



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2012-1318; Directorate Identifier 2012-NM-104-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 certain The Boeing Company Model 747-200B, 747-300, 747-400, 747-400D, 747-400F series airplanes, and Model 767 series airplanes, powered by General Electric (GE) CF6-80C2 engines. This proposed AD was prompted by reports of failure of the electro-mechanical brake flex shaft (short flexshaft) of the thrust reverser actuation system (TRAS). This proposed AD would require replacing the short flexshaft on each engine with a new short flexshaft, testing of the electro-mechanical brake and center drive unit (CDU) cone brake to verify the holding torque, and performing related investigative and corrective actions if necessary. We are proposing this AD to prevent an uncommanded in-flight thrust reverser deployment and consequent loss of control of the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may review copies of the 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.

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 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: Tung Tran, Aerospace Engineer, Propulsion Branch, ANM-140S, Seattle Aircraft Certification Office (ACO), FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6505; fax: 425-917-6590; email: Tung.Tran@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-2012-1318; Directorate Identifier 2012-NM-104-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 multiple reports of failure of the short flexshaft of the TRAS on Model 747 and 767 airplanes powered with GE CF6-80C2 engines. The TRAS brake was installed as a third lock to prevent an uncommanded thrust reverser deployment on Model 747 and 767 airplanes powered by GE CF6-80C2 engines. The failed short flexshafts were found to have cores that had become sheared and unbraided. A new short flexshaft design has been developed that incorporates a better end fitting attachment and a larger core diameter with the core wound specifically for use on a left and right thrust reverser half to increase its resistance to failure. We are proposing this AD to prevent an uncommanded in-flight thrust reverser deployment and consequent loss of control of the airplane.

Other Related Rulemaking

On August 13, 2003, we issued AD 2003-16-16, Amendment 39-13269 (68 FR 51439, August 27, 2003), for Model 747-400 series airplanes equipped with GE Model CF6-80C2 series engines. AD 2003-16-16 requires repetitive tests of the cone brake of the CDU of the thrust reversers, and corrective actions if necessary; installation of a TRAS lock and various related modifications and installations. Following installation of the TRAS lock, this action also requires repetitive functional tests of the TRAS lock, and corrective action if necessary.

On July 18, 2000, we issued AD 2000-15-04, Amendment 39-11833 (65 FR 47252, August 2, 2000), for Model 747-200 and -300 series airplanes equipped with GE Model CF6-80C2 series engines with Power Management Control engine controls. AD 2000-15-04 requires various inspections and functional tests to detect discrepancies of the thrust reverser control and indication system, and correction of any discrepancy found; and installation of a terminating modification, and repetitive functional tests of that installation, and repair, if necessary.

On April 26, 2000, we issued AD 2000-09-04, Amendment 39-11712 (65 FR 25833, May 4, 2000), for Model 767 series airplanes equipped with GE Model CF6-80C2 series engines. AD 2000-09-04 requires tests, inspections, and adjustments of the thrust reverser system; and installation of a terminating modification, and repetitive follow-on actions.

Relevant Service Information

We reviewed Boeing Alert Service Bulletin 747-78A2185, dated October 26, 2010; and Boeing Alert Service Bulletin 767-78A0100, dated October 26, 2010. This service information describes procedures for replacing the short flexshaft of each thrust reverser half of each engine with a new short flexshaft.

We reviewed Boeing Service Bulletin 747-78A2166, Revision 3, dated July 29, 2004 (for Model 747 airplanes); Boeing Alert Service Bulletin 767-78A0081, Revision 2, dated April 19, 2001 (for Model 767-200, -300, and -300F airplanes); and Boeing Alert Service Bulletin 767-78A0088, dated April 19, 2001 (for Model 767-400ER airplanes). This service information describes a functional test of the electro-mechanical brake and CDU cone brake to verify the holding torque, and related investigative and corrective actions if necessary.

The related investigative action for the electro-mechanical brake is a general visual inspection of the short flexshaft for twisting, breaking, or other damage.

The corrective action for the electro-mechanical brake is replacement of the long flexshaft between the CDU and the upper angle gearbox with a new flexshaft; replacement of the short flexshaft between the upper angle gearbox and the electro-mechanical brake with a new flexshaft; and replacement of the electromechanical brake with a new electromechanical brake if the required torque value cannot be reached after the previous flexshaft replacements.

The corrective action for a CDU cone brake test failure is replacement of the CDU cone brake with a new CDU cone brake.

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 these same type designs.

Proposed AD Requirements

This proposed AD would require accomplishing the actions specified in the service information described previously.

Costs of Compliance

We estimate that this proposed AD affects 298 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
Replacement Model 747 airplanes (72 airplanes)	8 work-hours X \$85 per hour = \$680	\$15,244	\$15,924	\$1,146,528
Replacement Model 767 airplanes (226 airplanes)	4 work-hours X \$85 per hour = \$340	\$7,622	\$7,962	\$1,799,412
Functional test Model 747 airplanes (72 airplanes)	12 work-hours X \$85 per hour = \$1,020	\$0	\$1,020	\$73,440
Functional test Model 767 airplanes (226 airplanes)	12 work-hours X \$85 per hour = \$1,020	\$0	\$1,020	\$230,520

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this proposed AD.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We 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-2012-1318; Directorate Identifier 2012-NM-104-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

This AD affects AD 2003-16-16, Amendment 39-13269 (68 FR 51439, August 27, 2003); AD 2000-15-04, Amendment 39-11833 (65 FR 47252, August 2, 2000); and AD 2000-09-04, Amendment 39-11712 (65 FR 25833, May 4, 2000).

(c) Applicability

This AD applies to The Boeing Company airplanes, certificated in any category, powered by General Electric (GE) CF6-80C2 engines, as identified in paragraphs (c)(1) and (c)(2) of this AD.

(1) Model 747-200B, 747-300, 747-400, 747-400D, and 747-400F series airplanes, as identified in Boeing Alert Service Bulletin 747-78A2185, dated October 26, 2010.

(2) Model 767-200, -300, -300F, and -400ER series airplanes, as identified in Boeing Alert Service Bulletin 767-78A0100, dated October 26, 2010.

(d) Subject

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 7830, Thrust reverser.

(e) Unsafe Condition

This AD was prompted by reports of failure of the electro-mechanical brake flex shaft (short flexshaft) of the thrust reverser actuation system (TRAS). We are issuing this AD to prevent an uncommanded in-flight thrust reverser deployment and consequent loss of control of the airplane.

(f) Compliance

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

(g) Flexible Drive Shaft Replacement

Within 60 months after the effective date of this AD, replace the short flexshaft on each thrust reverser half of each engine with a new short flexshaft, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-78A2185, dated October 26, 2010; or Boeing Alert Service Bulletin 767-78A0100, dated October 26, 2010; as applicable.

(h) Functional Test

Within 2,000 flight hours after accomplishment of the short flexshaft replacements required by paragraph (g) of this AD: Do a functional test on the electro-mechanical brakes and the cone brake of the center drive unit (CDU) to verify the holding torque, on all thrust reversers and on all engines, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 747-78A2166, Revision 3, dated July 29, 2004 (for Model 747 airplanes); Boeing Alert Service Bulletin 767-78A0081, Revision 2, dated April 19, 2001 (for Model 767-200, -300, and -300F airplanes); or Boeing Alert Service Bulletin 767-78A0088, dated April 19, 2001 (for Model 767-400ER airplanes). Repeat the functional test thereafter at intervals not to exceed 2,000 flight hours.

(i) Corrective Action

If any functional test required by paragraph (h) of this AD fails: Before further flight, do related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 747-78A2166, Revision 3, dated July 29, 2004 (for Model 747 airplanes); Boeing Alert Service Bulletin 767-78A0081, Revision 2, dated April 19, 2001 (for Model 767-200, -300, and -300F airplanes); or Boeing Alert Service Bulletin 767-78A0088, dated April 19, 2001 (for

Model 767-400ER airplanes); and repeat the applicable test or check until successfully accomplished.

(j) Terminating Actions

(1) Accomplishment of the initial test specified in paragraph (h) of this AD terminates the requirements of paragraph (e) of AD 2003-16-16, Amendment 39-13269 (68 FR 51439, August 27, 2003).

(2) Accomplishment of the initial test specified in paragraph (h) of this AD terminates the requirements of paragraph (g) of AD 2000-15-04, Amendment 39-11833 (65 FR 47252, August 2, 2000).

(3) Accomplishment of the initial test specified in paragraph (h) of this AD terminates the requirements of paragraph (f) of AD 2000-09-04, Amendment 39-11712 (65 FR 25833, May 4, 2000).

(k) Parts Installation Prohibition

As of the effective date of this AD, no person may install a flexshaft having part number 3278500-() on any airplane.

(l) Alternative Methods of Compliance (AMOCs)

(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. 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 emailed to:

9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

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

(m) Related Information

(1) For more information about this AD, contact Tung Tran, Aerospace Engineer, Propulsion Branch, ANM-140S, Seattle Aircraft Certification Office (ACO), FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6505; fax: 425-917-6590; email: Tung.Tran@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may review copies of the 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 January 10, 2013.

Kalene C. Yanamura,
Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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