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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2010-0679; Directorate Identifier 2009-NM-179-AD; Amendment 39-16621; AD 2011-05-11]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747SR, and 747SP Series Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are superseding an existing airworthiness directive (AD) for the products listed above. That AD 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 visual inspections of the internal angle and external bulkhead chord and detailed inspection of internal angles, and corrective actions if necessary. The existing AD also provides for an optional inspection. This new AD requires additional inspections of airplanes that have hi-lok bolts and collars at all of the Group B fastener locations, except fastener 13, and related investigative and corrective actions. This AD also requires repetitive inspections of the internal angle, and corrective actions if necessary. This AD also requires, for certain airplanes, replacing the fasteners, which terminates certain repetitive inspections. This AD was prompted by reports of undertorqued or loose fasteners, a cracked bulkhead chord, and a fractured back-up angle. We are issuing this AD to detect and correct loose fasteners and/or damaged or cracked hanger fittings, back-up angles, and bulkhead of the forward engine mount, which could lead to failure of the hanger fitting and bulkhead and consequent separation of the engine from the airplane.

**DATES:** This AD is effective April 14, 2011.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of April 14, 2011.

**ADDRESSES:** For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service

information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Ken Paoletti, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6434; fax (425) 917-6590.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede airworthiness directive (AD) 2007-19-19, amendment 39-15210 (72 FR 53939, September 21, 2007). That AD applies to the specified products. The NPRM was published in the Federal Register on July 8, 2010 (75 FR 39185). That NPRM 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 visual inspections of the internal angle and external bulkhead chord and detailed inspection of internal angles, and corrective actions if necessary; and it proposed to retain the optional inspection. That NPRM also proposed to require additional inspections of airplanes that have hi-lok bolts and collars at all of the Group B fastener locations, except fastener 13, and related investigative and corrective actions. That NPRM also proposed to require repetitive inspections of the internal angle, and corrective actions if necessary; and for certain airplanes, replacing the fasteners, which would terminate certain repetitive inspections.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We considered the comment received.

### **Request To Include an Option To Support the Engine**

Boeing requested that we revise paragraph (k) of the NPRM to include an option to support the engine while accomplishing the actions specified in Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009. Boeing stated that a safe engine support procedure is established in Subject 71-00-02 of the Boeing 747 Aircraft Maintenance Manual, which contains information for removing and installing the power plant using one of two methods: with a crane, overhead sling, strut-mounted bootstrap components; or with the PT90-E universal engine changer. Boeing stated that using the PT90-E changer is optional in the two hoisting procedures. Boeing pointed out that Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009, clearly states not to use the bootstrap (strut-mounted) components method. Boeing stated that all that is required is removing the engine weight to remove the engine mount fasteners. Boeing stated that doing paragraph (k) of the NPRM would unnecessarily remove the engine and cause significant downtime and incur many costs.

We disagree with the request to include the option to support the engine weight. Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009, specifies procedures to remove and install the engine. Using other procedures to suspend the engine does not provide a satisfactory level of safety. Safety issues may occur when supporting the engine weight instead of removing the engine; for example, any movement or loads applied to the engine with pneumatic ducts, hydraulic lines, and controls connected may cause hidden damage. The engine support procedure does not address the weight of the engine to ensure that no loads are applied to the strut to allow fastener removal in accordance with Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009. In addition, the engine support procedure does not require the airplane to be secured to prevent its movement during the time that the engine is supported. We have retained the requirement in paragraph (k) of this final rule. We have not changed the AD in regard to this issue.

**Conclusion**

We reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD as proposed.

**Costs of Compliance**

There are about 266 airplanes of the affected design in the worldwide fleet. The following table provides the estimated costs for U.S. operators to comply with this AD.

**Estimated Costs**

<b>Action</b>	<b>Work hours</b>	<b>Average labor rate per hour</b>	<b>Parts</b>	<b>Cost per airplane</b>	<b>Number of U.S.-registered airplanes</b>	<b>Fleet cost</b>
Actions (required by AD 2007-19-19)	40	\$85	\$0	\$3,400	121	\$411,400
Internal Angle Inspection (new action)	16	\$85	\$0	\$1,360	121	\$164,560
Replacement of fasteners (new action)	24	\$85	\$0	\$2,040	121	\$246,840

**Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

**Regulatory Findings**

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD 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.

For the reasons discussed above, I certify that this AD:

- (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),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 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. The FAA amends § 39.13 by removing airworthiness directive (AD) 2007-19-19, Amendment 39-15210 (72 FR 53939, September 21, 2007), and adding the following new AD:



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**2011-05-11 The Boeing Company:** Amendment 39-16621; Docket No. FAA-2010-0679; Directorate Identifier 2009-NM-179-AD.

**Effective Date**

(a) This airworthiness directive (AD) is effective April 14, 2011.

**Affected ADs**

(b) This AD supersedes AD 2007-19-19, Amendment 39-15210.

**Applicability**

(c) This AD applies to The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747SR, and 747SP series airplanes, certificated in any category; as identified in Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009.

**Subject**

(d) Air Transport Association (ATA) of America Code 54: Nacelles/Pylons.

**Unsafe Condition**

(e) This AD results from the development of a mandating action. The Federal Aviation Administration is issuing this AD to detect and correct loose fasteners and/or damaged or cracked hanger fittings, back-up angles, and bulkhead of the forward engine mount, which could lead to failure of the hanger fitting and bulkhead and consequent separation of the engine from the airplane.

**Compliance**

(f) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

**Restatement of a Requirement of AD 2007-19-19, With Updated Service Information**

**Inspections and Related Investigative and Corrective Actions**

(g) Except as provided by paragraphs (i), (l), and (n) of this AD: At the applicable compliance times and repeat intervals listed in Tables 1 and 2 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-54A2203, Revision 1, dated August 9, 2007, do the inspections and applicable related investigative and corrective actions in accordance with Parts 2 and 8 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2203, Revision 1, dated August 9, 2007; or Revision 2, dated July 9, 2009. After the effective date of this AD, use only Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009.

## **New Requirements of This AD**

### **Mandatory Initial and Repetitive Inspections and Related Investigative and Corrective Actions**

(h) For all airplanes: Except as provided by paragraph (m) of this AD, at the applicable time in Table 2 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009, do the initial inspection and related investigative and corrective actions in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009, except as required by paragraphs (k) and (n) of this AD. Repeat the inspection thereafter at the applicable time in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009.

(i) For airplanes that were inspected in accordance with in Boeing Alert Service Bulletin 747-54A2203, dated August 31, 2000; or Revision 1, dated August 9, 2007; and that have hi-lok bolts and collars at all of the Group B fastener locations: Except as provided by paragraph (m) of this AD, at the applicable time in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009, do the initial inspection and related investigative and corrective actions in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009, except as required by paragraph (n) of this AD. Repeat the inspection at the applicable interval in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009.

### **Replacement of Hi-Lok Group B Fasteners**

(j) For airplanes that were inspected in accordance with Boeing Alert Service Bulletin 747-54A2203, dated August 31, 2000, and that have hi-lok bolts and collars at all of the Group B fastener locations: Within 18 months after the effective date of this AD, replace all hi-lok Group B fasteners in accordance with Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009. Repeat the inspection required by Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009, at the applicable interval specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009.

### **Exceptions to Service Bulletin**

(k) Where Step 3 of Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2203, Revision 1, dated August 9, 2007; or Revision 2, dated July 9, 2009; provides the option to support the engine weight instead of removing the engine, this AD does not allow that option. This AD requires that the engine be removed before performing the inspections required by paragraph (h) of this AD.

(l) Where Boeing Alert Service Bulletin 747-54A2203, Revision 1, dated August 9, 2007, specifies a compliance time after the date of that service bulletin, this AD requires compliance within the specified compliance time after October 9, 2007 (the effective date of AD 2007-19-19).

(m) Where Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009, specifies a compliance time after the date of Revision 1 or Revision 2 of that service bulletin, this AD requires compliance within the specified compliance time after the effective date of this AD.

(n) Where Boeing Alert Service Bulletin 747-54A2203, Revision 1, dated August 9, 2007; or Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009; specifies to contact Boeing for appropriate action, this AD requires, before further flight, repair of the discrepancy or replacement of the discrepant part using a method approved in accordance with the Boeing Commercial Airplanes Organization Designation Authorization or in accordance with the procedures specified in paragraph (p) of this AD.

## **Credit for Actions Previously Accomplished in Accordance With Previous Service Information**

(o) Actions performed before the effective date of this AD, in accordance with Boeing Alert Service Bulletin 747-53A2203, Revision 1, dated August 9, 2007, are acceptable for compliance with the corresponding actions specified in paragraphs (h), (i), and (j) of this AD.

## **Alternative Methods of Compliance (AMOCs)**

(p)(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Ken Paoletti, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6434; fax (425) 917-6590. Or, e-mail information to 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD, if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization who has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) AMOCs approved previously in accordance with AD 2007-19-19, Amendment 39-15210, are approved as AMOCs for the corresponding provisions of this AD.

## **Related Information**

(q) For more information about this AD, contact Ken Paoletti, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6434; fax (425) 917-6590.

## **Material Incorporated by Reference**

(r) You must use Boeing Alert Service Bulletin 747-54A2203, Revision 2, dated July 9, 2009, to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; Internet <https://www.myboeingfleet.com>.

(3) You may review copies of the service information at the FAA, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(4) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at an NARA facility, call 202-741-6030, or go to [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Renton, Washington, on February 22, 2011.  
Kalene C. Yanamura,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.