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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2015-1428; Directorate Identifier 2015-NM-026-AD; Amendment 39-18499; AD 2016-09-01]**

**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 and -300 series airplanes. This AD was prompted by reports of fatigue cracking of a certain chord of the pivot bulkhead. This AD requires repetitive inspections for cracking of the left side and right side forward outer chords of the pivot bulkhead, and related investigative and corrective actions if necessary. This AD also provides a modification of the pivot bulkhead, which would terminate the repetitive inspections. We are issuing this AD to detect and correct fatigue cracking of the outer flanges of the left and right side forward outer chords of the pivot bulkhead, which could result in a severed forward outer chord and consequent loss of horizontal stabilizer control.

**DATES:** This AD is effective June 6, 2016.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of June 6, 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-2015-1428.

## **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-2015-1428; 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:** Narinder Luthra, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6513; fax: 425-917-6590; email: [narinder.luthra@faa.gov](mailto:narinder.luthra@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 and -300 series airplanes. The NPRM published in the Federal Register on June 15, 2015 (80 FR 34103) ("the NPRM"). The NPRM was prompted by reports of fatigue cracking of a certain chord of the pivot bulkhead. The NPRM proposed to require repetitive inspections for cracking of the left side and right side forward outer chords of the pivot bulkhead, and related investigative and corrective actions if necessary. The NPRM also proposed to provide a modification of the pivot bulkhead, which would terminate the repetitive inspections. We are issuing this AD to detect and correct fatigue cracking of the outer flanges of the left and right side forward outer chords of the pivot bulkhead, which could result in a severed forward outer chord and consequent loss of horizontal stabilizer control.

### **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.

### **Request To Exclude Certain Requirements From the NPRM**

American Airlines (AA) requested that we revise the NPRM to exclude doing the work in accordance with paragraph 3.B.4., of the Work Instructions of Boeing Alert Service Bulletin 777-53A0075, dated January 14, 2015, which specifies "Put the airplane back into a serviceable condition." AA stated that doing this action does not affect the condition that the AD seeks to address. AA added that most operators will accomplish these modifications as part of a maintenance visit, and returning the airplane to a serviceable condition will not be possible in the context of the statement, but rather will occur at a point in time well after the work is completed.

We agree that putting the airplane back into a serviceable condition is not directly related to addressing the unsafe condition identified in this AD. However, we do not agree to specifically exclude paragraph 3.B.4., of the Work Instructions of Boeing Alert Service Bulletin 777-53A0075, dated January 14, 2015, from this final rule because it is not required for compliance with the AD actions.

The FAA worked in conjunction with industry, under the Airworthiness Directives Implementation Aviation Rulemaking Committee (AD ARC), to enhance the AD system. One enhancement is a new process for annotating which steps in the service information are "required for compliance" (RC) with an AD. Differentiating these steps from other tasks in the service information

is expected to improve an owner's/operator's understanding of AD requirements and help provide consistent judgment in AD compliance.

In response to the AD Implementation ARC, the FAA released AC 20-176A, dated June 16, 2014

([http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgAdvisoryCircular.nsf/0/979ddd1479e1ec6f86257cfc0052d4e9/\\$FILE/AC%2020-176A.pdf](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/979ddd1479e1ec6f86257cfc0052d4e9/$FILE/AC%2020-176A.pdf)); and Order 8110.117A, dated June 18, 2014 ([http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgOrders.nsf/0/d715cdfc08ac0ddc86257cfc00528297/\\$FILE/110.117A.pdf](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgOrders.nsf/0/d715cdfc08ac0ddc86257cfc00528297/$FILE/110.117A.pdf)), which include the concept of RC. The FAA has begun implementing this concept in ADs when we receive service information containing RC steps.

Boeing Alert Service Bulletin 777-53A0075, dated January 14, 2015, includes the concept of RC. In paragraph 3.B. of the Work Instructions of Boeing Alert Service Bulletin 777-53A0075, dated January 14, 2015, certain steps are marked RC. The step that specifies "Put the airplane back into a serviceable condition" is not marked RC. Therefore, no change to this final rule is necessary in this regard.

### **Request To Change Certain Language in the NPRM**

Boeing and United Airlines (UA) asked that the language in paragraph (h) of the proposed AD be reworded for clarity. Boeing asked that we account for the small crack repair being performed on one side only. UA stated that as written, inspecting the left side and right side forward outer chords is incorrect since the small crack repair is performed on one side only. UA noted that the small crack repair may be accomplished on one side of the airplane only, depending on inspection findings. UA asked that paragraph (h) of the proposed AD be changed to specify ". . . do a surface high frequency eddy current (HFEC) inspection, an open-hole HFEC inspection, and a detailed inspection for cracking of the repaired side (left, right, or both) forward outer chords of the STA 2370 pivot bulkhead." Boeing recommended that the language be reworded to specify an ". . . inspection for cracking of the repaired forward outer chords . . ."

We agree with the commenters' requests for the reasons provided. We have changed the language in paragraph (h) of this AD to specify ". . . do a surface HFEC inspection, an open-hole HFEC inspection, and a detailed inspection for cracking of the repaired side forward outer chords of the STA 2370 pivot bulkhead."

Boeing and UA asked that the language in paragraph (i) of the proposed AD be reworded for clarity. Boeing asked that we account for the scenario where the small crack repair is performed on one side only. Boeing stated that the terminating actions for each side of the bulkhead are independent of each other. UA stated that using "and" is incorrect because the modification can only be accomplished on one side, not both the left and right sides, depending on inspection findings.

We agree with the commenters for the reasons provided. We have changed the language in paragraph (i) of this AD accordingly.

### **Request To Include Revised Service Information**

All Nippon Airways (ANA) stated that Boeing Alert Service Bulletin 777-53A0075, dated January 14, 2015; and Boeing Service Bulletin 777-53-0076, dated January 14, 2015; contain many inconsistencies. We infer that ANA is requesting that we include revised service information because there are errors in the original issues.

We agree with the commenter. Boeing has issued Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015; and Boeing Service Bulletin 777-53-0076, Revision 1, dated December 21, 2015; which include changes found during validation and clarify and correct issues identified by operators. We have included the revised service information as the appropriate source of service information for accomplishing the actions required by this AD and we have referred to Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, in the applicability in paragraph (c) of this AD. We have also added a new credit paragraph (k) to this AD

for using the original issues of the service information and reidentified subsequent paragraphs accordingly.

### **Request To Add a New Paragraph for Clarification**

Boeing asked that we add a new paragraph (j)(3) to the proposed AD to specify the following:

If conducting the Part 2 Small Crack Repair of the Service Bulletin 777-53A0075 dated January 14, 2015, verify the fastener heads and nuts will not interfere with the fillet radius of the parts in the repair installation. If interference will occur, repair before further flight using a method approved in accordance with the procedures specified in paragraph (k) of this AD. . .

Boeing also asked that we add a reference to paragraph (j)(3) in paragraph (g) of the proposed AD by including it in the exception sentence. Boeing stated that during a recent validation it was discovered that, in some cases, radius fillers are required to prevent fasteners from riding the fillet radius of the extended splice chord used in the small crack repair specified in Part 2 of Boeing Alert Service Bulletin 777-53A0075, dated January 14, 2015.

We agree with the commenter that interference between the fastener and fillet case should be minimized; however, we do not agree to add a new paragraph (j)(3) to this AD. Boeing has issued Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, which includes instructions for accomplishing the small crack repair. As stated previously, we have revised this AD to refer to Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, for accomplishing certain actions required by this AD.

### **Request To Correct Minor Error**

Boeing asked that we change the service information number identified in paragraph (j)(2) of the proposed AD from "777-530076" to "777-53-0076."

We agree that the hyphen is missing from the service information number. We have included the hyphen in the service information number identified in paragraph (j)(2) of this AD accordingly.

### **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 the following Boeing service information.

Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015. This service information describes procedures for repetitive detailed and HFEC inspections for cracking of the outer flanges of the left and right side forward outer chords of the STA 2370 pivot bulkhead, repetitive post-repair inspections for certain airplanes, and related investigative and corrective actions.

- Boeing Service Bulletin 777-53-0076, Revision 1, dated December 21, 2015. This service information describes procedures for a modification of the STA 2370 pivot bulkhead by replacing the left and right side forward outer chords and upper splice angles, and related investigative and corrective actions.

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 60 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
Inspections of left and right side pivot bulkhead forward chord	Up to 15 work-hours × \$85 per hour = \$1,275 per inspection cycle	\$0	Up to \$1,275 per inspection cycle	Up to \$76,500 per inspection cycle.
Post-repair Inspections	Up to 11 work-hours × \$85 per hour = \$935 per inspection cycle	0	Up to \$935 per inspection cycle	Up to \$56,100 per inspection cycle.

We estimate the following costs to do any necessary repairs and modifications that would be required based on the results of the inspection. We have no way of determining the number of airplanes that might need these actions.

#### On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Small crack repair	Up to 45 work-hours × \$85 per hour = \$3,825 per side	<sup>1</sup>	Up to \$7,650.
Modification of the STA 2370 Pivot Bulkhead (forward outer chord replacement)	Up to 137 work-hours × \$85 per hour = \$11,645	\$34,086	Up to \$45,731.

<sup>1</sup> We have received no definitive data that would enable us to provide parts cost estimates for the on-condition repair 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 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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**2016-09-01 The Boeing Company:** Amendment 39-18499; Docket No. FAA-2015-1428; Directorate Identifier 2015-NM-026-AD.

**(a) Effective Date**

This AD is effective June 6, 2016.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company Model 777-200 and -300 series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by reports of fatigue cracking of the forward outer chord of the station (STA) 2370 pivot bulkhead. We are issuing this AD to detect and correct fatigue cracking of the outer flanges of the left and right side forward outer chords of the STA 2370 pivot bulkhead, which could result in a severed forward outer chord and consequent loss of horizontal stabilizer control.

**(f) Compliance**

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

**(g) Inspections and Corrective Actions**

At the times specified in table 1 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, except as provided in paragraph (j)(1) of this AD: Do a detailed inspection and high frequency eddy current (HFEC) inspections for cracking of the left and right side forward outer chords of the STA 2370 pivot bulkhead, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, except as provided in paragraph (j)(2) of this AD. Do all applicable related investigative and corrective actions before further flight. Repeat the inspections thereafter at the applicable intervals specified in table 1 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, until the modification specified in paragraph (i) of this AD is done.

## **(h) Post-Repair Inspections**

For airplanes on which any repair specified in Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 777-53A0075 has been done: At the times specified in table 2 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, do a surface HFEC inspection, an open-hole HFEC inspection, and a detailed inspection for cracking of the repaired side forward outer chords of the STA 2370 pivot bulkhead, and do all applicable related investigative and corrective actions, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, except as required by paragraph (j)(2) of this AD. Do all applicable related investigative and corrective actions before further flight. Repeat the inspections thereafter at the applicable times specified in table 2 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, until the modification specified in paragraph (i) of this AD is done.

## **(i) Terminating Action**

Modifying the STA 2370 pivot bulkhead by replacing the left or right side forward outer chords and upper splice angles, and doing all applicable related investigative and corrective actions, terminates the repetitive inspections required by paragraphs (g) and (h) of this AD, for the modified location only. The modification must be done in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-53-0076, Revision 1, dated December 21, 2015, except as required by paragraph (j)(2) of this AD.

## **(j) Exceptions to Service Bulletin Specifications**

(1) Where Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, 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) Although Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015; and Boeing Service Bulletin 777-53-0076, Revision 1, dated December 21, 2015; specify to contact Boeing for appropriate action, and Boeing Alert Service Bulletin 777-53A0075, Revision 1, dated December 14, 2015, specifies that action as "RC" (Required for Compliance), this AD requires repair before further flight using a method approved in accordance with the procedures specified in paragraph (l) of this AD.

## **(k) Credit for Previous Actions**

(1) This paragraph provides credit for the actions required by paragraphs (g) and (h) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 777-53A0075, dated January 14, 2015.

(2) This paragraph provides credit for the actions required by paragraph (i) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin 777-53-0076, dated January 14, 2015.

## **(l) 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 (m)(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 (j)(2) of this AD: For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (l)(4)(i) and (l)(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.

#### **(m) Related Information**

(1) For more information about this AD, contact Narinder Luthra, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6513; fax: 425-917-6590; email: narinder.luthra@faa.gov.

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

#### **(n) 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 777-53A0075, Revision 1, dated December 14, 2015.

(ii) Boeing Service Bulletin 777-53-0076, Revision 1, dated December 21, 2015.

(3) For 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 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.

(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 April 14, 2016.  
Victor Wicklund,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.