

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [65 FR 25281 5/1/2000]

[Docket No. 99-NM-231-AD; Amendment 39-11707; AD 2000-08-21]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to all Boeing Model 747 series airplanes, that requires repetitive inspections to detect cracking of the forward and aft inner chords and the splice fitting of the forward inner chord of the station 2598 bulkhead, and repair, if necessary. This amendment is prompted by reports of fatigue cracking found in those areas. The actions specified by this AD are intended to detect and correct such cracking, which could result in reduced structural capability of the bulkhead and the inability of the structure to carry horizontal stabilizer flight loads.

DATES: Effective June 5, 2000.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of June 5, 2000.

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, Transport Airplane Directorate, 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) to include an airworthiness directive (AD) that is applicable to all Boeing Model 747 series airplanes was published in the **Federal Register** on November 5, 1999 (64 FR 60386). That action proposed to require repetitive inspections to detect cracking of the forward and aft inner chords and the splice fitting of the forward inner chord of the station 2598 bulkhead, 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.

Request to Reference New Service Information

One commenter requests that the proposed AD be revised to reference Boeing Alert Service Bulletin 747-53A2427, Revision 1, dated October 28, 1999. (The original issue of Boeing Alert Service Bulletin 747-53A2427, dated December 17, 1998, was referenced in the proposal as the appropriate source of service information for the proposed actions.)

The FAA concurs with the commenter's request. Since the issuance of the proposed rule, the FAA has reviewed and approved Boeing Alert Service Bulletin 747-53A2427, Revision 1. Revision 1 of the alert service bulletin is substantially similar to the original issue. However, Revision 1 includes instructions for a one-time high frequency eddy current (HFEC) and repetitive detailed visual inspections to detect cracking of the splice fitting of the forward inner chord of the station 2598 bulkhead. Though not described in the original issue of the alert service bulletin, such inspections of the splice fitting were described in the proposed rule, so adding references to Revision 1 of the alert service bulletin to this final rule would not add any additional requirements beyond those that were proposed. Thus, paragraphs (a), (b), and (c) of this final rule have been revised to reference both the original issue and Revision 1 of the alert service bulletin as appropriate sources of service information for the requirements of this AD.

In addition, the same commenter requests that the FAA make several specific changes to paragraphs (a) and (b) of the proposed rule:

- Revise paragraph (a)(1) to refer to Figure 2, Steps 1 and 2, of Boeing Alert Service Bulletin 747-53A2427, Revision 1;
- Revise paragraph (a)(2) to refer to Figure 2, View C and View A, of Boeing Alert Service Bulletin 747-53A2427, Revision 1;
- Revise paragraph (b)(1) to refer to Figure 3, Steps 1 and 2, of Boeing Alert Service Bulletin 747-53A2427, Revision 1; and
- Revise paragraph (b)(2) to refer to Figure 2, View C and View A, of Boeing Alert Service Bulletin 747-53A2427, Revision 1.

The commenter states that these changes will make inspection instructions more explicit.

The FAA concurs with the commenter's request, and references to specific figures and steps contained in Revision 1 of the alert service bulletin have been included in paragraphs (a) and (b) of this final rule accordingly. However, for consistency, where the commenter recommends "View C and View A" in its suggested revisions to paragraphs (a)(2) and (b)(2) of the proposed AD, the FAA instead has revised those paragraphs to refer to "Step 3" of the figures.

Request to Delete Notes

The same commenter that requests that the FAA revise the proposed rule to reference new service information also requests that the FAA delete "NOTE 2" and "NOTE 4" of the proposed rule. These notes explain that inspection areas specified in paragraphs (a)(2) and (b)(2) of the proposed rule are not highlighted in certain figures in the original issue of the alert service bulletin. In Revision 1 of the alert service bulletin, the figures to which these notes refer have been updated to show the subject inspection areas. The commenter cites no justification

for this request, but the FAA infers that the commenter considers "NOTE 2" and "NOTE 4" no longer necessary.

The FAA does not concur with the commenter's request. As stated previously, this final rule has been revised to reference both the original issue and Revision 1 of the alert service bulletin as appropriate sources of service information. The information in "NOTE 2" and "NOTE 4" is still correct for the original issue of the alert service bulletin. No change to the final rule is necessary in this regard.

Request to Clarify Repair Method

One commenter requests that the FAA revise paragraph (d) of the proposed rule to allow repairs of cracking of the aft inner chord to be accomplished in accordance with the applicable chapters of the Boeing 747 Structural Repair Manual (SRM) referenced in Boeing Alert Service Bulletin 747-53A2427. The commenter states that, without clarification, paragraph (d) of the proposal may be interpreted to require approval by the Manager of the FAA's Seattle Aircraft Certification Office (ACO) for repairs of cracking of the aft inner chord because the alert service bulletin provides the option to contact Boeing for repair data instead of using the SRM.

The FAA does not concur with the commenter that any change is necessary. Paragraph (c) of the proposed rule (and this final rule) states that any cracking detected during the inspections required by paragraph (a)(1) or (b)(1) of this AD must be repaired in accordance with the alert service bulletin, except as provided by paragraph (d) of this AD. The FAA considers paragraph (d) of this AD to apply to cracks on the aft inner chord only if those cracks cannot be repaired in accordance with the chapters of the SRM listed in the alert service bulletin. No change to the final rule is necessary in this regard.

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. The manufacturer has advised that it currently is developing a modification that will positively address the unsafe condition addressed by this AD. Once this modification is developed, approved, and available, the FAA may consider additional rulemaking.

Cost Impact

There are approximately 1,301 Model 747 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 260 airplanes of U.S. registry will be affected by this AD.

It will take approximately 2 work hours per airplane to accomplish the required HFEC inspection, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of this inspection on U.S. operators is estimated to be \$31,200, or \$120 per airplane.

It will take approximately 2 work hours per airplane to accomplish the required detailed visual inspections, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of this inspection on U.S. operators is estimated to be \$31,200, or \$120 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.

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]

2. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

REGULATORY SUPPORT DIVISION
P.O. BOX 26460
OKLAHOMA CITY, OKLAHOMA 73125-0460



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

AD's are posted on the internet at <http://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).

2000-08-21 BOEING: Amendment 39-11707. Docket 99-NM-231-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 (e) 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 cracking of the forward and aft inner chords and the splice fitting of the forward inner chord of the station 2598 bulkhead, which could result in reduced structural capability of the bulkhead and the inability of the structure to carry horizontal stabilizer flight loads, accomplish the following:

Initial Inspection

(a) Prior to the accumulation of 13,000 total flight cycles, or within 1,000 flight cycles after the effective date of this AD, whichever occurs later: Accomplish the requirements specified in paragraphs (a)(1) and (a)(2) of this AD.

(1) Perform a high frequency eddy current inspection (HFEC) to detect cracking of the forward and aft inner chords of the station 2598 bulkhead, in accordance with Boeing Alert Service Bulletin 747-53A2427, dated December 17, 1998; or in accordance with Figure 2, Steps 1 and 2, of Boeing Alert Service Bulletin 747-53A2427, Revision 1, dated October 28, 1999.

(2) Perform an HFEC inspection to detect cracking of the splice fitting along the upper and lower attachment to the forward inner chord of the station 2598 bulkhead, as shown in Figure 2, Detail A, of Boeing Alert Service Bulletin 747-53A2427, dated December 17, 1998; or in accordance with Figure 2, Step 3, of Boeing Alert Service Bulletin 747-53A2427, Revision 1, dated October 28, 1999.

NOTE 2: Operators should note that although the splice fitting is NOT highlighted in Figure 2, Detail A, of Boeing Alert Service Bulletin 747-53A2427, dated December 17, 1998, as it is in Figure 2 of Boeing Alert Service Bulletin 747-53A2427, Revision 1, dated October 28, 1999, the inspection required by paragraph (a)(2) of this AD must still be accomplished.

Repetitive Inspections

(b) Within 3,000 flight cycles after accomplishment of the inspections required by paragraph (a) of this AD: Accomplish the inspections specified in paragraphs (b)(1) and (b)(2) of this AD. Repeat the inspection thereafter at intervals not to exceed 3,000 flight cycles.

(1) Perform a detailed visual inspection to detect cracking of the forward and aft inner chords of the station 2598 bulkhead, in accordance with Boeing Alert Service Bulletin 747-53A2427, dated December 17, 1998; or in accordance with Figure 3, Steps 1 and 2, of Boeing Alert Service Bulletin 747-53A2427, Revision 1, dated October 28, 1999.

NOTE 3: 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."

(2) Perform a detailed visual inspection to detect cracking of the splice fitting along the upper and lower attachment to the forward inner chord of the station 2598 bulkhead, as shown in Figure 3, Detail A, of Boeing Alert Service Bulletin 747-53A2427, dated December 17, 1998; or in accordance with Figure 3, Step 3, of Boeing Alert Service Bulletin 747-53A2427, Revision 1, dated October 28, 1999.

NOTE 4: Operators should note that although the splice fitting is NOT highlighted in Figure 3, Detail A, of Boeing Alert Service Bulletin 747-53A2427, dated December 17, 1998, as it is in Figure 3 of Boeing Alert Service Bulletin 747-53A2427, Revision 1, dated October 28, 1999, the inspections required by paragraph (b)(2) of this AD must still be accomplished.

Repair

(c) If any cracking is detected during the inspections required by paragraph (a)(1) or (b)(1) of this AD, prior to further flight, repair in accordance with Boeing Alert Service Bulletin 747-53A2427, dated December 17, 1998, or Revision 1, dated October 28, 1999; except as provided by paragraph (d) of this AD.

(d) If any cracking is detected during the inspections required by paragraph (a)(2) or (b)(2) of this AD, or where the alert service bulletin specifies that the manufacturer may be contacted for disposition of certain repair conditions, prior to further flight, repair in accordance with a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA,

Transport Airplane Directorate; or in accordance with 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, or a Boeing DER, as required by this paragraph, the approval letter must specifically reference this AD.

Alternative Methods of Compliance

(e) 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 5: 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

(f) 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

(g) Except as provided by paragraph (d) of this AD, the actions shall be done in accordance with Boeing Alert Service Bulletin 747-53A2427, dated December 17, 1998, or Boeing Alert Service Bulletin 747-53A2427, Revision 1, dated October 28, 1999. 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.

(h) This amendment becomes effective on June 5, 2000.

FOR FURTHER INFORMATION CONTACT:

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

Issued in Renton, Washington, on April 19, 2000.

Donald L. Riggan, Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.