

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. 2000-NM-330-AD; Amendment 39-12336; AD 2001-15-02]**

**RIN 2120-AA64**

Airworthiness Directives; Boeing Model 747 Series Airplanes Powered By Pratt & Whitney JT9D-3 and -7 Series Engines

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule.

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**SUMMARY:** This amendment supersedes an existing airworthiness directive (AD), applicable to certain Boeing Model 747 series airplanes, that currently requires repetitive inspections and torque checks of the hanger fittings and strut forward bulkhead of the forward engine mount and adjacent support structure, and corrective actions, if necessary. The existing AD also provides for optional terminating action for the repetitive inspections and checks. This amendment requires certain new repetitive torque checks and the previously optional terminating action. The actions specified by this AD are intended to prevent loose fasteners and associated damage to the hanger fittings and bulkhead of the forward engine mount, which could result in separation of the engine from the airplane.

**DATES:** Effective August 24, 2001.

The incorporation by reference of Boeing Alert Service Bulletin 747-54A2203, dated August 31, 2000, as listed in the regulations, was approved previously by the Director of the Federal Register as of December 6, 2000 (65 FR 69862, November 21, 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:** Tamara 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) by superseding AD 2000-23-16, amendment 39-11988 (65 FR 69862, November 21, 2000), which is applicable to certain Boeing Model 747 series airplanes, was published in the Federal Register on February 15, 2001 (66 FR 10387). The action proposed to continue to require repetitive inspections and torque checks of the hanger fittings and strut forward bulkhead of the forward engine mount and adjacent support structure, and corrective actions, if necessary. The action also proposed to mandate certain new repetitive torque checks and the previously optional terminating action.

## **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 Eliminate Repetitive Inspections/Checks and Terminating Action**

One commenter states that, if the initial torque check shows no loose fastener is installed, the repetitive inspections/checks and terminating action should not be required. The commenter's rationale for this request is that the cause of the loose fasteners is incorrect grip length of fasteners installed during a strut and wing modification.

The FAA infers that the commenter is stating that, if the fastener is not loose at the time of the initial inspection, it will not become loose later, and is requesting that we remove these requirements from this AD. The FAA does not concur. If the wrong grip-length of fastener is installed, damage of the fastener thread run-out may have occurred during initial installation of the fastener due to shanking of the fastener. This could lead to a problem with the durability of the fastener. No change to the final rule is necessary in this regard.

### **Reduce Torque Values for Loose Fastener Check**

One commenter requests that the FAA revise the proposed rule to reduce the torque values for the loose fastener check to the minimum value. As an example, the commenter refers to the torque value of 250 inch-pounds for the NAS6706 fastener listed in Table 1 of Figure 3 of Boeing Alert Service Bulletin 747-54A2203, dated August 31, 2000. The commenter states that this value should be 220 inch-pounds because that is the minimum installation torque required.

The FAA does not concur with the commenter's request. The difference in torque value to which the commenter refers is very small. If an operator determines that a fastener is NOT loose at a torque value of 220 inch-pounds but IS loose at a torque value of 250 inch-pounds, the operator may apply for an alternative method of compliance according to the provisions of paragraph (d) of this AD. No change to the final rule is necessary in this regard.

### **Clarify Instructions for Torque Check**

One commenter requests that the FAA clarify how the torque check should be accomplished. The commenter specifically asks whether or not the fastener head should be retained if torque is applied to the nut end.

The FAA does not concur that any further clarification on this issue is necessary. The applicable service bulletin specifies that the torque check is intended to test whether the fastener rotates. The fastener head should not be retained because, if it is retained, it may be impossible to determine whether the fastener rotated before reaching the specified torque in Figure 3 of the service bulletin. No change to the final rule is necessary in this regard.

## Explanation of Change to Alternative Method of Compliance (AMOC) Paragraph

Since the issuance of the proposed rule, the FAA has approved AMOCs for AD 2000-23-16. AMOCs approved previously in accordance with AD 2000-23-16 are considered acceptable for compliance with corresponding actions in this AD. Accordingly, a new paragraph (d)(2) has been added to this 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 change previously described. The FAA has determined that this change will neither increase the economic burden on any operator nor increase the scope of the AD.

### Cost Impact

There are approximately 366 Model 747 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 115 airplanes of U.S. registry will be affected by this AD.

The detailed visual inspections that are currently required by AD 2000-23-16 take approximately 8 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 inspections currently required by the existing AD on U.S. operators is estimated to be \$55,200, or \$480 per airplane, per inspection.

The torque checks that are currently required by AD 2000-23-16 take approximately 24 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 torque checks currently required by the existing AD on U.S. operators is estimated to be \$165,600, or \$1,440 per airplane, per check.

The new torque checks required by this AD also will take approximately 8 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of this torque check on U.S. operators is estimated to be \$55,200, or \$480 per airplane, per check.

The terminating action required by this AD will take approximately 24 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Required parts will cost approximately \$300 per airplane. Based on these figures, the cost impact of the terminating action required by this AD on U.S. operators is estimated to be \$200,100, or \$1,740 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.

#### **Sec. 39.13 [Amended]**

2. Section 39.13 is amended by removing amendment 39-11988 (65 FR 80301, December 21, 2000), and by adding a new airworthiness directive (AD), amendment 39-12336, to read as follows:

**SUPERSEDED**

# 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).

**2001-15-02 Boeing:** Amendment 39-12336. Docket 2000-NM-330-AD. Supersedes AD 2000-23-16, Amendment 39-11988.

**Applicability:** Model 747 series airplanes, certificated in any category, as listed in Boeing Alert Service Bulletin 747-54A2203, dated August 31, 2000; except Model 747 series airplanes having serial numbers 21048 and 20887.

**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 (d)(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 loose fasteners and associated damage to the hanger fittings and strut forward bulkhead of the forward engine mount, which could result in separation of the engine from the airplane, accomplish the following:

## **Restatement of Requirements of AD 2000-23-16 Repetitive Inspections/Checks**

(a) Within 60 days after December 6, 2000 (the effective date of AD 2000-23-16, amendment 39-11988): Perform a detailed visual inspection and torque check as specified in Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2203, dated August 31, 2000, to detect loose fasteners and associated damage to the hanger fittings and bulkhead of the forward engine mount, in accordance with Figure 1 of the alert service bulletin.

**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 loose fastener or associated damage is detected, repeat the inspections/checks thereafter at the applicable intervals specified in Figure 1 of the alert service bulletin until accomplishment of the terminating action specified in paragraph (c) of this AD.

**Note 3:** Where there are differences between the AD and the alert service bulletin, the AD prevails.

## Corrective Actions

(2) If any loose fastener or associated damage is detected, before further flight, perform the applicable corrective actions (torque check, rework or replacement of fittings), as specified in Figure 1 of the alert service bulletin. Repeat the inspections/checks thereafter at the applicable intervals specified in Figure 1 of the alert service bulletin until accomplishment of the terminating action specified in paragraph (c) of this AD. Where the alert service bulletin specifies that the manufacturer may be contacted for disposition of certain corrective actions (rework or replacement of fittings), this AD requires such rework and/or replacement to be done in accordance with a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; 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, as required by this paragraph, the Manager's approval letter must specifically reference this AD.

## New Requirements of this AD

### Repetitive Checks/ Inspections/Corrective Actions

(b) Within 18 months after the effective date of this AD: Do the torque check specified in Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2203, dated August 31, 2000, to detect loose fasteners of the hanger fittings of the forward engine mount.

(1) If no loose fastener is detected, repeat the torque check thereafter at intervals not to exceed 1,200 flight cycles or 18 months, whichever occurs first, until accomplishment of the terminating action specified in paragraph (c) of this AD.

(2) If any loose fastener is detected, before further flight, perform the applicable corrective actions as specified in Figure 4, Figure 5, or Part 6, as applicable, of the Accomplishment Instructions of the alert service bulletin.

(i) If Figure 4 or Figure 5 of the Accomplishment Instructions of the alert service bulletin is used to do the corrective actions for the fitting; thereafter, repeat the detailed visual inspection required by paragraph (a) of this AD at the applicable intervals specified in Figure 1 of the alert service bulletin, and repeat the torque check for that fitting at intervals not to exceed 180 flight cycles. Accomplish the terminating action for that fitting as specified in Part 6 of the Accomplishment Instructions of the alert service bulletin within 18 months after finding any loose fastener or 60 months after the effective date of this AD, whichever occurs first.

(ii) If Part 6 of the Accomplishment Instructions of the alert service bulletin is used to do the corrective actions for the fitting, this constitutes terminating action for the repetitive inspections/checks for that fitting only.

(3) If any associated damage is found, before further flight, repair in accordance with a method approved by the Manager, Seattle ACO, or in accordance with 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 Manager's approval letter must specifically reference this AD. If any damage to any fitting is found, before further flight, do the applicable corrective actions specified in Part 4 or Part 5 of the Accomplishment Instructions of the alert service bulletin; this constitutes terminating action for the repetitive inspections/checks for that fitting only.

(4) If any loose fastener is detected during any repeat inspection/check specified in paragraph (b)(2)(i) of this AD, before further flight, accomplish the terminating action for that fitting as specified in Part 6 of the Accomplishment Instructions of the alert service bulletin.

## Terminating Action

(c) Within 60 months after the effective date of this AD: Accomplish all actions in the terminating action specified in Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2203, dated August 31, 2000. Accomplishment of this paragraph constitutes terminating action for

the repetitive inspections/checks required by paragraphs (a) and (b) of this AD. Where the alert service bulletin specifies that the manufacturer may be contacted for disposition of certain corrective actions (rework or replacement of fittings), this AD requires such rework and/or replacement to be done in accordance with a method approved by the Manager, Seattle ACO; or in accordance with 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 Manager's approval letter must specifically reference this AD.

**Note 4:** Installation of two BACW10BP\*APU washers on Group A fasteners accomplished during modification in accordance with Boeing Service Bulletin 747-54A2159, dated November 3, 1994, Revision 1, dated June 1, 1995, or Revision 2, dated March 14, 1996; and pin or bolt protrusion as specified in the 747 Structural Repair Manual, Chapter 51-30-02 (both referenced in Boeing Alert Service Bulletin 747-54A2203, dated August 31, 2000); is considered acceptable for compliance with the terminating action specified in paragraph (c) of this AD.

### **Alternative Methods of Compliance**

(d) (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 2000-23-16, amendment 39-11988, are approved as alternative methods of compliance for corresponding actions in this AD.

**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**

(e) 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**

(f) Except as provided by paragraph (a)(2), (b)(3), and (c) of this AD, the actions shall be done in accordance with Boeing Alert Service Bulletin 747-54A2203, dated August 31, 2000. The incorporation by reference of that document was approved previously by the Director of the Federal Register as of December 6, 2000 (65 FR 69862, November 21, 2000). 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**

(g) This amendment becomes effective on August 24, 2001.

Issued in Renton, Washington, on July 13, 2001.

**Donald L. Riggins,**

*Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.*

[FR Doc. 01-18138 Filed 7-19-01; 8:45 am]

BILLING CODE 4910-13-P