[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2013-0461; Directorate Identifier 2012-NM-169-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 an existing airworthiness directive (AD) that applies to certain The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747SR, and 747SP series airplanes. The existing AD currently requires repetitive inspections for skin cracks at the shear tie end fastener locations of the fuselage frames, and repairing cracks if necessary. Since we issued that AD, additional cracking has been found on an airplane not affected by the existing AD. This proposed AD would also require repetitively inspecting for skin cracks next to the shear tie on airplanes with certain existing repair doublers, and corrective actions if necessary. This proposed AD would also revise the applicability to include additional airplanes. We are proposing this AD to detect and correct fatigue cracks in the fuselage skin that can propagate and grow, and result in reduced structural integrity and sudden decompression of the airplane in flight.

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 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, Washington. 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: Roger Caldwell, Aerospace Engineer, Technical Operations Center, ANM-100D, FAA, Denver Aircraft Certification Office (ACO), 26805 East 68th Avenue, Room 214, Denver, Colorado 80249-6361; phone: 303-342-1086; fax: 303-342-1088; email: roger.caldwell@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-2013-0461; Directorate Identifier 2012-NM-169-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 February 27, 2009, we issued AD 2009-06-02, Amendment 39-15838 (74 FR 11013, March 16, 2009), for certain The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747SR, and 747SP series airplanes. That AD requires inspecting for skin cracks at the shear tie end fastener locations of the fuselage frames, and repairing cracks if necessary. That AD resulted from a widespread fatigue damage (WFD) assessment of Model 747 airplanes. We issued that AD to detect and correct cracks in the fuselage skin that can propagate and grow, resulting in a loss of structural integrity and sudden decompression of the airplane during flight.

WFD 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 (DAHs) and applicants 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 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.

Fuselage frame shear ties, located between longitudinal stringers, are an integral part of the load-bearing airframe structure. Cracks in the skin at fuselage frame shear tie end fastener locations, if not corrected, could result in cracks in the fuselage skin, which can propagate and become large, and result in loss of structural integrity and sudden decompression of the airplane in flight.

Actions Since Existing AD (AD 2009-06-02, Amendment 39-15838 (74 FR 11013, March 16, 2009)) Was Issued

Since we issued AD 2009-06-02, Amendment 39-15838 (74 FR 11013, March 16, 2009), we have received a report indicating that three skin cracks were found on one airplane at fastener holes common to the station (STA) 540 frame shear tie between stringer 23L and stringer 25L. The affected airplane had T-shaped shear ties in the area of the inspection required by AD 2009-06-02, but was not included in the applicability. Based on the reports of cracks in T-shaped shear ties, we have determined that the unsafe condition may exist on additional airplanes, including airplane line numbers 758 through 1419 inclusive (except large cargo freighter airplanes).

It has also been determined that post-repair inspections of certain existing repair doublers are necessary.

Relevant Service Information

We reviewed Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 2012. For information on the procedures and compliance times, see this service information at http://www.regulations.gov by searching for Docket No. FAA-2013-0461.

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 2009-06-02, Amendment 39-15838 (74 FR 11013, March 16, 2009), this proposed AD would retain all of the requirements of AD 2009-06-02. Those requirements are referenced in the service information identified previously, which, in turn, is referenced in paragraph (g) of this proposed AD. This proposed AD would also require repetitively inspecting for skin cracks next to the shear tie on airplanes with certain existing doublers, and corrective action if necessary. This proposed AD would also revise the applicability to include additional airplanes. This proposed AD would require accomplishing the actions specified in the service information described previously.

This proposed AD would also require that requests for approval of alternative methods of compliance (AMOCs) be directed to the Seattle Aircraft Certification Office.

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

The service bulletin 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 234 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
Inspection	30 or 49 work-hours (depending on inspection) X $85 per hour = $2,550 or $4,165 per inspection cycle	$0	$2,550 or $4,165 per inspection cycle	Up to $974,610 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 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) 2009-06-02, Amendment 39-15838 (74 FR 11013, March 16, 2009), and adding the following new AD:

The Boeing Company: Docket No. FAA-2013-0461; Directorate Identifier 2012-NM-169-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 2009-06-02, Amendment 39-15838 (74 FR 11013, March 16, 2009).

(c) Applicability

This AD applies to The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes, as identified in Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 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 certain fuselage frame shear ties are subject to widespread fatigue damage (WFD). The actions were developed to support the airplane's limit of validity (LOV) of the engineering data that support the established structural maintenance program. We are issuing this AD to detect and correct fatigue cracks in the fuselage skin that can

propagate and grow, and result in reduced structural integrity and sudden decompression of the airplane in flight.

(f) Compliance

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

(g) Repetitive Inspections

At the applicable compliance time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 2012, except as provided by paragraphs (i)(1) and (i)(2) of this AD, do an external detailed or high frequency eddy current (HFEC) inspection for skin cracks at specified shear tie end fastener locations of the fuselage frames, and do all applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 2012, except as required by paragraph (i)(3) of this AD. Do all applicable corrective actions before further flight. Repeat the external detailed or HFEC inspection thereafter at the applicable time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 2012.

(h) Post-Repair Inspections

For any external repair doubler in the inspection area specified in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 2012, that has an upper or lower fastener row that is common to a shear tie end fastener: At the applicable time specified in paragraph (h)(1) or (h)(2) of this AD, whichever occurs later, do an internal HFEC inspection for cracks in the skin next to the shear tie, and do all applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 2012, except as required by paragraph (i)(3) of this AD. Do all corrective actions before further flight. Repeat the external detailed inspection thereafter at the time

specified in Table 4 or Table 5 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 2012, as applicable.

(1) Before further flight after an inspection required by paragraph (g) of this AD.

(2) Within 2,000 flight cycles after the effective date of this AD.

(i) Service Information Clarifications and Exceptions

(1) Paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 2012, specifies certain compliance times in terms of the effective date of AD 2009-06-02, Amendment 39-15838 (74 FR 11013, March 16, 2009). The effective date of AD 2009-06-02 is April 20, 2009.

(2) Where paragraph 1.E. of Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 2012, specifies counting the compliance time "after the revision 1 date of this service bulletin," this AD requires compliance within the applicable time after the effective date of this AD.

(3) Where Boeing Alert Service Bulletin 747-53A2682, Revision 1, dated May 24, 2012, specifies to contact Boeing for repair instructions, this AD requires repair before further flight using a method approved in accordance with the procedures specified in paragraph (l) of this AD.

(j) Credit for Previous Actions

This paragraph provides credit for the actions specified in paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 747-53A2682, dated May 8, 2008.

(k) Special flight permit

Special flight permits, as described in Section 21.197 and Section 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199), are not allowed**.**

(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)(2) 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.

(m) Related Information

(1) For more information about this AD, contact Roger Caldwell, Aerospace Engineer, Technical Operations Center, ANM-100D, FAA, Denver ACO, 26805 East 68th Avenue, Room 214, Denver, Colorado 80249-6361; phone: 303-342-1086; fax: 303-342-1088; email: roger.caldwell@faa.gov.

(2) For information about AMOCs, contact Bill Ashforth, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6432; fax: 425-917-6590; email: bill.ashforth@faa.gov.

(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. You may review copies of the 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 May 22, 2013.

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

[FR Doc. 2013-13002 Filed 05/31/2013 at 8:45 am; Publication Date: 06/03/2013]