



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2015-2464; Directorate Identifier 2014-NM-195-AD; Amendment 39-18476; AD 2016-07-31]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Airplanes**

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

**ACTION:** Final rule.

**SUMMARY:** We are superseding Airworthiness Directive (AD) 2013-22-11 for certain The Boeing Company Model 747-400 and -400D series airplanes. AD 2013-22-11 required repetitive inspections to detect cracks in the floor panel attachment fastener holes of certain upper deck floor beam upper chords, repetitive inspections, corrective actions if necessary, and replacement of the upper deck floor beam upper chords. Since we issued AD 2013-22-11, we received a report that certain fastener holes in the upper deck floor beam upper chords may not have been inspected in accordance with AD 2013-22-11. This AD adds additional repetitive inspections for cracks for certain airplanes, and corrective actions if necessary. We are issuing this AD to detect and correct fatigue cracking in certain upper chords of the upper deck floor beam. Such cracks could become large and cause the floor beams to become severed and result in rapid decompression or reduced controllability of the airplane.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this final rule, 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-2015-2464.

#### **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-2015-2464; 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 Docket 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:** Nathan Weigand, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6428; fax: 425-917-6590; email: [Nathan.P.Weigand@faa.gov](mailto:Nathan.P.Weigand@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2013-22-11, Amendment 39-17643 (78 FR 66254, November 5, 2013), (“AD 2013-22-11”). AD 2013-22-11 applied to certain The Boeing Company Model 747-400 and -400D series airplanes. The NPRM published in the Federal Register on July 23, 2015 (80 FR 43648) (“the NPRM”). The NPRM was prompted by a report that certain fastener holes in the upper deck floor beam upper chords may not have been inspected in accordance with AD 2013-22-11. The NPRM proposed to continue to require repetitive inspections to detect cracks in the floor panel attachment fastener holes of certain upper deck floor beam upper chords, repetitive inspections, corrective actions if necessary, and replacement of the upper deck floor beam upper chords. The NPRM also proposed to require additional repetitive inspections for cracks for certain airplanes, and corrective actions if necessary. We are issuing this AD to detect and correct fatigue cracking in certain upper chords of the upper deck floor beam. Such cracking could become large and cause the floor beams to become severed and result in rapid decompression or reduced controllability of the airplane.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA’s response to each comment. United Airlines supported the NPRM.

### **Request to Revise “Exceptions to Service Information Specifications”**

Boeing requested that paragraph (m)(4), “Exceptions to Service Information Specifications,” of the proposed AD be revised. Boeing stated that Boeing Alert Service Bulletin 747-53A2688, Revision 1, dated September 19, 2012, which is included in paragraph (m)(4), has the same compliance time as table 3 in Boeing Alert Service

Bulletin 747-53A2688, Revision 2, dated August 21, 2014; therefore, Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, should also be included in paragraph (m)(4) of the proposed AD.

For the reason provided by the commenter we agree to include Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, in paragraph (m)(4) of this AD. We have also revised paragraph (m)(4) of this AD by removing the reference to Boeing Alert Service Bulletin 747-53A2688, Revision 1, dated September 19, 2012, because this AD only refers to Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, for compliance times.

### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the change described and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

### **Related Service Information under 1 CFR part 51**

We reviewed Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014. The service information describes procedures for upper deck floor beam upper chord inspection and repair at floor panel attachment fastener holes in section 41 and section 42. 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.

**Costs of Compliance**

We estimate that this AD affects 84 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

**Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspection (retained actions from AD 2013-22-11)	Up to 309 work-hours x \$85 per hour = \$26,265 per inspection cycle	\$0	Up to \$26,265 per inspection cycle	Up to \$2,206,260 per inspection cycle
New inspections	Up to 241 work-hours X \$85 per hour = \$20,485	\$0	Up to \$20,485 per inspection cycle	Up to \$1,720,740 per inspection cycle

We have received no definitive data that will enable us to provide a cost estimate for the repair or modification specified in this 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 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) 2013-22-11, Amendment 39-17643 (78 FR 66254, November 5, 2013), and adding the following new AD:

**2016-07-31 The Boeing Company:** Amendment 39-18476; Docket No. FAA-2015-2464; Directorate Identifier 2014-NM-195-AD.

**(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

This AD replaces AD 2013-22-11, Amendment 39-17643 (78 FR 66254, November 5, 2013) (“AD 2013-22-11”).

**(c) Applicability**

This AD applies to The Boeing Company Model 747-400 and -400D series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014.

**(d) Subject**

Air Transport Association (ATA) of America Code 53, Fuselage.

**(e) Unsafe Condition**

This AD was prompted by an evaluation by the design approval holder indicating that certain upper chords of the upper deck floor beam are subject to widespread fatigue damage. This AD was also prompted by reports that certain fastener holes in the upper deck floor beam upper chords in Section 41, may not have been inspected in accordance with AD 2013-22-11. We are issuing this AD to detect and correct fatigue cracking in certain upper chords of the upper deck floor beam, which could become large and cause

the floor beams to become severed and result in rapid decompression or reduced controllability of the airplane.

**(f) Compliance**

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

**(g) Section 41 - Repetitive Inspections, and Corrective Actions**

At the applicable time specified in table 1 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, do open hole or surface high frequency eddy current inspections (HFEC) for cracking of the floor panel attachment holes in the upper deck floor beam upper chords, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014. If any crack is found during any inspection, before further flight, repair in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, or repair using a method approved in accordance with the procedures specified in paragraph (o) of this AD. Repeat the inspections thereafter at the applicable time specified in table 1 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, until an action specified in paragraph (g)(1) or (g)(2) of this AD is done.

(1) Doing a repair as a hole modification in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, except as required by paragraph (m)(2) of this AD, terminates the inspections required by paragraph (g) of this AD for the modified hole only.

(2) Doing a modification in accordance with Figure 5 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, except as required by paragraph (m)(2) of this AD, terminates the inspections required by paragraph (g) of this AD for the modification only.

**(h) Section 41 – Repetitive Inspection of Repaired or Modified Holes, and Corrective Actions**

For airplanes on which a repair specified in Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, is done, or a modification specified in Figure 5 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, is done: At the applicable time specified in table 2 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, except as required by paragraph (m)(3) of this AD, do open hole or surface HFEC for cracking of repaired or modified floor panel attachment holes in the upper deck floor beam upper chords, in accordance with Part 1 or Part 3, as applicable, of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014. If any crack is found during any inspection required by this paragraph, before further flight, repair using a method approved in accordance with the procedures specified in paragraph (o) of this AD. Repeat the inspections thereafter at the applicable time specified in table 2 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014.

**(i) Section 44 - Repetitive Inspection, and Corrective Actions**

For airplanes identified in Group 1 in Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014: At the applicable time specified in table 3 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, except as required by paragraph (m)(4) of this AD, do open hole or surface HFEC inspections of the floor panel attachment holes in the upper deck floor beam upper chords, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014. If any crack is found during any inspection required by this paragraph, before further flight, repair in accordance with Part 5 of the Accomplishment Instructions of

Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, except as required by paragraph (m)(2) of this AD. Repeat the inspections thereafter at the applicable time specified in table 3 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, until an action specified in paragraph (i)(1) or (i)(2) of this AD is done.

(1) Doing a repair as a hole modification in accordance with Part 5 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, except as required by paragraph (m)(2) of this AD, terminates the inspections required by paragraph (i) of this AD for that modified hole only.

(2) Doing a modification in accordance with Figure 21 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, except as required by paragraph (m)(2) of this AD, terminates the inspections required by paragraph (i) of this AD for that modified hole only.

**(j) Section 44 – Repetitive Inspection of Repaired or Modified Holes, and Corrective Actions**

For airplanes identified in Group 1 in Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, on which a repair specified in Part 5 of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, is done or the modification specified in Figure 21 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, is done: At the applicable time specified in table 4 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, except as required by paragraph (m)(3) of this AD, do open hole or surface HFEC inspections of repaired or modified floor panel attachment holes in the upper deck floor beam upper chords, in accordance with Part 4 or Part 6, as applicable, of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014. If any

crack is found during any inspection by this paragraph, before further flight, repair using a method approved in accordance with the procedures specified in paragraph (o) of this AD. Repeat the inspections thereafter at the applicable time specified in table 4 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014.

**(k) Sections 41 and 44 – Replacement and Post-Replacement Repetitive Inspections**

At the applicable time specified in table 5 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014: Replace all upper deck floor beam upper chords, in accordance with Part 7 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014. Within 20,000 flight cycles after doing the replacement, do the inspections specified in paragraphs (g) and (i) of this AD, as applicable. Thereafter, repeat the inspections required by paragraphs (g) and (i) of this AD, as applicable, at the times specified in paragraphs (g) and (i) of this AD.

**(l) Section 41 – Repetitive Inspection of Plugged or Re-Used Holes, and Corrective Actions**

For airplanes identified in Group 2 in Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014: At the applicable time specified in table 6 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, except as required by paragraph (m)(1) of this AD, at all plugged or reused floor panel attachment holes in the affected floor beam upper chords, do a surface HFEC inspection of the upper deck floor beam upper chords and detailed inspection for cracks on the vertical flange, in accordance with Part 8 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014. If any crack is found during any inspection required by this paragraph, before further flight, repair using a method approved in accordance with the

procedures specified in paragraph (o) of this AD. Repeat the inspections thereafter at the applicable time specified in table 6 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014.

**(m) Exceptions to Service Information Specifications**

(1) Where Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, 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) Where Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014; specifies to contact Boeing for certain procedures: Do the specified actions before further flight using a method approved in accordance with the procedures specified in paragraph (o) of this AD.

(3) Where table 2 or table 4 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, specifies to contact Boeing for inspections and compliance times: Before further flight, contact the Manager, Seattle Aircraft Certification Office (ACO), FAA, for inspections and compliance times and accomplish the inspections at the given times.

(4) Where Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014, specifies a compliance time “after the Revision 1 date of this service bulletin,” this AD requires compliance within the specified compliance time after December 10, 2013 (the effective date of AD 2013-22-11).

**(n) Credit for Previous Actions**

(1) This paragraph restates the requirements of paragraph (o) of AD 2013-22-11, with new reference to paragraph (h) of this AD. This paragraph provides credit for the actions required by paragraphs (g) and (h) of this AD, if those actions were performed before December 10, 2013 (the effective date of AD 2013-22-11), using Boeing Alert

Service Bulletin 747-53A2688, dated August 21, 2008, which was incorporated by reference in AD 2009-10-16, Amendment 39-15901 (74 FR 22424, May 13, 2009).

(2) This paragraph provides credit for the actions required by paragraphs (g) through (k) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 747-53A2688, Revision 1, dated September 19, 2012, which was incorporated by reference in AD 2013-22-11.

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

(1) The Manager, Seattle 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 (p) 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, modification, or alteration 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. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane and the approval must specifically refer to this AD.

(4) AMOCs approved for AD 2013-22-11 are approved as AMOCs for the corresponding provisions of paragraphs (g) through (k) of this AD.

**(p) Related Information**

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

**(q) Material Incorporated by Reference**

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

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Boeing Alert Service Bulletin 747-53A2688, Revision 2, dated August 21, 2014.

(ii) Reserved.

(3) 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; phone: 206-544-5000, extension 1; fax: 206-766-5680; Internet <https://www.myboeingfleet.com>.

(4) You may view this 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.

(5) You may view this 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/cfr/ibr-locations.html>.

Issued in Renton, Washington, on March 30, 2016.

Victor Wicklund, Acting Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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