

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2000-NM-276-AD; Amendment 39-12329; AD 2001-14-18]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; CORRECTION.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to certain Boeing Model 747 series airplanes, that currently requires inspections to detect fatigue cracking of the vertical beam webs and chords of the nose wheel well (NWW) and of the inner chord and web of the fuselage frames at body station (BS) 300 and BS 320, and repair, if necessary. This amendment expands the applicability of the existing AD to include additional airplanes, and adds new requirements for repetitive inspections to detect fatigue cracking of the NWW vertical beam webs and frames from BS 260 to BS 320, and follow-on actions, if necessary, which would end the currently required inspections for airplanes subject to them. This amendment also provides terminating action for the new repetitive inspections. The actions specified by this AD are intended to detect and correct fatigue cracking of the NWW vertical beam webs and frames, which could result in collapse of the NWW pressure bulkhead and subsequent rapid decompression of the airplane. This action is intended to address the identified unsafe condition.

DATES: Effective August 30, 2001.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of August 30, 2001.

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 96-26-04, amendment 39-9867 (61 FR 69026, December 31, 1996), which is applicable to certain Boeing Model 747 series airplanes, was published in the Federal Register on March 14, 2001 (66 FR 14867). The action proposed to continue to require inspections to detect fatigue cracking of the vertical beam webs and chords of the nose wheel well and of the inner chord and web of the fuselage frames at body station (BS) 300 and BS 320, and repair, if necessary. The action also proposed to expand the applicability of the existing AD to include additional airplanes, and add new requirements for repetitive inspections to detect fatigue cracking of the nose wheel well vertical beam webs and frames from BS 260 to BS 320, and follow-on actions, if necessary, which would end currently required inspections for airplanes subject to them. The action also provides terminating action for the new repetitive inspections.

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 from a single commenter.

Reference Applicable Revision Level of Service Bulletin

Table 3 of the proposed AD contains the compliance schedule for accomplishment of the inspections in paragraph (c) of the proposed AD for previously inspected airplanes subject to Procedure 3, 4, or 6 of Boeing Alert Service Bulletin 747-53A2293, Revision 8, dated July 13, 2000. The commenter requests that the FAA revise the column in Table 3 that contains the compliance time for the initial inspection of the proposed AD. The commenter asks that the column headings specifically identify Boeing Service Bulletin, Revision 7, dated March 13, 1997, as the correct source for the definitions of Options 1 and 2 as specified in those columns. The commenter believes that the FAA intended to reference Revision 7 of the service bulletin in this case because that is the revision being used by most operators.

The FAA partially concurs with the commenter's request. We find that it's necessary to revise Table 3 in this final rule, but the commenter's suggested remedy does not fully address the issue because operators could possibly be using issues of the service bulletin other than Revision 7. Furthermore, we have determined that the definitions of Option 1 and Option 2 have varied between revisions of the service bulletin. Therefore, we find it necessary to cite the original issue and Revisions 1 through 7 of the service bulletin, as well as to remove the references to Options 1 and 2 entirely, and instead specify the method of inspections included in those options. Table 3 of this final rule has been revised accordingly.

Extend Compliance Time for Paragraph (f)

The commenter requests that the FAA extend the compliance time in paragraph (f) of the proposed AD for airplanes on which cracking was repaired prior to the effective date of this AD according to paragraph (a)(2) of the proposed AD. The commenter states that, if these airplanes have not been inspected per paragraph (a) of the proposed AD within the last 100 flight cycles before the effective date of this AD, the airplanes must be inspected per paragraph (c) of the proposed AD within 100 flight cycles after the effective date of this AD. The commenter states that if these same airplanes had not been repaired per paragraph (a)(2) of the proposed AD, they would have been allowed to wait until 500 flight cycles after the effective date of this AD to do the inspections in paragraph (c). The commenter states that its experience in the subject area shows that repairs per paragraph (a)(2) of the proposed AD should be significantly larger and stronger than published repairs per the Boeing 747 Structural Repair Manual, which should eliminate the need for these airplanes to be inspected within 100 flight cycles after the effective date of this AD.

The FAA concurs with the intent of the commenter's request, though not with its rationale. We do not concur that an airplane not repaired per paragraph (a)(2) of this AD would have a compliance time of 500 flight cycles after the effective date of this AD. An unrepaired airplane would be subject to a compliance time of 100 or 500 flight cycles SINCE LAST INSPECTION (not since the effective date of this AD), depending on the method used for the last inspection.

As explained in the preamble of the proposed AD, we intend paragraph (f) to apply to airplanes that may not have been inspected following repairs. Certain airplanes could have been repaired as early as 1997, with no inspections having been accomplished since that time. The compliance time of 100 flight cycles after the effective date of this AD in paragraph (f) of this AD ensures that all of these airplanes will be inspected promptly.

However, the FAA does concur that paragraph (f) of the proposed AD could require certain airplanes--i.e., those inspected by internal detailed visual inspection and high frequency eddy current (HFEC) inspection, which allows a 1,500-flight-cycle repeat interval--to be inspected unnecessarily within 100 flight cycles after the effective date of this AD. Therefore, the FAA has revised paragraph (f) of this final rule to provide an extended compliance time of 500 flight cycles after the effective date of this AD for airplanes on which an internal detailed visual and HFEC inspection has been done according to Boeing Service Bulletin 747-53-2293 within the last 1,500 flight cycles before the effective date of this AD.

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.

Cost Impact

There are approximately 562 Model 747 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 179 airplanes of U.S. registry will be affected by this AD.

For affected airplanes, the inspections that are currently required by AD 96-26-04 take approximately 24 work hours per airplane, at an average labor rate of \$60 per work hour. Based on these figures, the FAA estimates the cost impact of the currently required actions to be \$1,440 per affected airplane, per inspection cycle.

The new inspections that are required in this AD will take approximately 4 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the FAA estimates the cost impact of these new actions on U.S. operators to be \$42,960, or \$240 per airplane, per inspection cycle.

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.

Sec. 39.13 [Amended]

2. Section 39.13 is amended by removing amendment 39-9867 (61 FR 69026, December 31, 1996), and by adding a new airworthiness directive (AD), amendment 39-12329, 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 "av-info.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).

CORRECTION

2001-14-18 Boeing: Amendment 39-12329. Docket 2000-NM-276-AD. Supersedes AD 96-26-04, Amendment 39-9867.

Applicability: Model 747 series airplanes, line numbers 1 through 685 inclusive, certificated in any category; except as excluded in the table below:

Airplanes Excluded From Applicability of This AD			
Airplane group (as listed in Boeing Alert Service Bulletin 747-53A2293, Revision 8, dated July 13, 2000)	Area 4 modified per Boeing Service Bulletin (BSB) 747-53-2293?	Zone 1 modified per BSB 747-53-2272?	Excepted from this AD?
1-11.....	Yes.....	Yes.....	Yes.
1-11.....	No.....	Yes.....	No.
1-11.....	Yes.....	No.....	No.
12-13.....	Yes.....	N/A.....	Yes.
12-13.....	No.....	N/A.....	No.

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)(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 detect and correct fatigue cracking of nose wheel well (NWW) vertical beams and frames, which could result in collapse of the NWW pressure bulkhead and subsequent rapid decompression of the airplane, accomplish the following:

Restatement of Requirements of AD 96-26-04

Repetitive Inspections of Frame Inner Chord and Web and Repair

(a) For airplanes with line numbers 1 through 678 inclusive on which the Section 41 frame replacement in zone 1 specified in Boeing Service Bulletin 747-53-2272 has not been accomplished: Prior to the accumulation of 10,000 total flight cycles, or within 50 flight cycles after January 6, 1997 (the effective date of AD 96-26-04, amendment 39-9867), whichever occurs later, perform a detailed

visual inspection to detect fatigue cracking of the inner chord and web of the left side and right side of body station (BS) 300 and BS 320 fuselage frames from the NWW side panel outboard to stringer 39, in accordance with normal maintenance practices. Pay particular attention to the area where the NWW vertical beam inner chord interfaces with the fuselage frame.

(1) If no cracking is detected, repeat the detailed visual inspection thereafter at intervals not to exceed 100 flight cycles, until paragraph (c) of this AD is done.

(2) If any cracking is detected, prior to further flight, repair in accordance with a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the Manager's approval letter must specifically reference this AD.

One-Time Inspection of Vertical Beam Webs and Chords and Repair

(b) For airplanes with line numbers 1 through 678 inclusive on which the Section 41 frame replacement in zone 1 specified in Boeing Service Bulletin 747-53-2272 has not been accomplished: Prior to the accumulation of 10,000 total flight cycles, or within 50 flight cycles after January 6, 1997, whichever occurs later, perform a one-time detailed visual inspection to detect fatigue cracking of the left and right side vertical beam webs and chords of the NWW at BS 300 and BS 320, in accordance with normal maintenance procedures.

(1) If no cracking is detected, no further action is required by this paragraph.

(2) If any cracking is detected, prior to further flight, repair in accordance with a method approved by the Manager, Seattle ACO. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the Manager's approval letter must specifically reference this AD.

New Requirements of this AD

Note 2: For the purposes of this AD, a detailed visual 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."`

Repetitive Inspections

(c) Do inspections to detect fatigue cracking of NWW vertical beam webs and frames, as applicable, from BS 260 to BS 320 (``Area 4"), per the applicable procedure shown in Table 1 of this AD and the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2293, Revision 8, dated July 13, 2000. For affected airplanes, inspection per this paragraph ends the repetitive inspections required by paragraph (a). Table 1 follows:

Table 1.--Determining the Applicable Procedure				
Airplane group	Area 4 inspected per the original issue or revisions 1 through 7 of BSB 747-53-2293?	Area 4 modified per BSB 747-53-2293?	Zone 1 modified per BSB 747-53-2272?	Applicable procedure and figures in service bulletin
1-11.....	No.....	No.....	No.....	Procedure 1; Figures 4 and 19, and Figure10; as applicable.
1-11.....	No.....	No.....	Yes.....	Procedure 2; Figures11 and 12.
1-11.....	Yes.....	No.....	No.....	Procedure 3; Figures 4 and 13, and Figures10 and 14; as applicable.
1-11.....	Yes.....	No.....	Yes.....	Procedure 4; Figures11 and 15.
1-11.....	No.....	Yes.....	No.....	Procedure 5; Figures10, 16, and 17; as applicable.
1-11.....	Yes.....	Yes.....	No.....	Procedure 6; Figure18; and Figure 10, 14 or 17; as applicable.
12-13.....	No.....	No.....	N/A.....	Procedure 2; Figures 11 and 12.
12-13.....	Yes.....	No.....	N/A.....	Procedure 4; Figures 11 and 15.

Repetitive Inspections: Compliance Schedule

(d) For all airplanes, do the inspection in paragraph (c) of this AD per the schedule in Table 2 or Table 3 of this AD, as applicable, except as provided by paragraph (f) of this AD. Thereafter, repeat the inspection at the interval specified in Table 2 or Table 3 of this AD, as applicable, until paragraph (h) of this AD is done. Tables 2 and 3 follow:

Table 2.--Compliance Schedule--Procedures 1, 2, and 5

For airplanes subject to	Do the initial inspection before the latest of	Repeat the inspection in the service bulletin as follows:	
		If most recent inspection was per option 1, repeat at least every	If most recent inspection was per option 2, repeat at least every
Procedure 1.....	10,000 total flight cycles or 100 flight cycles after the last inspection per paragraph(a) of this AD.	1,500 flight cycles.	100 flight cycles.
Procedure 2.....	10,000 total flight cycles or 1,500 flight cycles after January 6, 1997 or 100 flight cycles after the effective date of this AD.	1,500 flight cycles.	500 flight cycles.
Procedure 5.....	10,000 total flight cycles or 500 flight cycles since modification of Area 4 in accordance with BSB747-53-2293 or 100 flight cycles after the effective date of this AD.	1,500 flight cycles	100 flight cycles.

Table 3.--Compliance Schedule--Procedures 3, 4, and 6

For airplanes subject to	Do the initial inspection as follows, as applicable:		Repeat the inspection in the service bulletin as follows:	
	If most recent inspection used both detailed visual and high frequency eddy current (HFEC) methods, per the original issue or Revisions 1 through 7 of BSB 747-53-2293, do the inspection:	If most recent inspection used only the detailed visual method, per the original issue or Revisions 1 through 7 of BSB747-53-2293, do the inspection:	If most recent inspection was per Option 1, repeat at least every	If most recent inspection was per Option 2, repeat at least every
Procedure 3.....	Within 500 flight cycles since last inspection.	Within 100 flight cycles since last inspection.	1,500 flight cycles.	100 flight cycles.
Procedure 4.....	Within 500 flight cycles since last inspection.	Within 100 flight cycles since last inspection.	1,500 flight cycles.	500 flight cycles.
Procedure 6.....	Within 500 flight cycles since last inspection.	Within 100 flight cycles since last inspection.	1,500 flight cycles.	100 flight cycles.

Exceptions to Inspections Per Paragraphs (a) and (b)

(e) For airplanes subject to paragraphs (a) and (b) of this AD: Airplanes inspected per paragraph (c) of this AD within the compliance time specified in paragraphs (a) and (b) of this AD are not required to be inspected per paragraphs (a) and (b) of this AD.

(f) For airplanes in Groups 1 through 11 on which cracking was repaired prior to the effective date of this AD per paragraph (a)(2) of this AD: If an inspection per paragraph (a) has not been done within the last 100 flight cycles before the effective date of this AD, do the inspection in paragraph (c) of this AD at the compliance time specified in paragraph (f)(1) or (f)(2) of this AD, as applicable.

(1) If internal detailed visual and HFEC inspections according to BSB 747-53-2293 have been done within the last 1,500 flight cycles before the effective date of this AD: Do the inspection within 500 flight cycles after the effective date of this AD.

(2) For airplanes not identified in paragraph (f)(1) of this AD: Do the inspection within 100 flight cycles after the effective date of this AD.

Corrective Actions

(g) If any cracking is found during any inspection required by paragraph (c) or (d) of this AD, prior to further flight, perform corrective actions, including secondary inspections to detect further cracking, in accordance with the applicable procedure in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2293, Revision 8, dated July 13, 2000.

Optional Terminating Action

(h) Replacement of vertical beams and frames, as applicable, in accordance with the applicable procedure in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2293, Revision 8, dated July 13, 2000, ends the requirements of this AD.

Alternative Methods of Compliance

(i) (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, approved previously in accordance with AD 96-26-04, amendment 39-9867, are approved as alternative methods of compliance with paragraphs (a) and (b) of this AD.

Note 3: 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) Except as specified in paragraphs (a) and (b) of this AD, the actions shall be done in accordance with Boeing Alert Service Bulletin 747-53A2293, Revision 8, dated July 13, 2000. 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 August 30, 2001.

Issued in Renton, Washington, on July 12, 2001.

Vi L. Lipski,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 01-18015 Filed 7-25-01; 8:45 am]

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