

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2009-0293; Directorate Identifier 2008-NM-221-AD; Amendment 39-16035; AD 2009-20-12]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747-100, -100B, -100B SUD, -200B, -200C, -200F, -300, -400, -400D, -400F, and 747SR Series Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain Boeing Model 747 airplanes identified above. This AD requires replacing the inboard trailing edge (TE) flap transmission carbon disk no-back brakes with skewed roller no-back brakes at the TE flap transmission, positions 4 and 5. This AD results from reports of the inboard TE flaps blowing back due to the failure of a transmission carbon disk no-back brake. The no-back brake did not hold the TE flaps in the commanded position. We are issuing this AD to prevent a decrease of the aerodynamic controllability of the airplane, which could adversely affect the airplane's continued safe flight and landing.

DATES: This AD is effective November 5, 2009.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of November 5, 2009.

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

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (telephone 800-647-5527) is the Document

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

FOR FURTHER INFORMATION CONTACT: Douglas Tsuji, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6487; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an airworthiness directive (AD) that would apply to certain Boeing Model 747 Airplanes. That NPRM was published in the Federal Register on April 1, 2009 (74 FR 14750). That NPRM proposed to require replacing the inboard trailing edge (TE) flap transmission carbon disk no-back brakes with skewed roller no-back brakes at the TE flap transmission, positions 4 and 5.

Comments

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

Support for the NPRM

Boeing concurs with the contents of the NPRM.

Clarification of Criteria for AD

Lufthansa has doubts that all criteria for the issuance of an AD are met. The commenter states that there is no comprehensible technical background.

We infer that the commenter is requesting that we withdraw the NPRM. We disagree. Although Boeing Special Attention Service Bulletin 747-27-2422, dated October 30, 2008, states that "since 1999, four operators have reported that the inboard TE flaps blew back due to the failure of a transmission carbon disk no-back brake," there have been ten reports of failed inboard and outboard carbon disk no-back brakes since 1973, and six reports since 1999. Nine of the reports were for the inboard no-back, and one for an outboard no-back. All of the failures (i.e., uncommanded blowbacks) occurred at a sufficient altitude for the pilots to react and control the airplane. As a result of these events, Boeing conducted extensive lab tests to check the wear properties and friction characteristics of new and used carbon disk brakes. The tests revealed a wide variation in friction capability but no wear correlation between friction coefficient and the number of cycles. Therefore, the carbon brake may be ineffective regardless of wear. Because of the test results and the number of events that have occurred in the fleet, we find it was necessary to proceed with issuing this AD to ensure the safety of the fleet.

Request to Include an Optional Method of Compliance

Lufthansa requests that we include a repetitive D-Check shop overhaul (with updated procedures, if necessary) as an optional method of compliance to the proposed modification. Lufthansa states that no-back brakes are removed every 6 years during D-Check and are overhauled in accordance with the latest Boeing overhaul manuals. Lufthansa states that since 1995 there have been no failures of the brake system, or a flap blow back event (which Lufthansa states is extremely improbable due to the fact that a simultaneous double failure has to exist). With the above-mentioned

overhaul and an additional maintenance task, Lufthansa states that it is reducing if not even excluding the risk of a double failure. Lufthansa requests a compliance time of 8 years for the first D-check, 8 years for the second D-check, and 6 years for subsequent D-checks.

We do not agree with the commenter's request to include an optional method of compliance. Based on the results of Boeing's extensive testing of carbon disk brakes, the carbon brakes may be ineffective regardless of wear. Therefore, overhauling the carbon brakes at D-check intervals would not adequately address the unsafe condition. In addition, we do not consider that the brake system failure—which involves a latent failure of the no-back brake, combined with an active failure of the flap drive system—is extremely improbable. No change to this AD is necessary.

Request to Delay Issuing Final Rule

Japan Airlines (JAL) requests that we issue the AD after Revision 1 of Boeing Service Bulletin 747-27-2422 is available. The NPRM cited Boeing Special Attention Service Bulletin 747-27-2422, dated October 30, 2008, as the appropriate source of service information for installing the skewed roller no-back brakes at the trailing edge flap transmission. JAL requests that Boeing amend Service Bulletin 747-27-2422 to improve Figure 3 to show part numbers and the assembly sequence. JAL adds that Boeing is considering issuing Revision 1.

We agree that adding part numbers and the assembly sequence to Figure 3 in Boeing Service Bulletin 747-27-2422, dated October 30, 2008, may be beneficial. However, we do not consider that delaying the final rule until after the release of a future service bulletin revision is warranted. Boeing Service Bulletin 747-27-2422, dated October 30, 2008, already includes sufficient information to install the skewed roller no-back brakes at the trailing edge flap transmission within the compliance time. However, paragraph (h) of the final rule provides operators the opportunity to request an AMOC or an extension of the compliance time if data are presented to justify such an extension.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD as proposed.

Costs of Compliance

We estimate that this AD would affect 249 airplanes of U.S. registry. The following table provides the estimated costs for U.S. operators to comply with this AD.

Table – Estimated costs

Action	Work hours	Average labor rate per hour	Parts	Cost	Number of U.S.-registered airplanes	Fleet cost
Replacement	25	\$80	\$60,670	\$62,670	249	\$15,604,830

Authority for this Rulemaking

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

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701: General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and

procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

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

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

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

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

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new AD:



FAA
Aircraft Certification Service

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

2009-20-12 Boeing: Amendment 39-16035. Docket No. FAA-2009-0293; Directorate Identifier 2008-NM-221-AD.

Effective Date

(a) This airworthiness directive (AD) is effective November 5, 2009.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Boeing Model 747-100, -100B, -100B SUD, -200B, -200C, -200F, -300, -400, -400D, -400F, and 747SR series airplanes, certificated in any category; as identified in Boeing Special Attention Service Bulletin 747-27-2422, dated October 30, 2008.

Subject

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

Unsafe Condition

(e) This AD results from reports of the inboard trailing edge (TE) flaps blowing back due to the failure of a transmission carbon disk no-back brake. The no-back brake did not hold the flaps in the commanded position. The Federal Aviation Administration is issuing this AD to prevent a decrease of the aerodynamic controllability of the airplane, which could adversely affect the airplane's continued safe flight and landing.

Compliance

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

Corrective Action

(g) Within 5 years after the effective date of this AD, replace the trailing edge flap transmission no-back brakes with skewed roller no-back brakes at the trailing edge flap transmission, positions 4 and 5, in accordance with Boeing Special Attention Service Bulletin 747-27-2422, dated October 30, 2008.

Alternative Methods of Compliance (AMOCs)

(h)(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send

information to ATTN: Douglas Tsuji, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6487; fax (425) 917-6590.

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

Material Incorporated by Reference

(i) You must use Boeing Special Attention Service Bulletin 747-27-2422, dated October 30, 2008, to do the actions required by this AD, unless the AD specifies otherwise.

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

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

(3) You may review copies of the service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221 or 425-227-1152.

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

Issued in Renton, Washington, on September 18, 2009.

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