



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2015-2961; Directorate Identifier 2014-NM-145-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) 2012-15-13, which applies to certain The Boeing Company Model 747-100B SUD, 747-300, 747-400, and 747-400D series airplanes; and Model 747-200B series airplanes having a stretched upper deck. AD 2012-15-13 currently requires inspections for cracking and discrepancies of certain fasteners; modification of the frame-to-tension-tie joints; repetitive post-modification inspections; related investigative and corrective actions if necessary; and repetitive inspections for cracking in the tension tie channels, and repair if necessary. For certain airplanes, AD 2012-15-13 also requires an inspection to determine if the angle is installed correctly, and re-installation if necessary; and an inspection at the fastener locations where the tension tie previously attached to the frame prior to certain modifications, and repair if necessary. Since we issued AD 2012-15-13, an evaluation indicated that the upper deck is subject to widespread fatigue damage (WFD). This proposed AD would add a new inspection for cracking in the tension tie channels and post-modification inspections of the modified tension ties for cracking, and repair if necessary. We are proposing this AD to prevent fatigue cracking of the tension ties, shear

webs, and frames of the upper deck, which could result in rapid decompression and 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-2015-2961.

### **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-2015-2961; 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, 1601 Lind Avenue SW., Renton, WA 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-2015-2961; Directorate Identifier 2014-NM-145-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 July 23, 2012, we issued AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), for certain The Boeing Company Model 747-100B SUD, 747-300, 747-400, and 747-400D series airplanes; and Model 747-200B series airplanes having a stretched upper deck. AD 2012-15-13 requires repetitive open hole high

frequency eddy current (HFEC) inspections for cracking in the forward and aft tension tie channels, and repair if necessary. For certain airplanes, AD 2012-15-13 also requires a one-time angle inspection to determine if the angle is installed correctly, and re-installation if necessary; and a one-time open hole HFEC inspection at the fastener locations where the tension tie previously attached to the frame prior to certain modifications, and repair if necessary. AD 2012-15-13 resulted from reports of cracked and severed tension ties, broken fasteners, and cracks in the frame, shear web, and shear ties adjacent to tension ties for the upper deck. We issued AD 2012-15-13 to detect and correct cracking of the tension ties, shear webs, and frames of the upper deck, which could result in rapid decompression and 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 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) 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 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), Was Issued**

The preamble to AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), specified that we considered the requirements of that AD "interim action." AD 2012-15-13 explained that we might consider further rulemaking if final action is later identified. Since we issued AD 2012-15-13, an evaluation by the DAH indicated that the upper deck is subject to WFD. We have determined that it is necessary to

mandate a new inspection for cracking in the tension tie channels, repetitive post-modification inspections of the modified tension ties for cracking, and repair if necessary.

#### **Related Service Information under 1 CFR part 51**

We reviewed Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014. The service information describes procedures for modifying the tension tie and frame at certain center sections. 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**

This proposed AD would retain all of the requirements of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012). For certain airplanes, this proposed AD would mandate a new inspection for cracking in the forward and aft tension tie channels, repetitive post-modification inspections of the modified tension ties for cracking, and repair if necessary. Refer to Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014, for details on the procedures and compliance times.

#### **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
Retained modification in AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012) (67 airplanes)	Between 257 and 263 work-hours = between \$21,845 and \$22,355	Between \$341,334 and \$345,490	Between \$363,179 and \$367,845	Between \$24,332,993 and \$24,645,615
Retained post-modification inspections in AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012) (67 airplanes)	6 work-hours X \$85 per hour = \$510 per inspection cycle	\$0	\$510 per inspection cycle	\$34,170 per inspection cycle
New proposed inspection	10 work-hours X \$85 per hour = \$850	\$0	\$850	\$102,000
New proposed post-modification eddy current inspections	216 work-hours X \$85 per hour = \$18,360 per inspection cycle	\$0	\$18,360 per inspection cycle	\$2,203,200 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) 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), and adding the following new AD:

**The Boeing Company:** Docket No. FAA-2015-2961; Directorate Identifier 2014-NM-145-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 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012).

#### **(c) Applicability**

This AD applies to The Boeing Company Model 747-100B SUD, 747-300, 747-400, and 747-400D series airplanes; and Model 747-200B series airplanes having a stretched upper deck; certificated in any category; excluding airplanes that have been converted to a large cargo freighter configuration.

#### **(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by reports of cracked and severed tension ties, broken fasteners, and cracks in the frame, shear web, and shear ties adjacent to tension ties for the upper deck. This AD was also prompted by an evaluation by the design approval holder (DAH), which indicated that the upper deck is subject to widespread fatigue damage (WFD). We are issuing this AD to prevent fatigue cracking of the tension ties, shear webs, and frames of the upper deck, which could result in rapid decompression and reduced structural integrity of the airplane.

**(f) Compliance**

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

**(g) Retained Repetitive Stage 1 Inspections, with No Changes**

This paragraph restates the requirements of paragraph (g) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with no changes. For all airplanes: Do detailed inspections for cracking or discrepancies of the fasteners in the tension ties, shear webs, and frames at body stations (STA) 1120 through 1220, and related investigative and corrective actions as applicable, by doing all actions specified in and in accordance with “Stage 1 Inspection” of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005, except as provided by paragraph (k) of this AD; or Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010. As of September 12, 2012 ( the effective date of AD 2012-15-13), only Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010, may be used to do the actions required by this paragraph. Do the Stage 1 inspections at the applicable times specified in paragraphs (h) and (i) of this AD, except as provided by paragraphs (g)(1) and (g)(2) of this AD. Accomplishment of the initial Stage 2 inspection required by paragraph (j) of this AD terminates the requirements of this paragraph. Any applicable related investigative and corrective actions must be done before further flight. Doing the modification required by

paragraph (p) of this AD terminates the repetitive inspection requirements of this paragraph.

(1) Where paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005, specifies a compliance time relative to “the original issue date on this service bulletin,” this AD requires compliance before the specified compliance time after April 26, 2006 (the effective date of AD 2006-06-11, Amendment 39-14520 (71 FR 14367, March 22, 2006)).

(2) For any airplane that reaches the applicable compliance time for the initial Stage 2 inspection (as specified in Table 1, Compliance Recommendations, under paragraph 1.E., of Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005) before reaching the applicable compliance time for the initial Stage 1 inspection: Accomplishment of the initial Stage 2 inspection terminates the Stage 1 inspections.

**(h) Retained Compliance Time for Initial Stage 1 Inspection, with No Changes**

This paragraph restates the requirements of paragraph (h) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with no changes. Do the initial Stage 1 inspection at the earlier of the times specified in paragraphs (h)(1) and (h)(2) of this AD.

(1) Inspect at the earlier of the times specified in paragraphs (h)(1)(i) and (h)(1)(ii) of this AD.

(i) At the applicable time specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005.

(ii) Before the accumulation of 10,000 total flight cycles, or within 250 flight cycles after November 28, 2007 (the effective date of AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007)), whichever occurs later.

(2) Inspect at the later of the times specified in paragraphs (h)(2)(i) and (h)(2)(ii) of this AD.

(i) Before the accumulation of 12,000 total flight cycles.

(ii) Within 50 flight cycles or 20 days, whichever occurs first, after November 28, 2007 (the effective date of AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007)).

**(i) Retained Compliance Times for Repetitive Stage 1 Inspections, with No Changes**

This paragraph restates the requirements of paragraph (i) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with no changes. Repeat the Stage 1 inspection specified in paragraph (g) of this AD at the time specified in paragraph (i)(1) or (i)(2) of this AD, as applicable. Repeat the inspection thereafter at intervals not to exceed 250 flight cycles, until the initial Stage 2 inspection required by paragraph (j) of this AD has been done.

(1) For airplanes on which the initial Stage 1 inspection has not been accomplished as of November 28, 2007 (the effective date of AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007)): Do the next inspection before the accumulation of 10,000 total flight cycles, or within 250 flight cycles after the initial Stage 1 inspection done in accordance with paragraph (g) of this AD, whichever occurs later.

(2) For airplanes on which the initial Stage 1 inspection has been accomplished as of November 28, 2007 (the effective date of AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007)): Do the next inspection at the applicable time specified in paragraph (i)(2)(i) or (i)(2)(ii) of this AD.

(i) For airplanes that have accumulated fewer than 12,000 total flight cycles as of November 28, 2007 (the effective date of AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007)): Do the next inspection before the accumulation of 10,000 total flight cycles, or within 250 flight cycles after November 28, 2007, whichever occurs later.

(ii) For airplanes that have accumulated 12,000 total flight cycles or more as of November 28, 2007 (the effective date of AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007)): Do the next inspection at the later of the times specified in paragraphs (i)(2)(ii)(A) and (i)(2)(ii)(B) of this AD.

(A) Within 250 flight cycles after accomplishment of the initial Stage 1 inspection.

(B) Within 50 flight cycles or 20 days, whichever occurs first, after November 28, 2007 (the effective date of AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007)).

**(j) Retained Repetitive Stage 2 Inspections, with No Changes**

This paragraph restates the requirements of paragraph (j) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with no changes. For all airplanes: Do detailed and high frequency eddy current inspections for cracking or discrepancies of the fasteners in the tension ties, shear webs, and frames at body stations 1120 through 1220, and related investigative and corrective actions as applicable, by doing all actions specified in and in accordance with “Stage 2 Inspection” of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005, or Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010; except as provided by paragraph (k) of this AD. Do the initial inspections at the earlier of the times specified in paragraphs (j)(1) and (j)(2) of this AD. Repeat the Stage 2 inspection thereafter at the applicable times specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005, or Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010. As of September 12, 2012 (the effective date of AD 2012-15-13), only Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010, may be used. Any applicable related investigative and corrective actions must be done before

further flight. Accomplishment of the initial Stage 2 inspection ends the repetitive Stage 1 inspections. Doing the modification required by paragraph (p) of this AD terminates the repetitive inspection requirements of this paragraph.

(1) Before the accumulation of 16,000 total flight cycles, or within 1,000 flight cycles after November 28, 2007 (the effective date of AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007)), whichever occurs later.

(2) Before the accumulation of 10,000 total flight cycles, or within 1,000 flight cycles after September 12, 2012 (the effective date of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012)), whichever occurs later.

**(k) Retained Exception to Corrective Action Instructions, with No Changes**

This paragraph restates the requirements of paragraph (k) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with no changes. If any discrepancy, including but not limited to any crack, broken fastener, loose fastener, or missing fastener is found during any inspection required by paragraph (g), (h), (i), or (j) of this AD, and Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005, or Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010, specifies to contact Boeing for appropriate action: Before further flight, repair the discrepancy using a method approved in accordance with the procedures specified in paragraph (t) of this AD.

**(l) Retained Stage 2 Inspection: Work at STA 1140, with No Changes**

This paragraph restates the requirements of paragraph (l) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with no changes. For all airplanes: Except as provided by paragraph (o) of this AD, at the time specified in paragraph 1.E, "Compliance," of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010, do an open hole high frequency eddy current (HFEC) inspection for cracking in the forward and aft tension tie channels at 12 fastener locations

inboard of the aluminum straps at STA 1140, and before further flight do all applicable repairs. Do all actions in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010. Repeat the inspections thereafter at the time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010. Doing the modification required by paragraph (p) of this AD terminates the inspection requirements in this paragraph.

**(m) Retained One-time Inspection for Incorrectly Installed Angles, with No Changes**

This paragraph restates the requirements of paragraph (m) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with no changes. For Group 1, Configuration 1, airplanes as identified in Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010: Except as provided by paragraph (o) of this AD, at the time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010, do a detailed inspection to determine if the angle is installed correctly, and before further flight re-install all angles that were installed incorrectly. Do all actions in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010.

**(n) Retained One-time Inspection for Cracks in Frames at Previous Tension Tie Locations, with No Changes**

This paragraph restates the requirements of paragraph (n) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with no changes. For Group 1, Configuration 2, airplanes; and Groups 2 and 3 airplanes; as identified in Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010: Except as provided by paragraph (o) of this AD, at the time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010, do an open hole HFEC inspection for cracks at the fastener locations (STAs 1120, 1160, 1200, and 1220) where the tension tie previously attached to the frame prior to modification to

the Boeing Special Freighter or Boeing Converted Freighter configuration, and before further flight do all applicable repairs. Do all actions in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010. Doing the modification required by paragraph (p) of this AD terminates the one-time inspection requirements in this paragraph.

**(o) Retained Exception to Boeing Alert Service Bulletin 747-53A2507, Revision 1, Dated January 14, 2010, with No Changes**

This paragraph restates the requirements of paragraph (o) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with no changes. Where paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010, specifies a compliance time relative to “the Revision 1 date of this service bulletin,” this AD requires compliance within the specified compliance time after September 12, 2012 (the effective date of AD 2012-15-13).

**(p) Retained Modification and Post-Modification Repetitive Inspections, with Revised Service Information**

This paragraph restates the requirements of paragraph (p) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with revised service information. Except as provided by paragraphs (p)(1) and (p)(2) of this AD: At the applicable times specified in paragraph 1.E, “Compliance,” of Boeing Service Bulletin 747-53A2559, Revision 1, dated August 4, 2011, modify the frame-to-tension-tie joints at STAs 1120 through 1220; do all related investigative and applicable corrective actions; do the repetitive post-modification detailed inspections for cracking of the tension tie and frame structure and all applicable corrective actions; and do the additional modification. Do all actions in accordance with the Accomplishment Instructions of Boeing Service Bulletin 747-53A2559, Revision 1, dated August 4, 2011, or Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014. Modifying the frame-to-tension-tie joints at STAs 1120 through 1220 terminates the repetitive inspection requirements of



paragraphs (g) and (j) of this AD, the inspection requirements of paragraph (l) of this AD, and the one-time inspection requirement of paragraph (n) of this AD. As of the effective date of this AD, only Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014, may be used to accomplish the actions specified in this paragraph.

(1) Where paragraph 1.E., “Compliance,” of Boeing Service Bulletin 747-53A2559, Revision 1, dated August 4, 2011, specifies a compliance time relative to “the original issue date of this service bulletin,” this AD requires compliance within the specified compliance time after September 12, 2012 (the effective date of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012)).

(2) Where Boeing Service Bulletin 747-53A2559, Revision 1, dated August 4, 2011, or Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014, specifies to contact Boeing for repair instructions or additional modification requirements: Before further flight, repair the cracking or do the additional actions using a method approved in accordance with the procedures specified in paragraph (t) of this AD.

**(q) Retained Credit for Previous Actions, with No Changes**

This paragraph restates the credit provided by paragraph (q) of AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), with no changes. This paragraph provides credit for the corresponding actions required by paragraph (p) of this AD, if those actions were done before September 12, 2012 (the effective date of AD 2012-15-13), using Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009.

**(r) New Repetitive Post-Modification Eddy Current Inspections**

Do an eddy current inspection of all areas of the modified tension ties for cracking, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014. Do the inspection at the

time specified in Table 2 of paragraph 1.E, “Compliance,” of Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014, except where paragraph 1.E., “Compliance,” of Boeing Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014, specifies a compliance time relative to “the Revision 2 date of this service bulletin,” this AD requires compliance within the specified compliance time after the effective date of this AD. If any crack is found, before further flight, repair the crack using a method approved in accordance with the procedures specified in paragraph (t) of this AD. If no crack is found, repeat the inspection thereafter at the intervals specified in paragraph 1.E, “Compliance,” of Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014.

**(s) New One-Time Surface HFEC Inspections**

Do a surface HFEC inspection of the tension tie center section, for cracking in the forward and aft tension tie channels between STA 1120 through 1220, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014. Do the inspection at the applicable time specified in Table 1 or Table 3 of paragraph 1.E, “Compliance,” of Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014, except where paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2559, Revision 2, dated May 13, 2014, specifies a compliance time relative to “the Revision 2 date of this service bulletin,” this AD requires compliance within the specified compliance time after the effective date of this AD. If any crack is found, before further flight, repair the crack using a method approved in accordance with the procedures specified in paragraph (t) of this AD.

**(t) 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 (u)(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 previously for AD 2012-15-13, Amendment 39-17142 (77 FR 47267, August 8, 2012), are approved as AMOCs for the corresponding provisions of this AD.

**(u) Related Information**

(1) For more information about this AD, contact Bill Ashforth, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 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, 3855 Lakewood Boulevard, MC D800-0019, Long Beach, CA 90846-0001; telephone 206-544-5000, extension 2; fax 206-766-5683; 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.

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Suzanne Masterson,  
Acting Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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