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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2015-3146; Directorate Identifier 2014-NM-249-AD; Amendment 39-18411; AD 2016-04-17]**

**RIN 2120-AA64**

#### **Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 777-200 series airplanes. This AD was prompted by an evaluation by the design approval holder (DAH) indicating that the skin lap splices at certain stringers in certain fuselage sections are subject to widespread fatigue damage (WFD) on aging Model 777 airplanes that have accumulated at least 45,000 total flight cycles. This AD requires inspections to detect cracking of fuselage skin lap splices in certain fuselage sections, and corrective actions if necessary; modification of left-side and right-side lap splices; and post-modification repetitive inspections for cracks in the modified lap splices, and corrective actions if necessary. We are issuing this AD to detect and correct fatigue cracking of the skin lap splices, and consequent risk of sudden decompression and the inability to sustain limit flight and pressure loads.

**DATES:** This AD is effective April 1, 2016.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of April 1, 2016.

**ADDRESSES:** For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-3146.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-3146; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Docket Management Facility, 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:** Eric Lin, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6412; fax: 425-917-6590; email: Eric.Lin@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We 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 777-200 series airplanes. The NPRM published in the Federal Register on August 25, 2015 (80 FR 51488) ("the NPRM"). The NPRM was prompted by an evaluation by the DAH indicating that the skin lap splices at certain stringers in certain fuselage sections are subject to WFD on aging airplanes (airplanes that have accumulated at least 45,000 total flight cycles). The NPRM proposed to require inspections to detect cracking of fuselage skin lap splices in certain fuselage sections, and corrective actions if necessary; modification of left-side and right-side lap splices; and post-modification repetitive inspections for cracks in the modified lap splices, and corrective actions if necessary. We are issuing this AD to detect and correct fatigue cracking of the skin lap splices, and consequent risk of sudden decompression and the inability to sustain limit flight and pressure loads.

### **Comments**

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

### **Support for the NPRM**

An anonymous commenter expressed support for the NPRM.

### **Request To Revise WFD Criteria Definition**

Boeing requested that we revise the NPRM to specify that DAH analysis indicates that potential multi-site damage that could lead to WFD does not occur until at least 45,000 total flight cycles on aging Model 777 airplanes.

We agree with the commenter's request. We have revised the SUMMARY and Discussion sections of this final rule and paragraph (e) of this AD to specify that this AD was prompted by an evaluation by the DAH indicating that the skin lap splices at certain stringers in certain fuselage sections are subject to WFD on aging Model 777 airplanes that have accumulated at least 45,000 total flight cycles.

## Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

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

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

## Related Service Information Under 1 CFR Part 51

We reviewed Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014. The service bulletin describes procedures for inspections to detect cracking of fuselage skin lap splices, modification to the skin lap splices, repetitive inspections for cracks in the modified lap splices, and repairs. 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

We estimate that this AD affects 21 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

### Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspection and modification	2,713 work-hours × \$85 per hour = \$230,605	\$0	\$230,605	\$4,842,705.
Post-modification inspection	1,391 work-hours × \$85 per hour = \$118,235 per inspection cycle	0	\$118,235 per inspection cycle	\$2,482,935 per inspection cycle.

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this AD.

According to the manufacturer, some of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do not control warranty coverage for affected individuals. As a result, we have included all available costs in our cost estimate.

## 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.

We are 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) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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):



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**2016-04-17 The Boeing Company:** Amendment 39-18411; Docket No. FAA-2015-3146; Directorate Identifier 2014-NM-249-AD.

**(a) Effective Date**

This AD is effective April 1, 2016.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company Model 777-200 series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014.

**(d) Subject**

Air Transport Association (ATA) of America Code 53, Fuselage.

**(e) Unsafe Condition**

This AD was prompted by an evaluation by the design approval holder indicating that the skin lap splices at certain stringers in certain fuselage sections are subject to widespread fatigue damage on aging Model 777 airplanes that have accumulated at least 45,000 total flight cycles. We are issuing this AD to detect and correct fatigue cracking of the skin lap splices, and consequent risk of sudden decompression and the inability to sustain limit flight and pressure loads.

**(f) Compliance**

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

**(g) Inspections and Corrective Actions**

Except as provided by paragraph (h)(1) of this AD, at the applicable time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014: Do Part 1, inspection "A," of the modification area for cracks; Part 2, inspection "B," of the modification area for cracks; and Part 3, inspection "C," of the modification area for scribe lines and cracks; as applicable; and do all applicable corrective actions; in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014, except as provided by paragraph (h)(2) of this AD. Do all applicable corrective actions before further flight.

(1) Inspection "A" includes an external phased array ultrasonic inspection for cracks in the lower/overlapped skin of the stringer S-14 left and right (L/R) lap splices between fuselage station 655 and station 1434, and an open hole high frequency eddy current (HFEC) inspection for skin cracks at the upper and lower fastener rows of the stringer S-14 L/R lap splices.

(2) Inspection "B" includes the inspections specified in paragraphs (g)(2)(i) through (g)(2)(iv) of this AD.

(i) A detailed inspection for cracks of any skin panel common to a stringer S-14 L/R lap splice between fuselage station 655 and station 1434 that has a scribe line 0.001 inch or deeper.

(ii) Either an ultrasonic inspection or a surface HFEC inspection for cracks (depending on the location of the scribe line(s)) of any skin panel common to a stringer S-14 L/R lap splice between fuselage station 655 and station 1434 that has a scribe line 0.001 inch or deeper.

(iii) An external phased array ultrasonic inspection for cracks in the lower/overlapped skin of the stringer S-14 L/R lap splices between fuselage station 655 and station 1434.

(iv) An open hole HFEC inspection for skin cracks at the upper and lower fastener rows of the stringer S-14 L/R lap splices.

(3) Inspection "C" includes the inspections for scribe lines and cracks specified in paragraphs (g)(3)(i), (g)(3)(ii), and (g)(3)(iii) of this AD on stringer S-14 L/R lap splice between fuselage station 655 and station 1434 on both sides of the airplane.

(i) A detailed inspection for scribe lines. If any scribe line is found during the inspection required by this paragraph, the actions include the inspections specified in paragraphs (g)(3)(i)(A) and (g)(3)(i)(B) of this AD.

(A) A detailed inspection for cracks of the scribe line area(s).

(B) Either an ultrasonic inspection or a surface HFEC inspection for cracks (depending on the location of the scribe line(s)).

(ii) An external phased array ultrasonic inspection for cracks in the lower/overlapped skin of the stringer S-14 L/R lap splices between fuselage station 655 and station 1434.

(iii) An open hole HFEC inspection for skin cracks at the upper and lower fastener rows of the stringer S-14 L/R lap splices.

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

(1) Where Paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014, specifies a compliance time "after the original issue date of this service bulletin," this AD requires compliance within the specified compliance time "after the effective date of this AD."

(2) If, during accomplishment of any inspection required by this AD, any condition is found for which Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014, specifies to contact Boeing for special repair instructions or supplemental instructions for the modification, and specifies that action as "RC" (Required for Compliance): Before further flight, do the repair or modification using a method approved in accordance with the procedures specified in paragraph (k) of this AD.

#### **(i) Lap Splice Modification**

At the applicable time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014: Do the left-side and right-side lap splice modification, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014, except as provided by paragraph (h)(2) of this AD.

#### **(j) Post-Modification Inspections and Corrective Action**

At the applicable time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014: Do a post-modification internal surface HFEC inspection for skin cracks in the modified lap splices on both sides of the airplane; and do all applicable corrective actions; in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014, except as provided by paragraph (h)(2) of this AD. Do all applicable corrective actions before further flight. Repeat the inspection of the

modified lap splices thereafter at the applicable intervals specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-53A0052, dated October 10, 2014.

### **(k) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle Aircraft Certification Office (ACO), 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 ACO, send it to the attention of the person identified in paragraph (1) of this AD. Information may be emailed to: 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 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 Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, 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.

(4) Except as required by paragraph (h)(2) of this AD: For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (k)(4)(i) and (k)(4)(ii) apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

### **(l) Related Information**

For more information about this AD, contact Eric Lin, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6412; fax: 425-917-6590; email: Eric.Lin@faa.gov.

### **(m) 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 Service Bulletin 777-53A0052, dated October 10, 2014.

(ii) Reserved.

(3) For Boeing service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>.

(4) You may view this service information at FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(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, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on February 16, 2016.  
Dionne Palermo,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.