



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2015-3628; Directorate Identifier 2015-NM-025-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) 2012-12-04, which applies to certain The Boeing Company Model 737-300, 400, and -500 series airplanes. AD 2012-12-04 currently requires repetitive external detailed inspections and nondestructive inspections to detect cracks in the fuselage skin along the chem-mill steps at stringers S-1 and S-2R, between station (STA) 400 and STA 460, and repair if necessary. Since we issued AD 2012-12-04, we have determined that, for certain airplanes, the skin pockets adjacent to the Air Traffic Control (ATC) antenna are susceptible to widespread fatigue damage. This proposed AD would require a preventive modification of the fuselage skin at crown stringers S-1 and S-2R. This proposed AD would reduce inspection thresholds and repetitive intervals for certain airplanes. We are proposing this AD to detect and correct fatigue cracking of the fuselage skin panels at the chem-mill steps, which could result in sudden fracture and failure of the fuselage skin panels, and consequent rapid decompression 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-2015-3628.

### **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-2015-3628; 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:** Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6447; fax: 425-917-6590; email: wayne.lockett@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-2015-3628; Directorate Identifier 2015-NM-025-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 31, 2012, we issued AD 2012-12-04, Amendment 39-17083 (77 FR 36134, June 18, 2012), for certain The Boeing Company Model 737-300, -400, and -500 series airplanes. AD 2012-12-04 requires repetitive external detailed inspections and nondestructive inspections to detect cracks in the fuselage skin along the chem-mill steps at stringers S-1 and S-2R, between station (STA) 400 and STA 460, and repair if necessary. AD 2012-12-04 resulted from reports of crack findings of the fuselage skin at the chem-mill steps. We issued AD 2012-12-04 to detect and correct fatigue cracking of

the fuselage skin panels at the chem-mill steps, which could result in sudden fracture and failure of the fuselage skin panels, and consequent rapid decompression of the airplane.

### **Widespread Fatigue Damage**

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.

**Actions Since AD 2012-12-04, Amendment 39-17083 (77 FR 36134, June 18, 2012), Was Issued**

The preamble to AD 2012-12-04, Amendment 39-17083 (77 FR 36134, June 18, 2012), specified that we considered the requirements “interim action.” AD 2012-12-04 explained that we might consider further rulemaking if final action is later identified. We now have determined that it is necessary to initiate further rulemaking to require modification of the fuselage skin at crown stringers S-1 and S-2R, and to reduce inspection thresholds and repetitive intervals for certain airplanes.

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

We reviewed Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015. The service information describes procedures for repetitive external detailed inspections and non-destructive inspections to detect cracks in the fuselage skin along the chem-mill steps at stringers S-1 and S-2R, between STA 400 and STA 460, and repair of any cracking. The service information also describes procedures for a modification of the chem-milled steps at the locations identified, including related

investigative actions 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 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 2012-12-04, Amendment 39-17083 (77 FR 36134, June 18, 2012), 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 this proposed AD. This proposed AD would 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-2015-3628.

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.

#### **Explanation of Compliance Time**

The compliance time for the modification specified in this proposed AD for addressing WFD was established to ensure that discrepant structure is modified before WFD develops in airplanes. Standard inspection techniques cannot be relied on to detect WFD before it becomes a hazard to flight. We will not grant any extensions of the compliance time to complete any AD-mandated service bulletin related to WFD without extensive new data that would substantiate and clearly warrant such an extension.

#### **Difference Between this Proposed AD and the Service Bulletin**

Although Boeing Alert Service Bulletin 737-53A1293, Revision 3, 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 186 airplanes of U.S. registry.

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

### Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Retained inspections from AD 2012-12-04, Amendment 39-17083 (77 FR 36134, June 18, 2012)	Between 7 and 15 work-hours X \$85 per hour, depending on airplane configuration = between \$595 and \$1,275 per inspection cycle	\$0	Between \$595 and \$1,275 per inspection cycle	Between \$110,670 and \$237,150 per inspection cycle
New modification	236 work-hours X \$85 per hour = \$20,060	<sup>1</sup>	\$20,060	\$3,731,160

<sup>1</sup>We currently have no specific cost estimates associated with the parts necessary for the proposed modification. We cannot determine the cost of the materials because the modification parts must be sized at the time the modification is installed, taking into account any existing repairs in the area.

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) 2012-12-04, Amendment 39-17083 (77 FR 36134, June 18, 2012), and adding the following new AD:

**The Boeing Company:** Docket No. FAA-2015-3628; Directorate Identifier 2015-NM-025-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 2012-12-04, Amendment 39-17083 (77 FR 36134, June 18, 2012).

**(c) Applicability**

This AD applies to The Boeing Company Model 737-300, -400, and -500 series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by reports of cracks found on the fuselage skin at the chem-mill steps, and the determination that, for certain airplanes, the skin pockets adjacent to the Air Traffic Control (ATC) antenna are susceptible to widespread fatigue damage. We are issuing this AD to detect and correct fatigue cracking of the fuselage skin panels at the chem-mill steps, which could result in sudden fracture and failure of the fuselage skin panels, and consequent rapid decompression of the airplane.

**(f) Compliance**

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

**(g) Inspections**

At the applicable time specified in tables 1, 2, 3, and 5 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated

January 23, 2015, except as required by paragraphs (j)(1) and (j)(2) of this AD: Do the actions specified in paragraphs (g)(1) and (g)(2) of this AD, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015, except as required by paragraph (j)(3) of this AD. Repeat the applicable inspections thereafter at the applicable times specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015.

(1) Do an external detailed inspection for cracking of the fuselage skin chem-mill steps.

(2) Do an external non-destructive (medium frequency eddy current, magneto optical imaging, C-Scan, or ultrasonic phased array) inspection for cracking of the fuselage skin chem-mill steps.

**(h) Preventive Modification or Repair**

If any cracking is found during any inspection required by paragraph (g) of this AD, do the applicable actions specified in paragraph (h)(1) or (h)(2) of this AD.

(1) Repair before further flight in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015.

(2) At the applicable time specified in tables 1, 2, 3, and 5 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015, except as required by paragraphs (j)(1) and (j)(2) of this AD: Do a preventive modification of the fuselage skin at crown stringers S-1 and S-2R, including all applicable related investigative actions in accordance with Part 9 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015. Do all applicable related investigative actions concurrently with the modification.

**(i) Post-Repair Inspections/Post-Modification Inspections**

The post-repair/post-modification inspections specified in tables 4 and 6 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015, are not required by this AD.

Note 1 to paragraph (h) of this AD: The post-repair/post-modification inspections specified in tables 4 and 6 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015, may be used in support of compliance with section 121.1109(c)(2) or 129.109(c)(2) of the Federal Aviation Regulations (14 CFR 121.1109(c)(2) or 14 CFR 129.109(c)(2)). The corresponding actions specified in the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015, are not required by this AD.

**(j) Exceptions to Service Bulletin Specifications**

(1) Where Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015, specifies a compliance time “after the Revision 3 date of this service bulletin,” this AD requires compliance within the specified compliance time after the effective date of this AD.

(2) Where the Condition column of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1293, Revision 3, dated January 23, 2015, specifies a condition based on when an airplane has or has not been inspected, this AD bases the condition on whether an airplane has or has not been inspected on the effective date of this AD.

(3) Where Boeing Alert Service Bulletin 737-53A1293, Revision 3, 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 (k) of this AD.

**(k) Credit for Previous Actions**

(1) This paragraph provides credit for actions required by paragraphs (g) and (h) of this AD, if those actions were performed before July 23, 2012 (the effective date of AD 2012-12-04, Amendment 39-17083 (77 FR 36134, June 18, 2012)), using Boeing Alert Service Bulletin 737-53A1293, Revision 1, dated July 7, 2010, which is not incorporated by reference in this AD.

(2) This paragraph provides credit for actions required by paragraphs (g) and (h) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 737-53A1293, Revision 2, dated August 10, 2011, which was incorporated by reference in AD 2012-12-04, Amendment 39-17083 (77 FR 36134, June 18, 2012).

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

(1) The Manager, Los Angeles 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 (l)(1) of this AD. Information may be emailed to:

9-ANM-LAACO-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, Los Angeles 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 2012-12-04, Amendment 39-17083 (77 FR 36134, June 18, 2012), are approved as AMOCs for the corresponding provisions of paragraph (g) of this AD.

**(m) Related Information**

(1) For more information about this AD, contact Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6447; fax: 425-917-6590; email: [wayne.lockett@faa.gov](mailto:wayne.lockett@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 September 1, 2015.

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

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