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[Page 67445-67447]  
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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2006-24877; Directorate Identifier 2005-NM-253-AD; Amendment 39-14831; AD 2006-24-02]**

**RIN 2120-AA64**

**Airworthiness Directives; Boeing Model 747-100, 747-100B, 747-200B, 747-200C, 747-200F, 747SR, and 747SP Series Airplanes**

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

**ACTION:** Final rule.

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**SUMMARY:** The FAA is superseding an existing airworthiness directive (AD), which applies to certain Boeing Model 747 series airplanes. That AD currently requires repetitive inspections to detect cracks at certain stringer fastener locations; and repair, if necessary. For certain airplanes, that AD requires a modification in certain areas where reports indicate that cracking was prevalent. This modification terminates the repetitive inspections only for those areas, and is also an option for other airplanes affected by the existing AD. This new AD requires an additional inspection of areas that may have Alodine-coated rivets installed, and repair if necessary. This AD results from a report of cracking discovered in a skin lap joint that was previously inspected using the eddy current method. We are issuing this AD to prevent rapid decompression of the airplane due to disbonding and subsequent cracking of the skin panels.

**DATES:** This AD becomes effective December 27, 2006.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of December 27, 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 supersedes AD 90-26-10, amendment 39-6836 (55 FR 51401, December 14, 1990). The existing AD applies to certain Boeing Model 747 series airplanes. That NPRM was published in the Federal Register on May 25, 2006 (71 FR 30074). That NPRM proposed to continue to require repetitive inspections to detect cracks at certain stringer fastener locations, and repair if necessary. For certain airplanes, that NPRM proposed to continue to require modification in certain areas where reports indicate that cracking was prevalent. This modification terminates the repetitive inspections only for those areas, and is also an option for other airplanes affected by the existing AD. That NPRM also proposed to require an additional inspection of areas that may have Alodine-coated rivets installed, and repair if necessary.

### **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.

### **Support for the NPRM**

Boeing supports the NPRM.

### **Request To Recognize Overlapping Inspections**

The Air Transport Association, on behalf of one of its members, Northwest Airlines, requests that we recognize that a service bulletin currently in development could result in overlapping inspections and cause duplication of efforts. Northwest Airlines states that it has been advised by Boeing that the service bulletin in development will recommend external detailed inspections and/or external surface high frequency eddy current inspections in a good portion of the region affected by the NPRM. This new service bulletin resulted from a recent report of skin cracking in section 41.

We partially agree with the commenters. We agree that it is important to avoid duplication of effort. However, because the service bulletin that the commenters mention has not been issued, we have not issued an NPRM for the subject of that service bulletin. When the service bulletin is issued, we will review it and any forthcoming proposed rule in an effort to prevent duplication of tasks. We consider that to delay this AD action would be inappropriate, since we have determined that an unsafe condition exists and that replacement of certain parts must be accomplished to ensure continued safety. We have not changed the AD in this regard.

## Explanation of Editorial Changes

We have clarified the Summary section of this AD to state that this new AD requires "an additional inspection" rather than a one-time inspection at a reduced threshold. The new inspection required by this AD is "additional" and, therefore, we are not reducing a threshold in the previous AD.

We have also removed the words, "at intervals not to exceed 150 flight cycles" from paragraph (k)(1)(i) of this AD because it duplicates information already in paragraph (k)(1) of this AD, and may cause confusion.

## 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

The following table provides the estimated costs for U.S. operators to comply with this AD. There are about 132 airplanes of the affected design in the worldwide fleet. This AD affects about 59 airplanes of U.S. registry. The average labor rate is \$80 per work hour.

**Estimated Costs**

<b>Action</b>	<b>Work hours</b>	<b>Parts</b>	<b>Cost per airplane</b>	<b>Fleet cost</b>
Inspection (required by AD 90-26-10)	48	None	\$3,840, per inspection cycle	\$226,560, per inspection cycle
Modification (required by AD 90-26-10)	620	\$69,246	\$118,846	\$7,011,914
Inspection (new action)	48	None	\$3,840, per inspection cycle	\$226,560, 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 removing amendment 39-6836 (55 FR 51401, December 14, 1990) and by adding the following new airworthiness directive (AD):



**2006-24-02 Boeing:** Amendment 39-14831. Docket No. FAA-2006-24877; Directorate Identifier 2005-NM-253-AD.

**Effective Date**

(a) This AD becomes effective December 27, 2006.

**Affected ADs**

(b) This AD supersedes AD 90-26-10.

**Applicability**

(c) This AD applies to Boeing Model 747-100, 747-100B, 747-200B, 747-200C, 747-200F, 747SR, and 747SP series airplanes, certificated in any category; line numbers 001 through 430 inclusive.

**Unsafe Condition**

(d) This AD results from a report of cracking discovered in a skin lap joint that was previously inspected using the eddy current method. We are issuing this AD to prevent rapid decompression of the airplane due to disbonding and subsequent cracking of the skin panels.

**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.

**Restatement of Certain Requirements of AD 90-26-10**

**Inspections**

(f) Prior to the accumulation of 12,000 flight cycles or within the next 1,000 flight cycles after January 22, 1991 (the effective date of AD 90-26-10), whichever occurs later, unless previously accomplished within the last 1,000 flight cycles, conduct an external detailed and external high frequency eddy current (HFEC) inspection for cracks of the fuselage skin from body station (BS) 220 to BS 520, left- and right-hand sides of the airplane between stringers (S)-6 and S-14, excluding the skin lap joints, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2321, dated October 31, 1989; or Revision 7, dated October 27, 2005. After the effective date of this AD, only Revision 7 may be used. Doing the inspections in this paragraph in accordance with Revision 7 of the service bulletin eliminates the need for doing the actions in paragraph (k) of this AD. Repeat the inspections thereafter at intervals not to exceed 2,000 flight cycles until the

terminating modification in paragraph (g) of this AD is done, except as provided by paragraph (h) of this AD.

**Note 1:** For the purposes of this AD, a detailed inspection is: "An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirror, magnifying lenses, etc., may be necessary. Surface cleaning and elaborate procedures may be required."

### **Terminating Modification**

(g) For airplanes line numbers 001 through 200 inclusive, prior to the accumulation of 20,000 total flight cycles, or within 48 months after the January 22, 1991, whichever occurs later: Perform the terminating modification of the skin panel from BS 340 to BS 520, S-6 to S-14, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2321, dated October 31, 1989; or Revision 7, dated October 27, 2005. After the effective date of this AD, only Revision 7 may be used. The modification consists of replacing the skin panel with a new skin panel which was manufactured utilizing the improved hot phosphoric acid anodize bonding process.

(h) Replacement of the skin panel required by paragraph (g) of this AD constitutes terminating action for the inspections from BS 340 to BS 520 required by paragraphs (f) and (k) of this AD. The inspections from BS 220 to BS 340 required by paragraph (f) of this AD are to be continued.

### **Adjustments for Cabin Differential Pressure**

(i) Before the effective date of this AD: Flight cycles conducted at 2.0 pounds per square inch (psi) or less cabin differential pressure need not be counted for the purpose of this airworthiness directive.

(j) Before the effective date of this AD: For Model 747SR airplanes only, the threshold and repetitive inspection intervals specified herein may be multiplied by the 1.2 adjustment factor based on continued mixed operation at lower cabin pressure differentials.

### **New Requirements of This AD**

#### **Additional Inspection of Skins With Alodine-Coated Rivets**

(k) For airplanes identified in Figure 9 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2321, Revision 7, dated October 27, 2005, as requiring additional inspection: Within 150 flight cycles after the effective date of this AD, do the inspection in paragraph (k)(1) or (k)(2) of this AD in accordance with the Accomplishment Instructions of the service bulletin.

(1) Do an external detailed inspection for cracking of Area 1, and repeat the inspection thereafter at intervals not to exceed 150 flight cycles until one of the actions in paragraph (k)(1)(i), (k)(1)(ii), or (k)(1)(iii) is accomplished. Repeat the inspection of Area 1 thereafter in accordance with the requirements of paragraph (f) of this AD.

(i) The inspection in accordance with paragraph (k)(1) of this AD has been done seven times. If this option is used: Within 150 flight cycles after the seventh inspection, do the inspection required by paragraph (k)(2) of this AD.

(ii) The inspection in accordance with paragraph (k)(2) has been accomplished.

(iii) The inspections in accordance with paragraph (f) of this AD has been accomplished once in accordance with Revision 7 of the service bulletin.

(2) Do an external HFEC inspection for cracking of Area 1 in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2321, Revision 7, dated October 27, 2005. Repeat the inspection of Area 1 thereafter in accordance with the requirements of paragraph (f) of this AD.

## **Repair**

(1) If any crack is found during any inspection required by this AD: Before further flight, repair in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2321, dated October 31, 1989; or Revision 7, dated October 27, 2005. After the effective date of this AD, only Revision 7 of the service bulletin may be used. Where Revision 7 of the service bulletin specifies to contact Boeing for repair instructions: Before further flight, repair using a method approved in accordance with the procedures specified in paragraph (n) of this AD.

## **Adjustments to Compliance Time: Cabin Differential Pressure**

(m) For the purposes of calculating the compliance threshold and repetitive interval for actions required by paragraphs (f), (g), and (k) of this AD, on or after the effective date of this AD: All flight cycles, including the number of flight cycles in which cabin differential pressure is at 2.0 psi or less, must be counted when determining the number of flight cycles that have occurred on the airplane, and a 1.2 adjustment factor may not be used. However, for airplanes on which the repetitive interval for the actions required by paragraphs (f) and (k) of this AD have been calculated in accordance with paragraph (i) or (j) of this AD by excluding the number of flight cycles in which cabin differential pressure is at 2.0 pounds psi or less, or by using a 1.2 adjustment factor: Continue to adjust the repetitive interval in accordance with paragraph (i) or (j) of this AD until the next inspections required by paragraph (f) or (k) of this AD are accomplished. Thereafter, no adjustment to compliance times based on paragraph (i) or (j) of this AD is allowed.

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

(n)(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) 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.

(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 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.

(4) AMOCs approved previously in accordance with AD 90-26-10 are acceptable for compliance with the requirements of this AD, provided that any alternative terminating action was not based upon inspection results using sliding probe low-frequency eddy current (LFEC), sliding probe HFEC, or mid-frequency eddy current (MFEC) inspection method; and provided that any alternative method future inspections did not incorporate sliding probe LFEC or MFEC inspection method.

## **Material Incorporated by Reference**

(o) You must use Boeing Alert Service Bulletin 747-53A2321, dated October 31, 1989; and Boeing Alert Service Bulletin 747-53A2321, Revision 7, dated October 27, 2005; as applicable; to perform the actions that are required by this AD, unless the AD specifies otherwise. (Only the first

page of Boeing Alert Service Bulletin 747-53A2321, dated October 31, 1989, contains the document issue date; no other page of this document contains this information.) The Director of the Federal Register approved the incorporation by reference of these documents 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](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Renton, Washington, on November 8, 2006.

Kalene C. Yanamura,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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