

Applicability: Model 747-400 series airplanes equipped with General Electric (GE) Model CF6-80C2 series engines, certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (h)(1) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent an inadvertent deployment of a thrust reverser during flight, which could result in loss of control of the airplane, accomplish the following:

Requirements of AD 2000-09-03

Repetitive Functional Tests

(a) Within 1,000 hours time-in-service after the most recent test of the center drive unit (CDU) cone brake as specified in paragraph (b)(1) of AD 94-15-05, amendment 39-8976; or within 650 hours time-in-service after May 19, 2000 (the effective date of AD 2000-09-03, amendment 39-11711); whichever occurs later: Perform a functional test to detect discrepancies of the CDU cone brake on each thrust reverser as specified in paragraph (a)(1) or (a)(2) of this AD, as applicable.

(1) For Model 747-400 series airplanes equipped with thrust reversers that have not been modified in accordance with Boeing Service Bulletin 747-78-2151 or a production equivalent: Perform the test in accordance with Boeing Service Bulletin 747-78A2166, Revision 1, dated October 9, 1997; or paragraph 3.C. of Boeing Alert Service Bulletin 747-78A2166, Revision 2, dated March 15, 2001; or the applicable section of paragraph III.A. of the Accomplishment Instructions of Boeing Service Bulletin 747-78A2113, Revision 2, dated June 8, 1995; or Revision 3, dated September 11, 1997. Repeat the test thereafter at intervals not to exceed 650 hours time-in-service.

(2) For Model 747-400 series airplanes equipped with thrust reversers that have been modified in accordance with Boeing Service Bulletin 747-78-2151 or a production equivalent: Perform the test in accordance with Appendix 1 (including Figure 1) of this AD, or paragraph 3.C. of Boeing Alert Service Bulletin 747-78A2166, Revision 2, dated March 15, 2001. After the effective date of this AD, only Boeing Alert Service Bulletin 747-78A2166, Revision 2, may be used. Repeat the test thereafter at intervals not to exceed 1,000 hours time-in-service.

Note 2: Accomplishment of the CDU cone brake test during production in accordance with Production Revision Record (PRR)

80452-102 prior to May 19, 2000, is considered acceptable for compliance with the initial test required by paragraph (a) of this AD.

Note 3: Model 747-400 series airplanes, line numbers 1061 and subsequent, equipped with GE CF6-80C2 engines, had a third locking system installed during production in accordance with PRR 80452-102, and were not modified in accordance with Boeing Service Bulletin 747-78-2151 (which is a retrofit action for airplanes having line numbers 700 through 1060 inclusive).

Terminating Action

(b) Accomplishment of the functional test of the CDU cone brake, as specified in paragraph (a) of this AD, constitutes terminating action for the repetitive tests of the CDU cone brake required by paragraph (b)(1) of AD 94-15-05.

Corrective Action

(c) If any functional test required by paragraph (a) of this AD cannot be successfully performed as specified in the referenced service bulletin, or if any discrepancy is detected during any functional test required by paragraph (a) of this AD, accomplish either paragraph (c)(1) or (c)(2) of this AD.

(1) Prior to further flight, repair in accordance with Boeing Service Bulletin 747-78A2166, Revision 1, dated October 9, 1997; Boeing Alert Service Bulletin 747-78A2166, Revision 2, dated March 15, 2001; Boeing Service Bulletin 747-78A2113, Revision 2, dated June 8, 1995; or Revision 3, dated September 11, 1997. After the effective date of this AD, only Boeing Alert Service Bulletin 747-78A2166, Revision 2; or Boeing Service Bulletin 747-78A2113, Revision 2 or Revision 3; may be used.

(2) The airplane may be operated in accordance with the provisions and limitations specified in the operator's FAA-approved Minimum Equipment List, provided that no more than one thrust reverser on the airplane is inoperative.

New Requirements of This AD

Installation of Thrust Reverser Actuator System Lock and Associated Actions

(d) For airplanes listed in Boeing Service Bulletin 747-78-2151, Revision 2, dated January 13, 2000: Within 36 months after the effective date of this AD, do paragraphs (d)(1) and (d)(2) of this AD.

(1) Install and activate a thrust reverser actuator system (TRAS) lock on each thrust reverser per the Accomplishment Instructions of Boeing Service Bulletin 747-78-2151, Revision 1, dated August 21, 1997; as revised by Notice of Status Change (NSC) 747-78-2151 NSC 04, dated November 26, 1997; and NSC 747-78-2151 NSC 05, dated December 18, 1997; or Boeing Service Bulletin 747-78-2151, Revision 2, dated January 13, 2000. The procedures for completing the installation and activating the TRAS lock include replacing a certain microswitch pack with a new one; adding new wires; routing certain new wire bundles; changing certain wiring, circuit breakers, and components; installing thrust-reverser relay

panels; and performing a functional test to ensure that the thrust reverser actuation system operates properly.

(2) Prior to or concurrently with the installation required by paragraph (d)(1) of this AD, do the requirements of paragraphs (d)(2)(i), (d)(2)(ii), (d)(2)(iii), (d)(2)(iv), and (d)(2)(v) of this AD.

(i) Install a bracket and fastening hardware for the third locking system on each thrust reverser, per Lockheed Martin Service Bulletin 78-1007, Revision 1, dated March 18, 1997; or Middle River Aircraft Systems Service Bulletin 78-1007, Revision 2, dated March 10, 1998.

(ii) Install wiring provisions in various areas of the airplane, per the Accomplishment Instructions of Boeing Service Bulletin 747-78-2132, Revision 2, dated December 11, 1997.

(iii) Install a TRAS lock (also called an electromechanical lock or brake) and a flexible drive cable on each thrust reverser, per Lockheed Martin Service Bulletin 78-1020, Revision 2, dated March 20, 1997; or Middle River Aircraft Systems Service Bulletin 78-1020, Revision 3, dated March 16, 1998; or Middle River Aircraft Systems CF6-80C2B Service Bulletin 78-1020, Revision 4, dated October 10, 2002.

(iv) Install new integrated display system (IDS) software in six integrated display units and three electronic flight information/engine indication and crew alerting system (EICAS) interface units, per the Accomplishment Instructions of Boeing Service Bulletin 747-31-2242, dated April 18, 1996. Where the service bulletin specifies installation of IDS software version 995-0017-012, installation of IDS software version 995-0017-013, 995-0017-014, 995-0017-015, 995-0017-016, 995-0017-018, 3174-COL-EG5-01, 3177-COL-EG5-02, or 3176-COL-EG5-03 is also acceptable for compliance with this paragraph.

(v) Replace two central maintenance computers (CMC), part number 622-8592-103, with new, improved CMCs, part number 622-8592-105, and install new software for the CMCs, per the Accomplishment Instructions of Boeing Service Bulletin 747-45-2016, Revision 1, dated May 2, 1996. Where the service bulletin specifies installation of CMC software version 685-2270-009, installation of CMC software version 685-2270-010, or 685-2270-011 is also acceptable for compliance with this paragraph.

Repetitive Tests

(e) For airplanes on which a TRAS lock is installed on the thrust reversers: Within 1,000 flight hours after the installation of the TRAS lock, or within 90 flight hours after the effective date of this AD, whichever is later, do a functional test of the TRAS lock (also called an electromechanical lock or brake) per the Accomplishment Instructions of Boeing Alert Service Bulletin 747-78A2166, Revision 2, dated March 15, 2001. Then, repeat this test at least every 1,000 flight hours. If the functional test cannot be successfully performed, before further flight, repair per the Accomplishment Instructions of the service bulletin, and repeat the test until it is successful.