[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2008-0415; Directorate Identifier 2007-NM-256-AD; Amendment 39-16904; AD 2011-27-03]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for all Model 737 airplanes. This AD was prompted by a report of extensive corrosion of a ballscrew used in the drive mechanism of the horizontal stabilizer trim actuator (HSTA). This AD requires repetitive inspections, lubrications, and repetitive overhauls of the ball nut and ballscrew and attachment (Gimbal) fittings for the trim actuator of the horizontal stabilizer; various modification(s); and corrective actions if necessary; as applicable. We are issuing this AD to prevent an undetected failure of the primary load path for the ballscrew in the drive mechanism of the HSTA and subsequent wear and failure of the secondary load path, which could lead to loss of control of the horizontal stabilizer and consequent loss of control of the airplane.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For Boeing 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.

For Skytronics service information identified in this AD, contact Skytronics Inc., (cage 16553), P.O. Box 807, El Segundo, California 90245; telephone 310-322-6284; fax 310-322-6160; Internet http://www.skytronicsinc.com.

For Linear Motion service information identified in this AD, contact Linear Motion LLC, 628 North Hamilton Street, Saginaw, Michigan 48602; telephone 989-759-8300; Internet http://www.thomsonaerospace.com.

For UMBRA CUSCINETTI service information identified in this AD, contact UMBRA CUSCINETTI S.p.A., Technical Publications Department; Via. Piave 12, Foligno (PG) 06034, Italy; telephone +39 (0742) 348300; fax +39 (0742) 348277; e-mail tech.pubs@umbracus.com.

You may review copies of the referenced 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.

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 (phone: 800-647-5527) is 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: Kelly McGuckin, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft

Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6490; fax: 425-917-6590.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a supplemental notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an airworthiness directive (AD) that would apply to the specified products. The supplemental NPRM was published in the Federal Register on April 19, 2011 (76 FR 21815). The original NPRM was published in the Federal Register on April 28, 2008 (73 FR 22840). The supplemental NPRM proposed to require repetitive inspections, lubrications, and repetitive repairs/overhauls of the ball nut and ballscrew and attachment (Gimbal) fittings for the trim actuator of the horizontal stabilizer; various installation(s); and corrective actions if necessary; as applicable.

Comments

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

Supportive Comments

Boeing concurred with the content of the supplemental NPRM (76 FR 21815, April 19, 2011). Continental Airlines is complying with the actions and supported the supplemental NPRM.

Requests to Change Certain Compliance Times

US Airways and Southwest Airlines asked that the compliance time required by paragraph (g)(1) of the supplemental NPRM (76 FR 21815, April 19, 2011) be extended. US Airways stated that the compliance time for the modification is defined in Table 1 of paragraph 1.E., "Compliance" of Boeing Alert Service Bulletin 737-27A1278, Revision 1, dated January 7, 2010; that compliance time is within 24,000 flight hours

since delivery or 24,000 flight hours since last overhaul, whichever comes first. US Airways added that this compliance time would put all airplanes having HSTAs with more than 24,000 flight hours since delivery immediately out of compliance. US Airways adds that this compliance time, coupled with the compliance time in the supplemental NPRM, would give operators only 12 months to modify all affected airplanes. US Airways noted that the compliance time specified in Table 1 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010, specifies "whichever occurs later." Southwest also stated that this compliance time would put its airplanes out of compliance because all its HSTAs have more than 24,000 flight hours since new.

Senem Sevinic stated that the compliance times given in the referenced service information seem quite complicated, and asked that we specify the compliance times in the supplemental NPRM (76 FR 21815, April 19, 2011).

We acknowledge the requests from US Airways and Southwest and provide the following information. We specified grace periods (i.e., compliance times after the effective date of the AD) in paragraph (g)(1)(ii) of the supplemental NPRM (76 FR 21815, April 19, 2011). However, we have extended the compliance time required by paragraph (g)(1)(ii)(C) of this AD to 24 months because this extension will provide an acceptable level of safety. We do not agree with the request to specify the compliance times in paragraph (g)(1)(i) of this AD; those compliance times adequately identify the time necessary to complete each task required by this AD. We have not changed the AD in this regard.

Request to Clarify Certain Actions

Delta asked that the "repair/overhaul" phrase specified in paragraph (g)(1)(ii)(B) of the supplemental NPRM (76 FR 21815, April 19, 2011) be changed to "overhaul" to match the language specified in Table 1 of paragraph 1.E., "Compliance," of Boeing

Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010. Delta stated that paragraph (g)(1)(ii)(B) of the supplemental NPRM can lead to uncertainty with respect to the necessary time to accomplish a repair. Delta noted that the compliance time for repair/overhaul required by this paragraph is "within 12 months of the effective date of this AD;" however, Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010, specifies repair prior to further flight if damage is found. Delta also noted that Table 1 of paragraph 1.E., "Compliance," of that service bulletin does not include the word "repair" when referring to the overhaul actions, and adds that the only compliance time specified for the repair is "before further flight."

We agree that some clarification is necessary. Therefore, we have changed the "repair/overhaul" phrase specified in the preamble and paragraphs (g), (g)(1), and (g)(1)(ii)(B) of this AD to specify "overhaul," for the reasons provided by the commenter.

Delta and US Airways asked that paragraph (g)(1)(ii)(C) of the supplemental NPRM (76 FR 21815, April 19, 2011) be changed to clarify the phrase "for the installation" to identify the individual installation and its applicability, or, in the case of multiple installations, to identify each individual installation and its applicability. Delta stated that the installation could be a single installation or multiple installations, and noted that the phrase could be referring to the ball nut tube retainer installation. US Airways infers that we are identifying many references in the service information about removing certain parts and installing improved parts. US Airways suggested using the word "modification" since using "installation" could be confusing, and noted that "installation" could refer to installation of modifications or installation of the HSTA.

We agree that clarification is necessary for the reasons provided by the commenters. Therefore, in paragraph (g)(1)(ii)(C) of this AD we have changed the phrase "For the installation(s)" to "For the modification(s)." In addition, we have changed

"installation(s)" to "modification(s)" in the Summary section and paragraphs (g) and (g)(1) of this AD.

Request to Change the Maintenance Planning Document (MPD) Task Cards

Southwest asked that the work instructions in the MPD task cards be expanded to match the procedures for the detailed inspections specified in the service information specified in paragraph (g) of the supplemental NPRM (76 FR 21815, April 19, 2011) . Southwest added that this would allow for one set of instructions to accomplish the inspections and would eliminate the human error factor involved with more than one set of inspection requirements since the task cards do not match the service information. Senem Sevinic asked that a note be added to the supplemental NPRM that specifies which MPD tasks meet which steps in Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010, because it is difficult to follow both the steps in this service information and the MPD tasks.

We disagree with adding a note to this AD. The actions required by this AD, and referred to in Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010, address a specific safety issue. Accomplishing the tasks in the MPD task cards does not satisfy the actions specified in this service information; however, accomplishing the actions specified in this service information does satisfy certain MPD tasks. Because the MPD is a Boeing document and is not maintained by the FAA, operators may request any change to a task related to an MRB item through the Industry Steering Committee, which would ensure that approved changes are made to the applicable MPD task. We have not changed the AD in this regard.

Request to Clarify Parts Installation Paragraph

US Airways asked that we clarify the requirements in paragraph (i) of the supplemental NPRM (76 FR 21815, April 19, 2011) (the parts installation paragraph). US Airways reiterated the language used in this paragraph and asked if an operator may

install a serviceable unit (i.e., inspected and lubricated) after the effective date of the AD, or if we are requiring only replacement units that are inspected and lubricated, and have zero time since overhaul and post-modification.

We infer that the commenter is asking if unmodified ballscrew assemblies may be used on replacement HSTAs, provided that they are inspected and lubricated as required. For clarification, the ballscrew assembly in the drive mechanism of the HSTA may not be installed unless it has been inspected, and modified, as applicable, to ensure that HSTAs used as replacements are not exposed to the unsafe condition addressed in this AD. No change to the AD is necessary in this regard.

Change to Final Rule

Boeing Alert Service Bulletin 737-27A1278, Revision 1, dated January 7, 2010; and Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010; refer to accomplishing certain actions as given in certain component maintenance manuals (CMMs). This AD includes a new Note 1 (and renumbers subsequent notes) identifying those CMMs as additional sources of guidance. The note also clarifies a typographical error in Boeing Alert Service Bulletin 737-27A1278, Revision 1, dated January 7, 2010, which referred to "CMM 27-45-12," and should have referred to "CMM 27-45-11" as an additional source of guidance.

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 1,641 airplanes of U.S. registry. The following table provides the estimated costs for U.S. operators to comply with this AD.

Estimated Costs

Action[1]	Work hours[1]	Average labor rate per hour	Parts	Cost per product[1]	Number of U.S.-registered airplanes	Fleet cost[1]
Detailed inspections	2 or 4	$85	None	$170 or $340, per inspection cycle	1,641	Between $278,970, and $557,940 per inspection cycle
Lubrications	1 or 3	$85	None	$85 or $255, per lubrication cycle	1,641	Between $139,485, and $418,455 per lubrication cycle
Overhauls	40	$85	None	$3,400 per overhaul	1,641	$5,579,400 per overhaul cycle
Modifications (Installations)	Between 1 and 3	$85	$2,200	Between $2,285 and $2,455	1,352	Between $3,089,320 and $3,319,160

[1] Depending on airplane configuration.

The number of work hours, as indicated above, is presented as if the accomplishment of the actions in this AD is to be conducted as new "stand alone" actions. However, in actual practice, the lubrications, detailed inspections, and overhauls are currently being done as part of normal airplane maintenance. The repair (if necessary) can be done coincidentally or in combination with the normally scheduled HSTA and ballscrew overhaul. Therefore, the actual number of necessary additional work hours will be minimal in many instances. Additionally, any costs associated with special airplane scheduling will be minimal.

We estimate the following costs to do any necessary repairs/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 repairs/replacements:

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Remove/replace HSTA	Between 3 and 8 work hours X $85 per hour = between $255 and $680	$0	Between $255 and $680

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 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):

2011-27-03 The Boeing Company: Amendment 39-16904; Docket No. FAA-2008-0415; Directorate Identifier 2007-NM-256-AD.

(a) **Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) **Affected ADs**

None.

(c) **Applicability**

This AD applies to all Model 737 airplanes; certificated in any category.

(d) **Subject**

Air Transport Association (ATA) of America Code 27: Flight controls.

(e) **Unsafe Condition**

This AD results from a report of extensive corrosion of a ballscrew used in the drive mechanism of the horizontal stabilizer trim actuator (HSTA). We are issuing this AD to prevent an undetected failure of the primary load path for the ballscrew in the drive mechanism of the HSTA and subsequent wear and failure of the secondary load path, which could lead to loss of control of the horizontal stabilizer and consequent loss of control of the airplane.

(f) **Compliance**

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

(g) **Inspections, Lubrications, Overhauls, Modification(s), and Applicable Corrective Actions**

At the applicable compliance time and repeat intervals listed in Tables 1 and 2 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-27A1278, Revision 1, dated January 7, 2010; or Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010; as applicable (depending on airplane configuration): Do the inspections, lubrications, overhauls, modification(s), and applicable corrective actions, by accomplishing all the applicable actions specified in the Accomplishment Instructions of Boeing Alert Service Bulletin 737-27A1278, Revision 1, dated January 7, 2010; or Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010; as applicable; except as provided by paragraphs (g)(1) and (g)(2) of this AD.

Note 1: Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010; and Boeing Alert Service Bulletin 737-27A1278, Revision 1, dated January 7, 2010; refer to the following component maintenance manuals (CMMs) as additional

sources of guidance for accomplishing the applicable specified actions: Boeing CMM 27-45-11, dated November 1, 2011; Boeing CMM 27-45-12, dated November 1, 2011; Skytronics CMM 27-40-03, Revision 1, dated September 1, 2006; UMBRA CUSCINETTI CMM 27-41-01, Revision 5, dated September 27, 2005; and Linear Motion CMM 27-41-01, Revision 8, dated May 21, 2008; as applicable.

Note 2: Boeing Alert Service Bulletin 737-27A1278, Revision 1, dated January 7, 2010, refers to UMBRA CUSCINETTI Service Bulletin 07322-27-01, dated December 21, 2004; Linear Motion Service Bulletin 7901708, Revision A, and Revision B, both dated July 26, 2005; Boeing 737 Service Bulletin 27-1046, Revision 1, dated April 5, 1974; and SKYTRONICS Service Bulletin 93004, dated September 1, 2005; as additional sources of guidance for accomplishing the applicable specified actions.

Note 3: Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010, refers to UMBRA CUSCINETTI Service Bulletin 07322-27-01, dated December 21, 2004, as an additional source of guidance for accomplishing the applicable specified actions.

(1) Where paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-27A1278, Revision 1, dated January 7, 2010; or Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010; as applicable; specifies an initial compliance time for accomplishing the initial inspection, lubrication, overhaul, or modification, this AD requires doing the applicable initial action(s) at the later of the times specified in paragraphs (g)(1)(i) and (g)(1)(ii) of this AD.

(i) At the applicable compliance time specified in paragraph 1.E, “Compliance,” of Boeing Alert Service Bulletin 737-27A1278, Revision 1, dated January 7, 2010; or Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010; as applicable.

(ii) Within the applicable compliance time specified in paragraph (g)(1)(ii)(A), (g)(1)(ii)(B), or (g)(1)(ii)(C) of this AD.

(A) For the initial detailed inspection and lubrication: Within 6 months after the effective date of this AD.

(B) For the initial overhaul: Within 12 months after the effective date of this AD.

(C) For the modification(s): Within 24 months after the effective date of this AD.

(2) Where Table 2 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010, specifies a compliance time of ". . . within 25,000 Flight Hours since the latest horizontal stabilizer trim actuator (HSTA) Overhaul from the date of Revision 1 of this Service Bulletin . . .," this AD requires compliance within 25,000 flight hours since the last overhaul of the trim actuator of the horizontal stabilizer.

(h) **Credit for Actions Accomplished in Accordance with Previous Service Information**

Actions accomplished before the effective date of this AD in accordance with Boeing Alert Service Bulletin 737-27A1277, Revision 1, dated July 25, 2007; or Boeing Alert Service Bulletin 737-27A1278, dated May 24, 2007; as applicable; are considered acceptable for compliance with the corresponding actions specified in this AD.

(i) **Parts Installation**

As of the effective date of this AD, no person may install a ballscrew assembly in the drive mechanism of the HSTA on any airplane, unless it has been inspected and modified, as applicable, in accordance with paragraph (g) of this AD.

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

The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to

the manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD. Information may be e-mailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(1) 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.

(2) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane.

(k) **Related Information**

(1) For more information about this AD, contact Kelly McGuckin, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6490; fax: 425-917-6590.

(2) Boeing 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) For Skytronics service information identified in this AD, contact Skytronics Inc., (cage 16553), P.O. Box 807, El Segundo, California 90245; phone: 310-322-6284; fax: 310-322-6160; Internet: http://www.skytronicsinc.com.

(4) For Linear Motion service information identified in this AD, contact Linear Motion LLC, 628 North Hamilton Street, Saginaw, Michigan 48602; phone: 989-759-8300; Internet: http://www.thomsonaerospace.com.

(5) For UMBRA CUSCINETTI service information identified in this AD, contact UMBRA CUSCINETTI S.p.A., Technical Publications Department; Via. Piave 12, Foligno (PG) 06034, Italy; phone: +39 (0742) 348300; fax: +39 (0742) 348277; e-mail: tech.pubs@umbracus.com.

(l) **Material Incorporated by Reference**

(1) You must use the following service information to do the actions required by this AD, unless the AD specifies otherwise. The Director of the Federal Register approved the incorporation by reference (IBR) of the following service information under 5 U.S.C. 552(a) and 1 CFR part 51:

(i) Boeing Alert Service Bulletin 737-27A1278, Revision 1, dated January 7, 2010.

(ii) Boeing Alert Service Bulletin 737-27A1277, Revision 2, dated January 8, 2010.

(2) For Boeing 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 an NARA facility, call 202-741-6030, or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Issued in Renton, Washington, on December 14, 2011.

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

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