



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2015-5816; Directorate Identifier 2015-NM-029-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to supersede Airworthiness Directive (AD) 2006-10-16, which applies to all The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes. AD 2006-10-16 requires, for certain airplanes, repetitive inspections for cracking of the outboard and center sections of the horizontal stabilizer, and repair if necessary. For certain other airplanes, AD 2006-10-16 requires a detailed inspection to determine the type of fasteners, and related investigative actions and repair if necessary. Since we issued AD 2006-10-16, additional cracking was found in the splice plates, hinge fittings, terminal fittings, the upper skin of the outboard and center sections, and the rear spar webs before reaching the inspection interval specified in AD 2006-10-16. Cracked and fractured Maraging steel fasteners were also found. This proposed AD would reduce the compliance time for certain inspections and would add repetitive inspections for cracking of the splice plates, hinge fittings, terminal fittings, the upper skin of the outboard and center sections, and the rear spar webs in Zone B. This proposed AD would also add an inspection to determine whether fasteners are magnetic in Zone C, repetitive ultrasonic inspections for cracking and fractures of affected fasteners, and related investigative and corrective actions if necessary. This proposed AD

would also add an optional modification, which would terminate certain repetitive inspections, and would add post-modification inspections and corrective action if necessary. We are proposing this AD to detect and correct this cracking, which could lead to reduced structural capability of the outboard and center sections of the horizontal stabilizer and could result in loss of control of the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone: 206-544-5000, extension 1; fax: 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-5816.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-5816; 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 proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: nathan.p.weigand@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2015-5816; Directorate Identifier 2015-NM-029-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

On May 8, 2006, we issued AD 2006-10-16, Amendment 39-14600 (71 FR 28570, May 17, 2006), for all The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes. AD 2006-10-16 requires, for certain airplanes, repetitive inspections for cracking of the outboard and center sections of the horizontal stabilizer, and repair if necessary. For certain other airplanes, AD 2006-10-16 requires a detailed inspection to determine the type of fasteners, related investigative actions, and repair if necessary. AD 2006-10-16 resulted from reports of cracking in the outboard and center section of the aft upper skin of the horizontal stabilizer, the rear spar chord, rear spar web, terminal fittings, and splice plates; and a report of fractured and cracked steel fasteners. We issued AD 2006-10-16 to detect and correct this cracking, which could lead to reduced structural capability of the outboard and center sections of the horizontal stabilizer and could result in loss of control of the airplane.

Actions Since AD 2006-10-16, Amendment 39-14600 (71 FR 28570, May 17, 2006), Was Issued

Since we issued AD 2006-10-16, Amendment 39-14600 (71 FR 28570, May 17, 2006), additional cracking was found in the splice plates, hinge fittings, terminal fittings, the upper skin of the outboard and center sections, and the rear spar webs before reaching the inspection interval specified in AD 2006-10-16. Cracked and fractured Maraging steel fasteners were also found.

Related Service Information under 1 CFR part 51

We reviewed Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015. The service information describes procedures for accomplishing Zone A, Zone B, and Zone C inspections for cracking of the upper skin and upper rear spar chord of the outboard and center sections of the horizontal stabilizer, and related investigative and corrective actions if necessary. The service information also describes

procedures for a magnetic inspection to determine the type of fasteners, ultrasonic inspections for cracking and fractures of affected fasteners, and related investigative actions and corrective actions if necessary. The service information also describes procedures for an optional modification, which would end certain repetitive inspections, and procedures for post-modification inspections and corrective action if necessary. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section of this NPRM.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

Although this proposed AD does not explicitly restate the requirements of AD 2006-10-16, Amendment 39-14600 (71 FR 28570, May 17, 2006), this proposed AD would retain all of the requirements. Those requirements are referenced in the service information identified previously, which, in turn, is referenced in paragraph (g) of this proposed AD. This proposed AD would reduce the compliance time for certain inspections and add new repetitive inspections for cracking of the splice plates, hinge fittings, terminal fittings, the upper skin of the outboard and center sections, and the rear spar webs in Zone B. This proposed AD would also add an inspection to determine whether fasteners are magnetic in Zone C (made of H-11 steel), repetitive ultrasonic inspections for cracking and fractures of affected fasteners, and related investigative and corrective actions if necessary. This proposed AD would also add an optional modification, which would end certain repetitive inspections, and procedures for post-modification inspections and corrective action if necessary. This proposed AD also adds

optional open-hole NDT inspections (high frequency eddy current inspections) for certain airplanes, for Zone B inspections. This proposed AD would also require accomplishing the actions specified in the service information described previously, except as discussed under “Difference Between this Proposed AD and the Service Bulletin.” For information on the procedures and compliance times, see this service information at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-5816.

The phrase “related investigative actions” is used in this proposed AD. “Related investigative actions” are follow-on actions that (1) are related to the primary action, and (2) further investigate the nature of any condition found. Related investigative actions in an AD could include, for example, inspections.

The phrase “corrective actions” is used in this proposed AD. “Corrective actions” are actions that correct or address any condition found. Corrective actions in an AD could include, for example, repairs.

Difference Between this Proposed AD and the Service Bulletin

Although Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, specifies that operators may contact the manufacturer for disposition of certain repair conditions, this proposed AD would require repairing those conditions in one of the following ways:

- In accordance with a method that we approve; or
- Using data that meet the certification basis of the airplane, and that have been approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) whom we have authorized to make those findings.

Costs of Compliance

We estimate that this proposed AD affects 116 airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

Estimated costs – Required Actions

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Zone A Inspections (required by AD 2006-10-16, Amendment 39-14600)	8 work-hours X \$85 per hour = \$680	\$0	\$680	Up to \$78,880
Zone B Open-hole NDT Inspection (required by AD 2006-10-16, Amendment 39-14600 for Groups 3, 4, and 5 airplanes; and for Groups 1, 2, and 3 airplanes, if done)	30 work-hours X \$85 per hour = \$2,550	\$0	\$2,550	Up to \$295,800
Zone C Maraging or H-11 Steel Fastener Inspection (required by AD 2006-10-16, Amendment 39-14600 for Groups 1, 2, and 3 airplanes)	8 work-hours X \$85 per hour = \$680	\$0	\$680	Up to \$78,880
New Zone B proposed inspections	248 work-hours X \$85 per hour = \$21,080	\$0	\$21,080	\$2,445,280
New Zone C proposed inspection	26 work-hours X \$85 per hour = \$2,210	\$0	\$2,210	\$256,360

Estimated costs – Optional Actions

Action	Labor cost	Parts cost	Cost per product
Open-hole NDT inspections (high frequency eddy current inspections)	Up to 298 work-hours X \$85 per hour = up to \$25,330	\$0	Up to \$25,330

Action	Labor cost	Parts cost	Cost per product
Zone B Modification	Up to 313 work-hours X \$85 per hour = up to \$26,605	Up to \$3,486	Up to \$30,091
Post-Modification Inspections	Up to 298 work-hours X \$85 per hour = up to \$25,330	\$0	Up to \$25,330

We have received no definitive data that would enable us to provide a cost estimate for the on-condition actions specified in this proposed AD.

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 proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the 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.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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 2006-10-16, Amendment 39-14600 (71 FR 28570, May 17, 2006), and adding the following new AD:

The Boeing Company: Docket No. FAA-2015-5816; Directorate Identifier 2015-NM-029-AD.

(a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2006-10-16, Amendment 39-14600 (71 FR 28570, May 17, 2006).

(c) Applicability

This AD applies to all The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes; certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 55, Stabilizers.

(e) Unsafe Condition

This AD was prompted by reports of cracking found in the splice plates, hinge fittings, terminal fittings, the upper skin of the outboard and center sections, and the rear spar webs before reaching the inspection interval specified in AD 2006-10-16. Cracked and fractured Maraging steel fasteners were also found. We are issuing this AD to detect and correct this cracking, which could lead to reduced structural capability of the outboard and center sections of the horizontal stabilizer and could result in loss of control of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Repetitive Inspections/Investigative and Corrective Actions

At the applicable time specified in paragraph 1.E., "Compliance," of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, except as required by paragraphs (h)(1) and (h)(2) of this AD: Do the applicable actions specified in paragraphs (g)(1), (g)(2), (g)(3), and (g)(4) of this AD, and all applicable related investigative and corrective actions, in accordance with the applicable part of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23,

2015, except as required by paragraph (h)(3) of this AD. Do all applicable related investigative and corrective actions before further flight. Repeat the applicable inspections specified in paragraphs (g)(1), (g)(2), (g)(3), and (g)(4) of this AD at the applicable times specified in paragraph 1.E., “Compliance,” of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015.

(1) For Group 1 through 3 airplanes identified in Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015: Do non-destructive test (NDT) inspections (ultrasonic, high frequency eddy current, and low frequency eddy current inspections) or open-hole NDT inspections (high frequency eddy current inspections), of Zone B for cracking in accordance with Part 3 or Part 4 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, as applicable.

(2) For Group 4 through 6 airplanes identified in Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015: Do open-hole NDT inspections (high frequency eddy current inspections), of Zone B for cracking in accordance with Part 4 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015.

(3) For Group 7 through 9 airplanes identified in Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015: Do inspections of Zone A (detailed or high frequency eddy current inspections) and Zone B (high frequency eddy current inspections) for cracking, in accordance with Part 1, Part 2, or Part 4 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, as applicable.

(4) For Group 1 through 3 airplanes identified in Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015: Do an inspection of Zone C Maraging or H-11 steel fasteners to determine whether fasteners are magnetic, in accordance with

Part 6 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015.

(h) Exceptions to Service Bulletin Specifications

(1) Where Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, specifies a compliance time “after the Revision 2 date of this service bulletin,” this AD requires compliance within the specified compliance time after the effective date of this AD.

(2) The Condition column of Table 1 of paragraph 1.E., “Compliance,” of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, refers to “airplanes with certain total flight cycles and total flight hours.” This AD, however, applies to the airplanes with the specified total flight cycles and total flight hours as of the effective date of this AD.

(3) Where Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, specifies to contact Boeing for repair instructions: Before further flight, repair using a method approved in accordance with the procedures specified in paragraph (l) of this AD.

(i) Optional Terminating Action

(1) For Group 1 through 3 airplanes identified in Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015: Accomplishing the Zone B modification, including all applicable related investigative and corrective actions, specified in Part 7 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, except as required by paragraph (h)(3) of this AD, terminates the repetitive inspections specified in paragraphs (i)(1)(i) and (i)(1)(ii) of this AD for the modified area only.

(i) Inspections required by paragraph (g)(1) of this AD for Zone B, as specified in Part 3 and Part 4 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015.

(ii) Inspections required by paragraph (g)(4) of this AD for Zone C, as specified in Part 5 and Part 6 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015.

(2) For Group 1 through 3 airplanes identified in Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015: Accomplishing the Zone B open hole NDT inspection, repairing any cracking as applicable, and replacing fasteners as specified in Part 4 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, terminates the repetitive ultrasonic inspections required by paragraph (g)(4) of this AD for Zone C, as specified in Part 6 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, for the inspected area only.

(3) For Group 4 through 9 airplanes identified in Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015: Accomplishing the Zone B modification, including all applicable related investigative and corrective actions, specified in Part 7 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, except as required by paragraph (h)(3) of this AD, terminates the repetitive inspections required by paragraph (g)(2) or (g)(3) of this AD, as applicable, only for Zone B, as specified in Part 4 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, for the modified area only.

(j) Repetitive Post-Modification Inspections and Corrective Actions

At the applicable time specified in paragraph 1.E., “Compliance,” of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015: Do the applicable

inspections specified in paragraphs (j)(1) and (j)(2) of this AD and all applicable corrective actions, in accordance with Part 8 of the Accomplishment Instructions of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, except as required by paragraph (h)(3) of this AD. Do all applicable corrective actions before further flight. Repeat the applicable inspections at the applicable times specified in paragraph 1.E., "Compliance," of Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015.

(1) For Group 1 through 3 airplanes identified in Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015 on which the Zone B modification specified in paragraph (i)(1) of this AD is done: Do non-destructive test (NDT) inspections (ultrasonic, high frequency eddy current, and low frequency eddy current inspections) or open-hole NDT inspections (high frequency eddy current inspections) of Zone B for cracking.

(2) For Group 4 through 9 airplanes identified in Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015 on which the Zone B modification specified in paragraph (i)(3) of this AD is done: Do open-hole NDT inspections (high frequency eddy current inspections) of Zone B for cracking.

(k) Parts Installation Prohibition

As of the effective date of this AD, no person may install any Maraging or H-11 steel fasteners in the locations specified in this AD. Where Boeing Service Bulletin 747-55A2050, Revision 2, dated January 23, 2015, specifies to install H-11 bolts (kept fasteners), this AD requires installation of Inconel bolts.

(l) Alternative Methods of Compliance (AMOCs)

(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. In accordance with 14 CFR 39.19, send your request to your principal

inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (m)(1) of this AD. Information may be emailed 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 (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 for AD 2006-10-16, Amendment 39-14600 (71 FR 28570, May 17, 2006), are approved as AMOCs for the corresponding provisions of paragraph (g) of this AD, except for approved AMOCs that allow installation of Maraging or H-11 steel fasteners.

(m) Related Information

(1) For more information about this AD, contact Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: nathan.p.weigand@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone: 206-544-5000, extension 1; fax: 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on November 19, 2015.

Michael Kaszycki,
Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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