



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-0473; Directorate Identifier 2016-NM-195-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 all The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes. This proposed AD was prompted by a report indicating that wear of the bearing plate slider bushings could cause disconnection of certain elevator hinges, which could excite the horizontal stabilizer under certain in-flight speed/altitude conditions and lead to degradation of the structure. This proposed AD would require repetitive inspections and checks of certain elevator hinges and related components, repetitive replacements and tests of the bearing plate, and related investigative and corrective actions if necessary. We are proposing this AD to address the unsafe condition on these products.

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 NPRM, 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-2017-0473.

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-2017-0473; 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: Lu Lu, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6478; fax: 425-917-6590; email: lu.lu@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-2017-0473; Directorate Identifier 2016-NM-195-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

We have received a report indicating that analysis following a special certification review of the horizontal stabilizer determined that wear of the bearing plate slider bushings could cause disconnection of elevator hinge number 4 or number 6. This disconnection could excite the horizontal stabilizer under certain in-flight speed/altitude conditions and lead to degradation of the structure due to tab flutter, hinge wear, spar chord corrosion, hinge rib web chafing, hinge rib chord cracking, and inspar lower skin cracking. One or more of these conditions, if not corrected, could result in heavy airplane vibration and damage, which could lead to departure of the elevator and/or horizontal stabilizer from the airplane, and loss of continued safe flight and landing.

Related Service Information under 1 CFR part 51

We reviewed Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016. The service information describes procedures for repetitive inspections

and checks of elevator hinge numbers 4 and 6 and related components, repetitive replacements and tests of the bearing plate, 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.

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 identified previously, except as discussed under “Differences Between this Proposed AD and the Service Information.” 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-2017-0473.

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

Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016, specifies to contact the manufacturer for certain instructions, but this proposed AD would

require using repair methods, modification deviations, and alteration deviations 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 192 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
Elevator hinge high frequency eddy current (HFEC) inspection, loose bolt check	15 work-hours X \$85 per hour = \$1,275 per inspection/check cycle	\$0	\$1,275 per inspection/check cycle	\$244,800 per inspection/check cycle
Horizontal stabilizer HFEC and low frequency eddy current (LFEC) inspection, loose bolt check	13 work-hours X \$85 per hour = \$1,105 per inspection/check cycle	\$0	\$1,105 per inspection/check cycle	\$212,160 per inspection/check cycle
Horizontal stabilizer detailed corrosion inspection	5 work-hours X \$85 per hour = \$425 per inspection cycle	\$0	\$425 per inspection cycle	\$81,600 per inspection cycle
Elevator general visual inspection for ply damage	Up to 4 work-hours X \$85 per hour = \$340 per inspection cycle	\$0	Up to \$340 per inspection cycle	Up to \$65,280 per inspection cycle

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Elevator skin tap test inspection for delamination	Up to 6 work-hours X \$85 per hour = \$510 per inspection cycle	\$0	Up to \$510 per inspection cycle	Up to \$97,920 per inspection cycle
Elevator hinge bearing plate replacement and binding test	Up to 20 work-hours X \$85 per hour = \$1,700 per replacement/test cycle	\$4,860	Up to \$6,560 per replacement/test cycle	Up to \$1,259,520 per replacement/test cycle
Elevator hinge fitting HFEC inspection	Up to 5 work-hours X \$85 per hour = \$425 per inspection cycle	\$0	Up to \$425 per inspection cycle	Up to \$81,600 per inspection cycle

We estimate the following costs to do any necessary related investigative and corrective actions that would be required based on the results of the proposed inspection.

We have no way of determining the number of aircraft that might need these actions:

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Elevator hinge conditional inspections, measurements, replacements, and repairs	28 work-hours X \$85 per hour = \$2,380	\$0 ^[1]	\$2,380
Horizontal stabilizer conditional inspections, replacements, and repairs	28 work-hours X \$85 per hour = \$2,380	\$0 ^[1]	\$2,380

^[1] We have received no definitive data that would enable us to provide cost estimates for the parts for on-condition repairs.

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-2017-0473; Directorate Identifier 2016-NM-195-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

None.

(c) Applicability

This AD applies to all The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes, certificated in any category.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by a report indicating that wear of the bearing plate slider bushings could cause disconnection of elevator hinge number 4 or number 6, which could excite the horizontal stabilizer under certain in-flight speed/altitude conditions and lead to

degradation of the structure, departure of the elevator or horizontal stabilizer from the airplane, and loss of continued safe flight and landing.

(f) Compliance

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

(g) Actions for Group 1 Airplanes

For airplanes identified as Group 1 in Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016: Within 120 days after the effective date of this AD, do inspections and checks of the elevator and horizontal stabilizer at elevator hinge numbers 4 and 6 and the replacement and test of the bearing plate at elevator hinge numbers 4 and 6, as specified in Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016, and do all applicable related investigative and corrective actions, using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

(h) Inspections and Checks for Groups 2 and 3 Airplanes

For airplanes identified as Groups 2 and 3 in Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016: Except as required by paragraph (j)(1) of this AD, at the applicable time specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016, do the applicable inspections and checks of elevator hinge numbers 4 and 6 and related components specified in paragraphs (h)(1) through (h)(8) of this AD, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016, except as required by paragraph (j)(2) of this AD. Do all applicable related investigative and corrective actions before further flight. Repeat the actions specified in paragraphs (h)(1) through (h)(8) of this AD thereafter at the

applicable times specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016.

(1) For Groups 2 and 3 airplanes: A high frequency eddy current (HFEC) inspection for cracking of the elevator hinge numbers 4 and 6.

(2) For Groups 2 and 3 airplanes: A loose bolt check at elevator hinge numbers 4 and 6.

(3) For Groups 2 and 3 airplanes: An HFEC inspection and low frequency eddy current (LFEC) inspection for cracking of the horizontal stabilizer forward of elevator hinge numbers 4 and 6.

(4) For Groups 2 and 3 airplanes: A loose bolt check of horizontal stabilizer attach plates at elevator hinge numbers 4 and 6.

(5) For Groups 2 and 3 airplanes: A detailed inspection of the horizontal stabilizer rear spar outer mold line, gusset plate, and inspar skin for any corrosion.

(6) For Group 2, Configuration 2, and Group 3 airplanes: A general visual inspection of the elevator front spar around hinge numbers 4 and 6 for any ply damage.

(7) For Group 2 and 3 airplanes: A tap test inspection of the elevator skin for any delamination at elevator hinge numbers 4 and 6.

(8) For Group 2, Configuration 2, and Group 3 airplanes on which elevator hinge fitting assembly 65C31307-() is installed at elevator hinge number 6: An HFEC inspection of the hinge fitting for any crack.

(i) Repetitive Bearing Plate Replacement and Test

For airplanes identified as Group 2, Configuration 2, and Group 3 in Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016: Except as required

by paragraph (j)(1) of this AD, at the applicable time specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016, do the actions specified in paragraphs (i)(1) and (i)(2) of this AD, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016, except as required by paragraph (j)(2) of this AD. All applicable related investigative and corrective actions must be done before further flight. Repeat the actions specified in paragraphs (i)(1) and (i)(2) of this AD thereafter at the applicable time specified in paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016.

(1) Replace the bearing plates at elevator hinge numbers 4 and 6.

(2) Do an elevator hinge bearing plate binding test at hinge numbers 4 and 6.

(j) Exceptions to Service Information Specifications

(1) Where Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016, specifies a compliance time “after the original issue date of this Service Bulletin,” this AD requires compliance within the specified compliance time after the effective date of this AD.

(2) Although Boeing Alert Service Bulletin 737-55A1099, Revision 1, dated October 21, 2016, specifies to contact Boeing for repair instructions, and specifies that action as “RC” (Required for Compliance), this AD requires repair before further flight using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

(k) Parts Installation Limitation

As of the effective date of this AD: A horizontal stabilizer, an elevator, or a bearing plate may be installed on any airplane, provided the actions required by

paragraphs (h) and (i) of this AD are done within the applicable compliance times specified in paragraphs (h) and (i) of this AD.

(l) Credit for Previous Actions

This paragraph provides credit for the actions specified in paragraphs (h) and (i) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 737-55A1099, dated July 5, 2016.

(m) 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 (n)(2) 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, 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.

(4) Except as required by paragraph (j)(2) of this AD: For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (m)(4)(i) and (m)(4)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. If a step or substep is labeled “RC Exempt,” then the RC requirement is removed from that step or substep. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator’s maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(n) Related Information

(1) For more information about this AD, contact Lu Lu, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6478; fax: 425-917-6590; email: lu.lu@faa.gov.

(2) For information about AMOCs, contact George Garrido, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Los Angeles ACO, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5357; fax: 562-627-5210; email: george.garrido@faa.gov.

(3) For 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>. 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 May 10, 2017.

Jeffrey E. Duven,
Manager,
Transport Airplane Directorate,
Aircraft Certification Service.
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