal structural element (PSE) 57-020-00. SWA went on to explain that extending the BMS5-45 sealant up to 0.6 inches beyond the current production application area to encapsulate the discrepant area contradicts the sealant restoration procedures outlined in 737-8MAX SRM 51-80-01 which states, "SEALANT MUST NOT EXTEND MORE THAN 0.125 INCH (3.18mm) ON TO THE SURFACE OF THE PART FOR DAMAGE TOLERANCE INSPECTION REASONS." SWA expressed concern that if an airplane requires repairs or maintenance actions in the affected area, or requires AWL/MPD required inspection 57-020-00, the BMS5-45 sealant will be stripped and, if the affected area is restored in accordance with 737-8MAX SRM 51-80-01, could lead to an operator inadvertently undoing the actions specified in Boeing Special Attention Requirements Bulletin 737-57-1352 RB, dated February 1, 2021.

The FAA agrees that the service bulletin instructions could conflict with future actions required by the 737-7/8/8200/9/10 Airworthiness Limitations (AWL) D626A011-9-04, in that the added sealant might impede the operator's ability to inspect the structure. The FAA also agrees that operators could use the existing sealant restoration procedures to remove the current application of BMS5-45 sealant in the discrepant areas, remove the black stripe of ink in accordance with acceptable surface preparation procedures, and reseal the fasteners in accordance with standard sealing procedures of fasteners penetrating the fuel tank. The FAA has added an optional method of removing the existing sealant and black stripe of ink prior to reapplying a fastener seal in paragraph (h) of this AD and redesignated subsequent paragraphs.

### Request for Additional Detail to the Unsafe Condition Statement

Boeing requested that the unsafe condition statement found in the Background section of the preamble and paragraph (e) of the proposed AD include more detail of the conditions and failures required for a fuel tank ignition to occur. Boeing stated that in the proposed AD, the unsafe condition

statement lists only compromised sealant adhesion as the condition needed for an ignition of fuel tank vapors in the event of a lightning strike. Boeing pointed out that ignition of fuel tank vapor requires an independent failure of the primary ignition prevention feature, a failed cap seal, a lightning attachment to the particular fastener, and that the fuel tank is flammable.

Boeing requested that the FAA change the fifth sentence in the Background section of the proposed AD to state, “This condition, if not addressed and combined with a flammable center tank ullage and an independent failure of the primary lightning protection feature, could result in ignition of the fuel vapors and subsequent explosion in the event of a lightning strike to that fastener.” Boeing requested similar changes to the second sentence of paragraph (e) of the proposed AD.

The FAA agrees with the request for the reasons provided. Boeing provided a more detailed description of the potential failure sequence. The FAA has revised the Background section of this final rule and the second sentence of paragraph (e) of this AD accordingly.

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 Special Attention Requirements Bulletin 737-57-1352 RB, dated February 1, 2021. This service information specifies procedures for preparing the surface and completely encapsulating the black stripe of ink, the clear overcoat, and the existing sealant with the approved production (BMS5-45) sealant at upper stringer U-S1, U-S10, U-S12, U-S20, and U-S21, and lower stringer L-S14. The affected areas are all located on the portion of the stringers just outboard of the center wing box. 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 11 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 |
|---------------|---------------------------------------------|------------|------------------|------------------------|
| Apply Sealant | 106 work-hours × \$85 per hour<br>= \$9,010 | \$500      | \$9,510          | \$104,610              |

Estimated Costs for Optional Actions

| Action                                                            | Labor cost                                | Parts cost | Cost per product |
|-------------------------------------------------------------------|-------------------------------------------|------------|------------------|
| Remove Sealant and Black Stripe of Ink, and Reapply Fastener Seal | 118 work-hours × \$85 per hour = \$10,030 | \$500      | \$10,030         |

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:

**2022-16-09 The Boeing Company:** Amendment 39-22138; Docket No. FAA-2021-1168; Project Identifier AD-2021-00825-T.

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

This airworthiness directive (AD) is effective October 20, 2022.

#### **(b) Affected ADs**

None.

#### **(c) Applicability**

This AD applies to The Boeing Company Model 737-8 airplanes, certificated in any category, as identified in Boeing Special Attention Requirements Bulletin 737-57-1352 RB, dated February 1, 2021.

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

Air Transport Association (ATA) of America Code 57, Wings.

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

This AD was prompted by a report that, during production, a small number of fasteners in certain locations of the center fuel tank were cap sealed on top of a black stripe of ink with a clear overcoat. This clear overcoat is not an approved surface for sealing and can potentially compromise sealant adhesion. Compromised sealant adhesion can, over time, affect the lightning protection properties of the airplane. The FAA is issuing this AD to address compromised sealant adhesion within the center fuel tank, which, if combined with a flammable center tank ullage and an independent failure of the primary lightning protection feature, could result in ignition of fuel vapors and subsequent explosion of the fuel tank in the event of a lightning strike to that fastener.

#### **(f) Compliance**

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

### **(g) Required Actions**

Within 10 years after the date of issuance of the original airworthiness certificate or the original export certificate of airworthiness, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Special Attention Requirements Bulletin 737-57-1352 RB, dated February 1, 2021, except as specified by paragraph (h) of this AD.

**Note 1 to paragraph (g):** Guidance for accomplishing the actions required by this AD can be found in Boeing Special Attention Service Bulletin 737-57-1352, dated February 1, 2021, which is referred to in Boeing Special Attention Requirements Bulletin 737-57-1352 RB, dated February 1, 2021.

### **(h) Optional Method To Remove Previously Applied Sealant and Black Stripe of Ink, and Reapply Fastener Seal**

As an option to the sealant application required by paragraph (g) of this AD, it is acceptable to remove the existing sealant and the black stripe of ink prior to reapplying a fastener seal. Remove existing sealant and black stripe of ink as follows:

- (1) Remove existing sealant to expose the black stripe of ink.
- (2) Remove existing black stripe of ink using aluminum oxide cloth or paper, 150 to 220 grit.

**Note 2 to paragraph (h)(2):** Take caution not to abrade through the existing oven cured BMS10-20 coating under the black stripe of ink. The BMS10-20 was previously applied during production.

- (3) Touch up exposed aluminum with Alodine 600 (Type I, II, or III) or Bonderite M-CR 600 Aero (Type I, II, or III).
- (4) Apply fastener seal (cap seal) with BMS5-45.
- (5) Apply BMS10-20 Type II fuel tank coating to any exposed alodine/bonderite surfaces not covered by the fastener seal; it is acceptable to extend BMS10-20 Type II coating over fastener seal.

### **(i) 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 (j)(1) of this AD. Information may be emailed to: [9-ANMSeattle-ACO-AMOC-Requests@faa.gov](mailto:9-ANMSeattle-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.

**(j) Related Information**

(1) For more information about this AD, contact Chris Baker, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3552; email: [christopher.r.baker@faa.gov](mailto:christopher.r.baker@faa.gov).

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (k)(3) and (4) of this AD.

**(k) 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 Special Attention Requirements Bulletin 737-57-1352 RB, dated February 1, 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 [www.myboeingfleet.com](http://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](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 July 29, 2022.

Christina Underwood,

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

[[FR Doc. 2022-19902](#) Filed 9-14-22; 8:45 am]

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