



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2015-6538; Directorate Identifier 2015-NM-031-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 adopt a new airworthiness directive (AD) for certain The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes. This proposed AD was prompted by an evaluation by the design approval holder (DAH) indicating that the bulkhead is subject to widespread fatigue damage (WFD). This proposed AD would require repetitive inspections of the aft pressure bulkhead web for any cracking, incorrectly drilled fastener holes, and elongated fastener holes, and related investigative and corrective actions if necessary. We are proposing this AD to detect and correct fatigue cracking of the aft pressure bulkhead web at the “Y”-chord, which could result in reduced structural integrity of the airplane and rapid decompression of the fuselage.

**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-2015-6538.

### **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-2015-6538; 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:** Alan Pohl, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; telephone: 425-917-6450; fax: 425-917-6590; email: [Alan.Pohl@faa.gov](mailto:Alan.Pohl@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2015-6538; Directorate Identifier 2015-NM-031-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**

Structural fatigue damage is progressive. It begins as minute cracks, and those cracks grow under the action of repeated stresses. This can happen because of normal operational conditions and design attributes, or because of isolated situations or incidents such as material defects, poor fabrication quality, or corrosion pits, dings, or scratches. Fatigue damage can occur locally, in small areas or structural design details, or globally. Global fatigue damage is general degradation of large areas of structure with similar structural details and stress levels. Multiple-site damage is global damage that occurs in a large structural element such as a single rivet line of a lap splice joining two large skin panels. Global damage can also occur in multiple elements such as adjacent frames or stringers. Multiple-site-damage and multiple-element-damage cracks are typically too small initially to be reliably detected with normal inspection methods. Without intervention, these cracks will grow, and eventually compromise the structural integrity

of the airplane, in a condition known as widespread fatigue damage (WFD). As an airplane ages, WFD will likely occur, and will certainly occur if the airplane is operated long enough without any intervention.

The FAA's WFD final rule (75 FR 69746, November 15, 2010) became effective on January 14, 2011. The WFD rule requires certain actions to prevent structural failure due to WFD throughout the operational life of certain existing transport category airplanes and all of these airplanes that will be certificated in the future. For existing and future airplanes subject to the WFD rule, the rule requires that DAHs establish a limit of validity (LOV) of the engineering data that support the structural maintenance program. Operators affected by the WFD rule may not fly an airplane beyond its LOV, unless an extended LOV is approved.

The WFD rule (75 FR 69746, November 15, 2010) does not require identifying and developing maintenance actions if the DAHs can show that such actions are not necessary to prevent WFD before the airplane reaches the LOV. Many LOVs, however, do depend on accomplishment of future maintenance actions. As stated in the WFD rule, any maintenance actions necessary to reach the LOV will be mandated by airworthiness directives through separate rulemaking actions.

In the context of WFD, this action is necessary to enable DAHs to propose LOVs that allow operators the longest operational lives for their airplanes, and still ensure that WFD will not occur. This approach allows for an implementation strategy that provides flexibility to DAHs in determining the timing of service information development (with FAA approval), while providing operators with certainty regarding the LOV applicable to their airplanes.

We have received an evaluation by the design approval holder (DAH) indicating that the aft pressure bulkhead is subject to WFD. Cracks have been reported in the aft pressure bulkhead web at the web-to-"Y"-chord interface and have occurred in the aft

row of fasteners connecting the aft pressure bulkhead web to the “Y”-chord. This condition, if not corrected, could result in fatigue cracking of the aft pressure bulkhead web at the “Y”-chord, which could result in reduced structural integrity of the airplane and rapid decompression of the fuselage.

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

We reviewed Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015. This service information describes, among other actions, procedures for repetitive inspections of the aft pressure bulkhead web for any cracking, incorrectly drilled fastener holes, and elongated fastener holes; and related investigative and corrective actions. 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 AD.

### **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**

This proposed AD would require accomplishing the actions specified in the service information described previously, except as discussed under “Differences Between this Proposed AD and the Service Information.” Refer to this service information for details on the procedures and compliance times.

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” correct or address any condition found. Corrective actions in an AD could include, for example, repairs.

### **Differences between this Proposed AD and the Service Information**

AD 2012-18-13 R1, Amendment 39-17429 (78 FR 27020, May 9, 2013), refers to Boeing Alert Service Bulletin 737-53A1214, Revision 4, dated December 16, 2011, as an appropriate source of service information for doing certain actions required by that AD. Since AD 2012-18-13 R1 was issued, Boeing issued Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015, to address WFD by adding new inspections specified in tables 9, 10, and 11 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015. Boeing determined that the WFD-based inspections specified in tables 9, 10, and 11 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015, affect only Group 2 airplanes because Group 1 airplanes will reach their limit of validity before the compliance times specified in tables 9, 10, and 11 (Group 1 is for airplanes having line numbers 1 through 2565; Group 2 is for airplanes having line numbers 2566 through 3132).

Therefore, although Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015, is effective for all The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes, this proposed AD applies to only certain The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes (i.e., Group 2 airplanes). This difference is due to the fact that this proposed AD only addresses the new WFD inspections specified in Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015.

Accomplishing the actions required by paragraphs (g) and (h) of this proposed AD would terminate the inspections required by paragraphs (k) and (l) of AD 2012-18-13 R1, Amendment 39-17429 (78 FR 27020, May 9, 2013).

The service bulletin specifies to contact the manufacturer for instructions on how to repair certain conditions, but 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 122 airplanes of U.S. registry.

We estimate the following costs to comply with this proposed 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>
Inspections of the web at the “Y”-chord	Up to 60 work-hours X \$85 per hour = Up to \$5,100 per inspection cycle	\$0	Up to \$5,100 per inspection cycle	Up to \$622,200 per inspection cycle

We have received no definitive data that would enable us to provide cost estimates 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 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 this 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 adding the following new airworthiness directive (AD):

**The Boeing Company:** Docket No. FAA-2015-6538; Directorate Identifier 2015-NM-031-AD.

#### **(a) Comments Due Date**

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

This AD affects AD 2012-18-13 R1, Amendment 39-17429 (78 FR 27020, May 9, 2013).

#### **(c) Applicability**

This AD applies to The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes, certificated in any category, identified as Group 2 in Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015.

#### **(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 the aft pressure bulkhead is subject to widespread fatigue damage. We are issuing this AD to detect and correct fatigue cracking of the aft pressure bulkhead web at the “Y”-chord, which could result in reduced structural integrity of the airplane and rapid decompression of the fuselage.

**(f) Compliance**

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

**(g) Repetitive Inspections of the Aft Pressure Bulkhead Web at the “Y”-Chord Upper Bulkhead**

At the applicable time specified in tables 9 and 10 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015: Do detailed and low frequency eddy current (LFEC) inspections from the aft side of the aft pressure bulkhead web, or do detailed and high frequency eddy current (HFEC) inspections from the forward side of the aft pressure bulkhead web, for any cracking, incorrectly drilled fastener hole, and elongated fastener hole, and do all applicable related investigative and corrective actions, in accordance with Part I of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015, except as required by paragraph (i) of this AD. Do all related investigative and corrective actions before further flight. If any cracking, incorrectly drilled fastener hole, or elongated fastener hole is found, before further flight, repair the web using a method approved in accordance with the procedures specified in paragraph (l) of this AD. Thereafter, repeat the inspections at the applicable times specified in tables 9 and 10 of paragraph 1.E., “Compliance” of Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015.

**(h) Repetitive Inspections of the Aft Pressure Bulkhead Web at the “Y”-Chord Below S-15**

At the applicable time specified in table 11 of 1.E., “Compliance” of Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015: Do detailed and eddy current inspections of the web from the forward or aft side of the bulkhead for any cracking, incorrectly drilled fastener hole, and elongated fastener hole, and do all applicable corrective actions, in accordance with Part III of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated

January 30, 2015, except as required by paragraph (i) of this AD. Do all corrective actions before further flight. If any cracking, incorrectly drilled fastener hole, or elongated fastener hole is found, before further flight, repair the web using a method approved in accordance with the procedures specified in paragraph (l) of this AD. Thereafter, repeat the inspections at the applicable times specified in table 11 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 2015.

**(i) Exception to the Service Information**

Where Boeing Alert Service Bulletin 737-53A1214, Revision 5, dated January 30, 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.

**(j) Terminating Action for Other Rulemaking**

Accomplishing the actions required by paragraphs (g) and (h) of this AD terminates the inspections required by paragraphs (k) and (l) of AD 2012-18-13 R1, Amendment 39-17429 (78 FR 27020, May 9, 2013).

**(k) Credit for Previous Actions**

This paragraph provides credit for the actions required by paragraphs (g) and (h) of this AD, if the actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 737-53A1214, Revision 4, dated December 16, 2011, which is not incorporated by reference in this AD.

**(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 airplane, and the approval must specifically refer to this AD.

**(m) Related Information**

(1) For more information about this AD, contact Alan Pohl, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; telephone: 425-917-6450; fax: 425-917-6590; email: Alan.Pohl@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 20, 2015.

**Jeffrey E. Duven,**

*Manager,*

*Transport Airplane Directorate,*

*Aircraft Certification Service.*

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