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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2014-0778; Directorate Identifier 2014-NM-095-AD; Amendment 39-18220; AD 2015-15-11]**

**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 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes. This AD was prompted by reports of skin cracks and subsequent findings of hidden corrosion found on the mating surfaces between certain skin and stringers at circumferential skin splices. This AD requires general visual inspections of the fuselage skin at certain lower circumferential splices for the presence of existing external doublers, repetitive inspections of the fuselage skin, and related investigative and corrective actions if necessary. We are issuing this AD to detect and correct hidden corrosion due to compromised fillet seals, which can result in skin cracking and consequent loss of capability to support limit loads.

**DATES:** This AD is effective September 1, 2015.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of September 1, 2015.

**ADDRESSES:** 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>. 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-2014-0778.

## **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-2014-0778; 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:** Bill Ashforth, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6432; fax: 425-917-6590; email: [bill.ashforth@faa.gov](mailto:bill.ashforth@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 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes. The NPRM published in the Federal Register on November 28, 2014 (79 FR 70799). The NPRM was prompted by reports of skin cracks and subsequent findings of hidden corrosion found on the mating surfaces between certain skin and stringers at circumferential skin splices. The NPRM proposed to require general visual inspections of the fuselage skin at certain lower circumferential splices for the presence of existing external doublers, repetitive inspections of the fuselage skin, and related investigative and corrective actions if necessary. We are issuing this AD to detect and correct hidden corrosion due to compromised fillet seals, which can result in skin cracking and consequent loss of capability to support limit loads.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM (79 FR 70799, November 28, 2014) and the FAA's response to each comment.

### **Concurrence With NPRM (79 FR 70799, November 28, 2014)**

United Airlines stated that it concurs with the proposed requirements specified in the NPRM (79 FR 70799, November 28, 2014).

### **Request To Clarify What Prompted the AD Action and Clarify the Unsafe Condition**

Boeing requested that we clarify the unsafe condition and revise various locations of the NPRM (79 FR 70799, November 28, 2014) to indicate that corrosion was discovered only after a skin crack was reported. Boeing explained the hidden corrosion between the skin and stringer was not visibly detectable and was discovered only after a skin crack was reported.

We agree to revise the sentences that specify the unsafe condition and that specify what prompted the AD action. We have revised the SUMMARY of this final rule, as well as the Discussion and paragraph (e) of this AD, by adding the phrase "hidden corrosion due to" to the sentences that specify the unsafe condition, and by adding the phrase "skin cracks and subsequent findings of hidden" to the sentences that discuss what prompted the AD action.

## **Request To Clarify Requirements Based on Presence of Doubler Repair**

Boeing requested that we revise paragraph (g) of the NPRM (79 FR 70799, November 28, 2014) to clarify the proposed requirements for surface low frequency eddy current (LFEC) inspections for areas with and without repair doublers.

We agree to revise paragraph (g) of this AD to clarify configurations of areas with and without repair doublers. We have revised paragraph (g)(1) and added new paragraph (g)(2) to this AD to specify configurations having "an external repair doubler" and where "no existing repair doubler" exists.

## **Request To Add Required High Frequency Eddy Current (HFEC) Inspections**

Boeing requested that we revise paragraphs (g)(2) and (h)(2)(i) of the NPRM (79 FR 70799, November 28, 2014) by adding HFEC inspections as a required action.

We disagree with specifying HFEC inspections as requested in this AD because this AD already requires compliance with all applicable "related investigative actions," which include applicable HFEC inspections. The terminology for the proposed AD requirements was addressed by the NPRM (79 FR 70799, November 28, 2014). Our standard practice is to specify actions that are related to the primary action and actions that further investigate the nature of any condition found as "related investigative actions." No change has been made to this AD in this regard.

## **Request To Reference Correct Service Information**

UPS requested that the correct eddy current inspection procedure be referenced in the NPRM (79 FR 70799, November 28, 2014). UPS stated that Boeing Information Notice 747-53A2861 IN 01, dated April 24, 2014, was issued to inform operators that Paragraph 3.B, Part 2, Step 1, of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, should refer to "747 Nondestructive test (NDT) Manual Part 6, 53-30-00, Procedure 5," instead of "747 NDT Manual Part 6, 51-00-00, Procedure 8," as the correct inspection procedure of the fuselage skin. UPS stated that adding this information would prevent the need for requests for alternative methods of compliance (AMOCs) related to this error.

We find that clarification is needed. To clarify this information, we have added a new exception to include the correct source of service information for this inspection. New paragraph (i)(3) of this AD refers to "747 NDT Manual Part 6, 53-30-00, Procedure 5," as the appropriate source of service information for the eddy current inspection of the fuselage skin. We have also added a reference to paragraph (i)(3) of this AD in paragraphs (g) and (h) of this AD.

## **Request To Exclude Location From Required Inspections**

UPS requested that the NPRM (79 FR 70799, November 28, 2014) be revised to exclude a certain location from the inspection requirements, or that the proposed AD provide an inspection procedure that is adequate for that location. UPS stated that Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, specifies that external surface LFEC inspections for corrosion of the fuselage skin be done using "747 NDT Manual Part 6, 51-00-00, Procedure 5 or Procedure 12," which are appropriate for skins with a specified thickness. UPS stated Table 2 of Appendix C of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, contains an error. Skin panels having part number 65B23792-XX are chem milled with a thickness that exceeds the specification listed in Table 2 of Appendix C of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014. Therefore, the NDT procedures are not valid for those skin panels at this location. UPS stated that since action is identified as "Required for Compliance," by Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, no deviations are allowed without AMOC approval.

We disagree with the request. Agreeing with the request would delay the issuance of the AD and we find that delaying this action would be inappropriate in light of the identified unsafe condition. Boeing is aware of the discrepancy with the NDI instructions, and is actively working on a global AMOC for operators to correct the error by means of a validated procedure. Operators have the option of proposing their own procedure in accordance with paragraph (j) of this AD.

Since chem milling affects the ability to accomplish Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, and the corrective action is not clear in the service information, we have added an exception to new paragraph (i)(4) of this AD to specify where Paragraph 3.B, Part 3, Step 1, of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, specifies doing external surface LFEC inspections in accordance with "747 NDT Manual Part 6, 51-00-00, Procedure 5 or Procedure 12," and the skin panels are chem milled with a thickness that exceeds the specification listed in Table 2 of Appendix C of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, this AD requires using an AMOC per paragraph (j) of this AD. We have added a reference to paragraph (i)(4) of this AD in paragraphs (g) and (h) of this AD. Operators may request approval of an AMOC under the provisions of paragraph (j) of this AD, for procedures that would help them meet the NDT test requirements.

## 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 (79 FR 70799, November 28, 2014) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (79 FR 70799, November 28, 2014).

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 747-53A2861, dated April 1, 2014. The service information describes procedures for inspections of the fuselage skin at certain lower circumferential splices for the presence of existing external doublers, inspections of the fuselage skin for cracking and corrosion, 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 of this final rule.

## Costs of Compliance

We estimate that this AD affects 165 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	Up to 121 work-hours × \$85 per hour = \$10,285	\$0	Up to \$10,285	Up to \$1,697,025.

We have received no definitive data that would enable us to provide 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.

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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**2015-15-11 The Boeing Company:** Amendment 39-18220; Docket No. FAA-2014-0778; Directorate Identifier 2014-NM-095-AD.

**(a) Effective Date**

This AD is effective September 1, 2015.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company Model 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes; certificated in any category, as identified in Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by reports of skin cracks and subsequent findings of hidden corrosion found on the mating surfaces between certain skin and stringers at circumferential skin splices. We are issuing this AD to detect and correct hidden corrosion due to compromised fillet seals, which can result in skin cracking and consequent loss of capability to support limit loads.

**(f) Compliance**

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

**(g) Inspections and Repair for Group 1 Airplanes**

For airplanes identified as Group 1 in Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014: At the applicable times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, except as provided by paragraph (i)(1) of this AD, do external general visual inspections for the presence of external doublers on the fuselage skin, and do the applicable actions specified in paragraphs (g)(1) and (g)(2) of this AD, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, except as required by paragraphs (i)(2), (i)(3), and (i)(4) of this AD. Do all applicable repetitive inspections of the fuselage skin thereafter at the applicable times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014.

(1) For each affected area with an external repair doubler: Before further flight, do a surface low frequency eddy current (LFEC) inspection for skin cracks of the external lower lobe repair doubler, and do all applicable related investigative and corrective actions. Do all applicable related investigative and corrective actions before further flight.

(2) For any affected area with no external repair doubler: Before further flight, do a surface LFEC inspection for corrosion of the external lower lobe skin surface, and do all applicable related investigative and corrective actions. Do all applicable related investigative and corrective actions before further flight.

#### **(h) Inspections and Repair for Group 2 Airplanes**

For airplanes identified as Group 2 in Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014: At the applicable times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, except as provided by paragraph (i)(1) of this AD, do external general visual inspections for the presence of external doublers on the fuselage skin, and do the applicable actions specified in paragraphs (h)(1) and (h)(2) of this AD, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, except as required by paragraphs (i)(2), (i)(3), and (i)(4) of this AD.

(1) For affected areas with any existing repair doubler: Before further flight, do inspections and applicable repairs using a method approved in accordance with the procedures specified by paragraph (j) of this AD.

(2) For affected areas with no existing repair doubler, do the applicable actions specified in paragraph (h)(2)(i) and (h)(2)(ii) of this AD.

(i) Before further flight, do a surface LFEC inspection for corrosion of the external lower lobe doubler, a surface LFEC inspection for skin cracks of the external lower lobe doubler, a detailed inspection for cracks of the external lower lobe skin, and do all applicable related investigative and corrective actions. Do all applicable related investigative and corrective actions before further flight.

(ii) Do all applicable repetitive inspections of the fuselage skin thereafter at the applicable times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014.

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

(1) Where Boeing Alert Service Bulletin 747-53A2861, dated April 1, 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) Although Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, specifies to contact Boeing for repair data, and 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 (j) of this AD.

(3) Where Paragraph 3.B, Part 2, Step 1, of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, incorrectly identifies "747 NDT Manual Part 6, 51-00-00, Procedure 8," associated with the LFEC inspection for skin cracks of the external lower lobe repair doubler, the correct reference is "747 NDT Manual Part 6, 53-30-00, Procedure 5."

(4) Where Paragraph 3.B, Part 3, Step 1, of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, specifies doing external surface LFEC inspections in accordance with "747 NDT Manual Part 6, 51-00-00, Procedure 5 or Procedure 12," and the skin panels are chem milled with a thickness that exceeds the specification listed in Table 2 of Appendix C of Boeing Alert Service Bulletin 747-53A2861, dated April 1, 2014, this AD requires using a method approved in accordance with the procedures specified in paragraph (j) of this AD.

## **(j) 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 (k) 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) Except as required by paragraph (i) of this AD: Some steps in the Work Instructions are labeled as Required for Compliance (RC). If this service bulletin is mandated by an AD, then 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. 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.

(4) An AMOC that provides an acceptable level of safety may be used for any repair 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. For a repair method to be approved, the repair 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 Bill Ashforth, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6432; fax: 425-917-6590; email: bill.ashforth@faa.gov.

## **(l) 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 747-53A2861, dated April 1, 2014.

(ii) Reserved.

(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 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 July 16, 2015.  
Suzanne Masterson,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.