

[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [66 FR 34094 6/27/2001]

[Docket No. 2000-NM-250-AD; Amendment 39-12286; AD 2001-13-06]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747-100, -200, -300, and 747SP Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD); applicable to certain Boeing Model 747-100, -200, -300, and 747SP series airplanes; that requires certain inspections to find missing and alloy-steel taperlock fasteners (bolts) in the diagonal brace underwing fittings; and corrective actions, if necessary. For airplanes with missing or alloy-steel fasteners, this AD also mandates replacement of certain fasteners with new fasteners, which constitutes terminating action for the repetitive inspections. This action is necessary to prevent loss of the underwing fitting load path due to missing or damaged alloy-steel taperlock fasteners, which could result in separation of the engine and strut from the airplane. This action is intended to address the identified unsafe condition.

DATES: Effective August 1, 2001.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of August 1, 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: Tamara L. Anderson, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2771; 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 certain Boeing Model 747-100, -200, -300, and 747SP series airplanes was published in the Federal Register on January 23, 2001 (66 FR 7433). That action proposed to require certain inspections to find missing and alloy-steel taperlock fasteners (bolts) in the diagonal brace underwing fittings; and corrective actions, if necessary. For airplanes with missing or alloy-steel fasteners, that action also proposed to mandate replacement of certain fasteners with new fasteners, which would constitute terminating action for the 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.

Support for the Proposal

One commenter supports the proposed rule.

Request To Clarify Potential Damage Conditions

One commenter, the airplane manufacturer, requests that the FAA revise language in the preamble and paragraph (b)(1) of the proposed AD, which specifies, "an open-hole high frequency eddy current (HFEC) inspection to detect cracks at the bolt hole locations * * *." The commenter requests that these sections refer to corrosion and damage in addition to cracking. The commenter states that corrosion is often present in bolt holes where cracked alloy steel bolts have been removed, and that fastener holes may be damaged during removal of bolts.

The FAA concurs with the commenter's request to reference all conditions that may be found during the open-hole HFEC inspection, and has revised paragraph (b)(1) to specify "an open-hole [HFEC] inspection to detect cracks, corrosion, or damage at the bolt hole locations of the aft 10 taperlock fasteners in the diagonal brace underwing fitting." Paragraphs (b)(3) and (c) have also been revised to acknowledge that conditions other than cracking may be present. The FAA finds that these changes will not result in any additional burden for operators because the open-hole HFEC inspection is used to indicate whether there is a discrepancy, regardless of whether the discrepancy is a crack, corrosion, or other damage. The section of the preamble which the commenter asked to be changed is not restated in this final rule; thus, no change is necessary in this regard.

Request To Estimate Cost of Corrective Action

Two commenters request that the FAA revise the cost impact information included in the proposed AD to include an estimate of the cost for replacement of alloy-steel fasteners. One of the commenters also requests that the FAA estimate the number of airplanes on which this replacement may be necessary. The commenters note that, based on inspections accomplished thus far, it is highly probable that many operators will find alloy-steel fasteners installed on their airplanes. One of the commenters specifically requests that the FAA use the work hour estimate of 448 work hours per airplane that is provided in Boeing Alert Service Bulletin 747-57A2312, dated June 15, 2000.

The FAA concurs with the commenters' requests, though we note that the cost impact estimate included in ADs is typically limited only to the cost of actions actually required by the rule. The cost estimate does not typically consider the costs of "on-condition" actions, such as repairing a crack if one is detected during a required inspection ("repair, if necessary"). Such "on-condition" repair actions would be required to be accomplished--regardless of AD requirements--in order to correct an unsafe condition identified in an airplane and to ensure operation of that airplane in an airworthy condition, as required by the Federal Aviation Regulations.

In this case, however, the FAA acknowledges that many operators will probably find alloy-steel fasteners installed; thus, we agree that it is acceptable to provide an estimate of the costs associated with replacement of alloy steel fasteners. Accordingly, the FAA has added an estimate of the cost of the replacement of alloy steel fasteners to the "Cost Impact" section of this final rule. The FAA is unable to accommodate the commenter's request to estimate the number of airplanes that will actually require bolt replacement, but has instead estimated the total cost if all U.S.-registered airplanes subject to this AD must accomplish the bolt replacement. Operators will note that the estimated cost is based on a work hour estimate of 135 hours per airplane, which differs from the estimate of 448 work hours suggested by the commenter. The commenter's figure of 448 work hours includes time for gaining access and closing up, which the FAA considers incidental costs. Incidental costs are not typically included in the cost estimate in AD actions because these costs may vary significantly from operator to operator, making them almost impossible to calculate.

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 363 airplanes of the affected design in the worldwide fleet. The FAA estimates that 60 airplanes of U.S. registry will be affected by this AD.

It will take approximately 2 work hours per airplane to accomplish the required visual and magnetic inspections, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of these inspections on U.S. operators is estimated to be \$7,200, or \$120 per airplane.

Should an operator be required to accomplish the fastener replacement, it will take approximately 135 work hours per airplane, at an average labor rate of \$60 per work hour. Required parts will cost approximately \$1,600 per airplane. Based on these figures, the cost impact of such replacement is estimated to be \$9,700 per airplane. Should all airplanes on the U.S. Register that are subject to this AD be required to accomplish this replacement, the FAA estimates that the cost impact of this replacement on U.S. operators would be \$582,000.

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 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 "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).

2001-13-06 Boeing: Amendment 39-12286. Docket 2000-NM-250-AD.

Applicability: Model 747-100, -200, -300, and 747SP series airplanes, equipped with titanium diagonal brace underwing fittings; as listed in Boeing Alert Service Bulletin 747-57A2312, dated June 15, 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 (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 prevent loss of the underwing fitting load path due to missing or damaged taperlock fasteners, which could result in separation of the engine and strut from the airplane, accomplish the following:

Repetitive Inspections

(a) Within 12 months after the effective date of this AD: Do a one-time detailed visual inspection of the diagonal brace underwing fitting at the Number 1 and Number 4 engine pylons to find missing taperlock fasteners (bolts), and a magnetic inspection to find alloy-steel fasteners per Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-57A2312, dated June 15, 2000.

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."

(1) If no alloy-steel fasteners are found and no fasteners are missing, no further action is required by this AD.

(2) If any alloy-steel fasteners are found or any fasteners are missing, before further flight, do an ultrasonic inspection of the alloy-steel fasteners to find damage per Part 2 of the Accomplishment Instructions of the service bulletin.

(i) If no damaged alloy-steel fasteners are found, and no fasteners are missing: Repeat the ultrasonic inspection thereafter at intervals not to exceed 18 months until accomplishment of the terminating action required by paragraph (b) of this AD.

(ii) If any damaged alloy-steel fasteners are found, or any fasteners are missing: Before further flight, do an ultrasonic inspection of all 10 aft fasteners (including non-alloy steel) per Part 2 of the Accomplishment Instructions of the service bulletin. Before further flight, replace damaged and missing fasteners with new fasteners per Part 3 of the Accomplishment Instructions of the service bulletin, except as provided by paragraph (c) of this AD. Thereafter, repeat the inspection of the remaining alloy-steel fasteners at intervals not to exceed 18 months until accomplishment of the terminating action required by paragraph (b) of this AD.

Terminating Action

(b) Within 48 months after the effective date of this AD: Do the actions required by paragraphs (b)(1) and (b)(2), or (b)(3) of this AD, per Boeing Alert Service Bulletin 747-57A2312, dated June 15, 2000. Accomplishment of the actions specified in this paragraph constitutes terminating action for the repetitive inspection requirements of this AD.

(1) Perform an open-hole high frequency eddy current (HFEC) inspection to detect cracks, corrosion, or damage at the bolt hole locations of the aft 10 taperlock fasteners in the diagonal brace underwing fitting at the Number 1 and Number 4 engine pylons per Part 3 of the Accomplishment Instructions of the service bulletin. If any cracking is detected, before further flight, perform applicable corrective actions per the service bulletin, except as provided by paragraph (c) of this AD.

(2) Before further flight: Replace all 10 aft taperlock fasteners with new, improved fasteners per Part 3 of the Accomplishment Instructions of the service bulletin.

(3) Do an ultrasonic inspection to find damaged fasteners per Part 2 of the Accomplishment Instructions of the service bulletin. Before further flight, replace all damaged non-alloy steel and all alloy-steel fasteners with new fasteners per Part 3 of the Accomplishment Instructions of the service bulletin. Do an open-hole HFEC inspection before installation of the new fasteners; if any cracking, corrosion, or damage is found, before further flight, perform applicable corrective actions per the service bulletin, except as provided by paragraph (c) of this AD.

Corrective Actions

(c) If any cracking, corrosion, or damage of the bolt hole that exceeds the limits specified in the service bulletin is found, or if any non-alloy steel bolt is found to be damaged, during any inspection required by this AD, and the 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 by the Manager, Seattle ACO, as required by this paragraph, the Manager's approval letter must specifically reference this AD.

Spares

(d) As of the effective date of this AD, no person shall install on any airplane, a fastener, part number BACB30PE() * (); or any other fastener made of 4340, 8740, PH13-8 Mo or H-11 steel, in the locations specified in 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 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

(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 (c) of this AD, the actions shall be done in accordance with Boeing Alert Service Bulletin 747-57A2312, dated June 15, 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

(h) This amendment becomes effective on August 1, 2001.

Issued in Renton, Washington, on June 19, 2001.

Kalene C. Yanamura, Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

SUPERSEDED