[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2013-0686; Directorate Identifier 2013-NM-006-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) 2007-16-19, which applies to certain The Boeing Company Model 747-200B, 747-300, and 747-400 series airplanes. AD 2007-16-19 requires repetitive detailed inspections for cracking of the aft tension tie channels from body station (BS) 1120 to BS 1220 and from BS 880 to BS 1100, and corrective actions if necessary, and optional terminating action. Since we issued that AD, analysis has indicated the need to mandate the previously optional modification. This proposed AD would retain the existing requirements, limit the area of the detailed inspection, add repetitive surface high-frequency eddy current inspections, and mandate the previously optional terminating action. We are proposing this AD to prevent fatigue cracking of the tension ties, which could result in reduced structural integrity of the airplane and rapid depressurization 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 review copies of the 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.

Examining the AD Docket

You may examine the AD docket on the Internet at http://www.regulations.gov; 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: Bill Ashforth, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6432; fax: 425-917-6590; email: bill.ashforth@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-2013-0686; Directorate Identifier 2013-NM-006-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 August 2, 2007, we issued AD 2007-16-19, Amendment 39-15158 (72 FR 45151, August 13, 2007), for certain The Boeing Company Model 747-200B, 747-300, and 747-400 series airplanes. AD 2007-16-19 requires repetitive detailed inspections for cracking of the aft tension tie channels from body station (BS) 1120 to BS 1220 and from BS 880 to BS 1100, and corrective actions if necessary. AD 2007-16-19 was prompted by cracks found in the aft tension tie channels at four station locations on a Model 747-200B series airplane that had been modified to a special freighter. We issued AD 2007-16-19 to detect and correct cracking of the aft tension tie channels; failure of more than one tension tie could result in rapid depressurization of the airplane.

WFD (Widespread Fatigue Damage) Program

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 design approval holders 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 2007-16-19, Amendment 39-15158 (72 FR 45151, August 13, 2007) Was Issued

AD 2007-16-19, Amendment 39-15158 (72 FR 45151, August 13, 2007), provides a terminating modification as an option. We have determined that it is necessary to mandate this modification to adequately address the identified unsafe condition. We can better ensure long-term continued operational safety by design changes to remove the source of the problem, rather than by repetitive inspections. Long-term inspections may not provide the degree of safety necessary for the transport airplane fleet. This determination, along with a better understanding of the human factors associated with numerous continual inspections, has led us to consider placing less emphasis on inspections and more emphasis on design improvements. The proposed modification requirement is consistent with these conditions.

Relevant Service Information

We reviewed Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012. For information on the procedures and compliance times, see this service information at http://www.regulations.gov by searching for Docket No. FAA-2013-0686.

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 2007-16-19, Amendment 39-15158 (72 FR 45151, August 13, 2007), this proposed AD would retain all of the requirements of AD 2007-16-19. Those requirements are referenced in the service information identified previously, which, in turn, is referenced in paragraph (g) of this proposed AD. Also, this proposed AD would limit the area of the existing detailed inspection required by AD 2007-16-19, add repetitive surface high-frequency eddy current inspections, and mandate the previously optional terminating action.

The phrase "related investigative actions" is used in this proposed AD. "Related investigative actions" are follow-on actions that (1) are related to the primary actions, and (2) further investigate the nature of any condition found. Related investigative actions in an AD could include, for example, inspections.

In addition, the phrase "corrective actions" is used in this proposed AD. "Corrective actions" are actions that correct or address any condition found. Corrective actions in an AD could include, for example, repairs.

Difference Between Proposed AD and Service Information

Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, specifies to contact the manufacturer for instructions on how to repair certain conditions, but 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.

Costs of Compliance

We estimate that this proposed AD affects 1 airplane 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
Retained detailed inspection (retained actions	4 work-hours X $85 per hour = $340 per inspection cycle	$0	$340 per inspection cycle	$340 per inspection cycle
New proposed surface high-frequency eddy current inspection	4 work-hours X $85 per hour = $340 per inspection cycle	$0	$340 per inspection cycle	$340 per inspection cycle
New proposed modification	64 work-hours X $85 per hour = $5,440	$14,948	$20,388	$20,388

We have received no definitive data that would enable us to provide work-hour estimates for repair of cracks found in a bolt hole during the detailed inspection specified in this proposed AD. The cost for parts (oversized fastener kit) for this condition is $2,292.

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) 2007-16-19, Amendment 39-15158 (72 FR 45151, August 13, 2007), and adding the following new AD:

The Boeing Company: Docket No. FAA-2013-0686; Directorate Identifier 2013-NM-006-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 supersedes AD 2007-16-19, Amendment 39-15158 (72 FR 45151, August 13, 2007). Certain requirements of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), affect certain requirements of this AD.

(c) Applicability

This AD applies to The Boeing Company Model 747-200B, 747-300, and 747-400 series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012.

(d) Subject

Joint Aircraft System Component (JASC)/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 the tension ties are subject to widespread fatigue damage (WFD). We are issuing this AD to prevent fatigue cracking of the tension ties, which could result in reduced structural integrity of the airplane and rapid depressurization of the airplane.

(f) Compliance

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

(g) Repetitive Inspections

At the applicable time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, except as specified in paragraph (i) of this AD: Do detailed and surface high-frequency eddy current inspections for cracks in the tension ties at body stations (STAs) 880 to 1100, 1120, 1160, 1200, and 1220, and do all applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, except as required by paragraph (i)(3) of this AD. Do all applicable corrective actions before further flight. Repeat the inspections thereafter at the applicable time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, until the tension ties have been modified as required by paragraph (h) of this AD. Repair or modification of a tension tie at any location in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, terminates the repetitive inspection requirements of this AD for that tension tie location only.

(h) Tension Tie Modification

At the applicable time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, except as specified in paragraph (i) of this AD: Modify the tension ties from STA 880 to 1100, and do all applicable related investigative and corrective actions, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, except as required by paragraph (i)(3) of this AD. Do all applicable related investigative and corrective actions before further flight. Modification of all tension ties at the body stations specified in Part 3 of the Accomplishment

Instructions of Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, terminates the repetitive inspection requirements of this AD. Modification of a tension tie at STA 1120 to 1220, as required by paragraph (p) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), is acceptable for compliance with the requirements of paragraph (h) of this AD for that tension tie location only.

(i) Service Information Clarification and Exceptions

(1) Paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, specifies certain compliance times "after August 28, 2007." August 28, 2007, is the effective date of AD 2007-16-19, Amendment 39-15158 (72 FR 45151, August 13, 2007).

(2) Where Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, specifies a compliance time "after the Revision 1 date of this service bulletin," this AD requires compliance within the specified time after the effective date of this AD.

(3) Where Boeing Alert Service Bulletin 747-53A2610, Revision 1, dated December 4, 2012, specifies to contact Boeing for certain repair instructions: Repair before further flight using a method approved in accordance with the procedures specified in paragraph (k) of this AD.

(j) Credit for Previous Actions

This paragraph provides credit for the detailed inspections, repairs, and modification specified in paragraphs (g) and (h) of this AD, for that affected tension tie location only, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 747-53A2610, dated May 10, 2007 (which is not incorporated by reference in this AD).

(k) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in the Related Information section 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 previously in accordance with AD 2007-16-19, Amendment 39-15158 (72 FR 45151, August 13, 2007), are approved as AMOCs for the corresponding provisions of this AD.

(l) Related Information

(1) 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, Washington 98057-3356; phone: 425-917-6432; fax: 425-917-6590; email: bill.ashforth@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 review copies of the 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.

Issued in Renton, Washington, on August 1, 2013.

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

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