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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2010-0437; Directorate Identifier 2009-NM-130-AD; Amendment 39-16539; AD 2010-25-06]**

**RIN 2120-AA64**

### **Airworthiness Directives; The Boeing Company Model 737-200, -300, -400, and -500 Series Airplanes**

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

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain Model 737-200, -300, -400, and -500 series airplanes. This AD requires repetitive inspections for cracking of certain fuselage frames and stub beams, and corrective actions if necessary. This AD also provides for an optional repair, which would terminate the repetitive inspections. For airplanes on which a certain repair is done, this AD also requires repetitive inspections for cracking of certain fuselage frames and stub beams, and corrective actions if necessary. This AD results from reports of the detection of fatigue cracks at certain frame sections, in addition to stub beam cracking, caused by high flight cycle stresses from both pressurization and maneuver loads. We are issuing this AD to detect and correct fatigue cracking of certain fuselage frames and stub beams and possible severed frames, which could result in reduced structural integrity of the frames. This reduced structural integrity can increase loading in the fuselage skin, which will accelerate skin crack growth and could result in rapid decompression of the fuselage.

**DATES:** This AD is effective February 1, 2011.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of February 1, 2011.

**ADDRESSES:** For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; Internet <https://www.myboeingfleet.com>.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (telephone 800-647-5527) is the Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6447; fax (425) 917-6590.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an airworthiness directive (AD) that would apply to certain Model 737-200, -300, -400, and -500 series airplanes. That NPRM was published in the Federal Register on May 7, 2010 (75 FR 25124). That NPRM proposed to require repetitive inspections for cracking of certain fuselage frames and stub beams, and corrective actions if necessary. That NPRM also proposed an optional repair, which would terminate the repetitive inspections. For airplanes on which a certain repair is done, that NPRM also proposed to require repetitive inspections for cracking of certain fuselage frames and stub beams, and corrective actions if necessary.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We considered the comments received.

### **Request To Change Paragraph (i)**

Boeing asked that paragraph (i) of the NPRM be changed to include a high frequency eddy current (HFEC) inspection. Boeing stated that Boeing Alert Service Bulletin 737-53A1254, Revision 1, dated July 9, 2009, provides two options for inspections: detailed and HFEC. Boeing added that for areas where the repair hinders the inspection, both detailed and HFEC inspection options were provided, depending on which option was chosen for the original inspection.

We agree with the commenter for the reasons provided. We have changed paragraph (i) of this AD to include an option for the HFEC inspection.

### **Request To Change Compliance Time**

Boeing also asked that the compliance time specified in paragraph (g)(3) of the NPRM be changed to "the sooner of (i) within 4,500 flight cycles after the effective date of the AD or (ii) within 9,000 flight cycles after the previous inspection done in accordance with Boeing Alert Service Bulletin 737-53A1254, dated February 17, 2005." Boeing stated that new data indicate that the repeat interval for the area below the floor should be changed to 9,000 flight cycles from 4,500 flight cycles. Boeing added that for airplanes on which the inspection in the original issue of Boeing Alert Service Bulletin 737-53A1254 has been done, the compliance time as written in Boeing Alert Service Bulletin 737-53A1254, Revision 1 (i.e., 3,000 flight cycles from release of Revision 1 or 4,500 flight cycles from previous inspection, whichever is sooner), could cause a significant impact by putting

some airplanes out of compliance. Boeing noted that the NPRM could potentially allow a longer compliance time than that in the original issue of the service bulletin. Boeing recommends that paragraph (g)(3) be changed as specified previously.

We acknowledge the commenter's concern and provide the following. The compliance times required by paragraph (g) are at the "later of," not the "sooner of," the compliance times specified in paragraphs (g)(3)(i) and (g)(3)(ii). We agree that the compliance times specified in paragraphs (g)(3)(i) and (g)(3)(ii) of this AD are somewhat confusing and can be clarified. Therefore, we have combined paragraphs (g)(3)(i) and (g)(3)(ii) with paragraph (g)(3) to provide that clarification.

### **Request To Change Initial Inspection Threshold**

Southwest Airlines asked that the initial inspection threshold required by paragraphs (g)(1) and (g)(2) of the NPRM be changed. Southwest stated that the specified threshold will pose a significant burden on its airline to complete the inspections within the required timeframe. Southwest projected that half of its Model 737-300 and -500 fleet will require an out-of-sequence maintenance visit to support this inspection threshold. Southwest added that this is based on its current substantial maintenance schedule, fleet utilization, and the proposed compliance thresholds based on each airplane's total flight cycles.

We do not agree with the commenter's request. No supporting data were submitted proposing alternative inspection thresholds to maintain an adequate level of safety for its fleet. However, under the provisions of paragraph (m) of this AD, we will consider requests for approval of an alternative inspection threshold if sufficient data are submitted to substantiate that changing the initial inspection threshold would provide an acceptable level of safety. We have not changed the AD in this regard.

### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We also determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

### **Costs of Compliance**

We estimate that this AD affects 635 airplanes of U.S. registry. The following table provides the estimated costs for U.S. operators to comply with this AD.

**Table – Estimated costs**

<b>Action</b>	<b>Work hours</b>	<b>Average labor rate per hour</b>	<b>Cost per product</b>	<b>Number of U.S.-registered airplanes</b>	<b>Fleet cost</b>
BS 616 and BS 639 inspection/lower frame and stub beam	15	\$85	\$1,275, per inspection cycle	635	\$809,625 per inspection cycle

## **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**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979), and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

You can find our regulatory evaluation and the estimated costs of compliance in the AD Docket.

## **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 adding the following new AD:



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**2010-25-06 The Boeing Company:** Amendment 39-16539. Docket No. FAA-2010-0437; Directorate Identifier 2009-NM-130-AD.

**Effective Date**

(a) This airworthiness directive (AD) is effective February 1, 2011.

**Affected ADs**

(b) None.

**Applicability**

(c) This AD applies to The Boeing Company Model 737-200, -300, -400, and -500 series airplanes, certificated in any category; as identified in Boeing Alert Service Bulletin 737-53A1254, Revision 1, dated July 9, 2009.

**Subject**

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

**Unsafe Condition**

(e) This AD results from the detection of fatigue cracks at certain frame sections, in addition to stub beam cracking, caused by high flight cycle stresses from both pressurization and maneuver loads. The Federal Aviation Administration is issuing this AD to detect and correct fatigue cracking of certain fuselage frames and stub beams and possible severed frames, which could result in reduced structural integrity of the frames. This reduced structural integrity can increase loading in the fuselage skin, which will accelerate skin crack growth and could result in rapid decompression of the fuselage.

**Compliance**

(f) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

**Repetitive Inspections and Corrective Actions**

(g) At the applicable time specified in paragraph (g)(1), (g)(2), or (g)(3) of this AD: Do a detailed or high frequency eddy current (HFEC) inspection for cracking of body station (BS) 616 and BS 639 frame webs, inner chord, and outer chord, and the stub beams; and do all applicable related investigative and corrective actions; by accomplishing all the actions specified in Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1254, Revision 1, dated July 9, 2009, except as specified in paragraphs (i) and (j) of this AD. Do all applicable related investigative and corrective actions before further flight. Thereafter, repeat the inspection at intervals

not to exceed 4,500 flight cycles since accomplishing the detailed inspection or at intervals not to exceed 9,000 flight cycles since accomplishing the HFEC inspection, as applicable.

(1) For airplanes on which no inspection of the BS 616 and BS 639 frames specified in Boeing Alert Service Bulletin 737-53A1254, dated February 17, 2005, has been done as of the effective date of this AD, and that have accumulated fewer than 55,000 total flight cycles as of the effective date of this AD: Inspect within 3,000 flight cycles after the effective date of this AD, or before the accumulation of 56,500 total flight cycles, whichever occurs first.

(2) For airplanes on which no inspection of the BS 616 and BS 639 frames specified in Boeing Alert Service Bulletin 737-53A1254, dated February 17, 2005, has been done as of the effective date of this AD, and that have accumulated 55,000 or more total flight cycles as of the effective date of this AD: Inspect within 1,500 flight cycles after the effective date of this AD.

(3) For airplanes on which a detailed or HFEC inspection of the BS 616 and BS 639 frames, specified in Boeing Alert Service Bulletin 737-53A1254, dated February 17, 2005, has been done as of the effective date of this AD: Inspect within 4,500 flight cycles after the previous inspection done in accordance with Boeing Alert Service Bulletin 737-53A1254, dated February 17, 2005, or within 3,000 flight cycles after the effective date of this AD, whichever occurs later.

### **Post-Repair Repetitive Inspections and Corrective Actions**

(h) For airplanes on which the repair specified in Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1254, Revision 1, dated July 9, 2009, has been done: At the applicable time specified in paragraphs (h)(1) and (h)(2) of this AD, do a detailed or HFEC inspection for cracking of the replacement frame section (frame webs, inner chord, and outer chord); and do all applicable related investigative and corrective actions; by accomplishing all the actions specified in Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1254, Revision 1, dated July 9, 2009, except as specified in paragraphs (i) and (j) of this AD. Do all applicable related investigative and corrective actions before further flight. Thereafter, repeat the inspection at intervals not to exceed 4,500 flight cycles since accomplishing the detailed inspection or at intervals not to exceed 9,000 flight cycles since accomplishing the HFEC inspection, as applicable.

(1) For airplanes on which a partial frame splice repair at BS 616 or BS 639 has been done, and the inner chord and web have been cold-worked: Inspect within 44,000 flight cycles after the repair has been done.

(2) For airplanes on which a partial frame splice repair at BS 616 or BS 639 has been done, and the inner chord and web have not been cold-worked: Inspect within 29,000 flight cycles after that repair has been done.

### **Alternative Inspection of Repaired or Modified Area**

(i) For airplanes on which a repair or preventative modification exists on the inner chord below the floor which prevents the accomplishment of the detailed or HFEC inspection in that area as required by paragraph (g) of this AD: In lieu of inspecting that area, do a detailed or HFEC inspection of the inner chord along the length of the repair and around the fastener heads in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1254, Revision 1, dated July 9, 2009.

### **Exceptions to Service Information**

(j) Where Boeing Alert Service Bulletin 737-53A1254, Revision 1, dated July 9, 2009, specifies to contact Boeing for repair instructions and repair: Before further flight, repair the cracking using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

(k) Although Boeing Alert Service Bulletin 737-53A1254, Revision 1, dated July 9, 2009, specifies to submit information to the manufacturer, this AD does not include that requirement.

### **Terminating Action**

(l) Doing the repair specified in Part 4 of Boeing Alert Service Bulletin 737-53A1254, Revision 1, dated July 9, 2009, terminates the repetitive inspection requirements of paragraph (g) of this AD for the repaired frame only.

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

(m)(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6447; fax (425) 917-6590. Or, e-mail information to 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

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

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD, if it is approved by an Authorized Representative for 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.

### **Material Incorporated by Reference**

(n) You must use Boeing Alert Service Bulletin 737-53A1254, Revision 1, dated July 9, 2009, to do the actions required by this AD, unless the AD specifies otherwise.

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

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; Internet <https://www.myboeingfleet.com>.

(3) You may review copies of the service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(4) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Renton, Washington on December 16, 2010.

Ali Bahrami,  
Manager, Transport Airplane Directorate,  
Aircraft Certification Service.