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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2011-0991; Directorate Identifier 2010-NM-134-AD; Amendment 39-17110; AD 2012-13-08]**

**RIN 2120-AA64**

#### **Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are superseding an existing airworthiness directive (AD) for certain The Boeing Company Model 747-100, 747-100B, 747-200B, 747-200C, 747-200F, 747-400F, 747SR, and 747SP series airplanes, without a stretched upper deck or stretched upper deck modification. That AD currently requires repetitive inspections for cracks of each affected tension tie and of the surrounding structure, and related investigative and corrective actions if necessary. This new AD requires, for certain airplanes, modifying the tension tie structure or tension tie and frame structure at certain stations; and a post-modification inspection of the modified area and post-modification repetitive inspections of the unmodified area, and repair if necessary. Doing the modification would terminate the repetitive inspection requirements in the existing AD. This AD reduces the compliance time and adds inspections for certain airplanes. This AD was prompted by reports that certain airplanes have tension ties that are susceptible to widespread fatigue damage. This AD also results from reports of cracks on the forward and aft tension tie channels at station (STA) 740 and STA 760, and a determination that initial inspection intervals need to be reduced. We are issuing this AD to prevent tension ties from becoming severed or disconnected from the frames, which could lead to rapid in-flight decompression.

**DATES:** This AD is effective August 14, 2012.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of August 14, 2012.

The Director of the Federal Register approved the incorporation by reference of a certain other publication listed in this AD as of February 16, 2006 (71 FR 1947, January 12, 2006).

**ADDRESSES:** For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, Washington 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 AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: (425) 917-6428; fax: (425) 917-6590; email: [nathan.p.weigand@faa.gov](mailto:nathan.p.weigand@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006). That AD applies to the specified products. The NPRM published in the Federal Register on September 22, 2011 (76 FR 58722). That NPRM proposed to continue to require repetitive inspections for cracks of each affected tension tie and of the surrounding structure, and related investigative and corrective actions if necessary. For certain airplanes, that NPRM proposed to require modifying the tension tie structure or tension tie and frame structure at certain stations; and a post-modification inspection of the modified area and post-modification repetitive inspections of the unmodified area, and repair if necessary. Doing the modification would terminate the repetitive inspection requirements in the existing AD. That NPRM also proposed to reduce the compliance time and add inspections for certain airplanes.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal (76 FR 58722, September 22, 2011) and the FAA's response to each comment.

### **Request to Revise Costs of Compliance**

UPS requested that we revise the Costs of Compliance section of the NPRM (76 FR 58722, September 22, 2011). UPS explained that according to paragraph 1.G. of Boeing Alert Service Bulletin 747-53A2605, Revision 1, dated May 27, 2010, the manpower required to accomplish the modification on all tension tie locations for UPS's Group 10 airplanes is 501 work-hours. UPS also explained that according to Boeing Alert Service Bulletin 747-53A2605, Revision 1, dated May 27, 2010, the parts kits that are required to accomplish the modification range from \$535,131 to \$658,423. UPS reasoned that based on Boeing's labor estimate, a labor rate of \$85 per hour, and Boeing's current pricing, the cost to accomplish the modification on each of UPS's airplanes would be approximately \$701,008.

We agree to revise the Costs of Compliance section in the final rule to align with the costs specified in the service information. We have revised the work-hours appropriately.

## **Request to Refer to the Service Information**

UPS requested that we revise paragraphs (i)(2)(i) and (i)(2)(ii)(B) of the NPRM (76 FR 58722, September 22, 2011) to, " \* \* \* install the correct configuration \* \* \* in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, except where Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, specifies to contact Boeing for installation instructions: Before further flight, install in accordance with instructions approved in accordance with the procedures specified in paragraph (n) of this AD." UPS explained that, while paragraphs (i)(2)(i) and (i)(2)(ii)(B) of the NPRM stipulate to install the correct configuration using a method approved in accordance with paragraph (n) of the NPRM, Figure 22 of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, provides the correct configuration for installing the tension tie attachments. UPS expressed that they are concerned with the requirement to obtain AMOC approval to install the correct configuration, as it believes that this adds undue and unnecessary burden on the operators when correct configuration data already exists.

We agree for the reasons stated by UPS to revise the final rule to require operators to install the correct configuration in accordance with Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010. We have revised paragraphs (i)(2)(i) and (i)(2)(ii)(B) in this final rule accordingly.

## **Request To Include All Airplanes for Actions Approved as AMOCs**

UPS requested that we revise paragraph (n)(4) of the NPRM (76 FR 58722, September 22, 2011) to refer to paragraph (h) of the NPRM by specifying "Certain actions required by paragraphs (g) and (h) of this AD \* \* \*." UPS explained that while "paragraph (n)(4) of the NPRM states that certain actions required by paragraph (g) of this AD are approved as AMOCs for the requirements specified in paragraph (n)(4)(i), (n)(4)(ii), and (n)(4)(iii) of this AD," paragraph (g) of the NPRM applies only to Group 1 and Groups 3 through 6 airplanes, as identified in Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010. UPS expresses that paragraph (n)(4)(iii) of the NPRM should apply to all affected airplanes, not just to Group 1 and Groups 3 through 6 airplanes.

We agree for the reasons stated by UPS to revise paragraph (n)(4) of the final rule to include reference to paragraph (h) of the final rule. We have revised paragraph (n)(4) of the final rule accordingly.

## **Requests for Approval of Previous AMOCs**

UPS requested that, since the NPRM (76 FR 58722, September 22, 2011) supersedes AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006), we revise the NPRM to include a new paragraph that states that AMOCs previously approved by AD 2006-01-07 should be approved as AMOCs for the requirements of paragraphs (g), (h), and (i) of the NPRM.

Boeing requested that we revise the NPRM (76 FR 58722, September 22, 2011) to read, "For airplanes not identified in Group 2 per Boeing Special Attention Service Bulletin 747-53A2502, Revision 1, dated June 17, 2011; AMOCs approved previously in accordance with AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006), are approved as alternate methods of compliance with paragraph (g) of this AD." Boeing explained that Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, reduces the inspection thresholds and adds a one-time inspection for the Group 2 airplanes (Model 747-400F series airplanes). All other airplane groups fall within the requirements of the superseded AD 2006-01-07, and therefore, AMOCs provided in paragraph (f) of AD 2006-01-07 are still applicable. Boeing expressed that this provision will reduce the resource requirements of providing AMOC approvals.

We partially agree to revise this AD to allow certain AMOCs approved for AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006). We agree to allow AMOCs approved for AD

2006-01-07 for the requirements of paragraph (g) of this AD and have added paragraph (n)(5) of this AD accordingly.

We also agree to allow AMOCs approved according to AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006), for the actions required by paragraph (h) of this AD, provided that the compliance times specified in paragraph (h) of this AD are met; the compliance times in paragraph (h) of this AD are from those specified in AD 2006-01-07. We have added paragraph (n)(6) of this AD. We disagree to allow AMOCs approved according to AD 2006-01-07 for the requirements of paragraph (i) of this AD, because the actions in paragraph (i) of this AD are new.

### Additional Changes Made to This AD

We have revised the heading and wording of paragraph (m) of this AD; this revision has not affected the intent of that paragraph.

We have redesignated Note 2 the NPRM (76 FR 58722, September 22, 2011) as paragraph (l)(2) of this AD. We have also redesignated paragraph (l) of the NPRM as paragraph (l)(1) of this AD.

### Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (76 FR 58722, September 22, 2011) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (76 FR 58722, September 22, 2011).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

### Costs of Compliance

We estimate that this AD affects 86 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

#### Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspection (required by AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006))	8 per tension tie location, between 8 and 12 tension tie locations per airplane, depending on airplane configuration X \$85 per hour = between \$5,440 and \$8,160	\$0	Between \$5,440 and \$8,160 per inspection cycle	Between \$467,840 and \$701,760 per inspection cycle
One-time inspection (new action for Group 2 airplanes)	6 X \$85 per hour = \$510	None	\$510	\$43,860
Modification (new action)	Between 30 and 432 work-hours, depending on airplane configuration X \$85 per hour = between \$2,550 and \$36,720	Between \$18,657 and \$658,423	Between \$21,207 and \$695,143	Between \$1,823,802 and \$59,782,298

Inspection for unmodified area (new action)	2 per tension tie location, between 8 and 12 tension tie locations per airplane, depending on airplane configuration X \$85 per hour = between \$1,360 and \$2,040	None	Between \$1,360 and \$2,040, per inspection cycle	Between \$116,960 and \$175,440
Inspection for modified area (new action)	2 per tension tie location, between 8 and 12 tension tie locations per airplane, depending on airplane configuration X \$85 per hour = between \$1,360 and \$2,040	None	Between \$1,360 and \$2,040 per inspection cycles	Between \$116,960 and \$175,440

**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 AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

**List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

**Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

**PART 39—AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

2. The FAA amends § 39.13 by removing airworthiness directive (AD) 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006), and adding the following new AD:



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**2012-13-08 The Boeing Company:** Amendment 39-17110; Docket No. FAA-2011-0991; Directorate Identifier 2010-NM-134-AD.

**(a) Effective Date**

This airworthiness directive (AD) is effective August 14, 2012.

**(b) Affected ADs**

This AD supersedes AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006).

**(c) Applicability**

This AD applies to The Boeing Company Model 747-100, 747-100B, 747-200B, 747-200C, 747-200F, 747-400F, 747SR, and 747SP series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by reports that certain airplanes have tension ties that are susceptible to widespread fatigue damage. This AD also results from reports of cracks on the forward and aft tension tie channels at station (STA) 740 and STA 760, and a determination that initial inspection compliance times need to be reduced. We are issuing this AD to prevent tension ties from becoming severed or disconnected from the frames, which could lead to rapid in-flight decompression.

**(f) Compliance**

You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

**(g) Retained Actions With Reduced Compliance Times for Certain Airplanes**

This paragraph restates the requirements of paragraph (f) of AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006), with reduced compliance time for certain airplanes and revised service information. For Group 1, and Groups 3 through 6 airplanes identified in Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005, at the applicable time in paragraph (g)(1) or (g)(2) of this AD: Do detailed and high-frequency eddy current inspections for cracking of each affected tension tie and of the surrounding structure. If any cracking is found: Before further flight, do all applicable corrective and related investigative actions. Do all actions in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005; or Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated

June 17, 2010. Where Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005; or Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010; specifies to contact Boeing for repair instructions: Before further flight, repair the area using a method approved in accordance with the procedures specified in paragraph (n) of this AD. As of the effective date of this AD, only Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, may be used to accomplish the actions required in this paragraph.

(1) For airplanes identified in Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005, as Groups 1, 3, and 6 airplanes: Do the first inspections before the accumulation of 20,000 total flight cycles, or within 1,000 flight cycles after February 16, 2006 (the effective date of AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006)), whichever occurs later; and repeat the inspections thereafter at intervals not to exceed 4,000 flight cycles until the modification required by paragraph (j) of this AD is accomplished.

(2) For airplanes identified in Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005, as Group 4 and 5 airplanes: Do the first inspections before the accumulation of 17,000 total flight cycles, or within 1,000 flight cycles after February 16, 2006 (the effective date of AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006)), whichever occurs later; and repeat the inspections thereafter at intervals not to exceed 3,000 flight cycles until the modification required by paragraph (j) of this AD is accomplished.

#### **(h) Retained Inspection for Group 2 Airplanes With Reduced Compliance Times and Revised Service Information**

This paragraph restates the requirements of paragraph (f) of AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006), with reduced compliance time for certain airplanes and revised service information. For Group 2 airplanes identified in Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010: At the applicable times specified in paragraphs (h)(1) and (h)(2) of this AD, do detailed and high-frequency eddy current inspections for cracking of each affected tension tie and of the surrounding structure, in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005; or Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010. If any cracking is found: Before further flight, do all applicable corrective and related investigative actions. Do all actions in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005; or Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010. Where Boeing Special Attention Service Bulletin 747-53-2502, dated April 21, 2005; or Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010; specify to contact Boeing for repair instructions: Before further flight, repair the area using a method approved in accordance with the procedures specified in paragraph (n) of this AD. As of the effective date of this AD, only Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, may be used to accomplish the actions required by this paragraph. Repeat the inspections thereafter at intervals not to exceed 3,000 flight cycles until the modification required by paragraph (j) of this AD is accomplished.

(1) For STA 780 through 940: Before the accumulation of 17,000 total flight cycles, or within 1,000 flight cycles after February 16, 2006 (the effective date of AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006)), whichever occurs later.

(2) For STA 720, 740, and 760: At the earlier of the times specified in paragraph (h)(2)(i) or (h)(2)(ii) of this AD.

(i) Before the accumulation of 17,000 total flight cycles, or within 1,000 flight cycles after February 16, 2006 (the effective date of AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006)), whichever occurs later.

(ii) Before the accumulation of 8,000 total flight cycles, or within 1,000 flight cycles after the effective date of this AD, whichever occurs later.

**(i) New Requirement: One-Time Inspection for Group 2 Airplanes**

For airplanes identified in Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, as Group 2 airplanes: Before the accumulation of 8,000 total flight cycles, or within 1,000 flight cycles after the effective date of this AD, whichever occurs later, do a general visual inspection for correct configuration, as identified in Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, of each affected tension tie and of the surrounding structure, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010.

(1) If all tension ties match the correct configurations specified in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, no further work is required by this paragraph.

(2) If any incorrect configuration is found, before further flight, do detailed and open fastener-hole high frequency eddy current inspections for cracks in the tension tie and frame, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010.

(i) If no crack is found during the inspection required by paragraph (i)(2) of this AD: Before further flight, install the correct configuration for the tension ties at locations where the incorrect configuration was found, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, except where Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, specifies to contact Boeing for installation instructions, use a method approved in accordance with the procedures specified in paragraph (n) of this AD.

(ii) If any crack is found during the inspection required by paragraph (i)(2) of this AD, before further flight, do the actions specified in paragraphs (i)(2)(ii)(A) and (i)(2)(ii)(B) of this AD.

(A) Repair the crack in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, except where Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, specifies to contact Boeing for appropriate action: Before further flight, repair the crack using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

(B) Install the correct configuration for the tension ties at locations where the incorrect configuration was found, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, except where Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010, specifies to contact Boeing for installation instructions: Use a method approved in accordance with the procedures specified in paragraph (n) of this AD.

**(j) Modification**

Before the accumulation of 30,000 total flight cycles, or within 3,000 flight cycles after the effective date of this AD, whichever occurs later: Modify the left- and right-side tension tie structure or left- and right-side tension tie and frame structure, at specified stations, in accordance with the applicable method specified in paragraph (j)(1) or (j)(2) of this AD. Accomplishment of the modification in this paragraph terminates the repetitive inspection requirements in paragraphs (g)(1), (g)(2), and (h) of this AD.

(1) For airplanes identified in Boeing Alert Service Bulletin 747-53A2605, Revision 1, dated May 27, 2010: Do the modification in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2605, Revision 1, dated May 27, 2010.

(2) For airplanes not identified in Boeing Alert Service Bulletin 747-53A2605, Revision 1, dated May 27, 2010: Do the modification using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

Note 1 to paragraph (j)(2) of this AD: For airplanes identified in paragraph (j)(2) of this AD, post-modification inspection guidance may be included in an approved alternative method of compliance (AMOC) for paragraph (j)(2) of this AD.

**(k) Post-Modification Inspection of the Modified Areas**

For airplanes identified in paragraph (j)(1) of this AD, within 20,000 flight cycles after doing the modification required by paragraph (j) of this AD: Do an inspection for cracks of the modified areas of the left- and right-side tension tie structure and frame structure, in accordance with a method approved in accordance with the procedures specified in paragraph (n) of this AD. If any crack is found during any inspection required by this paragraph, before further flight, repair the crack using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

**(l) Post-Modification Repetitive Inspections of the Unmodified Areas**

(1) For airplanes identified in paragraph (j)(1) of this AD, within 6,000 flight cycles after doing the modification required by paragraph (j) of this AD: Do a detailed inspection for cracks on the unmodified areas of the left- and right-side tension tie structure and frame structure, at certain stations, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2605, Revision 1, dated May 27, 2010. If any crack is found during any inspection required by this paragraph, before further flight, repair the crack using a method approved in accordance with the procedures specified in paragraph (n) of this AD. Repeat the inspection of the unmodified areas thereafter at intervals not to exceed 6,000 flight cycles.

(2) Boeing Alert Service Bulletin 747-53A2605, Revision 1, dated May 27, 2010, refers to Section 51-10-02 of the Boeing 747-400F Structural Repair Manual (SRM) and Section 51-10-01 of the Boeing 747-100/200/300 SRM as additional sources of guidance for removing small cracks and fatigue damage material from the existing holes in the unmodified center section of the tension tie channels. Where those SRM sections state that "zero-timing must only be used where specifically permitted in an SRM chapter-section-repair," this AD allows the zero-timing procedures specified in those SRM sections.

**(m) Credit for Previous Actions**

This paragraph provides credit for the actions required by paragraphs (j), (k), and (l)(1) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 747-53A2605, dated October 8, 2009.

**(n) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in 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) Certain actions required by paragraphs (g) and (h) of this AD are approved as AMOCs for the requirements specified in paragraphs (n)(4)(i), (n)(4)(ii), and (n)(4)(iii) of this AD. All provisions of the referenced ADs specified in paragraphs (n)(4)(i), (n)(4)(ii), and (n)(4)(iii) of this AD, including applicable post-modification inspection thresholds, remain fully applicable and must be complied with.

(i) Repairs or modifications of the aft tension tie channels done in accordance with this AD are AMOCs for the repair requirements of paragraph A. of AD 84-19-01, Amendment 39-4913 (49 FR 35365, September 17, 1984); and paragraphs (a)(2) and (b)(2) of AD 94-13-06, Amendment 39-8946 (59 FR 32879, June 27, 1994).

(ii) The inspection requirements of this AD are AMOCs for the post-modification inspection requirements of paragraph B. of AD 84-19-01, Amendment 39-4913 (49 FR 35365, September 17, 1984); and paragraph (b) of AD 94-13-06, Amendment 39-8946 (59 FR 32879, June 27, 1994).

(iii) The inspection requirements of this AD are AMOCs for the inspections of Structural Significant Item (SSI) F-19A of Boeing Supplemental Structural Inspection Document D6-35022, Revision G, dated December 2000, as required by paragraphs (h) and (i) of AD 2004-07-22 R1, Amendment 39-15326 (73 FR 1052, January 7, 2008); corrected February 14, 2008 (73 FR 8589).

(5) AMOCs approved previously in accordance with AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006), are approved as AMOCs for the corresponding provisions of paragraph (g) of this AD.

(6) AMOCs approved previously in accordance with AD 2006-01-07, Amendment 39-14446 (71 FR 1947, January 12, 2006), are approved as AMOCs for the corresponding repairs or modifications required by paragraph (h) of this AD provided that the actions are done within the compliance times specified in paragraph (h) of this AD. Compliance times in previously approved AMOCs are not approved for paragraph (h) of this AD.

#### **(o) Related Information**

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

#### **(p) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the following service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use the following service information to do the actions required by this AD, unless the AD specifies otherwise.

(3) The following service information was approved for IBR on August 14, 2012.

(i) Boeing Alert Service Bulletin 747-53A2502, Revision 1, dated June 17, 2010.

(ii) Boeing Alert Service Bulletin 747-53A2605, Revision 1, dated May 27, 2010.

(4) The following service info was approved for IBR on February 16, 2006 (71 FR 1947, January 12, 2006).

(i) Boeing Special Attention Service Bulletin 747-53A2502, dated April 21, 2005. (5) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>.

(6) You may review copies of the 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.

(7) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: [http://www.archives.gov/federal-register/cfr/ibr\\_locations.html](http://www.archives.gov/federal-register/cfr/ibr_locations.html).

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