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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2005-20431; Directorate Identifier 2005-NM-040-AD; Amendment 39-13995; AD 2005-04-51]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747-100B SUD, -200B, -200C, -200F, and -300 Series Airplanes

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

ACTION: Final rule; request for comments.

SUMMARY: This document publishes in the Federal Register an amendment adopting airworthiness directive (AD) 2005-04-51 that was sent previously to all known U.S. owners and operators of certain Boeing Model 747-100B SUD, -200B, -200C, -200F, and -300 series airplanes by individual notices. This AD requires repetitive external detailed inspections for cracked skin or loose or missing fasteners of the body skin between body stations (BS) 420 and 460 inclusive and between stringers S-8 and S-12 inclusive on the left and right sides of the airplane, and a high frequency eddy current inspection for cracked frames if necessary. This AD also requires repair of any cracked frame or skin, and replacement of any loose or missing fastener. This AD is prompted by reports of large cracks common to fuselage frames in the upper deck area and severed or nearly severed adjacent frames. We are issuing this AD to detect and correct fatigue cracks in the frames and body skin at BS 420, 440, and 460 between stringers S-8 and S-12 inclusive, which could lead to severed frames, and consequent rapid decompression and loss of the structural integrity of the airplane.

DATES: Effective March 9, 2005 to all persons except those persons to whom it was made immediately effective by emergency AD 2005-04-51, issued February 17, 2005, which contained the requirements of this amendment.

The incorporation by reference of a certain publication listed in the AD is approved by the Director of the Federal Register as of March 9, 2005.

We must receive comments on this AD by May 3, 2005.

ADDRESSES: Use one of the following addresses to submit comments on this AD.

- DOT Docket Web site: Go to *http://dms.dot.gov* and follow the instructions for sending your comments electronically.
- Government-wide Rulemaking Web site: Go to *http://www.regulations.gov* and follow the instructions for sending your comments electronically.

- Mail: Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street SW., Nassif Building, room PL-401, Washington, DC 20590.
- Fax: (202) 493-2251.
- Hand Delivery: Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

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

Docket: The AD docket contains the emergency AD, comments, and any final disposition. You can examine the 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 U.S. Department of Transportation, 400 Seventh Street SW., room PL-401, Washington, DC. This docket number is FAA-2005-20431; the directorate identifier for this docket is 2005-NM-040-AD.

FOR FURTHER INFORMATION CONTACT: Ivan Li, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 917-6437; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION: On February 17, 2005, we issued emergency AD 2005-04-51, which applies to certain Boeing Model 747-100B SUD, -200B, -200C, -200F, and -300 series airplanes.

Background

On May 7, 1991, we issued AD 91-11-01, amendment 39-6997 (56 FR 22306, May 15, 1991), for certain Boeing Model 747 series airplanes. That AD requires repetitive inspections for cracks of the frame structure and skin in the fuselage section 41, and repair if necessary. That AD also provides for an optional terminating action for the repetitive inspections. That AD was prompted by recommendations of the FAA-sponsored Boeing Model 747 Structures Working Group. We issued that AD to prevent sudden decompression of the fuselage.

Since the issuance of AD 91-11-01, we have received several reports of large fatigue cracks common to fuselage frames in the upper deck area on Boeing Model 747-200C, -200F, and -300 series airplanes. Most of these airplanes had been inspected in accordance with AD 91-11-01. Many fatigue cracks occurred near stringers S-10 and S-10A, but other cracks were also reported. The cracking is due to cyclic pressurization of the airplanes.

We also have received two recent reports of severed or nearly severed adjacent frames at body station (BS) 420 and BS 440 near stringer S-10A on Boeing Model 747-300 series airplanes. Both airplanes had been inspected in accordance with AD 91-11-01. In both reports, missing fasteners common to the skin at frame shear tie flanges were detected in the vicinity of cracks. In one case, eight fasteners were missing from the body skin at the severed frame at BS 440. One airplane had accumulated 11,641 total flight cycles; the other airplane had accumulated 11,880 total flight cycles.

In light of these reports, we have determined that, for certain Boeing Model 747-100B SUD, -200C, -200F, and -300 series airplanes; and certain Boeing Model 747-200B series airplanes retrofitted with a stretched upper deck (SUD); the inspections required by AD 91-11-01 do not adequately detect fatigue cracks at BS 420, 440, and 460 between stringers S-8 and S-12 inclusive. Such fatigue cracking, if not detected and corrected in a timely manner, could lead to severed frames, and consequent rapid decompression and loss of the structural integrity of the airplane.

Other Relevant Rulemaking

On January 16, 1990, we issued AD 90-06-06, amendment 39-6490 (55 FR 8374, March 7, 1990), for certain Boeing Model 747 series airplanes. That AD requires incorporation of certain structural modifications. We issued that AD to prevent degradation in the structural capabilities of the affected airplanes. One of the required modifications incorporates a modification (reference Boeing Service Bulletin 747-53-2272, Revision 12, dated December 22, 1988) that ends the repetitive inspections of the frames in Zone 2 required by this AD.

Relevant Service Information

We have reviewed Boeing Alert Service Bulletin 747-53A2265, Revision 9, dated February 17, 2005. Among other actions, the service bulletin describes procedures for repetitive surface high frequency eddy current (HFEC) inspections for cracks in the frames at BS 420, 440, and 460 between stringers S-8 and S-12 inclusive on the left and right sides of the airplane.

FAA's Determination and Requirements of This AD

We evaluated all pertinent information and identified an unsafe condition that is likely to exist or develop on other Boeing Model 747-100B SUD, -200C, -200F, and -300 series airplanes; and Boeing Model 747-200B series airplanes retrofitted with a SUD of this same type design. Therefore, we issued emergency AD 2005-04-51 to detect and correct fatigue cracks in the frames and body skin at BS 420, 440, and 460 between stringers S-8 and S-12 inclusive, which could lead to severed frames, and consequent rapid decompression and loss of the structural integrity of the airplane. The AD requires repetitive external detailed inspections for cracked skin or loose or missing fasteners of the body skin between BS 420 and 460 inclusive and between stringers S-8 and S-12 inclusive on the left and right sides of the airplane. If any cracked skin or loose or missing fastener is detected, the AD also requires a surface HFEC inspection for cracks in the frames at BS 420, 440, and 460 between stringers S-8 and S-12 on the left and right sides of the airplane; repair of any cracked frame or skin; and replacement of any loose of missing fastener with a new fastener; as applicable. Accomplishing the HFEC inspection ends the repetitive external detailed inspections. The HFEC inspections must be done in accordance with the service information described previously.

We found that immediate corrective action was required; therefore, notice and opportunity for prior public comment thereon were impracticable and contrary to the public interest, and good cause existed to make the AD effective immediately by individual notices issued on February 17, 2005, to all known U.S. owners and operators of certain Boeing Model 747-100B SUD, -200B, -200C, -200F, and -300 series airplanes. These conditions still exist, and the AD is hereby published in the Federal Register as an amendment to section 39.13 of the Federal Aviation Regulations (14 CFR 39.13) to make it effective to all persons.

Interim Action

We consider this AD interim action. We are currently considering superseding this emergency AD and AD 91-11-01 to, among other actions, reduce the initial threshold of the inspections required by AD 91-11-01 for certain airplanes and to add other actions specified in Boeing Alert Service Bulletin 747-53A2265, Revision 9, dated February 17, 2005.

Comments Invited

This AD is a final rule that involves requirements that affect flight safety and was not preceded by notice and an opportunity for public comment; however, we invite you to submit any relevant

written data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2005-20431; Directorate Identifier 2005-NM-040-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the AD. We will consider all comments received by the closing date and may amend the AD in light of those comments.

We will post all comments we receive, without change, to *http://dms.dot.gov*, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this AD. Using the search function of our docket Web site, anyone can find and read the comments in any of our dockets, including the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.). You can review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78), or you can visit *http://dms.dot.gov*.

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.

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 this emergency regulation is later deemed significant under DOT Regulatory Policies and Procedures, we will prepare a final regulatory evaluation and place it in the AD Docket. See the ADDRESSES section for a location to examine the regulatory evaluation, if filed.

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 FAA amends § 39.13 by adding the following new airworthiness directive (AD):

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).

2005-04-51 Boeing: Amendment 39-13995. Docket No. FAA-2005-20431; Directorate Identifier 2005-NM-040-AD.

Effective Date

(a) This AD becomes effective March 9, 2005, to all persons except those persons to whom it was made immediately effective by emergency AD 2005-04-51, issued on February 17, 2005, which contained the requirements of this amendment.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Boeing Model 747-100B SUD, -200C, -200F, and -300 series airplanes, line numbers 1 through 685 inclusive; and Boeing Model 747-200B series airplanes, line numbers 271, 276, 336, 344, 369, 389, 397, 474, 491, 518, 521, and 539; certificated in any category.

Unsafe Condition

(d) This AD was prompted by reports of large cracks common to fuselage frames in the upper deck area and severed or nearly severed adjacent frames. We are issuing this AD to detect and correct fatigue cracks in the frames and body skin at body stations (BS) 420, 440, and 460 between stringers S-8 and S-12 inclusive, which could lead to severed frames, and consequent rapid decompression and loss of the structural integrity 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 External Detailed Inspections

(f) Before the accumulation of 8,000 total flight cycles, or within 10 flight cycles after the effective date of this AD, whichever occurs later, do an external detailed inspection for cracked skin or loose or missing fasteners of the body skin between BS 420 and 460 inclusive and between stringers S-8 and S-12 inclusive on the left and right sides of the airplane. Repeat the external detailed inspection thereafter at intervals not to exceed 25 flight cycles.

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."

Corrective Actions

(g) If any cracked skin or loose or missing fastener is detected during any external detailed inspection required by paragraph (f) of this AD, before further flight, do a surface high frequency eddy current (HFEC) inspection for cracks in the frames at BS 420, 440, and 460 between stringers S-8 and S-12 on the left and right sides of the airplane, in accordance with paragraph 2. and Notes 2 and 3 of Figure 17 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2265, Revision 9, dated February 17, 2005, except as provided by Note 1 of Figure 17 of the service bulletin. Accomplishing the surface HFEC inspection ends the repetitive inspections required by paragraph (f) of this AD.

(1) If no cracked frame is found, before further flight, repair the cracked skin and replace the loose or missing fasteners with new fasteners, as applicable, in accordance with a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; or in accordance with data meeting the certification basis of the airplane approved by an Authorized Representative (AR) for the Boeing Delegation Option Authorization (DOA) 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 reference this AD.

(2) If any cracked frame is found, before further flight, repair the cracked frame and skin and replace the loose or missing fasteners with new fasteners, as applicable, in accordance with a method approved by the Manager, Seattle ACO, FAA; or in accordance with data meeting the certification basis of the airplane approved by an AR for the Boeing DOA 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 reference this AD.

Terminating Action

(h) Modification in Zone 2 in accordance with Boeing Service Bulletin 747-53-2272, dated January 12, 1987, through Revision 18, dated May 16, 2002, constitutes terminating action for the requirements of this AD.

Note 2: Paragraph H. of AD 91-11-01, amendment 39-6997 refers to Boeing Service Bulletin 747-53-2272, dated January 12, 1987, as the appropriate source of service information for accomplishing the optional terminating action in that AD. AD 90-06-06, amendment 39-6490, refers to Boeing Service Bulletin 747-53-2272, Revision 12, dated December 22, 1988; or earlier revisions; as an appropriate source of service information for accomplishing the mandatory terminating action in that AD.

Alternative Methods of Compliance (AMOCs)

(i)(1) The Manager, Seattle 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 AR for the Boeing DOA 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.

Material Incorporated by Reference

(j) You must use Boeing Alert Service Bulletin 747-53A2265, Revision 9, dated February 17, 2005, to perform the high frequency eddy current inspections that are required by this AD. The Director of the Federal Register approves the incorporation by reference of this document in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. For copies of the service information, contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207. You can review copies at the Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street SW., room PL-401, Nassif Building, Washington, DC; or 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 February 25, 2005.
Ali Bahrami,
Manager, Transport Airplane Directorate, Aircraft Certification Service.
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