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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2000-NM-355-AD; Amendment 39-12756; AD 2002-10-10]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to certain Boeing Model 747 series airplanes, that currently requires repetitive inspections to detect cracks in various areas of the fuselage external structure, and repair, if necessary. This amendment adds new repetitive inspections for cracking of certain areas of the upper chord of the upper deck floor beams, and repair, if necessary. This amendment is prompted by the results of fatigue testing that revealed severed upper chords of the upper deck floor beams due to fatigue cracking. The actions specified by this AD are intended to prevent loss of the structural integrity of the fuselage, which could result in rapid depressurization of the airplane.

DATES: Effective June 27, 2002.

The incorporation by reference of Boeing Alert Service Bulletin 747-53A2349, Revision 1, dated October 12, 2000, as listed in the regulations, is approved by the Director of the Federal Register as of June 27, 2002.

The incorporation by reference of Boeing Service Bulletin 747-53-2349, dated June 27, 1991, as listed in the regulations, was approved previously by the Director of the Federal Register as of June 11, 1993 (58 FR 27927, May 12, 1993).

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 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: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD 93-08-12, amendment 39-8559 (58 FR 27927, May 12, 1993), which is applicable to certain Boeing Model 747 series airplanes, was published in the Federal Register on November 27, 2001 (66 FR 59180). The action proposed to continue to require repetitive inspections to detect cracks in various areas of the fuselage internal structure, and repair, if necessary. The action also proposed to add new repetitive inspections for cracking of certain areas of the upper chord of the upper deck floor beams, and repair, if necessary.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Clarify Note 3

Two commenters ask that Note 3 of the proposed rule be changed for clarification. The commenters note that the section titled "Differences Between Proposed AD and Revision 1 of the Alert Service Bulletin" states that the proposed AD would not require the high frequency eddy current inspection of the left and right sides of the upper deck floor beam at body station 380 between buttock lines 40 and 76 because it was mandated in AD 2000-04-17, amendment 39-11600 (65 FR 10695, February 29, 2000). The commenters state that Note 3 addresses only inspections that were done before the effective date of this AD, not any subsequent inspections done per AD 2000-04-17.

The FAA agrees that, for this area, the high frequency eddy current inspections required by AD 2000-04-17, done before AND after the effective date of this AD, meet the intent of this AD. Therefore, Note 3 of this final rule has been changed for clarification.

Change Paragraph (d)(2)

One commenter (the manufacturer) asks that paragraph (d)(2) of the proposed rule be changed for clarification. The commenter notes that the inspections for Group 3 airplanes are located in sections 41, 42, AND 44 upper deck floor beams.

We agree with the commenter. The proposed rule specifies inspections of Area 1, and, as information only, included the sections of that area (sections 41 and 42 upper deck floor beams from body stations 380 through 1100 inclusive). However, for Group 3 airplanes, section 44 is also part of Area 1, so we have added that section to paragraph (d)(2) of this final rule for clarification.

Change Paragraph (d)

One commenter asks that the inspection specified in paragraph (d) of the proposed rule be changed to include a provision for airplanes that have been modified to a stretched upper deck configuration. This modification involves installation of new upper deck floor beams from body stations 380 through 1100 inclusive. The commenter states that the initial inspection for these airplanes should not have to be done until 22,000 flight cycles AFTER incorporation of the upper deck modification.

We do not agree with the commenter. Due to the fact that these airplanes have many different configurations, the commenter must provide sufficient technical data justifying that the increased risk associated with extending the compliance time is insignificant. If such data are submitted, we will consider approving the commenter's request as an alternative method of compliance (AMOC), as provided in paragraph (h)(1) of this final rule. No change to the final rule is necessary in this regard.

Change Paragraph (a)

One commenter asks that additional requirements be added following paragraph (d) of the proposed rule to require that, at 22,000 total flight cycles or 3,000 flight cycles after the last inspection required by AD 93-08-12, the next inspection of the locations described in paragraphs (a)(2) through (a)(7) of the proposed rule be done per Revision 1 of the service bulletin. The commenter also asks that, at 25,000 total flight cycles or 3,000 flight cycles after the last inspection required by AD 93-08-12, the next inspection of the location described in paragraph (b) of the proposed rule be done per Revision 1 of the service bulletin. The commenter states that this would terminate all inspections required by paragraphs (a)(1) through (a)(7) and paragraph (b) of the proposed rule. The commenter notes that Revision 1 of the service bulletin adds improvements such as new access procedures to allow better inspections of Area 3, section 46, lower lobe frames, and Area 6, main entry door cutouts.

We do not agree with the commenter. We have determined that the access procedures specified in the original issue of the service bulletin provide for adequate inspections. We also have determined that the improvements in Revision 1 of the service bulletin do not need to be mandated to meet the intent of the proposed rule. It should be noted that Revision 1 has been approved as an AMOC to AD 93-08-12. No change to the final rule is necessary in this regard.

Change Paragraph (h)(2)

One commenter asks that paragraph (h)(2) of the proposed rule be changed to consider AMOCs approved previously in accordance with AD 93-08-12 to be approved for compliance with paragraphs (a) and (b) of the proposed rule ONLY.

We do not agree with the commenter. We have reviewed all existing AMOCs and have determined that continued approval of these AMOCs will not compromise the intent of the proposed rule. No change to the final rule is necessary in this regard.

Change Paragraph (g)

One commenter asks that paragraph (g) of the proposed rule be changed to add a requirement to repair any cracking found during the inspections required by paragraphs (a) and (b) of the proposed rule, in addition to the inspections required by paragraphs (d) and (e), and to include any new paragraphs added.

We do not agree with the commenter. Paragraph (c) of the proposed rule addresses the repairs for paragraphs (a) and (b) of the proposed rule. In addition, no new paragraphs will be added after paragraph (d) of the final rule, as specified in our response in the request to change paragraph (a), above. No change to the final rule is necessary in this regard.

Change Preamble

One commenter asks that certain wording in the preamble of the proposed rule be changed. The commenter states that the wording in the section titled "Explanation of Relevant Service Information" should be changed from "eliminate the need for the existing inspections," to "replace the existing inspections." The commenter also asks that the wording in the section titled "Explanation of Requirements of the Proposed Rule" be changed from "Since an unsafe condition has been identified," to "Since a potential unsafe condition has been identified."

We acknowledge and agree with the commenter's remarks on the preamble of the proposed rule; however, the sections referred to are not restated in this final rule. Therefore, no change to the final rule is necessary in this regard.

Alternative Inspection

One commenter asks that a detailed visual inspection from below the upper deck floor beams between body stations 1020 and 1100 be approved as an alternative inspection method to meet the detailed visual inspection requirements for Group 3 airplanes specified in the proposed rule. The commenter states that this alternative inspection method is specified in Note 1 of Step 1, Figure 2, of the Accomplishment Instructions of Revision 1 of the referenced service bulletin.

We do not agree with the commenter. The note in Step 1, Figure 2, of the service bulletin is limited to floor beams between body stations 260 and 330. We disagree that inspections from below will provide an equivalent level of safety for the floor beams located between body stations 1020 and 1100. However, if data are submitted that provide procedures for an alternative inspection program that will offer an acceptable level of safety, we would consider this under the provisions for an AMOC, as provided in paragraph (h)(1) of this final rule. No change to the final rule is necessary in this regard.

Explanation of Change to Final Rule

Since the issuance of the proposed rule, the FAA has found that the identification of affected airplanes in the preamble of the proposed rule needs further clarification. Therefore, we have changed the preamble to specify "certain Boeing Model 747 series airplanes," instead of listing out each model. This change is made for consistency with the effectiveness of the service bulletin, which is listed in the applicability section within the final rule.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Interim Action

This is considered to be interim action until similar action for Boeing Model 747-400 series airplanes and 747 freighter airplanes is identified, at which time the FAA may consider further rulemaking.

Cost Impact

There are approximately 489 airplanes of the affected design in the worldwide fleet.

The FAA estimates that 181 airplanes of U.S. registry are subject to the existing AD. The actions that are currently required by AD 93-08-12 take approximately 1,746 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of the currently required actions is estimated to be \$104,760 per airplane.

We estimate that 155 airplanes of U.S. registry are subject to the new actions in this AD. The new inspections that are required by this AD action will take approximately 255 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of the requirements of this AD on U.S. operators is estimated to be \$2,371,500, or \$15,300 per airplane.

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

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.

For the reasons discussed above, I certify that this action (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. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it 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]

Section 39.13 is amended by removing amendment 39-8559 (58 FR 27927, May 12, 1993), and by adding a new airworthiness directive (AD), amendment 39-12756, to read as follows:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

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

We post ADs on the internet at "www.airweb.faa.gov/rg1"

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).

2002-10-10 Boeing: Amendment 39-12756. Docket 2000-NM-355-AD. Supersedes AD 93-08-12, Amendment 39-8559.

Applicability: Model 747 series airplanes, as listed in Boeing Service Bulletin 747-53-2349, dated June 27, 1991, or Boeing Alert Service Bulletin 747-53A2349, Revision 1, dated October 12, 2000; 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 (h)(1) 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 prevent loss of the structural integrity of the fuselage, which could result in rapid depressurization of the airplane, do the following:

Restatement of Requirements of AD 93-08-12

Repetitive Inspections

(a) Prior to the accumulation of 22,000 total flight cycles, or within 1,000 flight cycles after June 11, 1993 (the effective date of AD 93-08-12, amendment 39-8559), whichever occurs later, unless accomplished previously within the last 2,000 flight cycles; and thereafter at intervals not to exceed 3,000 flight cycles: Perform a detailed internal inspection to detect cracks in the areas of the fuselage internal structure specified in paragraphs (a)(1) through (a)(7) of this AD; in accordance with Boeing Service Bulletin 747-53-2349, dated June 27, 1991.

- (1) Sections 41 and 42 upper deck floor beams.
- (2) Section 42 upper lobe frames.
- (3) Section 46 lower lobe frames.
- (4) Section 42 lower lobe frames.
- (5) Main entry door cutouts.
- (6) Section 41 body station 260, 340, and 400 bulkheads.
- (7) Main entry doors.

(b) Prior to the accumulation of 25,000 total flight cycles, or within 1,000 flight cycles after June 11, 1993, whichever occurs later, unless accomplished previously within the last 2,000 flight cycles;

and thereafter at intervals not to exceed 3,000 flight cycles: Perform a detailed internal inspection to detect cracks in the Section 46 upper lobe frames, in accordance with Boeing Service Bulletin 747-53-2349, dated June 27, 1991.

Repair

(c) Prior to further flight, repair any cracks detected during the inspections done per paragraph (a) or (b) of this AD, 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 (DER) who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the approval letter must specifically reference this AD.

New Requirements of This AD

Repetitive Inspections

(d) Before the accumulation of 22,000 total flight cycles, or within 3,000 flight cycles after doing the most recent inspection required by paragraph (a) of this AD, whichever occurs later: Do a detailed inspection to find cracking in the areas specified in paragraph (d)(1) or (d)(2) of this AD, as applicable, per Figure 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2349, Revision 1, dated October 12, 2000. Repeat the inspection after that every 3,000 flight cycles. Doing this inspection terminates the inspection required by paragraph (a) of this AD in the area specified in paragraph (a)(1) of this AD only.

(1) For Groups 1, 2, 4, and 5 airplanes: Do the inspections of Area 1 (sections 41 and 42 upper deck floor beams), including existing repairs and modifications.

(2) For Group 3 airplanes: Do the inspections of Area 1 (sections 41, 42, and 44 upper deck floor beams from body stations 380 through 1100 inclusive), including existing repairs and modifications.

Note 2: 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."

(e) Before the accumulation of 28,000 total flight cycles, or within 3,000 flight cycles after doing the most recent inspection required by paragraph (a) of this AD, whichever occurs later: Do a high frequency eddy current (HFEC) inspection to find cracking of the open holes in the horizontal flanges of the upper chord of each upper deck floor beam in the areas specified in paragraph (e)(1) or (e)(2) of this AD, as applicable, per the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2349, Revision 1, dated October 12, 2000. Do the inspection per "Inspection Alternatives," as specified in Sheet 7 of Figure 2 of the Accomplishment Instructions of the service bulletin. Repeat the applicable inspection according to the "Repeat Inspection Intervals," specified in Sheet 7 of Figure 2 of the Accomplishment Instructions of the service bulletin.

(1) For Group 1, 2, 4, and 5 airplanes: Do the inspections at the applicable locations (BS 380 through BS 780 inclusive for Groups 1, 2, and 4, BS 380 through BS 860 inclusive for Group 5) as specified in Sheet 7 of Figure 2.

(2) For Group 3 airplanes: Do the inspections as specified in Sheet 7 of Figure 2, at the upper deck floor beams from BS 380 through BS 1100 inclusive.

Note 3: HFEC inspections of the left and right sides of the upper deck floor beam at body station 380, between buttock lines 40 and 76, done per AD 2000-04-17, amendment 39-11600, are considered acceptable for compliance with the applicable inspections specified in paragraph (e) of this AD.

Adjustments to Compliance Time: Cabin Differential Pressure

(f) For the purposes of calculating the compliance threshold and repetitive interval for the actions required by paragraphs (d) and (e) of this AD: For Area 1 only, 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.

Repair

(g) Before further flight, repair any cracking found during the inspection done per paragraphs (d) and (e) of this AD, according to Boeing Alert Service Bulletin 747-53A2349, Revision 1, dated October 12, 2000. Where the service bulletin specifies to contact Boeing for repair instructions, repair per a method approved by the Manager, Seattle ACO; or per data meeting the type certification basis of the airplane approved by a Boeing Company DER who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the approval letter must specifically reference this AD.

Alternative Methods of Compliance

(h)(1) 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.

(2) Alternative methods of compliance and FAA-approved repairs, approved previously in accordance with AD 92-08-12, amendment 39-8559, are approved as alternative methods of compliance with this AD.

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

Special flight permits may be issued in accordance with §§ 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

(j) Except as provided by paragraphs (c), (f), and (g) of this AD, the actions shall be done in accordance with Boeing Service Bulletin 747-53-2349, dated June 27, 1991; and Boeing Alert Service Bulletin 747-53A2349, Revision 1, dated October 12, 2000; as applicable.

(1) The incorporation by reference of Boeing Alert Service Bulletin 747-53A2349, Revision 1, dated October 12, 2000, as listed in the regulations, is approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

(2) The incorporation by reference of Boeing Service Bulletin 747-53-2349, dated June 27, 1991, was approved previously by the Director of the Federal Register as of June 11, 1993 (58 FR 27927, May 12, 1993).

(3) 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

(k) This amendment becomes effective on June 27, 2002.

Issued in Renton, Washington, on May 14, 2002.

Vi L. Lipski,
Manager, Transport Airplane Directorate, Aircraft Certification Service.
[FR Doc. 02-12635 Filed 5-22-02; 8:45 am]
BILLING CODE 4910-13-P

SUPERSEDED