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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2016-7426; Directorate Identifier 2015-NM-199-AD; Amendment 39-18900; AD 2017-11-01]**

**RIN 2120-AA64**

#### **Airworthiness Directives; The Boeing Company 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 The Boeing Company Model 737-100, -200, and -200C series airplanes. This AD is intended to complete certain mandated programs to support the airplane reaching its limit of validity (LOV) of the engineering data that support the established structural maintenance program. This AD requires various repetitive inspections for cracking of certain lugs on the rear spar and horizontal stabilizer, related investigative and corrective actions if necessary, and replacement of the center section rear spar upper chord as applicable. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective June 27, 2017.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of June 27, 2017.

**ADDRESSES:** For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; 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-2016-7426.

#### **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-2016-7426; 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:** George Garrido, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Los Angeles Aircraft Certification Office (ACO), 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5232; fax: 562-627-5210; email: George.Garrido@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 737-100, -200, and -200C series airplanes. The NPRM published in the Federal Register on July 12, 2016 (81 FR 45075) (“the NPRM”). The NPRM was prompted by the need to complete certain mandated programs intended to support the airplane reaching its LOV of the engineering data that support the established structural maintenance program. The NPRM proposed to require repetitive detailed, high frequency eddy current (HFEC), and ultrasonic inspections of the center section rear spar upper clevis lugs and horizontal stabilizer rear spar upper lugs, as applicable, for any cracking, and related investigative and corrective actions if necessary. For certain airplanes, the NPRM also proposed to require replacement of the center section rear spar upper chord with a new part or a serviceable center section assembly. The NPRM also proposed to require repetitive HFEC and fluorescent dye penetrant inspections of the center section for cracking of the front and rear spar upper clevis lugs or horizontal stabilizer front and rear spar upper lugs, and related investigative and corrective actions if necessary. We are issuing this AD to detect and correct cracking in the rear spar upper clevis lugs of the center section, and in the rear spar upper lugs of the horizontal stabilizer, which could result in the loss of structural integrity and controllability of the airplane.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comment received on the NPRM and the FAA's response.

### **Request To Remove the Compliance Time Difference**

Boeing requested that we remove paragraph (o)(2) of the proposed AD, which specifies an exception to Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015—the service information specifies a compliance time or repeat interval as “Horizontal Stabilizer Center Section flight cycles” or “Horizontal Stabilizer flight cycles,” and the proposed AD requires compliance for the corresponding time or repeat interval in airplane flight cycles.

Boeing stated that the purpose of specifying horizontal stabilizer flight cycles and horizontal stabilizer center section flight cycles is to ensure that cycle accumulation is tracked to the component. Boeing also stated that the outboard horizontal stabilizer is contained in the “replaceable” structural components list and that it is possible to move the center section of the horizontal stabilizer to another airplane of the same type design without any rework to the component. Boeing commented that as the fleet ages and airplanes are transferred among operators, used components will be more prevalent, and it is therefore necessary to track the replaceable component flight cycles accumulated after the AD date.

Boeing also stated that the compliance times are subsequent to the later of the compliance time specified in Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, or the date of the spar chord replacement (horizontal stabilizer or center section as applicable) with a new spar chord. Boeing commented that for airplanes on which the age of parts is not known, the compliance time defaults to being subsequent to Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, and are therefore, enforceable as stated, and that likewise, the repetitive intervals must follow the component after transfer. Boeing stated that since the repetitive inspection interval is subsequent to the previous inspection specified in Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, there are no circumstances where the operator will be unable to identify those incremental cycles on the component.

We agree with the commenter's request. It is possible to replace the horizontal stabilizer and/or the horizontal stabilizer center section on one Model 737-100, -200, or -200C series airplane ("Model 737CL airplane") with that from another airplane. The limited information available suggests that a center section has been replaced on at least one Model 737CL airplane, and numerous horizontal stabilizers have been replaced. If a major structural element such as the horizontal stabilizer or the horizontal stabilizer center section is moved from one airplane to a different airplane, the hours and cycles that the part has accumulated should be tracked separately from the airplane flight cycles and flight hours.

Boeing has published Service Letter 737-SL-05-019, dated November 23, 2016, which lists Removable Structural Components (RSC) for Model 737-200, 737-200C, 737-300, 737-400, and 737-500 series airplanes in accordance with Air Transport Association (ATA) Specification 120. That list does include some parts from the horizontal stabilizer and the horizontal stabilizer center section. In order to make sure that cycle accumulation is tracked to the component, we have removed paragraph (o)(2) of the proposed AD from this AD. We have also redesignated paragraph (o)(1) of the proposed AD as paragraph (o) of this AD.

### **Clarification of Terminating Actions**

We have revised paragraph (q)(1) of this AD to clarify that accomplishing the initial inspections specified in paragraph (g) of this AD terminates all requirements of AD 84-23-05, Amendment 39-4949 (Docket No. 84-NM-37-AD; 49 FR 45744, November 20, 1984).

We have revised paragraph (q)(2) of this AD to clarify that accomplishing the initial inspections specified in paragraphs (m) and (n) of this AD terminates all requirements of AD 86-12-05, Amendment 39-5321 (Docket No. 85-NM-162-AD; 51 FR 18771, May 22, 1986).

### **Conclusion**

We reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this AD with the change described previously 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 737-55A1033, Revision 2, dated August 7, 2015. The service information describes procedures for repetitive detailed, HFEC, and ultrasonic inspections for cracking of the center section rear spar upper clevis lugs and rear spar upper lugs of the horizontal stabilizer; repetitive HFEC and fluorescent dye penetrant inspections for cracking in

the front and rear spar upper clevis lugs of the center section and the front and rear spar upper lugs of the horizontal stabilizer; and related investigative and corrective actions. For certain airplanes, the service information describes procedures for replacement of the center section rear spar upper chord with a new part and replacing the center section with a serviceable center section assembly, or installing bushings and sleeves, as applicable. 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

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Repetitive detailed, HFEC, and ultrasonic inspections	9 work-hours × \$85 per hour = \$765 per inspection cycle	\$0	\$765 per inspection cycle	\$64,260 per inspection cycle.
Repetitive HFEC and fluorescent dye penetrant inspections	118 work-hours × \$85 per hour = \$10,030 per inspection cycle	0	\$10,030 per inspection cycle	\$842,520 per inspection cycle.
Replacement	Up to 252 work-hours × \$85 per hour = \$21,420 per inspection cycle	25,000	Up to \$46,420 per inspection cycle	Up to \$3,899,280 per inspection cycle.

We estimate the following costs to do any necessary inspections, repairs, and replacements that would be required based on the results of the inspection. We have no way of determining the number of aircraft that might need these inspections, repairs, and replacements:

#### On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Bolt and Bushing Removal/Inspection, Fabrication, and Installation	101 work-hours × \$85 per hour = \$8,585	\$0	\$8,585.
Repair and replacement	Up to 252 work-hours × \$85 per hour = \$21,420	25,000	Up to \$46,420.

### 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),
- (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 adding the following new airworthiness directive (AD):



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**2017-11-01 The Boeing Company:** Amendment 39-18900; Docket No. FAA-2016-7426; Directorate Identifier 2015-NM-199-AD.

**(a) Effective Date**

This AD is effective June 27, 2017.

**(b) Affected ADs**

This AD affects AD 84-23-05, Amendment 39-4949 (Docket No. 84-NM-37-AD; 49 FR 45744, November 20, 1984); and AD 86-12-05, Amendment 39-5321 (Docket No. 85-NM-162-AD; 51 FR 18771, May 22, 1986).

**(c) Applicability**

This AD applies to The Boeing Company Model 737-100, -200, and -200C series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD is intended to complete certain mandated programs intended to support the airplane reaching its limit of validity (LOV) of the engineering data that support the established structural maintenance program. We are issuing this AD to detect and correct cracking in the rear spar upper clevis lugs of the center section, and in the rear spar upper lugs of the horizontal stabilizer, which could result in the loss of structural integrity and controllability of the airplane.

**(f) Compliance**

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

**(g) Inspections, Related Investigative and Corrective Actions (Service Information Tables 1 and 3)**

At the applicable time specified in table 1 or table 3 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, except as specified in paragraph (o) of this AD: Do detailed, high frequency eddy current (HFEC), and ultrasonic inspections of the center section rear spar upper clevis lugs for any cracking, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015; except as specified in paragraph (p) of this AD. Do all related investigative and corrective actions before further flight.

Repeat the inspections thereafter at the applicable times specified in table 1 or table 3 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015.

**(h) Replacement (Service Information Table 1)**

For airplanes identified as Group 1, Configuration 1, in Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015: At the applicable time specified in table 1 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, except as specified in paragraph (o) of this AD, replace the center section rear upper chord with a new part or replace the center section with a serviceable center section assembly, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015.

**(i) Repetitive Post-Replacement Inspections, Related Investigative and Corrective Actions (Service Information Table 2)**

For airplanes identified as Group 1, Configuration 1, in Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, with a new or serviceable 0.932-inch-thick center section rear spar upper chord: At the applicable time specified in table 2 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, except as specified in paragraph (o) of this AD, do detailed, HFEC, and ultrasonic inspections of the center section rear spar upper chord clevis lugs for any cracking, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015; except as specified in paragraph (p) of this AD. Do all related investigative and corrective actions before further flight. Repeat the inspections thereafter at the applicable times specified in table 2 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015.

**(j) Post-Replacement Inspections, Related Investigative and Corrective Actions (Service Information Table 4)**

For airplanes on which the center section rear spar upper chord was last replaced with a new part or serviceable part: Within the applicable times specified in table 4 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, except as specified in paragraph (o) of this AD, do detailed, HFEC, and ultrasonic inspections of the center section rear spar upper chord clevis lugs for any cracking, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015; except as specified in paragraph (p) of this AD. Do all related investigative and corrective actions before further flight. Repeat the inspections thereafter at the applicable times specified in table 4 of 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015.

**(k) Repetitive Inspections, Related Investigative and Corrective Actions of the Horizontal Stabilizer (Service Information Table 5)**

Within the applicable time specified in table 5 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, except as specified in paragraph (o) of this AD, do detailed, HFEC, and ultrasonic inspections of the rear spar upper lugs of the horizontal stabilizer for any cracking, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015; except as specified in paragraph (p) of this AD. Do all

related investigative and corrective actions before further flight. Repeat the inspections thereafter at the applicable times specified in table 5 of 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015.

**(l) Post Replacement Inspections, Related Investigative and Corrective Actions (Service Information Table 6)**

For airplanes with a replaced horizontal stabilizer with a new part or serviceable assembly, within the applicable times specified in table 6 of 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, except as specified in paragraph (o) of this AD: Do a detailed, HFEC, and ultrasonic inspection of the rear spar upper lugs of the horizontal stabilizer for any cracking, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015; except as specified in paragraph (p) of this AD. Do all related investigative and corrective actions before further flight. Repeat the inspections thereafter at the applicable times specified in table 6 of 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015.

**(m) Scheduled Inspections, Related Investigative and Corrective Actions (Service Information Table 7)**

Within the applicable times specified in table 7 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, except as specified in paragraph (o) of this AD: Do HFEC and fluorescent dye penetrant inspections for cracking in the front and rear spar upper clevis lugs of the center section and front and rear spar upper lugs of the horizontal stabilizer, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015; except as specified in paragraph (p) of this AD. Do all related investigative and corrective actions before further flight. Repeat the inspections thereafter at the applicable times specified in table 7 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015.

**(n) Post Scheduled Inspections, Related Investigative and Corrective Actions (Service Information Table 8)**

For airplanes on which the center section rear spar upper chord or horizontal stabilizer rear spar upper chord has been replaced: Within the applicable time specified in table 8 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, except as specified in paragraph (o) of this AD; do HFEC and fluorescent dye penetrant inspections for cracking in the front and rear spar upper clevis lugs of the center section or front and rear spar upper lugs of the horizontal stabilizer, as applicable, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015; except as specified in paragraph (p) of this AD. Do all related investigative and corrective actions before further flight. Repeat the inspections thereafter at the applicable times specified in table 8 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015.

**(o) Exceptions to the Service Information: Compliance Times**

Where Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 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.



#### **(p) Exception to the Service Information: Repair Compliance Method**

If any cracking of the lug is found during any inspection required by this AD, and Boeing Alert Service Bulletin 737-55A1033, Revision 2, dated August 7, 2015, specifies to contact Boeing for appropriate action: Before further flight, repair the lug using a method approved in accordance with the procedures specified in paragraph (r) of this AD.

#### **(q) Terminating Actions**

(1) For Model 737-100, -200, and -200C series airplanes: Accomplishment of the initial inspections specified in paragraph (g) of this AD terminates all requirements of AD 84-23-05, Amendment 39-4949 (Docket No. 84-NM-37-AD; 49 FR 45744, November 20, 1984).

(2) For Model 737-200 and -200C series airplanes: Accomplishment of the initial inspections specified in paragraph (m) and (n) of this AD terminates all requirements of AD 86-12-05, Amendment 39-5321 (Docket No. 85-NM-162-AD; 51 FR 18771, May 22, 1986).

#### **(r) 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 (s) of this AD.

(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, Los Angeles 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.

#### **(s) Related Information**

For more information about this AD, contact George Garrido, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Los Angeles Aircraft Certification Office (ACO), 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5232; fax: 562-627-5210; email: George.Garrido@faa.gov.

#### **(t) 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 737-55A1033, Revision 2, dated August 7, 2015.

(ii) Reserved.

(3) For Boeing service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; 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 May 12, 2017.

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