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[Page 62904-62906]
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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2006-24119; Directorate Identifier 2005-NM-100-AD; Amendment 39-14806; AD 2006-22-09]

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 certain Boeing Model 747 airplanes. This AD requires repetitive mid- and low-frequency eddy current inspections for cracks in the overlapped skin panels in the fuselage skin lap joints in sections 41, 42, 44, and 46, and corrective actions if necessary. This AD results from a report indicating that an operator found multiple small cracks in the overlapped skin panels in the fuselage skin lap joints. We are issuing this AD to detect and correct cracks in the overlapped skin panels, which could join together and result in reduced structural capability in the skin and consequent rapid decompression of the airplane.

DATES: This AD becomes effective December 1, 2006.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of December 1, 2006.

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, FAA, Seattle Aircraft Certification Office, 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 certain Boeing Model 747 airplanes. That NPRM was published in the Federal Register on March 14, 2006 (71 FR 13055). That NPRM proposed to require repetitive mid- and low-frequency eddy current inspections for cracks in the overlapped skin panels in the fuselage skin lap joints in sections 41, 42, 44, and 46, and corrective actions if necessary.

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 proposed.

Request To Delay Final Rule Pending New Service Information

Japan Airlines (JAL) states that Boeing Alert Service Bulletin 747-53A2501, dated March 24, 2005, which was referenced as the appropriate source of service information for accomplishing the actions proposed in the NPRM, contains various errors and omissions. For example, the alert service bulletin does not have inspection procedures for certain internal structural details that cover the lap, and there is no inspection procedure specific to the Boeing Model 747-400 converted freighter. JAL would like us to delay issuing the final rule until Boeing has revised the alert service bulletin.

We partially agree with JAL. We agree that there are details and configurations that could be changed in future revisions of the alert service bulletin. The issues JAL mentions would require an alternative method of compliance (AMOC) to the inspection instructions as given in the original issue of the alert service bulletin. Operators may request an AMOC in accordance with the procedures in paragraph (j) of the final rule. We disagree that we should delay the final rule until Boeing revises the alert service bulletin. We have identified an unsafe condition, and delaying issuance of the final rule until Boeing revises its service information would result in an unwarranted delay of the inspections that are intended to address that unsafe condition. We have not changed the final rule in this regard.

Request To Revise Inspection Threshold

Air Transport Association (ATA), on behalf of its member Northwest Airlines (NWA), requests that we allow the initial inspection to occur within 3,000 flight cycles after the most recent Supplemental Structural Inspection Document (SSID) inspection for items F-25K, F-25L, and F-25M in Boeing SSID D6-35022.

We disagree with the commenters. The SSID program is an exploratory inspection program. The inspection intervals in the SSID were derived from required damage tolerance ratings (DTRs) that were based on "fleet crack" criteria. This means that at the time the DTRs were developed, there was no known cracking in the area; therefore, the required DTRs could remain at a lower level until cracking was discovered. However, operators subsequently found cracking in certain lap joint lower skins, and Boeing issued Alert Service Bulletin 747-53A2501 to detect and correct this cracking. The required DTRs that drive the thresholds and intervals were developed using "first crack" criteria, which is higher than "fleet crack" criteria. "First crack" criteria must detect cracking that is known to have occurred on other airplanes and, therefore, cannot rely on a worldwide fleet of airplanes as a statistical sample group.

The inspection specified in Boeing Alert Service Bulletin 747-53A2501 is an internal medium frequency eddy current (MFEC) inspection, which is able to detect a crack size smaller than that detectable by the external low frequency eddy current (LFEC) inspection required by the SSID program. Both inspection techniques are used to detect cracks on the outer surface of the lower skin panel at the lower row of fasteners of the lap splice. However, the LFEC inspection looks through the upper skin panel; the MFEC technique uses a probe that is in direct contact with the lower skin panel on the inner surface. Therefore, a 3,000-flight-cycle repetitive interval using an LFEC method does not provide the same level of certainty as a 3,000-flight-cycle repetitive inspection using the MFEC method.

We have not changed the final rule in this regard.

Request To Change Costs of Compliance

ATA, on behalf of NWA, also requests that we change the costs of compliance. NWA states that it has determined that approximately 120 work hours would be required to accomplish the non-destructive test procedures specified in Boeing Alert Service Bulletin 747-53A2501. The NPRM gives a cost estimate of 68 hours to do this task. NWA states that it is worth noting that if the inspection has to be performed independent of other major fuselage internal inspections, then over 1,000 additional hours of access and restoration labor will be required. NWA states that this scenario is likely if the initial inspection is required independent of the SSID or fuselage fatigue inspection programs. The 1,000-flight-cycle initial inspection threshold could prompt such a scenario.

We disagree with the request to change the costs of compliance. The 68 work-hour estimate represents the time necessary to perform only the action actually required by the AD. The action in the NPRM reflects only the direct costs of the specific required action (inspection) based on the best available data from the manufacturer. The cost analysis in AD rulemaking actions typically does not include incidental costs such as the time required to gain access and close up, time necessary for planning, or time necessary for other administrative tasks. Those incidental costs, which may vary significantly among operators, are almost impossible to calculate. We have not changed the final rule in this regard.

Request To Revise Compliance Time

ATA also recommends that we align the compliance period for the non-destructive test procedures specified in Boeing Alert Service Bulletin 747-53A2501, with scheduled maintenance intervals in order to avoid the order-of-magnitude increase in the effect of the proposed actions if they must be accomplished on an unscheduled basis.

We disagree with the request to revise the compliance time. We acknowledge that for certain airplanes the inspections may have to be performed independent of the SSID or fuselage fatigue inspection programs. In developing an appropriate compliance time for this action, including the 1,000-flight-cycle initial inspection threshold, we considered the urgency associated with the subject unsafe condition, the manufacturer's recommendations, and the practical aspect of accomplishing the

required inspections within a period of time that corresponds to the normal scheduled maintenance for most affected operators. We have not changed the final rule in this regard. However, according to the provisions of paragraph (j) of the final rule, we may approve requests to adjust the compliance time if the request includes data that prove that the new compliance time would provide an acceptable level of safety.

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 as proposed.

Costs of Compliance

There are about 1,081 airplanes of the affected design in the worldwide fleet. The following table provides the estimated costs for U.S. operators to comply with this AD.

Estimated Costs					
Action	Work hours	Average labor rate per hour	Cost per airplane	Number of U.S.-registered airplanes	Fleet cost
Inspection for Model 747SP series airplanes	48	\$80	\$3,840, per inspection cycle	10	\$38,400, per inspection cycle
Inspection for all other Model 747 series airplanes	68	\$80	\$5,440, per inspection cycle	196	\$1,066,240, per inspection cycle

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):

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

U.S. Department
of Transportation
**Federal Aviation
Administration**



2006-22-09 Boeing: Amendment 39-14806. Docket No. FAA-2006-24119; Directorate Identifier 2005-NM-100-AD.

Effective Date

(a) This AD becomes effective December 1, 2006.

Affected ADs

(b) 2004-13-02.

Applicability

(c) This AD applies to 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; as identified in Boeing Alert Service Bulletin 747-53A2501, dated March 24, 2005.

Unsafe Condition

(d) This AD results from a report indicating that an operator found multiple small cracks in the overlapped skin panels in the fuselage skin lap joints. We are issuing this AD to detect and correct cracks in the overlapped skin panels, which could join together and result in reduced structural capability in the skin and consequent rapid decompression 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.

Inspections and Corrective Actions: For Airplanes With Line Numbers 1 Through 200 Inclusive

(f) For airplanes with line numbers 1 through 200 inclusive, at the applicable time in paragraph (f)(1) or (f)(2) of this AD: Do the applicable eddy current inspection or inspections for cracks in the overlapped skin panels in the fuselage skin lap joints in sections 41, 42, 44, and 46; and do all applicable corrective actions before further flight. Except as provided by paragraph (f)(1)(ii) of this AD, repeat the applicable inspection or inspections thereafter at intervals not to exceed 3,000 flight cycles. Except as provided by paragraph (h) of this AD, do all actions in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2501, dated March 24, 2005.

(1) Except as provided by paragraph (f)(2) of this AD, do the applicable action in paragraph (f)(1)(i) or (f)(1)(ii) of this AD.

(i) For airplanes that have accumulated fewer than 29,000 total flight cycles as of the effective date of this AD: Before the accumulation of 25,000 total flight cycles, or within 1,000 flight cycles

after the effective date of this AD, whichever occurs later, do a mid-frequency eddy current inspection for cracks of the internal surface at the overlapped skin around the bottom row of fasteners in the lap joint.

(ii) For airplanes that have accumulated 29,000 or more total flight cycles, do the inspections in accordance with the requirements of AD 2004-13-02, amendment 39-13682, at the applicable threshold and intervals in that AD. Doing the repeat inspections in accordance with AD 2004-13-02, terminates the repetitive inspection requirements of this AD only for airplanes with line numbers 1 through 200 inclusive.

(2) For airplanes that have had overlapped skin panels replaced: Do the eddy current inspections of the replaced overlapped panel prior to the accumulation of 25,000 total flight cycles since panel replacement, or within 1,000 flight cycles after the effective date of this AD, whichever occurs later. Skin panel replacement, along with ongoing inspections in accordance with paragraph (f) of this AD, terminates the requirements of paragraphs (a) and (d) of AD 2004-13-02, only for the skin lap sections where the overlapped panel has been replaced.

Inspections and Corrective Actions: For Airplanes With Line Numbers 201 and Subsequent

(g) For airplanes with line numbers 201 and subsequent: Before the accumulation of 25,000 total flight cycles, within 1,000 flight cycles after the effective date of this AD, or within 25,000 flight cycles after the time when the overlapped skin was replaced, whichever occurs later, do the applicable inspection in paragraphs (g)(1) and (g)(2) of this AD for cracks in the overlapped skin panels in the fuselage skin lap joints in sections 41, 42, 44, and 46; and do all applicable corrective actions before further flight. Repeat the applicable inspection thereafter at intervals not to exceed 3,000 flight cycles. Except as provided by paragraph (h) of this AD, do all actions in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2501, dated March 24, 2005.

(1) Do a mid-frequency eddy current inspection for cracks of the internal surface at the overlapped skin around the bottom row of fasteners in the lap joint.

(2) Do a low-frequency eddy current inspection for cracks of the overlapped skin around the bottom row of fasteners at the section 41 lap joints with four rows of fasteners.

Repair Instructions

(h) If any crack is found during any inspection required by this AD, and Boeing Alert Service Bulletin 747-53A2501, dated March 24, 2005, 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 (j) of this AD.

No Reporting Required

(i) Although Boeing Alert Service Bulletin 747-53A2501, dated March 24, 2005, specifies to submit certain information to the manufacturer, this AD does not include that requirement.

Alternative Methods of Compliance (AMOCs)

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

(2) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD, if it is approved by an Authorized Representative for the Boeing Commercial Airplanes Delegation Option Authorization Organization who 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.

(3) 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

(k) You must use Boeing Alert Service Bulletin 747-53A2501, dated March 24, 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 October 18, 2006.

Jeffrey E. Duven,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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