



[4910-13-P]

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2020-0097; Product Identifier 2019-NM-208-AD; Amendment 39-21157; AD 2020-14-03]

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 737-300, -400, and -500 series airplanes. This AD was prompted by a report that a crack indication consistent with fatigue cracking was found on the left nacelle support overwing fitting flange fastener hole during teardown of a Model 737-300 series airplane. This AD requires a general visual inspection of the strut to wing diagonal brace at a certain location for cracking. For certain airplanes, this AD also requires an ultrasonic inspection of the nacelle support overwing fitting at certain fastener locations for cracking. For certain other airplanes, this AD requires a magnetic check of the nacelle support overwing fitting at a certain location to determine the material composition. This AD requires applicable on-condition actions. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; Internet <https://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 on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0097.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0097; 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:** Wayne Ha, Aerospace Engineer, Airframe Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5238; fax: 562-627-5210; email: [wayne.ha@faa.gov](mailto:wayne.ha@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

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 737-300, -400, and -500 series airplanes. The NPRM published in the Federal Register on February 18, 2020 (85 FR 8776). The NPRM was prompted by a report that a crack indication consistent with fatigue cracking was found on the left nacelle support overwing fitting flange fastener hole during teardown of a Model 737-300 series airplane. The NPRM proposed to require a general visual inspection of the strut to wing diagonal brace at a certain location for cracking. For certain airplanes, the NPRM also proposed to require an ultrasonic inspection of the nacelle support overwing fitting at certain fastener locations for cracking. For certain other airplanes, the NPRM proposed to require a magnetic check of the nacelle support overwing fitting at a certain location to determine the material composition. The NPRM also proposed to require applicable on-condition actions.

The FAA is issuing this AD to address the potential for undetected cracks in the nacelle support overwing fittings or strut to wing diagonal brace, which could result in the inability of the structure to carry limit load and could adversely affect the structural integrity of the airplane.

### **Comments**

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the NPRM and the FAA's response to each comment.

## **Support for the NPRM**

Bridget Powell, Herbert Dickens, Terrance Tveit, and an anonymous commenter expressed support for the NPRM.

## **Effect of Winglets on Accomplishment of the Proposed Actions**

Aviation Partners Boeing stated that accomplishing Supplemental Type Certificate (STC) ST01219SE does not affect the actions specified in the proposed AD.

The FAA concurs with the commenter. The FAA has redesignated paragraph (c) of the proposed AD as paragraph (c)(1) of this AD and added paragraph (c)(2) to this AD to state that installation of STC ST01219SE does not affect the ability to accomplish the actions required by this AD. Therefore, for airplanes on which STC ST01219SE is installed, a “change in product” alternative method of compliance (AMOC) approval request is not necessary to comply with the requirements of 14 CFR 39.17.

## **Request to Clarify the Focus of the Ultrasonic Inspection**

Boeing requested that the FAA clarify the focus of the ultrasonic inspection in the SUMMARY of the NPRM. Whereas the NPRM described the ultrasonic inspection of “certain fasteners of the nacelle support overwing fitting at a certain location for cracking,” Boeing stated that the ultrasonic inspection is “of the nacelle support overwing fitting at certain fastener locations for cracking.” Boeing explained that the ultrasonic inspections require an inspection of the nacelle support overwing fitting at certain fastener holes rather than the fasteners themselves.

The FAA agrees with the commenter’s request because the revision provides more clarification for the inspection of the nacelle support overwing fitting. The FAA has revised the SUMMARY and Discussion section of this final rule accordingly.

## **Requests to Clarify Inspection Opportunities**

Boeing requested that the FAA modify the description of the opportunities for maintenance planning document (MPD) inspections to detect a failed nacelle support overwing fitting in the Discussion section of the NPRM. Boeing requested that the FAA change the following sentence in the Discussion section of the NPRM from “Existing maintenance planning document (MPD) inspections do not provide opportunities to detect a failed nacelle support overwing fitting at wing buttock line (WBL) 191,” to “Existing maintenance planning document (MPD) inspections do not provide adequate opportunities to detect a failed nacelle support overwing fitting at wing buttock line (WBL) 191.” Boeing explained that the MPD does provide some inspection opportunities, but Boeing determined they were not adequate to maintain safety.

The FAA agrees that the description provided by Boeing is more accurate. However, since that portion of the Discussion section does not reappear in the final rule, this final rule has not been changed regarding this issue.

Additionally, Melanie Sturgeon noted that the Discussion section of the proposed AD stated that existing MPD inspections “do not provide opportunities to detect a failed nacelle support overwing fitting at wing buttock line (WBL) 191.” Melanie Sturgeon supposed that Boeing would not have quickly issued Boeing Alert Requirements Bulletin 737-57A1345 RB, dated December 17, 2019, if the inspection findings were not important. Melanie Sturgeon went on to cite that, of the 158 airplanes affected by the proposed AD, many of them are at or near 30 years old. Melanie Sturgeon questioned why such a vital part of the airplane was not properly inspected throughout the course of its service life, presuming that the unsafe condition could have been easily detected.

Further, Melanie Sturgeon questioned why the FAA continued to issue airworthiness certificates for this airplane model when, as she stated, inspection teams seemed to be unaware of the parts they are charged with approving.

The FAA agrees to clarify. The airplane model was in compliance with regulatory safety standards when it was designed. The design loads at the failed nacelle support overwing fitting at WBL 191 might have been considered low from testing and analysis and was not considered critical structure. While the airplane model operates in-service, the loading encountered by in-service conditions could be higher than designed. Therefore, once aware of the possibility of a failed part, Boeing reanalyzed the part and collaborated with the FAA to determine an inspection plan and corrective action to ensure that the failure is found and repaired before the residual strength capability of the part is lost. The FAA has not changed this AD in this regard.

#### **Request for Clarification of Accountability**

Melanie Sturgeon questioned if Boeing will be held accountable for not providing the FAA with an accurate MPD, and, by extension, will the FAA be held responsible for not ensuring that Boeing provided an accurate MPD.

The FAA agrees to clarify. The MPD provided by Boeing was based on accurate information available at the time of writing the MPD and was approved by the FAA under those circumstances. When new information that necessitated an update to the MPD became available, the MPD was updated to reflect that new information, which the FAA then reviewed and approved as appropriate. The FAA has not changed this AD in this regard.

### **Request to Clarify Inspection Requirements**

Melanie Sturgeon, stated that the proposed AD fails to provide information about the compliance time that Boeing or operators would have to comply with the requirements of the proposed AD. Melanie Sturgeon also inquired if the proposed AD would require an inspection on only the left nacelle support overwing fitting flange fastener hole, or would the proposed AD require an inspection on the left and right sides.

The FAA agrees to clarify. Paragraph (g) of the proposed AD references Boeing Alert Requirements Bulletin 737-57A1345 RB, dated December 17, 2019, in which the inspections shown in Tables 1 through 8 in Section 3., Compliance, provide inspection requirements and compliance times for both left and right side nacelle support overwing fittings. The FAA has not changed this AD in this regard.

### **Request for More Frequent Inspections as an Airplane Ages**

Melanie Sturgeon requested that the FAA put the airplanes within the applicability of this AD on a rotating, graduated safety inspection schedule, meaning that the plane would be inspected more often as it got closer to its limit of validity (LOV). Melanie Sturgeon argued that, if safety is the FAA's top priority, then the FAA should take control of its responsibilities and rely less on the manufacturer's ability to classify airplanes as safe.

The FAA does not agree with the request because the inquiry mixes technical criteria that are not compatible. The inspections required by this final rule were developed using principles of damage tolerance. Damage tolerance has been a regulatory requirement and the accepted method of ensuring structural integrity for the last 42 years. The FAA has a long track record of successfully managing similar structural service difficulties by mandating inspections based on damage tolerance principles. It is

technically incorrect to associate repetitive inspections based on damage tolerance principles with the airplane LOV. The airplane LOV (which is measured in flight cycles, flight hours, or both) ensures that the airplane is retired before many cracks initiate concurrently which are not inspectable. The crack growth rate is tied more closely to airplane usage than to the age of the airplane, and thus changing the inspection interval as the airplane ages will not contribute to safety. The FAA has not changed this AD in this regard.

### **Request to Share Information with Another Governing Body**

Melanie Sturgeon requested that the FAA share the information from the proposed rule with the governing bodies of other countries or the International Civil Aviation Organization (ICAO). Melanie Sturgeon pointed out that countries around the world use this airplane model, and in an effort to promote worldwide aviation safety, the FAA should ensure that the information in the proposed AD is distributed to other countries that operate these airplanes.

The FAA agrees to clarify. The FAA does share the information from the proposed rule with the governing bodies of other countries as identified in ICAO Annex 8 (<https://www.icao.int/safety/airnavigation/Pages/nationality.aspx>). Furthermore, ICAO Annex 8, Airworthiness of Aircraft requires that civil aviation authorities of other countries take appropriate action in response to FAA ADs. Based on the FAA's determination of the unsafe condition addressed by this AD, we expect foreign authorities to adopt similar requirements. Typically, those agencies post FAA ADs with no changes and notify their operators. The operators will then comply with this AD per their CAA's requirements. The FAA has not changed this AD in this regard.

## **Conclusion**

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule with the changes described previously and minor editorial changes. The FAA has determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

The FAA also determined that these changes will not increase the economic burden on any operator or increase the scope of this final rule.

## **Related Service Information under 1 CFR Part 51**

The FAA reviewed Boeing Alert Requirements Bulletin 737-57A1345 RB, dated December 17, 2019. This service information describes procedures for a magnetic check to determine material composition of the nacelle support overwing fitting at WBL 191; ultrasonic inspections of the nacelle support overwing fitting at WBL 191 for cracking; general visual inspections of the strut to wing diagonal brace at nacelle station (STA) 278 for cracking; and applicable on-condition actions. On-condition actions include repetitive ultrasonic inspections of the nacelle support overwing fitting at WBL 191 for cracking, repetitive general visual inspections of the strut to wing diagonal brace at nacelle STA 278 for cracking, and repair. 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 the ADDRESSES section.

## Costs of Compliance

The FAA estimates that this AD affects 158 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

### Estimated costs for required actions

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Magnetic Check	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$13,430
Ultrasonic Inspection	5 work-hours X \$85 per hour = \$425	\$0	\$425	\$67,150
General Visual Inspection	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$13,430

The FAA estimates the following costs to do any necessary on-condition inspections that would be required. The FAA has no way of determining the number of aircraft that might need these on-condition inspections:

### Estimated costs of on-condition inspections

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Ultrasonic Inspections	5 work-hours X \$85 per hour = \$425 per inspection cycle	\$0	\$425 per inspection cycle	\$67,150 per inspection cycle
General Visual Inspections	1 work-hour X \$85 per hour = \$85 per inspection cycle	\$0	\$85 per inspection cycle	\$13,430 per inspection cycle

The FAA has received no definitive data that would enable us to provide cost estimates for the on-condition repairs 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.

### **Adoption of 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 (AD):

**2020-14-03 The Boeing Company:** Amendment 39-21157; Docket No. FAA-2020-0097; Product Identifier 2019-NM-208-AD.

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

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

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

None.

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

(1) This AD applies to all The Boeing Company Model 737-300, -400, and -500 series airplanes, certificated in any category.

(2) Installation of Supplemental Type Certificate (STC) ST01219SE does not affect the ability to accomplish the actions required by this AD. Therefore, for airplanes on which STC ST01219SE is installed, a “change in product” alternative method of compliance (AMOC) approval request is not necessary to comply with the requirements of 14 CFR 39.17.

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

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

**(e) Unsafe Condition**

This AD was prompted by a report that a crack indication consistent with fatigue cracking was found on the left nacelle support overwing fitting flange fastener hole during teardown of a Model 737-300 series airplane. The FAA is issuing this AD to address the potential for undetected cracks in the nacelle support overwing fittings or strut to wing diagonal brace, which could result in the inability of the structure to carry limit load and could adversely affect the structural integrity 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 737-57A1345 RB, dated December 17, 2019, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin 737-57A1345 RB, dated December 17, 2019. Actions identified as terminating actions in Boeing Alert Requirements Bulletin 737-57A1345 RB, dated December 17, 2019, terminate the applicable required actions of this AD, provided the terminating action is done in accordance with the Accomplishment Instructions of Boeing Alert Requirements Bulletin 737-57A1345 RB, dated December 17, 2019.

Note 1 to paragraph (g): Guidance for accomplishing the actions required by this AD can be found in Boeing Alert Service Bulletin 737-57A1345, dated December 17, 2019, which is referred to in Boeing Alert Requirements Bulletin 737-57A1345 RB, dated December 17, 2019.

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

(1) Where Boeing Alert Requirements Bulletin 737-57A1345 RB, dated December 17, 2019, uses the phrase “the original issue date of Requirements Bulletin (RB) 737-57A1345 RB,” this AD requires using “the effective date of this AD.”

(2) Where Boeing Alert Requirements Bulletin 737-57A1345 RB, dated December 17, 2019, specifies 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 (i) of this AD.

**(i) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Los Angeles 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 local Flight Standards District 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-ANM-LAACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district 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, Los Angeles 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 Wayne Ha, Aerospace Engineer, Airframe Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5238; fax: 562-627-5210; email: wayne.ha@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 Alert Requirements Bulletin 737-57A1345 RB, dated December 17, 2019.

(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 <https://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, email [fedreg.legal@nara.gov](mailto:fedreg.legal@nara.gov), or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on July 6, 2020.

Gaetano A. Sciortino, Deputy Director for Strategic Initiatives,  
Compliance & Airworthiness Division,  
Aircraft Certification Service.

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