[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2015-2460; Directorate Identifier 2014-NM-163-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to supersede Airworthiness Directive (AD) 2010-26-10, which applies to certain The Boeing Company Model 747-200C, -200F, -400, -400D, and -400F series airplanes. AD 2010-26-10 currently requires repetitive inspections for cracking of the lap joints, modification of certain lap joints, and certain post-repair inspections of the lap joints. Since we issued AD 2010-26-10, an evaluation by the design approval holder (DAH) has indicated that certain lap joints are subject to widespread fatigue damage (WFD). This proposed AD would add new repetitive post-modification inspections for cracking in the lap joints, and repair if necessary. We are proposing this AD to detect and correct fatigue cracking in certain lap joints, which could result in rapid depressurization and consequent reduced structural integrity of the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to http://www.regulations.gov. Follow the instructions for submitting comments.

• Fax: 202-493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed 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-2015-2460.

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-2015-2460; 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 proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

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:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2015-2460; Directorate Identifier 2014-NM-163-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to http://www.regulations.gov, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

On December 13, 2010, we issued AD 2010-26-10, Amendment 39-16549 (75 FR 81427, December 28, 2010), for certain Model 747-200C, -200F, -400, -400D, and -400F series airplanes. AD 2010-26-10 requires repetitive inspections for cracking of the lap joints, modification of certain lap joints and certain post-repair inspections of the lap joints. AD 2010-26-10 resulted from a structural review of affected skin lap joints for WFD. We issued AD 2010-26-10 to prevent fatigue cracking in certain lap joints, which could result in rapid depressurization and consequent reduced structural integrity of the airplane.

Widespread Fatigue Damage

Structural fatigue damage is progressive. It begins as minute cracks, and those cracks grow under the action of repeated stresses. This can happen because of normal operational conditions and design attributes, or because of isolated situations or incidents such as material defects, poor fabrication quality, or corrosion pits, dings, or scratches. Fatigue damage can occur locally, in small areas or structural design details, or globally. Global fatigue damage is general degradation of large areas of structure with similar structural details and stress levels. Multiple-site damage is global damage that occurs in a large structural element such as a single rivet line of a lap splice joining two large skin panels. Global damage can also occur in multiple elements such as adjacent frames or stringers. Multiple-site-damage and multiple-element-damage cracks are typically too small initially to be reliably detected with normal inspection methods. Without intervention, these cracks will grow, and eventually compromise the structural integrity of the airplane, in a condition known as widespread fatigue damage (WFD). As an airplane ages, WFD will likely occur, and will certainly occur if the airplane is operated long enough without any intervention.

The FAA's WFD final rule (75 FR 69746, November 15, 2010) became effective on January 14, 2011. The WFD rule requires certain actions to prevent structural failure due to WFD throughout the operational life of certain existing transport category airplanes and all of these airplanes that will be certificated in the future. For existing and future airplanes subject to the WFD rule, the rule requires that DAHs establish a limit of validity (LOV) of the engineering data that support the structural maintenance program. Operators affected by the WFD rule may not fly an airplane beyond its LOV, unless an extended LOV is approved.

The WFD rule (75 FR 69746, November 15, 2010) does not require identifying and developing maintenance actions if the DAHs can show that such actions are not necessary to prevent WFD before the airplane reaches the LOV. Many LOVs, however,

do depend on accomplishment of future maintenance actions. As stated in the WFD rule, any maintenance actions necessary to reach the LOV will be mandated by airworthiness directives through separate rulemaking actions.

In the context of WFD, this action is necessary to enable DAHs to propose LOVs that allow operators the longest operational lives for their airplanes, and still ensure that WFD will not occur. This approach allows for an implementation strategy that provides flexibility to DAHs in determining the timing of service information development (with FAA approval), while providing operators with certainty regarding the LOV applicable to their airplanes.

Actions Since AD 2010-26-10, Amendment 39-16549 (75 FR 81427, December 28, 2010), Was Issued

Since we issued AD 2010-26-10, Amendment 39-16549 (75 FR 81427, December 28, 2010), an evaluation by the DAH has indicated that certain lap joints are subject to WFD.

Related Service Information under 1 CFR part 51

We reviewed Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014. The service information describes procedures for body skin lap joint inspections and modifications in sections 41, 42, and 43. 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 NPRM.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

Although this proposed AD does not explicitly restate the requirements of AD 2010-26-10, Amendment 39-16549 (75 FR 81427, December 28, 2010), this proposed AD would retain all of the requirements of AD 2010-26-10. Those requirements are referenced in the service information identified previously, which, in turn, is referenced in paragraphs (g) and (h) of this proposed AD. This proposed AD would require accomplishing the actions specified in the service information described previously, except as discussed under "Difference Between this Proposed AD and the Service Bulletin." Refer to this service information for details on the procedures and compliance times.

Difference Between this Proposed AD and the Service Bulletin

Although Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014, specifies that operators may contact the manufacturer for disposition of certain repair conditions, this proposed AD would require repairing those conditions in one of the following ways:

• In accordance with a method that we approve; or

• Using data that meet the certification basis of the airplane, and that have been approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) whom we have authorized to make those findings.

Explanation of Compliance Time

The compliance time for the modification specified in this proposed AD for addressing WFD was established to ensure that discrepant structure is modified before WFD develops in airplanes. Standard inspection techniques cannot be relied on to detect WFD before it becomes a hazard to flight. We will not grant any extensions of the compliance time to complete any AD-mandated service bulletin related to WFD without extensive new data that would substantiate and clearly warrant such an extension.

Costs of Compliance

We estimate that this proposed AD affects 120 airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Pre-modification inspections [retained action from AD 2010-26-10, Amendment 39-16549 (75 FR 81427, December 28, 2010)]	Up to 675 work-hours, = up to $57,375	$0	Up to $57,375 per inspection cycle	Up to $6,885,000 per inspection cycle
Modification [retained action from AD 2010-26-10, Amendment 39-16549 (75 FR 81427, December 28, 2010)]	Up to 5,819 work-hours X $85 per hour = up to $494,615	$0	Up to $494,615	Up to $59,353,800
New proposed post-modification inspections	Up to 105 work-hours X $85 per hour = up to $8,925	$0	Up to $8,925 per inspection cycle	Up to $1,071,000 per inspection cycle

We have received no definitive data that would enable us to provide a cost estimate for the on-condition actions specified in this proposed 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

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 the proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Is not a "significant rule" under the 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.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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 removing Airworthiness Directive (AD) 2010-26-10, Amendment 39-16549 (75 FR 81427, December 28, 2010), and adding the following new AD:

The Boeing Company: Docket No. FAA-2015-2460; Directorate Identifier 2014-NM-163-AD.

(a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2010-26-10, Amendment 39-16549 (75 FR 81427, December 28, 2010).

(c) Applicability

This AD applies to The Boeing Company Model 747-200C, -200F, -400, -400D, and -400F series airplanes; certificated in any category; as identified in Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 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 (DAH) indicating that certain lap joints are subject to widespread fatigue damage (WFD). We are issuing this AD to detect and correct fatigue cracking in certain lap joints, which could

result in rapid depressurization and consequent reduced structural integrity of the airplane.

(f) Compliance

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

(g) Repetitive Lap Joint Inspections

At the applicable time specified in Table 1 and Table 3 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014, except as required by paragraph (j)(1) of this AD: Do eddy current inspections for cracks in the skin of the lap joints, and do all applicable repairs, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014, except as required by paragraph (j)(2) of this AD. Do all applicable repairs before further flight. Repeat the applicable inspections thereafter at intervals not to exceed those specified in Table 1 and Table 3 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014

(h) Lap Joint Modification

At the applicable time specified in Tables 2, 4, 5, and 6 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014, except as required by paragraph (j)(1) of this AD: Modify the applicable lap joints, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014, except as required by paragraph (j)(2) of this AD. Accomplishment of the modification required by this paragraph terminates the repetitive inspections required by paragraph (g) of this AD for the length of the modified lap joint.

(i) Lap Joint Post-Modification Inspections

At the applicable time specified in Tables 7, 8, 9, and 10 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15,

2014, except as required by paragraph (j)(1) of this AD: Do the applicable inspections specified in paragraph (i)(1), (i)(2), or (i)(3) of this AD, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014. Repeat the applicable inspections thereafter at the applicable times specified in Tables 7, 8, 9, and 10 of paragraph 1.E, "Compliance," of Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014. If any crack is found during any inspection, repair before further flight using a method approved in accordance with the procedures specified in paragraph (l) of this AD.

(1) For airplanes identified as Groups 2 through 5 and 8 through 10 in Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014: Internal detailed and surface high frequency eddy current (HFEC) inspections for any crack in the skin or internal doubler.

(2) For airplanes identified as Groups 6, 11, and 19 in Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014: External detailed and low frequency eddy current inspections of the upper and lower skin panels for cracking, external detailed and HFEC inspections of the doubler for cracking, and internal detailed and HFEC inspections of the upper and lower skin panels for cracking (for airplanes with a stringer 6 lap joint modification installed between STA 340 and STA 400 as specified in Boeing Service Bulletin 747-53-2272); or internal detailed and surface HFEC inspections for any crack in the skin or internal doubler (for airplanes with lap joints modified as specified in Boeing Alert Service Bulletin 747-53A2499.)

(3) For airplanes identified as Groups 1, 7, and 12 through 18 in Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014: Internal detailed and surface HFEC inspections for any crack in the skin or internal doubler.

(j) Exceptions to Service Bulletin Procedures

(1) Where Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014, specifies a compliance time "after the Revision 3 date of this service bulletin," this AD requires compliance within the specified compliance time after the effective date of this AD.

(2) Where Boeing Alert Service Bulletin 747-53A2499, Revision 3, dated July 15, 2014, specifies to contact Boeing for repair instructions: Before further flight, repair using a method approved in accordance with the procedures specified in paragraph (l) of this AD.

(k) Credit for Previous Actions

Actions done before the effective date of this AD using the service information identified in paragraph (k)(1) or (k)(2) of this AD are acceptable for compliance with the corresponding requirements of paragraphs (g) and (h) of this AD.

(1) Boeing Alert Service Bulletin 747-53A2499, Revision 1, dated October 30, 2008, which is not incorporated by reference in this AD.

(2) Boeing Alert Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010, which was incorporated by reference in AD 2010-26-10, Amendment 39-16549 (75 FR 81427, December 28, 2010).

(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 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.

(4) AMOCs approved for AD 2010-26-10, Amendment 39-16549 (75 FR 81427, December 28, 2010), are approved as AMOCs for the corresponding provisions of paragraphs (g) and (h) this AD.

(m) Related Information

(1) 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.

(2) 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, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on June 29, 2015.

Jeffrey E. Duven,
Manager,
Transport Airplane Directorate,
Aircraft Certification Service.
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