[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2009-0607; Directorate Identifier 2009-NM-024-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Supplemental notice of proposed rulemaking (NPRM); reopening of comment period.

SUMMARY: We are revising an earlier proposed airworthiness directive (AD) for all Model 747-100B SUD, 747-300, 747-400, and 747-400D series airplanes; and Model 747-200B series airplanes having a stretched upper deck. The original NPRM would have superseded an existing AD that currently requires repetitively inspecting for cracking or discrepancies of the fasteners in the tension ties, shear webs, and frames at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 if necessary. The original NPRM proposed to require modifying the frame-to-tension-tie joints at body stations 1120 through 1220 (including related investigative actions and corrective actions if necessary), which would provide a terminating action for the repetitive inspections. The original NPRM also proposed to require new repetitive inspections after the modification, corrective actions if necessary, and additional modification requirements at a specified time after the first modification. The original NPRM also proposed to remove certain airplanes from the applicability. The original NPRM 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 action revises the original NPRM by adding 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, this supplemental NPRM 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. This supplemental NPRM also, for the Stage 2 inspections, reduces the initial compliance times for those inspections. We are proposing this supplemental NPRM 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.

DATES: We must receive comments on this supplemental NPRM 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: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590, 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, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; 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: Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 917-6428; fax (425) 917-6590; e-mail: nathan.p.weigand@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2009-0607; Directorate Identifier 2009-NM-024-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

We issued an NPRM to amend 14 CFR part 39 to include an AD (the "original NPRM") to supersede AD 2007-23-18, amendment 39-15266 (72 FR 65655, November 23, 2007). The original NPRM applied to all Boeing Model 747-100B SUD, 747-300, 747-400, and 747-400D series airplanes; and Model 747-200B series airplanes having a stretched upper deck. The original NPRM was published in the Federal Register on July 13, 2009 (74 FR 33377). The original NPRM proposed to supersede an existing AD that currently requires repetitively inspecting 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 if necessary. The original NPRM proposed to require modifying the frame-to-tension-tie joints at body stations (STA) 1120 through 1220 (including related investigative actions and corrective actions if necessary), which would provide a terminating action for the repetitive inspections. The original NPRM also proposed to require new repetitive inspections after the modification, corrective actions if necessary, and additional modification requirements at a specified time after the first modification. The original NPRM also proposed to remove certain airplanes from the applicability

Actions Since Previous NPRM was Issued

Since we issued the original NPRM (74 FR 33377, July 13, 2009), we have received reports from one operator that three adjacent tension ties were found severed on a Model 747-300 series airplane with approximately 18,400 flight cycles. Another operator reported that two adjacent tension ties were found cracked or severed on a 747-300 series airplane with approximately 14,000 flight cycles. In addition, operators have reported finding cracks in the tension ties and frames during the inspection required

by the existing AD and done in accordance with Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005. We have received revised service information, as described below, and included it in the supplemental NPRM as the appropriate source of service information for accomplishing certain actions.

Relevant Service Information

We have reviewed Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010. Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005, was referred to as the appropriate source of service information for accomplishing certain actions specified in the original NPRM (74 FR 33377, July 13, 2009). Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010, adds procedures for the following inspections:

- For all airplanes: Repetitive open hole HFEC inspections for cracking in the forward and aft tension tie channels at 12 fastener locations inboard of the aluminum straps at STA 1140, and repair if necessary by doing an oversize hole repair or repairing the tension tie.

- For certain airplanes: A one-time detailed inspection to determine if the angle is installed correctly, and re-install if necessary.

- A one-time open-hole HFEC inspection for cracks at the fastener locations (STA 1120, 1160, 1200, and 1220) where the tension tie previously attached to the frame, before modification to the Boeing special freighter or Boeing converted freighter configuration, and repair if necessary by doing an oversize hole repair or repairing the frame.

The initial compliance times specified in Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010, for the new inspections at STA 1140 is before the accumulation of 10,000 total flight cycles or within 3,000 flight cycles after

the issue date of Revision 1 of the service bulletin, whichever is later; with a repetitive interval not to exceed 3,000 flight cycles.

The compliance time for the new one-time inspection for mislocated angles is within 3,000 flight cycles after the issue date of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010.

The compliance time for the new one-time inspection for tie frames at previous tension tie locations is within 3,000 flight cycles after the issue date of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010.

We have also reviewed Boeing Service Bulletin 747-53A2559, Revision 1, dated August 4, 2011. Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009, was referred to as the appropriate source of service information for accomplishing the actions in the original NPRM (74 FR 33377, July 13, 2009). No more work is necessary for airplanes on which Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009, was used to accomplish the actions. Certain procedures specified in Boeing Service Bulletin 747-53A2559, Revision 1, dated August 4, 2011, have been clarified to provide additional instructions. We have revised paragraph (k) of this AD to refer to Boeing Service Bulletin 747-53A2559, Revision 1, dated August 4, 2011, and added a new paragraph to give credit for actions done before the effective date of the AD in accordance with Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009.

Comments

We have considered the following comments on the original NPRM (74 FR 33377, July 13, 2009).

Support for Proposed Actions

United Parcel Service Co. (UPS) supports mandating the Stage 2 inspections specified in the original NPRM (74 FR 33377, July 13, 2009).

Requests to Extend the Modification Compliance Time

Lufthansa and KLM requested that we revise the original NPRM (74 FR 33377, July 13, 2009) to extend the compliance time for the proposed modification.

Lufthansa requested a detailed explanation about the decision making that resulted in the compliance threshold of 17,000 flight cycles (damage tolerance analysis, calculations, findings) for the proposed modification, which seems inconsistent in light of the Stage 2 inspection threshold of 16,000 flight cycles. Lufthansa requested that the FAA revise the compliance threshold for the proposed modification to 20,000 total flight cycles.

KLM also stated that AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007), mandates Stage 2 inspections at 16,000 total flight cycles, while the original NPRM (74 FR 33377, July 13, 2009) mandates the modification at 17,000 total flight cycles, and it does not change the Stage 2 total flight cycles. KLM stated it believes many other operators (in addition to KLM) have started the AD 2007-23-18 Stage 2 inspections before the 16,000 total flight cycles. KLM stated that even though defects were found with the Stage 2 inspections, most of the defects have not propagated to such an extent where they would have been found with Stage 1 inspections. Furthermore, KLM stated that the repair methods/procedures used to repair defects found during the Stage 2 inspections have the same intent (partial frame/tension tie replacement) as the modification, and that the only difference is that the design of the modification is more durable, given the fact that it has an 8,000 total flight cycle threshold.

KLM stated that the Stage 2 inspection in AD 2007-23-18 amendment 39-15266 (72 FR 65655, November 23, 2007) provides an acceptable level of safety to at least 20,000 flight cycles, and therefore proposes that the modification be an optional terminating action for the Stage 1 and Stage 2 inspection in AD 2007-23-18. KLM stated that if the FAA still wants to mandate the modification, it would like the FAA to consider

re-evaluating the modification threshold to a more realistic threshold given the fact that the Stage 2 inspection threshold is 16,000 flight cycles.

We agree with Lufthansa and KLM that it seems inconsistent to have a modification threshold of 17,000 total flight cycles, which is just 1,000 cycles more than the inspection threshold. However, after issuance of Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005, the manufacturer completed additional analysis and determined the new inspection threshold should be lowered to 10,000 total flight cycles. The new inspection threshold can be found in Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010. We have determined this reduced compliance time is necessary to address the identified unsafe condition and added it to paragraph (i)(2) of this AD.

Since the issuance of Boeing Alert Service Bulletin 747-53A2507, dated April 21, 2005, further cracking in the fleet has occurred resulting in thresholds being further reduced in Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010. The modification threshold and new inspection threshold are appropriate given the quantity and nature of cracks found on Model 747 airplanes, which are based on extensive analysis. Due in part to the reporting requirement of AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007), the manufacturer received a significant number of inspection findings. The findings include numerous cases of single or dual tension tie failure and one airplane with three adjacent severed tension ties. Because the findings constituted multiple site damage, a damage tolerance analysis alone was no longer appropriate. Rather, a widespread fatigue damage analysis had to be employed to properly analyze the risk of cracked and severed tension ties, and to set inspection and modification thresholds appropriately. The manufacturer performed widespread fatigue analysis and the FAA accepted its findings.

The analysis, combined with the empirical data, supported an inspection threshold of 10,000 total flight cycles, as reflected in Revision 1 of the Stage 2 inspection, and a modification threshold of 17,000 total flight cycles. Therefore, based upon crack reports received, material analysis completed, and widespread fatigue damage analysis performed, the inspection and modification thresholds contained in this supplemental NPRM are appropriate.

Request for an Optional Modification

UPS agreed that the modification will strengthen the area and protect against widespread fatigue damage. UPS stated that the current Stage 2 inspections and repetitive timeline are effectively locating and repairing the discrepant areas prior to any damages reaching a critical length. Therefore, UPS proposed the modification specified in paragraph (m) of the original NPRM (74 FR 33377, July 13, 2009) not be mandated. UPS instead recommended that paragraph (m) be offered as an alternative to the existing Stage 2 inspections assigned per paragraph (j). UPS stated it supports the modification of the frames and tension ties for the upper deck as proposed in the original NPRM, but suggested that the current Stage 2 inspections be allowed to continue as an alternative to performing the modification.

Airlines for America (A4A), formerly known as the Air Transport Association of America (ATA), on behalf of its member United Airlines (UAL), and Japan Airlines (JAL) both stated that the modification is expensive. JAL noted the expense is due to kit cost, labor cost and the lack of warranty coverage. We infer the commenters are requesting that the modification be made optional due to its cost. UAL also noted that even after accomplishing the modification, the original NPRM (74 FR 33377, July 13, 2009) would still require post modification inspections.

We disagree with the requests to make the required modification optional. As we stated previously, the crack finding data and analysis performed support the inspection

and modification thresholds in this supplemental NPRM. We have not changed the supplemental NPRM in this regard.

Request for Alternative Terminating Modification

Lufthansa requested we allow alternative terminating modifications. Lufthansa stated that it is seeking alternative solutions and intervals for relief in view of the huge design deficiency driven modification work necessary for its Model 747 airplanes. Lufthansa asked that an alternative modification be allowed using new parts with existing part numbers, instead of mandating a modification using new parts and new part numbers. KLM noted that no alternative to the proposed modification has been considered.

We disagree with the request for an alternative modification of the frame-to-tension-tie joints proposed in this supplemental NPRM. An alternative method of compliance approving a modification using new parts with existing part numbers does not remove all of the unsafe condition. The modification in this supplemental NPRM includes reinforcing the fuselage frames; therefore ". . .using new parts with existing part numbers instead of mandating a modification using new parts and new part numbers" does not reinforce the fuselage tension ties or frames, and would not address the identified unsafe condition. We are mandating the overall reinforcement modification to achieve a long-term acceptable level of safety. We have not changed the supplemental NPRM in this regard.

Request to Correct Errors in Service Information

All Nippon Airways (ANA) and JAL noted that Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009, contains typographical errors. JAL asks that these errors be corrected before an AD is issued. ANA stated that Boeing issued Service Bulletin Information Notice 747-53A2559 IN 01, to correct the typographical errors in Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009. ANA asks that

Boeing Service Bulletin Information Notice 747-53A2559 IN 01 be included in this supplemental NPRM.

Paragraph (m) of the original NPRM (74 FR 33377, July 13, 2009) refers to Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009, as the appropriate source of service information for the proposed requirements. Boeing corrected the errors in Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009, by issuing Boeing Service Bulletin 747-53A2559, Revision 1, dated August 4, 2011. We have replaced all references to Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009, with Boeing Service Bulletin 747-53A2559, Revision 1, dated August 4, 2011, in this supplemental NPRM.

JAL stated that there are also errors in the effectivity section of Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009, and added that Model 747-400 Boeing Converted Freighter (BCF) airplanes are not identified correctly. Boeing added that the effectivity should exclude airplane RT743, which was converted to a Large Cargo Freighter (LCF) airplane on which the subject tension ties were removed. Boeing stated that the airplane is therefore not subject to the unsafe condition. Boeing also noted that there are currently no plans to revise this service bulletin to remove that airplane from the effectivity.

We do not agree to reidentify Model 747-400 BCF airplanes in the applicability of this supplemental NPRM. BCF airplanes continue to be modified and as such, the applicability in this supplemental NPRM follows the group categorization of airplanes using the Group/Configuration/Description table in paragraph 1.A., "Effectivity" of Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009. We have not changed the supplemental NPRM in this regard.

We agree to exclude airplanes that have been converted to a Model 747-400 LCF configuration from the applicability of this supplemental NPRM. That airplane

configuration no longer has the subject tension ties to inspect or modify, so is not subject to the unsafe condition. We have changed paragraph (c) of this supplemental NPRM to exclude those airplanes.

Request to Clarify Additional Modification

ANA stated that paragraph (m) of the original NPRM (74 FR 33377, July 13, 2009), proposed to require modification and post-modification inspections in accordance with Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009. ANA noted that the additional modification as specified in this service bulletin is an open-hole HFEC inspection, not a modification. ANA asked that we revise paragraph (m)(2) of the NPRM to clarify the term "additional modification" as an open-hole inspection.

We disagree that the additional modification is an open-hole HFEC inspection. Paragraph (m)(2) of the supplemental NPRM (also paragraph (m)(2) of the original NPRM (74 FR 33377, July 13, 2009)) requires doing an additional modification using a method approved in accordance with the procedures in the alternative methods of compliance (AMOC) paragraph. At this time, we have not approved a method that meets the conditions for the additional modification. However, under the provisions of paragraph (s)(1) of this AD, we will consider requests for accomplishing a modification if data are submitted to substantiate that it would provide an acceptable level of safety.

Request to Change Cost Information

ANA stated that its work hour estimate, based on the time it took to do a modification identical to that in Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009, exceeded 2,000 work hours. ANA added that the estimated costs in the original NPRM (74 FR 33377, July 13, 2009) are based on the work hours addressed in this service bulletin. ANA asked that the actual work hours be considered to estimate the costs.

We disagree with the request. The cost information in this supplemental NPRM describes only the direct costs of the specific required actions. Based on the best data available, the manufacturer provided the number of work hours necessary to do the required actions. This number represents the time necessary to perform only the actions actually required by this supplemental NPRM. We recognize that, in doing the actions required by an AD, operators might incur incidental costs in addition to the direct costs. But the cost analysis in AD rulemaking actions typically does not include incidental costs such as the time necessary for planning, airplane down time, or time necessitated by other administrative actions. Those incidental costs, which might vary significantly among operators, are almost impossible to calculate. We have not changed the supplemental NPRM regarding this issue.

FAA's Determination

We are proposing this supplemental NPRM because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of these same type designs. Certain changes described above expand the scope of the original NPRM. As a result, we have determined that it is necessary to reopen the comment period to provide additional opportunity for the public to comment on this supplemental NPRM.

Proposed Requirements of the Supplemental NPRM

This supplemental NPRM would require accomplishing the actions specified in the service information described previously.

Costs of Compliance

There are about 561 airplanes of the affected design in the worldwide fleet, which includes 67 U.S.-registered airplanes. The following table provides the estimated costs for U.S. operators to comply with this proposed AD. The average labor rate is $85 per work hour.

Estimated Costs

Action	Work hours	Parts	Cost per airplane	Fleet cost
Stage 1 inspections (required by AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007))	19	$0	$1,615 per inspection cycle	$108,205 per inspection cycle
Stage 2 inspections (required by AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007))	83	$0	$7,055	$472,685 per inspection cycle
Modification (new proposed action)	257 to 263	$341,334 to $345,490	$363,179 to $367,845	$24,332,993 to $24,645,615[1]
Post-modification inspections (new proposed action)	6	$0	$510 per inspection cycle	$34,170 per inspection cycle

[1]Depending on airplane configuration.

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 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 this 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 amendment 39-15266 (72 FR 65655, November 23, 2007) and adding the following new AD:

The Boeing Company: Docket No. FAA-2009-0607; Directorate Identifier 2009-NM-024-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD supersedes AD 2007-23-18, Amendment 39-15266 (72 FR 65655, November 23, 2007).

(c) Applicability

This AD applies to all 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 results 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 are issuing this AD 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.

(f) Compliance

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

(g) RESTATEMENT OF REQUIREMENTS OF AD 2007-23-18, AMENDMENT 39-15266 (72 FR 65655, NOVEMBER 23, 2007), WITH REVISED COMPLIANCE TIMES AND NEW SERVICE INFORMATION: Repetitive Stage 1 Inspections with Reduced Repetitive Interval

For all airplanes: Do detailed 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 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 the effective date of this AD only Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010, may be used. 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 (l) 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).

(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 eliminates the need to do the Stage 1 inspections.

(h) Compliance Time for Initial Stage 1 Inspection

Do the initial Stage 1 inspection at the earlier of the times specified in paragraphs (h)(1) and (h)(2) of this AD.

(1) 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) 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.

(i) Compliance Times for Repetitive Stage 1 Inspections

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: 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 (j) of this AD, whichever occurs later.

(2) For airplanes on which the initial Stage 1 inspection has been accomplished as of November 28, 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: 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: 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.

(j) Repetitive Stage 2 Inspections with Reduced Initial Compliance Time

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 (j) 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. As of the effective date of this AD 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 (m) 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; whichever occurs later.

(2) Before the accumulation of 10,000 total flight cycles, or within 1,000 flight cycles after the effective date of this AD.

(k) Exception to Corrective Action Instructions

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) or (i) 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 (s) of this AD.

(l) Reporting Requirement

At the applicable time specified in paragraph (l)(1) or (l)(2) of this AD, submit a report of the findings (both positive and negative) of each Stage 1 inspection required by paragraph (g) of this AD to Boeing Commercial Airplanes; Attention: Manager, Airline Support; P.O. Box 3707 MC 04-ER; Seattle, Washington 98124-2207; fax (425) 266-5562. The report must include the inspection results, a description of any discrepancies found, the inspections performed, the airplane serial number, and the number of total accumulated flight cycles on the airplane. Under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), the Office of Management and Budget (OMB) has approved the information collection requirements contained in this AD and has assigned OMB Control Number 2120-0056.

(1) For any inspection done after November 28, 2007: Submit the report within 30 days after the inspection.

(2) For any inspection done before November 28, 2007: Submit the report within 30 days after November 28, 2007.

(m) NEW REQUIREMENTS OF THIS AD: Modification

Except as provided by paragraphs (m)(1) and (m)(2) of this AD: At the 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 body stations (STA) 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. Modifying the frame-to-tension-tie joints at body stations 1120 through 1220 terminates the repetitive inspection requirements of paragraphs (g) and (j) of this AD.

(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 the effective date of this AD.

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

(n) Credit for Actions Accomplished in Accordance with Previous Service Information

Actions done before the effective date of this AD in accordance with Boeing Alert Service Bulletin 747-53A2559, dated January 8, 2009, are acceptable for compliance with the corresponding actions required by this AD.

(o) Stage 2 Inspection: Additional Work at STA 1140

For all airplanes: Except as provided by paragraph (r) 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."

(p) One-time Inspection for Mis-located Angles

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 (r) 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 installed incorrectly. Do all actions in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010.

(q) One-time Inspection for Cracks in Frames at Previous Tension Tie Locations

For Group 1, Configuration 2 airplanes; and Group 2 and 3 airplanes; as identified in Boeing Alert Service Bulletin 747-53A2507, Revision 1, dated January 14, 2010:

Except as provided by paragraph (r) 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 (STA 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.

(r) Exception to Boeing Alert Service Bulletin 747-53A2507, Revision 1, Dated January 14, 2010

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 the effective date of this AD.

(s) 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 e-mailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Before using any approved AMOC on any airplane to which the AMOC applies, notify your principal maintenance inspector (PMI) or principal avionics inspector (PAI), as appropriate, or lacking a principal

inspector, your local Flight Standards District Office. The AMOC approval letter must specifically reference this AD.

(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 2007-23-18, amendment 39-15266 (72 FR 65655, November 23, 2007), are approved as AMOCs for the corresponding requirements of paragraphs (g), (h), and (i) of this AD.

(t) Related Information

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

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; Internet https://www.myboeingfleet.com.

(3) 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 January 12, 2012.

Michael J. Kaszycki,
Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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