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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2010-0232; Directorate Identifier 2009-NM-032-AD; Amendment 39-16549; AD 2010-26-10]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Model 747-200C, -200F, -400, -400D, and -400F Series Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD), which applies to certain Model 747-200C, -200F, -400, -400D, and -400F series airplanes. That AD currently requires repetitive inspections for cracks in the overlapping (upper) skin of the upper fastener row of the lap joints of the fuselage skin in sections 41, 42, and 46; and related investigative and corrective actions, if necessary. This new AD expands the inspection area in the existing AD, and adds a modification of certain lap joints and certain post-repair inspections of the lap joints. Accomplishing the modification would end the repetitive inspections required by the existing AD for the length of lap joint that is modified. This AD results from a structural review of affected skin lap joints for widespread fatigue damage. We are issuing this AD to prevent fatigue cracking in certain lap joints, which could result in rapid depressurization of the airplane.

DATES: This AD becomes effective February 1, 2011.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of February 1, 2011.

On April 13, 2006 (71 FR 12122, March 9, 2006), the Director of the Federal Register approved the incorporation by reference of a certain other publication listed in the AD.

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; e-mail me.boecom@boeing.com; Internet https://www.myboeingfleet.com.

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 (telephone 800-647-5527) is the 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: Nicholas Han, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6449; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION:

Discussion

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that supersedes AD 2006-05-09, Amendment 39-14506 (71 FR 12122, March 9, 2006). The existing AD applies to certain Model 747-200C, -200F, -400, -400D, and -400F series airplanes. That NPRM was published in the Federal Register on March 18, 2010 (75 FR 13046). That NPRM proposed to continue to require repetitive inspections for cracks in the overlapping (upper) skin of the upper fastener row of the lap joints of the fuselage skin in Sections 41, 42, and 46; and related investigative and corrective actions, if necessary. That NPRM also proposed to expand the inspection area in the existing AD, and add a modification of certain lap joints and certain post-repair inspections of the lap joints. Accomplishing the modification would end the repetitive inspections required by the existing AD.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments that have been received on the NPRM.

Request To Revise Certain Language in Paragraph (k) of the NPRM

Boeing asked that we revise the language in paragraph (k) of the NPRM to indicate that additional actions are required in the area of the modification for operation beyond 15,000 total flight cycles after doing the proposed modification. Boeing stated that Revision 2 of Boeing Alert Service Bulletin 747-53A2499 is currently in work at the Boeing Company, and that Revision 2 recommends accomplishing additional actions after doing the modification.

Since this comment was submitted, we have received and reviewed Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010. Boeing Alert Service Bulletin 747-53A2499, dated August 11, 2005; and Revision 1, dated October 30, 2008; were referred to in the NPRM as the appropriate source of service information for accomplishing the actions. No more work is necessary for airplanes on which Boeing Alert Service Bulletin 747-53A2499, Revision 1, dated October 30, 2008, was used for doing the required actions. Revision 2 of this service bulletin moves certain airplanes from Group 1 to Groups 15 and 16, adds post-modification actions, and contains editorial changes.

We have revised paragraphs (c), (g), (h), (i), (j), and (k) of this AD to refer to Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010. In addition, we have removed Notes 1 and 2 of this AD since that information is incorporated into Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010. We have also added a new paragraph (n) to the AD to give credit

for accomplishing the specified actions in accordance with Boeing Alert Service Bulletin 747-53A2499, Revision 1, dated October 30, 2008.

Although Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010, includes post-modification actions, this AD will not mandate those actions. The threshold for the skin lap joint modification mandated by this AD is 30,000 total flight cycles. Adding 15,000 flight cycles to the threshold would extend the compliance time for the recommended additional actions to 45,000 total flight cycles. We have determined that it is highly unlikely that a Model 747 airplane will reach that number of total flight cycles. This determination also takes into consideration the proposed wide spread fatigue damage (WFD) operating rules imposing operating limits that could be significantly lower than 45,000 total flight cycles.

In light of these factors, we have determined that this final rule must be issued without any further delay due to the severity of the unsafe condition addressed by this AD. Further rulemaking might be issued in the future to mandate the additional actions included in Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010. We have not changed the AD in this regard.

Request To Delay AD Pending New Service Information

Japan Airlines (JAL) asked that we delay issuance until the manufacturer can release Revision 2 of Boeing Alert Service Bulletin 747-53A2499. JAL stated that Boeing has issued Service Bulletin Information Notices 747-53A2499 IN 01, dated April 2, 2009; and 747-53A2499 IN 02, dated September 10, 2009; to Boeing Alert Service Bulletin 747-53A2499, Revision 1, dated October 30, 2008, to notify operators of a typo and revised drawings. JAL noted that operators cannot accomplish a correct inspection and modification unless the information provided in Boeing Service Bulletin Information Notices 747-53A2499 IN 01 and 747-53A2499 IN 02 is used. JAL added that including Revision 2 of this service bulletin would reduce unnecessary burden on both operators and the manufacturer.

All Nippon Airways (ANA) also asked that the modification be done in accordance with Revision 2 of Boeing Alert Service Bulletin 747-53A2499 instead of Boeing Alert Service Bulletin 747-53A2499, Revision 1, dated October 30, 2008. ANA stated that it has already performed the terminating modification at stringer 6 using Boeing Alert Service Bulletin 747-53A2499, Revision 1, and had to request AMOCs during the modification because certain drawings in Boeing Alert Service Bulletin 747-53A2499, dated August 11, 2005; and Revision 1, dated October 30, 2008; were not specific to the modification. ANA added that this will reduce the AMOC requests to this proposed AD, in addition to reducing the maintenance burden.

We partially agree with the commenters. We do not agree to delay this AD, due to the severity of the unsafe condition. However, as described previously, Boeing has issued Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010. Therefore, we have revised the requirements in this AD to allow the use of Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010, for accomplishing the specified actions.

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. 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

There are about 735 airplanes of the affected design in the worldwide fleet. This AD affects 96 airplanes of U.S. registry.

The actions that are required by AD 2006-05-09 and retained in this AD take about 541 work-hours per airplane, at an average labor rate of $85 per work-hour. Based on these figures, the estimated cost of the currently required actions is $45,985 per airplane, per inspection cycle.

The new Area 2 inspections take about 124 work-hours per airplane, at an average labor rate of $85 per work-hour. Based on these figures, the estimated cost of the new inspections specified in this AD for U.S. operators is $1,011,840, or $10,540 per airplane, per inspection cycle.

The new modification takes about 4,799 work hours per airplane, at an average labor rate of $85 per work-hour. Required parts cost per airplane will be minimal. Based on these figures, the estimated cost of the new modification specified in this AD for U.S. operators is $39,159,840, or $407,915 per airplane.

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); and

(3) 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.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket. See the ADDRESSES section for a location to examine the regulatory evaluation.

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 Federal Aviation Administration (FAA) amends § 39.13 by removing Amendment 39-14506 (71 FR 12122, March 9, 2006) and by adding the following new airworthiness directive (AD):

2010-26-10 The Boeing Company: Amendment 39-16549. FAA-2010-0232; Directorate Identifier 2009-NM-032-AD.

Effective Date

(a) This AD becomes effective February 1, 2011.

Affected ADs

(b) This AD supersedes AD 2006-05-09.

Applicability

(c) This AD applies to The Boeing Company Model 747-200C, -200F, -400, -400D, and -400F series airplanes, certificated in any category; as identified in Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010.

Subject

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

Unsafe Condition

(e) This AD results from a structural review of affected skin lap joints for widespread fatigue damage. The Federal Aviation Administration is issuing this AD to prevent fatigue cracking in certain lap joints, which could result in rapid depressurization of the airplane.

Compliance

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

Restatement of Requirements of AD 2006-05-09, With Revised Service Information

Initial Inspections and Related Investigative and Corrective Actions

(g) For airplanes identified in Boeing Alert Service Bulletin 747-53A2499, dated August 11, 2005: At the applicable time specified in Table 1 of this AD, do an external surface high frequency eddy current (HFEC), external low frequency eddy current (LFEC), and internal LFEC inspection, as applicable, for cracks in the overlapping (upper) skin of the upper fastener row of the lap joints of the fuselage skin in sections 41, 42, and 46, and any applicable related investigative and corrective actions by doing all of the actions in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2499, dated August 11, 2005; Revision 1, dated October 30, 2008; or Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010. Do any applicable related

investigative and corrective actions before further flight. As of the effective date of this AD, only Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010, may be used.

Table 1 – Initial Compliance Time

For airplanes on which Structural Significant Items (SSIs) F-25G, F-25H, and F-25I –	Inspect –
(1) Have not been inspected in accordance with paragraph (i) of AD 2004-07-22 R1, Amendment 39-15326, using the HFEC method	Before the accumulation of 22,000 total flight cycles, or within 1,000 flight cycles after April 13, 2006 (the effective date of AD 2006-05-09), whichever occurs later
(2) Have been inspected in accordance with paragraph (i) of AD 2004-07-22 R1, using the HFEC method	Within 3,000 flight cycles after the most recent supplemental structural inspection document (SSID) inspection of each applicable structural significant item (as given in Boeing Document D6-35022, "SSID for Model 747 Airplanes," Revision G, dated December 2000), or within 1,000 flight cycles after April 13, 2006, whichever occurs later

Repetitive Inspections

(h) Repeat the applicable inspections required by paragraph (g) of this AD thereafter at intervals not to exceed those specified in paragraph 1.E., "Compliance," (including the note) of Boeing Alert Service Bulletin 747-53A2499, dated August 11, 2005; Revision 1, dated October 30, 2008; or Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010. As of the effective date of this AD, only Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010, may be used.

New Requirements of This AD

Repetitive Inspections/Investigative and Corrective Actions

(i) For all airplanes: Do an external HFEC inspection of the lap joints in Sections 41, 42, and 46 for cracks, by doing all the actions, including all applicable related investigative and corrective actions, specified in the Accomplishment Instructions of Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010. Do the inspection at the applicable time specified in paragraph 1.E. of Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010; except as required by paragraph (m) of this AD. Do all applicable related investigative and corrective actions before further flight. Repeat the inspection thereafter at the times specified in paragraph 1.E. of Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010. Accomplishment of the inspections required by this paragraph terminates the inspections required by paragraphs (g) and (h) of this AD.

(j) For areas on which a lap joint repair was installed and the repair doubler is greater than or equal to 40 inches long: Do initial and repetitive internal HFEC inspections for cracks by doing all the actions, including all applicable corrective actions, specified in the Accomplishment Instructions of Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010, except as required by paragraph (l) of this AD. Do the inspections and corrective actions at the times specified in paragraph

1.E. of Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010, except as required by paragraph (m) of this AD.

Terminating Action

(k) Modify the applicable lap joints in Sections 41 and 42 by doing all the applicable actions specified in the Accomplishment Instructions of Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010, at the time specified in paragraph 1.E. of Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010; except as required by paragraphs (l) and (m) of this AD. Accomplishing this modification terminates the repetitive inspections of the skin lap joints in Sections 41 and 42 required by paragraphs (i) and (j) of this AD for the length of lap joint that is modified.

Exceptions to Service Bulletin Procedures

(l) Where Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 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 (o) of this AD.

(m) Where Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010, specifies a compliance time after the date of that service bulletin, this AD requires compliance within the specified compliance time after the effective date of this AD.

Credit for Actions Done Using Previous Service Information

(n) Actions done before the effective date of this AD in accordance with Boeing Alert Service Bulletin 747-53A2499, Revision 1, dated October 30, 2008, are acceptable for compliance with the corresponding requirements of this AD.

Alternative Methods of Compliance (AMOCs)

(o)(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. Send information to Attn: Nicholas Han, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6449; fax (425) 917-6590. 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) or other person 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 2006-05-09 are approved as alternative methods of compliance with the corresponding requirements of this AD.

Material Incorporated by Reference

(p) You must use Boeing Alert Service Bulletin 747-53A2499, dated August 11, 2005; or Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010; as applicable; to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of Boeing Service Bulletin 747-53A2499, Revision 2, dated August 12, 2010, under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) The Director of the Federal Register previously approved the incorporation by reference of Boeing Alert Service Bulletin 747-53A2499, dated August 11, 2005, on April 13, 2006 (71 FR 12122, March 9, 2006).

(3) 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.

(4) 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.

(5) 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/code_of_federal_regulations/ibr_locations.html.

Issued in Renton, Washington, on December 13, 2010.

Ali Bahrami,

Manager, Transport Airplane Directorate,

Aircraft Certification Service.