[Federal Register: February 23, 2006 (Volume 71, Number 36)]
[Rules and Regulations]
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[DOCID:fr23fe06-2]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2004-18648; Directorate Identifier 2004-NE-26-AD; Amendment 39-14494; AD 2006-04-12]

RIN 2120-AA64

Airworthiness Directives; General Electric Company CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD) for General Electric Company (GE) CF34-3A1 and -3B1 series turbofan engines. That AD requires initial and repetitive visual inspections and eddy current inspections (ECIs) of certain stage 5 low pressure turbine (LPT) disks and stage 6 LPT disks, installed in GE CF34-3A1 and -3B1 series turbofan engines. Those engines are installed in certain Bombardier Canadair Regional Jet (RJ) airplanes. This AD requires the same initial and repetitive visual inspections and ECIs, but adds SNs to the affected disk population for RJ airplanes. This AD also adds GE CF34-1 and -3 series turbofan engines with certain stage 5 and stage 6 LPT disks, to the applicability section. Those engines are installed in certain Bombardier Canadair Business Jet (BJ) airplanes. Also, this AD requires eventual replacement of the affected disks as terminating action to the repetitive inspections. This AD results from the discovery of an additional population of suspect stage 5 LPT disks and stage 6 LPT disks that could fail due to low-cycle fatigue cracking that may start at the site of an electrical arc-out on the disk. We are issuing this AD to prevent low-cycle-fatigue (LCF) failure of stage 5 LPT disks and stage 6 LPT disks, which could lead to uncontained engine failure.

DATES: This AD becomes effective March 30, 2006. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of March 30, 2006.

ADDRESSES: You can get the service information identified in this AD from GE Aircraft Engines, 1000 Western Avenue, Lynn, MA 01910;
Attention: CF34 Product Support Engineering, Mail Zone: 34017; telephone (781) 594-6323; fax (781) 594-0600.

You may examine the AD docket on the Internet at *http://dms.dot.gov* or in Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Tara Fitzgerald, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7130; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a proposed airworthiness directive (AD). The proposed AD applies to GE CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 series turbofan engines. We published the proposed AD in the Federal Register on September 1, 2005 (70 FR 52043). That action proposed to require the same initial and repetitive visual inspections and ECIs as AD 2004-15-03R1, but adds SNs to the affected disk population for RJ airplanes. That action also proposed to add GE CF34-1 and -3 series turbofan engines with certain stage 5 and stage 6 LPT disks, installed in certain Bombardier Canadair BJ airplanes, to the applicability section. Also, that action requires eventual replacement of the affected disks as terminating action to the repetitive inspections.

Examining the AD Docket

You may examine the docket that contains the AD, any comments received, and any final disposition in person at the Docket Management Facility Docket Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the DMS receives them.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments received.

Request To Clarify the Nine-Month Time Limit

One commenter requests that we clarify the nine-month time limit imposed by compliance section paragraphs (f)(1) and (f)(2). We do not agree. The compliance section in the proposed AD does not contain a nine-month time limit. The commenter appears to have commented in error, on the previous AD, AD 2004-15-03R1, which does contain a nine-month time limit.

Request To Provide Reference to Business Jet Version of Service Bulletin

The same commenter states that in the compliance section, for the Bombardier Canadair CL600-2B19 airplane, the GE service bulletin referenced is for engines used in airline service (RJ). The commenter requests that we also provide reference to the Business Jet version of the GE service bulletin, so they can apply it to their Bombardier Canadair CL600-2B19 airplane. We do not agree. The Bombardier Canadair CL600-2B19 airplane is designated as an RJ airplane. We have correctly referenced the RJ version of the GE service bulletin in the proposed AD and the AD for Bombardier Canadair CL600-2B19 airplanes. The commenter appears to have commented in error, on the previous AD, AD 2004-15-03R1, which does not apply to CF-34 series engines on BJ airplanes.

Conclusion

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD as proposed.

Costs of Compliance

About 683 GE CF34-3A1 and -3B1 series turbofan engines are installed on Bombardier Canadair RJ airplanes of U.S. registry. We estimate that 355 of those engines will be affected by this AD. About 690 CF34-1A, -3A, -3A1, -3A2, and -3B series turbofan engines are installed in Bombardier Canadair BJ airplanes of U.S. registry. We estimate that 249 of those engines will be affected by this AD. We also estimate that it will take about 70 work hours per engine to perform the disk inspections when the LPT module is exposed in the shop, and about 94 work hours per engine to perform the disk inspections when the LPT module is forced off-wing. We also estimate that the average labor rate is $65 per work hour. Prorated stage 5 LPT disks will cost about $42,650 (RJ), and $71,083 (BJ) per engine and prorated stage 6 LPT disks will cost about $30,110 (RJ) and $50,183 (BJ) per engine. We also estimate that about 24 stage 5 LPT disks and about 24 stage 6 LPT disks will be found with the arc-out condition and require replacement. Based on these figures, we estimate the total cost of the AD to U.S. operators to be $14,409,772.

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); 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.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

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 Federal Aviation Administration 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 removing Amendment 39-13773 (69 FR 50299, August 16, 2004), and by adding a new airworthiness directive, Amendment 39-14494, to read as follows:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

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

www.faa.gov/aircraft/safety/alerts/

2006-04-12 General Electric Company: Amendment 39-14494. Docket No. FAA-2004-18648; Directorate Identifier 2004-NE-26-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective March 30, 2006.

Affected ADs

(b) This AD supersedes AD 2004-15-03R1, Amendment 39-13773.

Applicability

(c) This AD applies to the following two groups of engine models:

(1) General Electric Company (GE) CF34-3A1 and -3B1 series turbofan engines with stage 5 low pressure turbine (LPT) disks, part number (P/N) 6078T92P01 or stage 6 LPT disks P/N 6078T89P01, or both, with serial numbers (SNs) listed in Figure 3 or Figure 4 of GE Alert Service Bulletin (ASB) No. CF34-AL S/B 72-A0173, Revision 05, dated May 24, 2005. These engines are installed on Bombardier Canadair CL600-2B19 Regional Jet (RJ) airplanes.

(2) GE CF34-1A, -3A, -3A1, -3A2, and -3B series turbofan engines with stage 5 LPT disks P/N 4922T16P01, 5024T53P01, 5024T53P02, or 6078T92P01 or stage 6 LPT disks P/Ns 4922T17P01, 5023T45P03, 5023T45P04, or 6078T89P01, or both, with SNs listed in Figure 3 or Figure 4 of GE ASB No. CF34-BJ S/B 72-A0148, Revision 02, dated May 24, 2005. These engines are installed on Bombardier Canadair Models CL-600-2A12 (CL-601), CL-600-2B16 (CL-601-3A), (CL-601-3R), and (CL-604) Business Jet (BJ) airplanes.

Unsafe Condition

(d) This AD results from the discovery of an additional population of suspect stage 5 LPT disks and stage 6 LPT disks that could fail due to low-cycle fatigue cracking that may start at the site of an electrical arc-out on the disk. We are issuing this AD to prevent low-cycle-fatigue (LCF) failure of stage 5 LPT disks and stage 6 LPT disks, which could lead to uncontained engine failure.

Compliance

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

Initial Inspection or Replacement

(f) Using the compliance schedule in Table 1 of this AD, do the following:

(1) For engines installed in Bombardier Canadair RJ airplanes, if a stage 5 LPT disk or stage 6 LPT disk listed in Figure 3 of GE ASB No. CF34-AL S/B 72-A0173, Revision 05, dated May 24, 2005 or listed in any previous issue of ASB No. CF34-AL S/B 72-A0173 did not complete a visual inspection and eddy current inspection (ECI) using paragraphs 3.C.(1) through 3.D.(2) and paragraphs 3.E. through 3.E.(6) of the Accomplishment Instructions of that SB before June 1, 2005, then replace that disk at the next piece-part exposure.

TABLE 1.—COMPLIANCE SCHEDULE

On the effective date of this AD, if the disk has	Then perform the actions defined in paragraph (f) of this AD at next piece-part exposure, not to exceed the accumulation of
(i) 14,750 or more cycles-since-new (CSN) and has not been fluorescent penetrant inspected (FPI) at an earlier piece-part exposure.	An additional 250 cycles-in-service (CIS) after the effective date of this AD.
(ii) 14,750 or more CSN and has been FPI at an earlier piece-part exposure.	An additional 500 CIS after the effective date of this AD.
(iii) 14,500 or more CSN but fewer than 14,750 CSN	An additional 500 CIS after the effective date of this AD.
(iv) 14,250 or more CSN but fewer than 14,500 CSN	An additional 750 CIS after the effective date of this AD.
(v) 13,000 or more CSN but fewer than 14,250 CSN	An additional 1,000 CIS after the effective date of this AD.
(vi) 2,500 or more CSN but fewer than 13,000 CSN	An additional 4,000 CIS after the effective date of this AD, or 14,000 CSN, whichever comes first.
(vii) Fewer than 2,500 cycles-since-new (CSN)	6,500 CSN.

(2) For engines installed in Bombardier Canadair BJ airplanes, perform an initial visual inspection and ECI of stage 5 LPT disks and stage 6 LPT disks listed in Figure 3 of GE ASB No. CF34-BJ S/B 72-A0148, Revision 02, dated May 24, 2005, before January 1, 2010. Use paragraphs 3.C.(1) through 3.D.(2) and paragraphs 3.E. through 3.E.(6) of Accomplishment Instructions of GE ASB No. CF34-BJ S/B 72-A0148, Revision 02, dated May 24, 2005 to do the inspections.

Repetitive Inspections

(g) For engines installed in Bombardier Canadair RJ airplanes with stage 5 LPT disks and stage 6 LPT disks listed in Figure 3 of GE ASB No. CF34-AL S/B 72-A0173, Revision 05, dated May 24, 2005, that were initially visually inspected and ECI'ed before June 1, 2005, do the following:

(1) Perform repetitive visual inspections and ECIs within every 3,100 cycles-since-last-inspection (CSLI), until the life limit of the disk is reached.

(2) Use paragraphs 3.C.(1) through 3.D.(2) and paragraphs 3.E. through 3.E.(6) of Accomplishment Instructions of GE ASB No. CF34-AL S/B 72-A0173, Revision 05, dated May 24, 2005 to do the inspections.

(h) For engines installed in Bombardier Canadair BJ airplanes, with stage 5 LPT disks and stage 6 LPT disks initially inspected as specified in paragraph (f)(2) of this AD, do the following:

(1) Perform repetitive visual inspections and ECIs within every 3,100 CSLI, until the life limit of the disk is reached.

(2) Use paragraphs 3.C.(1) through 3.D.(2) and paragraphs 3.E. through 3.E.(6) of Accomplishment Instructions of GE ASB No. CF34-BJ S/B 72-A0148, Revision 02, dated May 24, 2005, to do the inspections.

Disks That Pass Inspection

(i) Reinstall disks that pass the inspections in paragraphs (f), (g), and (h) of this AD into the same LPT module from which they were removed.

Stage 5 and Stage 6 LPT Disk Removal

(j) Remove any disk from service if there is an arc-out found on that disk.

(k) At the next piece-part exposure for engines installed in Bombardier Canadair RJ airplanes, remove from service stage 5 LPT disks and stage 6 LPT disks listed in Figure 4 of GE ASB No. CF34-AL S/B 72-A0173, Revision 05, dated May 24, 2005.

(l) At the next piece-part exposure for engines installed in Bombardier Canadair BJ airplanes, remove from service stage 5 LPT disks and stage 6 LPT disks listed in Figure 4 of GE ASB No. CF34-BJ S/B 72-A0148 Revision 02, dated May 24, 2005.

Optional Terminating Action

(m) Replacement of an affected stage 5 LPT disk or affected stage 6 LPT disk, with a disk not listed in Figure 3 or Figure 4 of GE ASB No. CF34-AL S/B 72-A0173 Revision 05, dated May 24, 2005 or not listed in Figure 3 or Figure 4 of GE ASB No. CF34-BJ S/B 72-A0148, Revision 02, dated May 24, 2005 is terminating action to the repetitive inspections and removals required by this AD for that disk.

Terminating Action

(n) As terminating action to the repetitive inspections and removals in this AD, replace all disks by January 1, 2013 that are listed in Figure 3 and Figure 4 of GE ASB No. CF34-AL S/B 72-A0173, Revision 05, dated May 24, 2005, and that are listed in Figure 3 and Figure 4 of GE ASB No. CF34-BJ S/B 72-A0148, Revision 02, dated May 24, 2005.

Actions Completed per Previous Releases of Alert Service Bulletins

(o) Actions completed before the effective date of this AD using GE ASB No. CF34-AL S/B 72-A0173, dated April 2, 2004; or Revision 01, dated May 20, 2004; or Revision 02, dated June 22, 2004; or Revision 03, dated July 20, 2004; or Revision 04, dated February 7, 2005; or GE ASB No. CF34-BJ S/B 72-A0148, dated September 2, 2004; or Revision 01, dated March 10, 2005, are considered acceptable for compliance with the corresponding action in this AD.

Serviceable LPT Disk Definition

(p) For the purpose of this AD, a serviceable LPT disk is a disk not listed in Figure 3 or Figure 4 of GE ASB No. CF34-AL S/B 72-A0173, Revision 05, dated May 24, 2005, or Figure 3 or Figure 4 of GE ASB No. CF34-BJ S/B 72-A0148, Revision 02, dated May 24, 2005.

Piece-Part Exposure Definitions

(q) For the purpose of this AD, the definition of piece-part exposure for the stage 5 LPT disk is when the disk is separated from the forward and aft bolted joints.

(r) For the purpose of this AD, the definition of piece-part exposure for the stage 6 LPT disk is when the disk is separated from the forward bolted joint.

Replacement Engine or Replacement LPT Module Definition

(s) For the purpose of this AD, the definition of a replacement engine or replacement LPT module is an engine or LPT module that does not have installed any of the suspect disks listed in Figure 3 or Figure 4 of GE ASB No. CF34-AL S/B 72-A0173 Revision 05, dated May 24, 2005, or Figure 3 or Figure 4 of GE ASB No. CF34-BJ S/B 72-A0148, Revision 02, dated May 24, 2005.

Alternative Methods of Compliance

(t) 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

(u) GE ASB No. CF34-AL S/B 72-A0178 and ASB No. CF34-BJ S/B 72-A0152 contain the information necessary to identify and inspect the suspect disks that are the subject of this AD.

Material Incorporated by Reference

(v) You must use the General Electric Company service information specified in Table 2 of this AD to perform the actions required by this AD. The Director of the Federal Register approved the incorporation by reference of the documents listed in Table 2 of this AD in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact GE Aircraft Engines, 1000 Western Avenue, Lynn, MA 01910; Attention: CF34 Product Support Engineering, Mail Zone: 34017; telephone (781) 594-6323; fax (781) 594-0600, for a copy of this service information. You may review copies at the Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-0001, on the internet at *http://dms.dot.gov*, or 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/cfr/ibr-locations.html*.

TABLE 2.—INCORPORATION BY REFERENCE

Alert Service Bulletin No.	Page	Revision	Date
CF34–AL S/B 72–A0173, Total Pages: 37	ALL	05	May 24, 2005.
CF34–BJ S/B 72–A0148, Total Pages: 39	ALL	02	May 24, 2005.

Issued in Burlington, Massachusetts, on February 14, 2006.
Ann C. Mollica,
Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.
[FR Doc. 06-1594 Filed 2-22-06; 8:45 am]
BILLING CODE 4910-13-P