

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2002-NM-316-AD; Amendment 39-13044; AD 2003-03-19]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment adopts a new airworthiness directive (AD) that is applicable to all Boeing Model 747 series airplanes. This action requires a one-time inspection of the fuselage skin of the aft lower body for certain repair doublers, and follow-on inspections and corrective actions if such doublers are installed. For certain airplanes, this action includes optional repetitive inspections of the fuselage skin for scratches or cracking. This action is necessary to find and fix possible fatigue cracking of the fuselage skin concealed under certain repair doublers, which could result in rapid decompression of the airplane. This action is intended to address the identified unsafe condition.

DATES: Effective February 20, 2003.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of February 20, 2003.

Comments for inclusion in the Rules Docket must be received on or before April 7, 2003.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2002-NM-316-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056. Comments may be inspected at this location between 9 a.m. and 3 p.m., Monday through Friday, except Federal holidays. Comments may be submitted via fax to (425) 227-1232. Comments may also be sent via the Internet using the following address: 9-anm-iarcomment@faa.gov. Comments sent via fax or the Internet must contain "Docket No. 2002-NM-316-AD" in the subject line and need not be submitted in triplicate. Comments sent via the Internet as attached electronic files must be formatted in Microsoft Word 97 for Windows or ASCII text.

The service information referenced in this AD may be obtained from Boeing Commercial Airplane Group, PO Box 3707, Seattle, Washington 98124-2207. This information may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Rick Kawaguchi, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-1153; fax (425) 227-1181.

SUPPLEMENTARY INFORMATION: In May 2002, a Boeing Model 747-200 series airplane was involved in an in-flight breakup. A portion of the fuselage skin with a repair doubler attached was recovered, and investigation revealed that the repair doubler was installed after a tail strike that occurred in 1980 and caused scratches to the skin. Examination of the skin underneath the doubler revealed longitudinal scratches, which could have been caused by the tail strike event, and a 15-inch crack found underneath the repair doubler that originated from and extended along these scratches. Further investigation of the affected area revealed that certain damage (scratches) may not have been found and removed after the tail strike, which led to fatigue cracking over time. The probable cause of the accident has not yet been determined.

The FAA recently received a second report indicating that scratches were found under a repair doubler on a Model 747-200 series airplane during an inspection requested by the manufacturer. It has been determined that the aft "belly" portion of the section 46 fuselage on Model 747 series airplanes is susceptible to tail strike damage during landing and takeoff. Repair procedures in the Boeing 747 structural repair manual describe blending out such damage on the skin and installing a repair doubler over the affected area. Any unremoved damage could result in fatigue cracking of the fuselage skin concealed under certain repair doublers, and consequent rapid decompression of the airplane.

Explanation of Relevant Service Information

The FAA has reviewed and approved Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002, which describes procedures for a one-time external visual inspection of the fuselage skin at body stations 1961 through 2360 inclusive, between stringers S-46L and S-46R, for repair doublers. If a repair doubler is installed, and the repair doubler meets all four criteria (external repair doubler, at least 8 inches long longitudinally (in the forward and aft direction), has fasteners common to a frame, and was installed due to a tail strike or for unknown reasons) specified in Figure 2 of the service bulletin, the service bulletin describes procedures for follow-on inspections and corrective actions.

The follow-on inspections and corrective actions include removal of the doubler, a one-time assessment (inspection) of the skin under the doubler for damage (scratches, cracking), and repair of any damage found. For certain airplanes, as an alternative to removal of the doubler and assessment of the skin underneath, the service bulletin describes procedures for repetitive inspections of the fuselage skin for damage. These inspections are either internal mid-frequency eddy current, or external detailed visual, depending on the length of the doubler. Accomplishment of the actions specified in the service bulletin is intended to adequately address the identified unsafe condition.

The service bulletin also specifies contacting Boeing for disposition of certain repair conditions.

Explanation of the Requirements of the Rule

Since an unsafe condition has been identified that is likely to exist or develop on other 747 series airplanes of the same type design, this AD is being issued to find and fix possible fatigue cracking of the fuselage skin concealed under certain repair doublers, which could result in rapid decompression of the airplane. This AD requires a one-time inspection of the fuselage skin of the aft lower body for repair doublers, and follow-on inspections and corrective actions if repair doublers are installed. This AD also includes optional repetitive inspections of the fuselage skin for scratches or cracking. The actions are required to be accomplished in accordance with the service bulletin described previously, except as discussed below.

Differences Between Service Bulletin and This AD

The service bulletin specifies an inspection of the fuselage skin between stringers S-46L and S-46R for the presence of doublers. However, the FAA has determined that repairs common to the S-46 lap splice that do not extend inboard more than 4 inches from the S-46 center line do not require the inspection. Tail strike damage would more likely occur towards the "belly" portion of the section 46 fuselage. Repairs limited to the S-46 lap splice area are probably due to corrosion findings. The manufacturer agrees with this determination and will incorporate this change into the next revision of Boeing Alert Service Bulletin 747-53A2489.

The service bulletin also specifies that the manufacturer may be contacted for disposition of certain repair conditions, but this AD would require the repair of those conditions to be accomplished in accordance with a method approved by the FAA, or in accordance with data meeting the type certification basis of the airplane approved by a Boeing Company Designated Engineering Representative who has been authorized by the FAA to make such findings.

Interim Action

This is considered to be interim action. The FAA is currently considering further rulemaking action to revise the compliance time of this AD to include airplanes that have accumulated more than 10,000 total flight cycles, but less than 15,000 total flight cycles; however, the planned compliance time for the additional airplanes is sufficiently long so that notice and opportunity for prior public comment will be practicable.

Determination of Rule's Effective Date

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

Comments Invited

Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications shall identify the Rules Docket number and be submitted in triplicate to the address specified under the caption ADDRESSES. All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Submit comments using the following format:

- Organize comments issue-by-issue. For example, discuss a request to change the compliance time and a request to change the service bulletin reference as two separate issues.
- For each issue, state what specific change to the AD is being requested.
- Include justification (e.g., reasons or data) for each request.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this rule must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 2002-NM-316-AD." The postcard will be date stamped and returned to the commenter.

Regulatory Impact

The regulations adopted herein 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. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and that it is not a "significant regulatory action" under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, may be obtained from the Rules Docket at the location provided under the caption ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (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. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC



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

We post ADs on the internet at "www.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2003-03-19 Boeing: Amendment 39-13044. Docket 2002-NM-316-AD.

Applicability: All Model 747 series airplanes, certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (i) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To find and fix possible fatigue cracking of the fuselage skin concealed under certain repair doublers, which could result in rapid decompression of the airplane, accomplish the following:

One-Time Inspection

(a) Before the accumulation of 15,000 total flight cycles or within 90 days after the effective date of this AD, whichever is later, do a general visual inspection for repair doublers on the fuselage skin at body stations 1961 through 2360 inclusive, between stringers S-46L and S-46R. The inspection is only for doublers that meet all of the following four criteria: External repair doublers, doublers at least 8 inches long longitudinally (in the forward and aft direction), doublers that have fasteners common to a frame, doublers installed due to a tail strike or for unknown reasons. Do the inspection per Part 1 and Figure 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002.

Note 2: For the purposes of this AD, a general visual inspection is defined as: "A visual examination of an interior or exterior area, installation, or assembly to detect obvious damage, failure, or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to enhance visual access to all exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight, or droplight and may require removal or opening of access panels or doors. Stands, ladders, or platforms may be required to gain proximity to the area being checked."

Follow-on Inspections

(b) Except as provided by paragraph (c) of this AD, for any repair doubler subject to the requirements of paragraph (a) of this AD: Remove the repair doubler and do the inspections/assessment (includes external detailed, external visual, and external high frequency eddy current (HFEC) inspections) of the fuselage skin for damage (cracking or scratches) per Part 2 and Figure 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002. Do the inspections at the applicable time specified in paragraph (b)(1) or (b)(2) of this AD. If any crack or scratch is found, before further flight, do the corrective actions specified in paragraph (f) of this AD.

Note 3: For the purposes of this AD, a detailed inspection is defined as: "An intensive visual examination of a specific structural area, system, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at intensity deemed appropriate by the inspector. Inspection aids such as mirror, magnifying lenses, etc., may be used. Surface cleaning and elaborate access procedures may be required."

(1) If the date of installation of the repair doubler is unknown, or 10,000 or more flight cycles have accumulated since the date of installation of the repair doubler, do the inspections before further flight.

(2) If less than 10,000 flight cycles have accumulated since the date of installation of the repair doubler, do the inspections within 10,000 flight cycles after the date of installation of the repair doubler.

(c) For any repair doubler that meets either of the conditions specified in paragraphs (c)(1) and (c)(2) of this AD: No action is required by this AD for that doubler only.

(1) The repair doubler is common to the S-46 lap splice and does not extend inboard more than 4 inches from the center line.

(2) A skin assessment was done before installing the repair doubler per Figure 6 of Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002.

Optional Repetitive Inspections

(d) For airplanes that meet the conditions specified in paragraph (d)(1) or (d)(2) of this AD, as alternative to the inspections required by paragraph (b) of this AD: Do the applicable inspections required by either paragraph (d)(1) or (d)(2) of this AD per Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002; at the applicable time specified in paragraph (b)(1) or (b)(2) of this AD.

(1) If the edge of the doubler does not end on a stringer center line: Do an internal mid-frequency eddy current (MFEC) inspection of the fuselage skin for cracking (if the edge of the doubler ends on a stringer center line it is not possible to do the MFEC inspection) per Part 3 and Figure 4 of the Accomplishment Instructions of the service bulletin. If no crack is found, before further flight, do an external detailed inspection for scratches per Part 3 and Figure 4, of the Accomplishment Instructions of the service bulletin. If any scratch is found, before further flight, do an external HFEC inspection of the scratched area for cracking. If no scratch is found during the external detailed inspection or if no crack is found during the external HFEC inspection; repeat the MFEC inspection at least every 250 flight cycles.

(2) If the doubler is 20 inches in length or less, do an external detailed inspection of the fuselage skin for damage (cracking or scratches) per Part 4 and Figure 5 of the Accomplishment Instructions of the service bulletin. If any scratch is found, before further flight, do an external HFEC inspection of the scratched area for cracking. If no scratch is found during the external detailed inspection or if

no crack is found during the external HFEC inspection, repeat the external detailed inspection per paragraph (d)(2)(i) or (d)(2)(ii) of this AD, as applicable.

(i) If the doubler is 8-15 inches in length, repeat the inspection at least every 200 flight cycles.

(ii) If the doubler is 15-20 inches in length, repeat the inspection at least every 50 flight cycles.

(e) If, during any inspection required by paragraph (d)(1) or (d)(2) of this AD, any scratch is found, but no crack: Within 1,000 flight cycles or 18 months after doing the inspection required by paragraph (a) of this AD, whichever is first, do the inspections required by paragraph (b) of this AD. Accomplishment of this paragraph ends the repetitive inspections required by paragraph (d)(1) or (d)(2) of this AD, as applicable.

Corrective Actions

(f) If any crack is found during any inspection required by this AD, or if any scratch is found during any inspection required by paragraph (b) of this AD: Before further flight, repair per the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002. Where the service bulletin specifies to contact Boeing for appropriate action: Before further flight, repair per a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; or per data meeting the type certification basis of the airplane approved by a Boeing Company Designated Engineering Representative who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved, the approval must specifically reference this AD.

Adjustments to Compliance Time: Cabin Differential Pressure

(g) For the purposes of calculating the compliance threshold and repetitive interval for the actions required by this AD: The number of flight cycles in which cabin differential pressure is at 2.0 pounds per square inch (psi) or less need not be counted when determining the number of flight cycles that have occurred on the airplane, provided that flight cycles with momentary spikes in cabin differential pressure above 2.0 psi are included as full pressure cycles. For this provision to apply, all cabin pressure records must be maintained for each airplane: No fleet-averaging of cabin pressure is allowed.

Reporting Requirement

(h) Within 30 days after doing the initial inspections required by paragraphs (b) and (d) of this AD: Submit a report of inspection findings of cracking or scratches of the fuselage skin to the Manager, Seattle Aircraft Certification Office (ACO), FAA, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; fax (425) 227-1181. The report must include the inspection results (airplane line number, size and location of damage, and type of discrepancy found). Information collection requirements contained in this AD have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.) and have been assigned OMB Control Number 2120-0056.

Alternative Methods of Compliance

(i) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle ACO. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

Note 4: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

Special Flight Permits

(j) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Incorporation by Reference

(k) Unless otherwise specified in this AD: The actions shall be done in accordance with Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

Effective Date

(l) This amendment becomes effective on February 20, 2003.

Issued in Renton, Washington, on January 24, 2003.

Ali Bahrami,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 03-2210 Filed 2-4-03; 8:45 am]

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