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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2006-24410; Directorate Identifier 2005-NM-261-AD; Amendment 39-14911; AD 2007-02-24]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747 Airplanes

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

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for all Boeing Model 747 airplanes. This AD requires repetitive inspections for cracking of the web of the station (STA) 2360 aft pressure bulkhead around the fastener heads in the critical fastener rows in the web lap joints, from the Y-chord to the inner ring; and repair if necessary. This AD also requires a modification, which terminates the repetitive inspections. This AD results from analysis by the manufacturer that the radial lap splices of the STA 2360 aft pressure bulkhead are subject to widespread fatigue damage. We are issuing this AD to detect and correct cracking of the bulkhead web at multiple sites along the radial lap splice, which could join together to form cracks of critical length, and result in rapid decompression and loss of control of the airplane.

DATES: This AD becomes effective March 5, 2007.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of March 5, 2007.

ADDRESSES: You may examine the AD docket on the Internet at <http://dms.dot.gov> or in person at the Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC.

Contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207, for service information identified in this AD.

FOR FURTHER INFORMATION CONTACT: Ivan Li, Aerospace Engineer, Airframe Branch, ANM-120S, Seattle Aircraft Certification Office, FAA, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6437; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION:

Examining the Docket

You may examine the airworthiness directive (AD) docket on the Internet at <http://dms.dot.gov> or in person at the Docket Management Facility office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Management Facility office (telephone (800) 647-5227) is located on the plaza level of the Nassif Building at the street address stated in the ADDRESSES section.

Discussion

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to all Boeing Model 747 airplanes. That NPRM was published in the Federal Register on April 11, 2006 (71 FR 18242). That NPRM proposed to require repetitive inspections for cracking of the web of the station (STA) 2360 aft pressure bulkhead around the fastener heads in the critical fastener rows in the web lap joints, from the Y-chord to the inner ring; and repair if necessary. That NPRM also proposed to require a modification, which would terminate the repetitive inspections.

Comments

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

Support for the NPRM

Boeing supports the NPRM as written.

Request To Postpone the AD

Japan Airlines (JAL) states that Boeing Alert Service Bulletin 747-53A2561, dated September 22, 2005 (which we referred to in the NPRM as the appropriate source of service information for accomplishing the required actions), does not contain information for inspecting areas where a repair doubler has already been installed. JAL asks that we postpone issuing the AD until an inspection method for the repaired area is incorporated into the service bulletin.

We disagree with the request to postpone the AD. The condition requiring repairs may be unique on each airplane. Therefore, approval of instructions for inspecting areas where a repair doubler has been installed may be obtained using a method approved in accordance with the procedures specified in paragraph (i) of this AD. As an unsafe condition has been identified, it is not appropriate to delay issuing this AD for this reason. We have not changed the AD in this regard.

Request To Add a Grace Period for Modification

JAL also requests that we add an additional grace period to paragraph (h) of the NPRM by adding the words "or 18 months after the issue of the modification service bulletin." (The compliance time specified in that paragraph would then read: "Before the airplane accumulates 35,000 total flight cycles or within 18 months after the effective date of this AD or within 18 months after the issue of the modification service bulletin, whichever occurs later.") The commenter states that the modification method is not yet available to operators.

We disagree with the request to add an additional grace period. We have identified an unsafe condition that is associated with widespread fatigue damage (WFD). A modification within the compliance times specified in paragraph (h) of this AD is necessary for the continued airworthiness of the airplane beyond 35,000 total flight cycles, and it is not appropriate to delay issuing this AD for these airplanes. Repetitive inspections alone will not ensure an acceptable level of safety for airplanes beyond 35,000 total flight cycles, considering the failure mechanism of WFD. In developing an appropriate compliance time, we considered these safety implications. In light of these items, we have determined that the grace period as written is appropriate. We have not changed the AD in this regard.

Request To Clarify Paragraph (f) Regarding Inspection of Radial Web Lap Joints

The Air Transport Association (ATA), on behalf of one of its members, Northwest Airlines, requests that we clarify paragraph (f) of the AD to specify that the radial web lap joints in areas common to the Y-ring outer chord are not included in the inspection area. Northwest Airlines explains that the non-destructive testing manual, referred to in Figure 1 of Boeing Alert Service Bulletin 747-53A2561, does not include an inspection of these areas.

We agree with the request to clarify paragraph (f) of the AD. The surface high frequency eddy current (HFEC) inspection from the aft side of the bulkhead was not developed to detect cracks in the radial web lap joints in the area common to the Y-ring outer chord, which is on the aft side of the body station (BS) 2360 pressure bulkhead. Therefore, we have revised paragraph (f) of the AD to state that it is not necessary to inspect the web lap joints in the areas common to the Y-ring outer chord.

Request To Specify Alternative Method of Compliance (AMOC)

ATA, on behalf of one of its members, Northwest Airlines, states that the inspection in accordance with this AD should not be required in areas where production doublers and non-production doublers installed or inspected in accordance with Boeing Alert Service Bulletins 747-53A2275 and/or 747-53A2482 cover the affected radial web lap joints. Northwest Airlines therefore requests that the inspections and corrective actions in accordance with Boeing Alert Service Bulletin 747-53A2275 (as mandated by AD 2000-15-08, amendment 39-11840 (65 FR 47255, August 2, 2000), and AD 90-06-06, amendment 39-6490 (55 FR 8374, March 7, 1990), be specified as AMOCs to the requirements of this AD. AD 2000-15-08 refers to various revisions of Boeing Alert Service Bulletin 747-53A2275. AD 2004-16-09, amendment 39-13765 (69 FR 48133, August 9, 2004), refers to Boeing Alert Service Bulletin 747-53A2482, dated October 3, 2002. AD 90-06-06, refers to Boeing document D6-35999, which refers to Boeing Alert Service Bulletin 747-53-2272, Revision 2, dated May 14, 1987, as a source of service information.

We partially agree with the commenters. We agree that the inspections or modifications done in accordance with Boeing Alert Service Bulletins 747-53A2275 and 747-53A2482 may be acceptable as AMOCs for the inspections required by this AD. Those inspections or modifications mitigate unsafe conditions that are similar to those identified in this AD. We do not agree with specifying the inspections and corrective actions in accordance with those service bulletins as AMOCs for this AD. In this case, AMOCs must be substantiated and approved on a case-by-case basis in accordance with the procedures specified in paragraph (i) of this AD. We have not changed the AD in this regard.

Clarification of Terminating Modification

We have added a note after paragraph (h) of the AD to state that as of the effective date of this AD, the manufacturer has not informed us of any intent to produce the required terminating modification; however, the regulations do not prevent others from doing so.

Conclusion

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

There are about 949 airplanes of the affected design in the worldwide fleet. This AD affects about 153 airplanes of U.S. registry. The inspections take about 11 work hours per airplane, at an average labor rate of \$80 per work hour. Based on these figures, the estimated cost of the AD for U.S. operators is \$134,640, or \$880 per airplane, per inspection cycle.

Because the manufacturer has not yet developed a modification that matches the actions specified by this AD, we cannot provide specific information regarding the required number of work hours or the cost of parts to do the required modification. In addition, modification costs will likely vary depending on the operator and the 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 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 adding the following new airworthiness directive (AD):



2007-02-24 Boeing: Amendment 39-14911. Docket No. FAA-2006-24410; Directorate Identifier 2005-NM-261-AD.

Effective Date

(a) This AD becomes effective March 5, 2007.

Affected ADs

(b) None.

Applicability

(c) This AD applies to all Boeing Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes, certificated in any category.

Unsafe Condition

(d) This AD results from analysis by the manufacturer that the radial lap splices of the station (STA) 2360 aft pressure bulkhead are subject to widespread fatigue damage. We are issuing this AD to detect and correct cracking of the bulkhead web at multiple sites along the radial lap splice, which could join together to form cracks of critical length, and result in rapid decompression and loss of control of the airplane.

Compliance

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

Repetitive Inspections

(f) Before the airplane accumulates 28,000 total flight cycles, or within 18 months after the effective date of this AD, whichever occurs later: Do a high-frequency eddy current inspection for cracking of the web of the STA 2360 aft pressure bulkhead around the fastener heads in the critical fastener rows in the web lap joints, from the Y-chord to the inner ring; in accordance with Part 2, "Access and Inspection," of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2561, dated September 22, 2005. It is not necessary to inspect the web lap joints in the areas common to the Y-ring outer chord. Repeat the inspection thereafter at intervals not to exceed 2,000 flight cycles until the modification in paragraph (h) of this AD is done.

Repair

(g) If any cracking is found during any inspection required by paragraph (f) of this AD: Before further flight, do the applicable action in paragraph (g)(1) or (g)(2) of this AD.

(1) If the cracking is within certain limits specified in Boeing Alert Service Bulletin 747-53A2561, dated September 22, 2005 (referencing the structural repair manual), do the repair in accordance with the Accomplishment Instructions of the alert service bulletin.

(2) If the cracking is more than certain limits specified in Boeing Alert Service Bulletin 747-53A2561, dated September 22, 2005, or if the alert service bulletin specifies to ask Boeing for repair data: Repair the cracking using a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the Manager's approval letter must specifically refer to this AD.

Modification

(h) Before the airplane accumulates 35,000 total flight cycles or within 18 months after the effective date of this AD, whichever occurs later: Modify the aft pressure bulkhead using a method approved by the Manager, Seattle ACO. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the Manager's approval letter must specifically refer to this AD. Doing this modification terminates the repetitive inspection requirements of paragraph (f) of this AD.

Note 1: As of the effective date of this AD, the manufacturer has not informed us of any intent to produce the required terminating modification; however, the regulations do not prevent others from doing so.

Alternative Methods of Compliance (AMOCs)

(i)(1) The Manager, Seattle ACO, has the authority to approve AMOCs for this AD, if requested in accordance with the procedures found in 14 CFR 39.19.

(2) Before using any AMOC approved in accordance with § 39.19 on any airplane to which the AMOC applies, notify the appropriate principal inspector in the FAA Flight Standards Certificate Holding District Office.

Material Incorporated by Reference

(j) You must use Boeing Alert Service Bulletin 747-53A2561, dated September 22, 2005, to perform the actions that are required by this AD, unless the AD specifies otherwise. The Director of the Federal Register approved the incorporation by reference of this document in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207, for a copy of this service information. You may review copies at the Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street, SW., Room PL-401, Nassif Building, Washington, DC; on the Internet at <http://dms.dot.gov>; or at the National Archives and Records Administration (NARA). For information on the availability of this material at the 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 January 19, 2007.

Ali Bahrami,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

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