

**DEPARTMENT OF TRANSPORTATION****Federal Aviation Administration****14 CFR Part 39**

[Docket No. FAA-2009-0865; Directorate Identifier 2009-NM-023-AD; Amendment 39-16168; AD 2010-01-10]

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 Equipped With General Electric CF6-45 or -50 Series Engines, or Equipped With Pratt & Whitney JT9D-3 or -7 (Excluding -70) Series Engines**

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

**ACTION:** Final rule.

**SUMMARY:** The FAA is superseding an existing airworthiness directive (AD), which applies to certain Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747SR, and 747SP series airplanes. That AD currently requires repetitive inspections to detect cracks and fractures of the strut front spar chord assembly (including the forward side) at each strut location, and repair if necessary. This new AD adds a one-time inspection for cracking of the forward side of the front spar chord assembly on the inboard and outboard struts, installation of a cap skin doubler for certain airplanes, and repair if necessary. These actions terminate the repetitive inspections of the forward side of the strut front spar chord assembly; the inspections of the aft side assembly continue as specified in the existing AD. This AD results from a report of a fractured front spar assembly for strut No. 3, which resulted in the loss of the strut upper link load path. We are issuing this AD to detect and correct cracks and fractures of the nacelle strut front spar chord assembly. Fracture of the front spar chord assembly could lead to loss of the strut upper link load path and consequent fracture of the diagonal brace, which could result in in-flight separation of the strut and engine from the airplane.

**DATES:** This AD becomes effective February 24, 2010.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of February 24, 2010.

On January 29, 2007 (72 FR 1427, January 12, 2007), the Director of the Federal Register approved the incorporation by reference of a certain other publication listed in the AD.

**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](mailto:me.boecom@boeing.com); Internet <https://www.myboeingfleet.com>.

**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 (telephone 800-647-5527) is the 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**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that supersedes AD 2007-01-15, amendment 39-14887 (72 FR 1427, January 12, 2007). The existing AD applies to certain Boeing Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747SR, and 747SP series airplanes. That NPRM was published in the **Federal Register** on September 18, 2009 (74 FR 47897). That NPRM proposed to continue to require repetitive inspections to detect cracks and fractures of the strut front spar chord assembly (including the forward side) at each strut location, and repair if necessary. That NPRM also proposed to add a one-time inspection for cracking of the forward side of the front spar chord assembly on the inboard and outboard struts, installation of a cap skin doubler for certain airplanes, and repair if necessary. The additional actions proposed in that NPRM would

terminate the repetitive inspections of the forward side of the strut front spar chord assembly; the inspections of the aft side assembly would continue as specified in the existing AD.

**Comments**

We provided the public the opportunity to participate in the development of this AD. We have considered the single comment received on the NPRM. Boeing concurs with the proposed requirements specified in the NPRM.

**Explanation of Changes Made to This AD**

We have revised this AD to identify the legal name of the manufacturer as published in the most recent type certificate data sheet for the affected airplane models.

Boeing Commercial Airplanes has received an Organization Designation Authorization (ODA), which replaces their previous designation as a Delegation Option Authorization holder. We have revised paragraph (q)(3) of this AD to delegate the authority to approve an alternative method of compliance for any repair required by this AD to the Boeing Commercial Airplanes ODA rather than an Authorized Representative under the former Delegation Option Authorization program.

**Conclusion**

We have carefully reviewed the available data, including the comment that has been received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD. AD as proposed.

**Interim Action**

We consider the actions in this AD to be interim actions for the strut front spar chord assembly at each strut location, excluding the forward side (the terminating action for the forward side is included in this AD). If the manufacturer develops a modification for the remainder of the front spar chord assembly, we might consider additional rulemaking.

**Costs of Compliance**

There are about 411 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

Action	Work hours	Average labor rate per hour	Parts	Cost per airplane	Number of U.S.-registered airplanes	Fleet cost
Inspections (required by AD 2007-01-15).	17 .....	\$80	\$0 .....	\$1,360, per inspection cycle.	85	\$115,600, per inspection cycle.
One-time inspection and cap skin doubler installation (new action).	30 to 116 <sup>1</sup> .....	\$80	\$893 to \$36,737 <sup>1</sup> ..	\$3,293 to \$46,017 <sup>1</sup>	85	\$279,905 to \$3,911,445. <sup>1</sup>

<sup>1</sup> Depending on airplane configuration.

### 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); 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.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket. See the **ADDRESSES** section for a location to examine the regulatory evaluation.

### 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 Federal Aviation Administration (FAA) amends § 39.13 by removing amendment 39-14887 (72 FR 1427, January 12, 2007) and by adding the following new airworthiness directive (AD):

#### 2010-01-10 The Boeing Company:

Amendment 39-16168. Docket No. FAA-2009-0865; Directorate Identifier 2009-NM-023-AD.

#### Effective Date

(a) This AD becomes effective February 24, 2010.

#### Affected ADs

(b) This AD supersedes AD 2007-01-15, Amendment 39-14887.

#### 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, equipped with General Electric CF6-45 or -50 series engines, or equipped with Pratt & Whitney JT9D-3 or -7 (excluding -70) series engines, as identified in Boeing Alert Service Bulletin 747-54A2224, Revision 1, dated November 16, 2006.

#### Subject

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

### Unsafe Condition

(e) This AD results from a report of a fractured front spar assembly for strut No. 3, which resulted in the loss of the strut upper link load path. The Federal Aviation Administration is issuing this AD to detect and correct cracks and fractures of the nacelle strut front spar chord assembly. Fracture of the front spar chord assembly could lead to loss of the strut upper link load path and consequent fracture of the diagonal brace, which could result in in-flight separation of the strut and 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 Requirements of AD 2004-25-05, Amendment 39-13893

#### Aft Side Detailed and High Frequency Eddy Current (HFEC) Inspections With New Service Information

(g) Within 90 days after December 27, 2004 (the effective date of AD 2004-25-05, which was superseded by AD 2007-01-15), perform detailed and HFEC inspections to detect any cracks or fractures of the front spar chord assembly for strut numbers 1 through 4 inclusive, in accordance with Boeing Alert Service Bulletin 747-54A2224, dated September 30, 2004; or in accordance with Part 1—Aft Side Inspection of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2224, Revision 1, dated November 16, 2006. As of January 29, 2007 (the effective date of AD 2007-01-15), only Part 1—Aft Side Inspection of the Accomplishment Instructions of Revision 1 of Boeing Alert Service Bulletin 747-54A2224, Revision 1, dated November 16, 2006, may be used.

(h) Accomplishment of the detailed and HFEC inspections in accordance with Boeing 747 Fleet Team Digest 747-FTD-54-04002, dated April 15, 2004, May 4, 2004, June 1, 2004, July 12, 2004, or July 28, 2004; or Boeing Message 1-C6ELC (Service Request ID No.: 218724992), dated April 14, 2004; before December 27, 2004, is considered acceptable for compliance with the requirements of paragraph (g) of this AD.

### Repetitive Inspections

(i) For airplanes on which no crack or fracture is detected during the inspections

required by paragraph (g) of this AD: At the applicable times specified in Table 1—Repetitive Intervals of this AD, repeat the

detailed and HFEC inspections required by paragraph (g) of this AD.

TABLE 1—REPETITIVE INTERVALS

For airplanes identified in Boeing Alert Service Bulletin 747-54A2224, dated September 30, 2004; or Revision 1, dated November 16, 2006; as—	Repeat the inspections at intervals not to exceed—
Group 1 .....	1,000 flight cycles or 18 months, whichever occurs first.
Group 2 and Group 3 .....	1,200 flight cycles or 18 months, whichever occurs first.
Group 4 and Group 6 .....	1,500 flight cycles or 18 months, whichever occurs first.
Group 5 .....	2,000 flight cycles or 18 months, whichever occurs first.

**Corrective Action**

(j) If any crack or fracture is found during any inspection required by paragraphs (g) and (i) of this AD, and Boeing Alert Service Bulletin 747-54A2224, dated September 30, 2004; or Revision 1, dated November 16, 2006; specifies contacting Boeing for appropriate action: Before further flight, repair the crack or fracture using a method approved in accordance with the procedures specified in paragraph (q) of this AD.

**Restatement of Requirements of AD 2007-01-15**

**Forward Side Detailed and HFEC Inspections**

(k) Within 90 days after January 29, 2007 the effective date of AD 2007-01-15), do detailed and HFEC inspections for any cracks or fracture of the front spar chord assembly for strut numbers 1, 2, 3, and 4, in accordance with Part 2—Forward Side Inspection of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2224, Revision 1, dated November 16, 2006. If no crack or fracture is found, repeat the inspections thereafter at the applicable interval specified in Table 1 of this AD. Doing the inspections required by paragraph (n) of this AD terminates the forward side detailed and HFEC inspection requirements of this paragraph.

**Corrective Action for Forward Side Inspection**

(l) If any crack or fracture is found during any inspection required by paragraph (k) of this AD, and Boeing Alert Service Bulletin 747-54A2224, Revision 1, dated November 16, 2006, specifies to contact Boeing for appropriate action: Before further flight, repair the crack or fracture using a method approved in accordance with the procedures specified in paragraph (q) of this AD.

**Credit for Inspections Done According to Boeing 747 Fleet Team Digest**

(m) Detailed and HFEC inspections done before January 29, 2007, in accordance with Boeing 747 Fleet Team Digest 747-FTD-54-06002, dated June 29, 2006; or October 16, 2006; are acceptable for compliance with the initial inspection required by paragraph (k) of this AD.

**New Requirements of This AD**

**Inspection and Corrective Actions**

(n) At the applicable time specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-54A2230, dated October

30, 2008; except that where the service bulletin specifies a compliance time after the date on the service bulletin, this AD requires compliance within the specified compliance time after the effective date of this AD: Do an open-hole high frequency eddy current (HFEC) inspection for cracking of the forward side of the front spar chord assembly on the inboard and outboard struts; and, for airplanes on which the cap skin doubler is not installed, install the cap skin doubler; in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2230, dated October 30, 2008.

(o) If any crack is found during the inspection required by paragraph (n) of this AD: Before further flight, repair the crack using a method approved in accordance with the procedures specified in paragraph (q) of this AD.

(p) Doing all applicable actions required by paragraphs (n) and (o) of this AD terminates the repetitive forward side detailed and HFEC inspection requirements of paragraph (k) of this AD. All aft side inspection requirements of this AD remain in effect.

**Alternative Methods of Compliance (AMOCs)**

(q)(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 Aircraft Certification Office, 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) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Before using any approved AMOC on any airplane to which the AMOC applies, notify your principal maintenance inspector (PMI) or principal avionics inspector (PAI), as appropriate, or lacking a principal inspector, your local Flight Standards District Office. The AMOC approval letter must specifically reference this AD.

(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 (ODA) that 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 2007-01-15 are approved as AMOCs for the corresponding provisions of this AD.

**Material Incorporated by Reference**

(r) You must use Boeing Alert Service Bulletin 747-54A2224, Revision 1, dated November 16, 2006; and Boeing Alert Service Bulletin 747-54A2230, dated October 30, 2008; as applicable; 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 Boeing Alert Service Bulletin 747-54A2230, dated October 30, 2008, under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) The Director of the Federal Register previously approved the incorporation by reference of Boeing Alert Service Bulletin 747-54A2224, Revision 1, dated November 16, 2006, on January 29, 2007 (72 FR 1427, January 12, 2007).

(3) 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](mailto:me.boecom@boeing.com); Internet <https://www.myboeingfleet.com>.

(4) You may review copies of the 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 or 425-227-1152.

(5) 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 NARA, 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 December 30, 2009.

**Ali Bahrami,**

Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. E9-31363 Filed 1-19-10; 8:45 am]

**BILLING CODE 4910-13-P**