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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2015-1266; Directorate Identifier 2014-NM-151-AD; Amendment 39-18327; AD 2015-23-11]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-300, 747SR, and 747SP series airplanes. This AD was prompted by an evaluation by the design approval holder (DAH) indicating that certain fuselage skin lap joints are subject to widespread fatigue damage (WFD). This AD requires repetitive post-modification inspections for cracking of the skin or internal doubler along the edge fastener rows of the modification, and repair if necessary. We are issuing this AD to detect and correct fatigue cracking in certain fuselage skin lap joints, which could result in rapid depressurization of the airplane.

DATES: This AD is effective December 28, 2015.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of December 28, 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-2015-1266.

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-2015-1266; 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: Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: nathan.p.weigand@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 747-100, 747-100B, 747-100B SUD, 747-200B, 747-300, 747SR, and 747SP series airplanes. The NPRM published in the Federal Register on May 5, 2015 (80 FR 25630). The NPRM was prompted by an evaluation by the DAH indicating that certain fuselage skin lap joints are subject to WFD. The NPRM proposed to require repetitive post-modification inspections for cracking of the skin or internal doubler along the edge fastener rows of the modification, and repair if necessary. We are issuing this AD to detect and correct fatigue cracking in certain fuselage skin lap joints, which could result in rapid depressurization of the airplane.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM (80 FR 25630, May 5, 2015) and the FAA's response to each comment.

Request To Remove Warranty Statement

Boeing requested that we remove the statement that "some of the costs of this proposed AD may be covered under warranty" in the Costs of Compliance section of the NPRM (80 FR 25630, May 5, 2015). Boeing stated that the actions in the NPRM are not covered by warranty.

We agree with the commenter's request. We have revised the Costs of Compliance section of this final rule accordingly.

Request To Revise Paragraph Headings

Boeing requested that we revise the headings of paragraphs (g), (h), (j), and (k) of the proposed AD (80 FR 25630, May 5, 2015) by removing reference to the inspections as "repetitive" or "initial." Boeing stated that these revisions will provide consistency among paragraph headings because paragraphs (g), (j), and (k) of the proposed AD do not have an initial inspection program, yet paragraph (h) of the proposed AD has only an initial inspection.

We acknowledge the commenter's concern and agree to clarify the headings. We do not presume that the term "repetitive" necessarily excludes the initial action. An action cannot be repeated without accomplishment of the initial action. In addition, in many ADs we use the term "repetitive" actions for paragraphs that include the initial action and repetitive actions. Paragraphs (g), (j), and (k) of this AD include both a sentence specifying the initial inspection and a sentence specifying the repetitive inspections. We have not changed this AD in this regard.

Request To Clarify Compliance Time

Boeing requested that we clarify the compliance time in paragraphs (g), (h), (j), and (k) of the proposed AD (80 FR 25630, May 5, 2015) by revising "at the applicable time" to "at the applicable time and repeat intervals." Boeing stated that these revisions would clarify that the applicable time also includes the repeat intervals per Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014.

We do not agree to combine the initial inspection and the repetitive inspection times into one statement because ADs typically call out initial inspections and repetitive inspections in separate sentences. Paragraph (h) of this AD specifies only an initial inspection. Paragraphs (g), (j), and (k) of this AD specifies an initial inspection and states that the repetitive inspections are for the unrepaired areas, which are to be done at the applicable times specified in Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014. We have not changed this AD in this regard.

Request To Delete the Unrepaired Area Statement From Paragraphs (g) (j) and (k) of the Proposed AD (80 FR 25630, May 5, 2015)

Boeing requested that we delete the last sentence in paragraphs (g), (j), and (k) of the proposed AD (80 FR 25630, May 5, 2015), which states "In unrepaired areas, repeat the . . . inspections for cracks" Boeing stated that the sentence is confusing as the unrepaired area case is actually for no cracks found in the modification area after doing the inspection as specified in the applicable tables 3, 5, and 6 of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014. Boeing explained that the proposed AD wording may cause confusion when information is provided in a different format than the service bulletin tables.

We do not agree with the commenter's request because the text "in unrepaired areas" matches the text in Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014. Paragraphs (g), (j), and (k) of this AD specify doing actions at the applicable time specified in tables 3, 5, and 6 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014. In these tables, the compliance time is specified for the actions required for the unrepaired area. We have not revised this AD in this regard.

Request To Combine Paragraphs

Boeing requested that we combine paragraphs (h) and (i) of the proposed AD (80 FR 25630, May 5, 2015) by deleting paragraph (i) of the proposed AD and revising paragraph (h) of the proposed AD from "at the applicable time" to "at the applicable time and repeat intervals." Boeing explained that it is confusing to have separate paragraphs address initial and repetitive inspections for a particular aircraft as both initial and repetitive inspections are addressed within table 4 of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014.

We acknowledge that table 4 of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, contains compliance times for both initial and repetitive inspections. However, we do not agree with the commenter's request because the AD includes separate paragraphs in order to clarify the repetitive inspection intervals. For the initial inspections, table 4 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, specifies two crack conditions, which are based on the number of flight cycles on the airplane since stringer 6 external doublers were installed. To aid the operators in determining which repetitive inspection(s) they are required to do, this AD provides the repetitive inspections (as restated from the NPRM (80 FR 25630, May 5, 2015)), depending on the applicable condition, in separate repetitive inspection paragraphs (paragraphs (i)(1) and (i)(2) of this AD). We have not changed this AD in this regard.

Request To Revise External Inspection Wording

Boeing requested that we remove the word "external" from paragraph (h) of the proposed AD (80 FR 25630, May 5, 2015), which specified "external detailed, low frequency eddy current, and high frequency eddy current inspections." Boeing explained that if paragraphs (h) and (i) of the proposed AD are combined, both external and internal detailed inspections are required. Boeing stated that removing "external" from the inspection direction would therefore cover all airplane conditions.

As stated previously, we do not agree to combine paragraphs (h) and (i) of this AD into one paragraph. Therefore, the terminology in paragraph (h) of this AD matches Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, which specifies doing external detailed, low frequency eddy current (LFEC), and high frequency eddy current (HFEC) inspections for cracks. We have not changed this AD in this regard.

Request To Revise Headings of Paragraphs (h), (i), and (j) of the Proposed AD (80 FR 25630, May 5, 2015)

Boeing requested that we revise the headings of paragraphs (h), (i), and (j) of the proposed AD (80 FR 25630, May 5, 2015) by adding a reference to the applicable service information. Boeing stated that these changes will add consistency among paragraphs (h), (i), and (j) of the proposed AD in identifying an installed external doubler modification.

We agree with the commenter's request. We have revised the headings of paragraphs (h), (i), and (j) of this AD accordingly.

Request To Correct Typographical Error

Boeing noted that a phrase describing the major action in paragraph (j) of the proposed AD (80 FR 25630, May 5, 2015) was duplicated and asked that we correct this.

We agree with the commenter's request. We have revised paragraph (j) 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:

[Agr]re consistent with the intent that was proposed in the NPRM (80 FR 25630, May 5, 2015) for correcting the unsafe condition; and

Do not add any additional burden upon the public than was already proposed in the NPRM (80 FR 25630, May 5, 2015).

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 747-53A2367, Revision 5, dated July 8, 2014. This service information describes procedures for inspections and repair for cracks in the skin and doublers along the edge fastener rows of modifications in the fuselage. 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 AD.

Costs of Compliance

We estimate that this AD affects 50 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
Post-modification inspection	124 work-hours × \$85 per hour = \$10,540 per inspection cycle	\$0	\$10,540 per inspection cycle	\$527,000 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.

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):



2015-23-11 The Boeing Company: Amendment 39-18327; Docket No. FAA-2015-1266; Directorate Identifier 2014-NM-151-AD.

(a) Effective Date

This AD is effective December 28, 2015.

(b) Affected ADs

None.

(c) Applicability

This AD applies to The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-300, 747SR, and 747SP series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 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 certain fuselage skin lap joints are subject to widespread fatigue damage. We are issuing this AD to detect and correct fatigue cracking in certain fuselage skin lap joints, which could result in rapid depressurization of the airplane.

(f) Compliance

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

(g) Repetitive Post-Modification Inspections for Airplane Groups 1 Through 3, 7, and 8

For airplanes identified as Groups 1 through 3, 7, and 8 in Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014: Except as provided by paragraph (m) of this AD, at the applicable time specified in table 3 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, do internal detailed and surface high frequency eddy current (HFEC) inspections for cracks in the skin and internal doubler along the edge fastener rows of the modification, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014. In unrepared areas, repeat the internal detailed and surface HFEC inspections for cracks in the skin or internal doubler along the edge fastener rows of the modification thereafter at the applicable intervals specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014.

(h) Initial Post-Modification Inspections for Airplane Groups 4 Through 6, and 9 Through 11, With External Doublers Installed as Specified in Boeing Service Bulletin 747-53-2272

For airplanes identified as Groups 4 through 6, and 9 through 11, in Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, with external doublers installed as specified in Boeing Service Bulletin 747-53-2272: Except as provided by paragraph (m) of this AD, at the applicable time specified in table 4 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, do external detailed, low frequency eddy current (LFEC), and HFEC inspections for cracks in the skin and external doubler, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014.

(i) Repetitive Post-Modification Inspections for Airplane Groups 4 Through 6, and 9 Through 11 With External Doublers Installed as Specified in Boeing Service Bulletin 747-53-2272

For airplanes with no crack findings during the inspections required by paragraph (h) of this AD: Do the applicable actions required by paragraphs (i)(1) and (i)(2) of this AD.

(1) For airplanes with less than 15,000 flight cycles since stringer 6 external doublers were installed, as specified in Boeing Service Bulletin 747-53-2272: At the applicable intervals specified in table 4 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, in unrepaired areas, repeat the external detailed and LFEC inspections for cracks in the skin, and the external detailed and HFEC inspections for cracks in the external doubler, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014.

(2) For airplanes with 15,000 or more flight cycles since the stringer 6 external doublers were installed, as specified in Boeing Service Bulletin 747-53-2272: At the applicable intervals specified in table 4 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, in unrepaired areas, do external detailed and LFEC inspections for cracks in the skin; and do internal and external detailed and HFEC inspections for cracks in the skin and external doubler; in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014.

(j) Repetitive Post-Modification Inspections for Airplane Groups 4 Through 6, and 9 Through 11 With External Doublers Installed as Specified in Boeing Alert Service Bulletin 747-53A2367

For airplanes identified as Groups 4 through 6, and 9 through 11, in Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, with external doublers installed as specified in Boeing Alert Service Bulletin 747-53A2367: Except as provided by paragraph (m) of this AD, at the applicable time specified in table 5 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, do internal detailed and surface HFEC inspections for cracks in the skin and internal doubler along the edge fastener rows of the modification, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014. In unrepaired areas, repeat the internal detailed and surface HFEC inspections for cracks in the skin or internal doubler along the edge fastener rows of the modification thereafter at the applicable interval specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014.

(k) Repetitive Post-Modification Inspections for Airplane Groups 12 and 13

For airplanes identified as Groups 12 and 13 in Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014: Except as provided by paragraph (m) of this AD, at the applicable time specified in table 6 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-

53A2367, Revision 5, dated July 8, 2014, do internal detailed and surface HFEC inspections for cracks in the skin and internal doubler along the edge fastener rows of the modification, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014. In unrepaired areas, repeat the internal detailed and surface HFEC inspections for cracks in the skin or internal doubler along the edge fastener rows of the modification thereafter at the applicable interval specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014.

(l) Corrective Actions

If any cracking is found during any inspection required by this AD: Before further flight, repair the cracking using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

(m) Exception to Boeing Alert Service Bulletin 747-53A2367, Revision 5, Dated July 8, 2014

Where paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2367, Revision 5, dated July 8, 2014, specifies a compliance time "after the Revision 5 date of this service bulletin," this AD requires compliance within the specified compliance time "after the effective date of this AD."

(n) 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 (o) 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.

(o) Related Information

For more information about this AD, contact Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: nathan.p.weigand@faa.gov.

(p) 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 747-53A2367, Revision 5, dated July 8, 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 November 4, 2015.

Dionne Palermo,
Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service.