

EMERGENCY AIRWORTHINESS DIRECTIVE



Airplane Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

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DATE: FEBRUARY 16, 2007

AD #: 2007-04-51

This emergency airworthiness directive (AD) 2007-04-51 is sent to all owners and operators of General Electric Aircraft Engines (GE) CF34-3A1/-3B/-3B1 turbofan engines installed on Bombardier, Inc. CL-600-2B16 (CL-601-3R Variant), CL-600-2B16 (CL-604 Variant), and CL-600-2B19 (Regional Jet Series 100 and 440) model airplanes.

Background

This emergency AD results from a report that a GE CF34-3B1 turbofan engine experienced an uncontained fan disk failure during flight operation. After landing the airplane, an inspection of the GE CF34-3B1 engine showed the front section of the engine failed, resulting in the fan, forward cowlings, and fan reverser departing from the engine. The airplane sustained minor fuselage damage. A subsequent inspection of the recovered segments of the fan disk, found an electrical arc-out defect at the fracture origin site. The fan disk was marked using the electro-chemical etch marking (ECM) procedure during engine assembly. If the ECM procedure is performed incorrectly, an arc-out defect can occur. This arc-out defect, caused during part marking, resulted in the uncontained failure. This condition, if not corrected, could result in an uncontained fan disk failure and airplane damage.

Explanation of Relevant Service Information

We have reviewed and approved GE Alert Service Bulletin (ASB) No. CF34-BJ S/B 72-A0213, dated February 15, 2007, and GE ASB No. CF34-AL S/B 72-A0232, dated February 15, 2007. Those ASBs describe procedures for visual and tactile inspection of certain areas of certain serial number (SN) fan disks.

Interim Action

These actions are interim actions and we might take additional rulemaking actions in the future.

FAA's Determination and Requirements of the Rule

We have identified an unsafe condition that is likely to exist or develop on certain other GE CF34-3 A1/-3B/-3B1 turbofan engines of this same type design. This AD requires a onetime visual and tactile inspection of certain areas of certain SN fan disks, within 20 engine flight hours after receipt of this emergency AD. You must use the service information described previously to perform these actions.

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 airplane 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.

Determination of Rule’s Effective Date

We are issuing this AD under 49 U.S.C. Section 44701 according to the authority delegated to me by the Administrator, and it is effective immediately upon receipt.

2007-04-51 **General Electric Aircraft Engines:** Docket No. 2007-NE-06-AD

Effective Date

(a) Emergency AD 2007-04-51, issued on February 15, 2007, is effective upon receipt.

Affected ADs

(b) None.

Applicability

(c) This AD applies to General Electric Aircraft Engines (GE) CF34-3A1/-3B/-3B1 turbofan engines that have fan disks with serial numbers (SNs) listed in Table 1 of this AD. Affected regional jet fan disk part numbers (P/Ns) are 5922T01G04, 5922T01G05, 6078T57G01, 6078T57G02, 6078T57G03, 6078T57G04, 6078T57G05, and 6078T57G06. Affected business jet fan disk P/Ns are 5921T18G01, 5921T18G09, 5921T18G10, 5921T54G01, 5922T01G02, 5922T01G04, 5922T01G05, 6020T62G04, 6020T62G05, 6078T00G01, 6078T57G01, 6078T57G02, 6078T57G03, 6078T57G04, 6078T57G05, and 6078T57G06. These engines are installed on, but not limited to, Bombardier, Inc. CL-600-2B16 (CL-601-3R Variant), CL-600-2B16 (CL-604 Variant), and CL-600-2B19 (Regional Jet Series 100 and 440) model airplanes.

Table 1 - Fan Disk SNs and Last Known Associated Engine Serial Number (ESN).

SN (Fan Disk)	ESN (Current)
GEE148JH	872787
GEE01629	807168
GEE01888	807188
GEE147MF	807620
GEE147NA	807622
GEE147V5	807624
GEE147VC	807625
GEE148JG	807633
GEE145LL	872526
GEE145NK	872545
GEE1466F	872563
GEE1466L	872568
GEE146H3	872599
GEE146KD	872604
GEE146N7	872634

SN (Fan Disk)	ESN (Current)
GEE147N7	872705
GEE147N8	872709
GEE14818	872727
GEE14815	872730
GEE1480J	872731
GEE1485J	872745
GEE1480F	872750
GEE14885	872763
GEE148EJ	872780
GEE148FT	872785
GEE148ER	872790
GEE148PN	872804
GEE148RN	872811
GEE148TW	872817
GEE03675	SPARE
GEE148R0	SPARE

Unsafe Condition

(d) This AD results from a report that a GE CF34-3B1 turbofan engine experienced an uncontained fan disk failure during flight operation. We are issuing this AD to detect electrical arc-out defects on fan disks, which could result in an uncontained fan disk failure and airplane damage.

Compliance

(e) You are responsible for having the actions required by this AD performed within 20 engine flight hours after the effective date of this AD, unless the actions have already been done.

Inspection of the Fan Disk

(f) Perform a onetime visual and tactile inspection of the bore area on the 31 fan disks listed in Table 1 of this AD, that have not had a shop-level inspection.

(g) For regional jet engine models CF34-3A1/-3B1, use paragraphs 3.A through 3.B.(2)(g) of the Accomplishment Instructions of GE Alert Service Bulletin No. CF34-AL S/B 72-A0232, dated February 15, 2007, to do the inspections.

(h) For business jet engine models CF34-3A1/-3B, use paragraphs 3.A through 3.B.(2)(g) of the Accomplishment Instructions of GE Alert Service Bulletin No. CF34-BJ S/B 72-A0213, dated February 15, 2007, to do the inspections.

Alternative Methods of Compliance

(i) The Manager, Engine Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

Related Information

(j) AD 2006-05-04, dated March 3, 2006, also addresses the subject of this AD. GE ASB No. CF34-BJ S/B 72-A0088, dated August 21, 2000, and GE ASB No. CF34-AL S/B 72-A0103, dated August 4, 2000, pertain to the subject of this AD.

Contact Information

(k) For further information, contact: Tara Chaidez, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803, email: tara.chaidez@faa.gov ; telephone (781) 238-7773; fax (781) 238-7199.

Issued in Burlington, Massachusetts, on February 16, 2007.

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