ÚCL

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PŘÍKAZ K ZACHOVÁNÍ LETOVÉ ZPŮSOBILOSTI

Číslo: 2005-17-05

Datum účinnosti: 27.září 2005

General Electric Company
motory (GE) CF6-80C2, CF6-80E1

Tento PZZ je vydáván pro výrobek transferovaný pod působnost EASA

Na základě rozhodnutí EASA je následující Příkaz k zachování letové způsobilosti závazný pro všechny výrobky provozované v EU na které se daný PZZ vztahuje.

Provedení PZZ, který se vztahuje podle typu a výrobního čísla na výrobek je pro provozovatele/vlastníka letadla zapsaného do leteckého rejstříku závazné. Neprovedením PZZ ve stanoveném termínu dojde ke ztrátě letové způsobilosti výrobku.

Poznámky:
- Provedení tohoto PZZ musí být zapsáno do provozní dokumentace letadla.
- Případné dotazy týkající se tohoto PZZ adresujte na ÚCL sekce technická.
- Pokud to vyžaduje povaha tohoto PZZ, musí být zapracován do příslušné části dokumentace pro obsluhu, údržbu a opravy letadla.

[Federal Register: August 23, 2005 (Volume 70, Number 162)]
[Rules and Regulations]
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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2004-19144; Directorate Identifier 2003-NE-18-AD; Amendment 39-14226; AD 2005-17-05]

RIN 2120-AA64

Airworthiness Directives; General Electric Company (GE) CF6-80C2 and CF6-80E1 Turbofan Engines

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

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain GE CF6-80C2 and CF6-80E1 turbofan engines. This AD requires you to inspect the high pressure compressor rotor (HPCR) stage 11-14 spool shaft for circumferential repair cuts, and to repair or replace the spool shaft if you find certain circumferential cuts. This AD results from an updated stress analysis. We are issuing this AD to prevent failure of the HPCR stage 11-14 spool shaft due to low-cycle fatigue that could result in an uncontained engine failure.

DATES: This AD becomes effective September 27, 2005. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of September 27, 2005.

ADDRESSES: You can get the service information identified in this AD from General Electric Company via Lockheed Martin Technology Services, 10525 Chester Road, Suite C, Cincinnati, Ohio 45215, telephone (513) 672-8400, fax (513) 672-8422.

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: Karen Curtis, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; telephone (781) 238-7192; 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 certain GE CF6-80C2 and CF6-80E1 turbofan engines. We published the proposed AD in the Federal Register on September 22, 2004 (69 FR 56730). That action proposed to require inspection of the spool shaft for circumferential

repair cuts at the next piece-part level exposure, but not to exceed a specific service cap specified in this proposed AD, and repair or replacement of certain spool shafts.

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 System (DMS) 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 Add a Definition

One commenter requests that for clarity, we add a definition for cycles-since-repair (CSR) to the AD. We agree and have added a definition to the compliance section. That definition states that for the purposes of this AD, CSR limit is the current cycles-since-new (CSN) minus the CSN at the time of the repair.

Request To Add Instructions

One commenter requests that for clarity, we add instructions to the compliance section if the CSR limit cannot be determined from the engine records. We agree and have added a sentence to the compliance section. That sentence states that if the CSR limit cannot be determined from the engine records, then CSN must be used.

Request for Document or Procedure References

One commenter requests that we add document or procedure references such as Repair Documents, Service Bulletin numbers, and Shop Manual tasks for the circumferential repairs, to help the commenter determine affected spools. We do not agree. The AD references the applicable GE Service Bulletins, which include the lists of affected parts by serial number (SN). The AD is only applicable to those parts. Additional references are not needed to determine if the operator has an affected part.

Request To Exclude Spools That Previously Complied

One commenter requests that the AD be modified to exclude spools that have previously complied with GEAE Service Bulletin (SB) No. CF6-80C2 S/B 72-1052, Revision 01, dated February 5, 2004, or certain revisions of engine shop manual (ESM) section 72-31-08 or ESM section 72-00-31. We partially agree. We agree that no further action is required for spools that have already complied with GEAE SB No. CF6-80C2 S/B 72-1052, Revision 01, dated February 5, 2004. The AD clearly states in paragraph (e) that the AD actions are only required if the actions are not already done.

We do not agree that accomplishment of ESM section 72-31-08 or 72-00-31 is equivalent to compliance with GEAE SB No. CF6-80C2 S/B 72-1052, Revision 01, dated February 5, 2004. ESM section 72-31-08, Revision 60 or later does contain the same repair procedure (Repair 12) referenced

in the accomplishment instructions of the SB and incorporated by reference in this AD. Credit for repairs done before the effective date of the AD using ESM section 72-31-08, Revision 60 or later, should be requested using the alternative methods of compliance procedure described in this AD. However, ESM 72-00-31 does not include the necessary repair instructions. Therefore, we have not changed the AD to incorporate this comment.

Request To Add a Reference to List of Affected SNs

One commenter requests that Applicability paragraph (c) of the AD be modified to include a reference to the list of affected SNs of stage 11-14 spool shafts in the manufacturer's SBs. The commenter states that this additional information would clarify that the AD is only intended to apply to those specific spools and not the entire fleet. We partially agree. We agree that Applicability paragraph (c) would be clearer if it states that the list of affected SNs can be found in the referenced service bulletins. We have added a sentence to Applicability paragraph (c) that states the affected stage 11-14 spool shafts are identified by SN in the GE service information described in paragraphs (f) and (j) of this AD.

Request To Clarify Number of Affected Stage 11-14 Spool Shafts

One commenter requests that the number of affected stage 11-14 spool shafts be clarified, as the number in GEAE SB No. CF6-80C2 S/B 72-1052, Revision 01, dated February 5, 2004, and in the Supplementary Information of the NPRM are not the same.

We do not agree. The statement the commenter is referring to in the Supplementary Information of the NPRM states that GE reports that as many as 135 CF6-80C2 and CF6-80E1 HPCR 11-14 spool shafts have had this (circumferential cut) repair. This quantity is the combined number of affected spool shafts listed in not one, but two SBs, which are the SB for CF6-80C2 engines and the SB for CF6-80E1 engines. Since the issuance of the NPRM, however, these SBs have been revised to correct a few errors in the SN lists of affected spool shafts. The revised SBs referenced in this AD are GEAE SB No. CF6-80C2 S/B 72-1052, Revision 02, dated May 25, 2005, and GEAE SB No. CF6-80E1 S/B 72-0232, Revision 01, dated February 5, 2004. Therefore, we have not changed the AD to address this comment.

Request To Include List of Affected Stage 11-14 Spool Shafts in AD

One commenter requests that we include in the AD the list of affected stage 11-14 spool shafts, instead of referring readers to the SBs for the lists, to avoid the potential for confusion. The commenter also requests that we delete the stage 11-14 spool shaft SN MPOAP580 from the list of affected spools in the AD, suggesting that only stage 11 of spool shaft SN MPOAP580 was reworked, and so the proposed AD is inapplicable to that spool.

We do not agree that referring readers to the SBs for the lists is confusing. We believe it would be confusing to maintain lists of affected SNs in both the AD and the SBs. We agree that the AD doesn't affect spools repaired on stage 11. We also verified through the manufacturer that spool SN MPOAP580 was repaired in only stage 11. This SN spool shaft has been deleted from the revised SBs.

Request To Clarify Paragraph (f)

One commenter requests that compliance section paragraph (f) be clarified by adding the words "not to exceed the life limits specified in Table 2 in the column entitled Replace by (CSR) Limit", to the end of the sentence. We do not agree. Compliance section paragraphs (f)(1) and (f)(2) already include this necessary "not to exceed" information.

Request for Additional Cycles-in-Service

One commenter requests that up to 420 additional cycles-in-service (CIS) be granted for those affected spools that will have accumulated more cycles than the "Repair By Limit" but are within 420 cycles of the "Replace By Limit" on the effective date of the AD. The commenter states that this would provide margin for those operators suffering heavy impact from this AD. The commenter notes that paragraph (h) of the proposed AD provides an allowance of 420 CIS if an affected spool has already accumulated more cycles than the "Replace by Limit" on the effective date of the AD. We agree, and revised the compliance section based on this request.

Request To Include a Note

The same commenter requests that a note be included in the AD to specify that execution of the Accomplishment Instructions of GEAE SB No. CF6-80C2 S/B 72-1052, Revision 01, dated February 5, 2004, is considered terminating action for the AD. The commenter is unclear whether or not the SB is terminating action for the AD.

We do not agree. The AD requires that spools either be repaired or replaced. Once a spool has been repaired or replaced, no further action is required.

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 with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

There are approximately 173 GE CF6-80C2 and CF6-80E1 turbofan engines of the affected design in the worldwide fleet. We estimate that 24 engines installed on airplanes of U.S. registry will be affected by this AD. We also estimate that it will take about one work hour per engine to inspect for the location of previous circumferential cut repairs and 5 work hours per engine to repair the spool shaft. We estimate that 24 engines will be repaired and that three spool shafts will be replaced. The average labor rate is $65 per work hour. Each replacement spool shaft will cost approximately $447,400. Based on these figures, we estimate the total cost of the AD to U.S. operators to be $1,351,755.

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 adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

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

We post ADs on the internet at "www.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2005-17-05 General Electric Company: Amendment 39-14226. Docket No. FAA-2004-19144; Directorate Identifier. 2003-NE-18-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective September 27, 2005.

Affected ADs

(b) None.

Applicability

(c) This AD applies to certain GE CF6-80C2 and CF6-80E1 turbofan engines that have a high pressure compressor rotor (HPCR) stage 11-14 spool shaft with a part number (P/N) listed in Table 1 of this AD and that had a seal wire groove repaired using a circumferential cut at a location specified in Table 2 of this AD. The affected stage 11-14 spool shafts are identified by serial number (SN) in the GE service information described in paragraphs (f) and (j) of this AD. These engines are installed on, but not limited to, Airbus Industrie A300, A310, and A330 series airplanes and Boeing 747, 767, and MD-11 series airplanes.

TABLE 1.—STAGE 11–14 SPOOL SHAFT P/NSBY ENGINE MODEL AND FORGING GROUP DESIGNATIONS

Engine model	Stage 11–14 Spool Shaft P/Ns	Forging group designations
CF6–80C2	9380M30G07, 9380M30G08, 9380M30G09, 9380M30G10, 9380M30G12, 1509M71G02, 1509M71G03, 1509M71G04, and 1509M71G05.	Group 1.
CF6–80C2	1531M21G01, 1531M21G02, 1531M21G04, 1509M71G06, 1509M71G07, 1509M71G08, 1509M71G11, 1509M71G12, 1703M74G01, and 1703M74G03.	Group 2.
CF6–80E1	1509M71G11, 1509M71G12, 1509M71G13, 1644M99G03, 1703M74G01, and 1703M74G03.	Not Applicable.

Unsafe Condition

(d) This AD results from an updated stress analysis. We are issuing this AD to prevent failure of the HPCR stage 11-14 spool shaft due to low-cycle fatigue that could result in an 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.

CF6-80C2 Engines

(f) For CF6-80C2 series engines with HPCR stage 11-14 spool shaft SNs listed in 1.A.(2) of GE Aircraft Engines (GEAE) Service Bulletin (SB) No. CF6-80C2 S/B 72-1052, Revision 02, dated May 25, 2005, inspect the spool shaft for the location of the circumferential cut repair at the next piece-part exposure.

(1) If the stage and location of the repair is specified in the engine records, inspect prior to exceeding the cycles-since-repair (CSR) limit specified in the column titled, Replace By (CSR), in Table 2.

(2) For the purposes of this AD, CSR limit is defined as the current cycles-since-new (CSN) minus the CSN at the time of the repair.

(3) If the CSR limit cannot be determined from the engine records, then CSN must be used.

(4) If the stage or location of the repair is not known from the engine records, remove the spool shaft for inspection before exceeding 4,200 CSR for the Group 1 or before exceeding 10,000 CSR for Group 2. Use 3.A.(1) of the Accomplishment Instructions of GEAE SB No. CF6-80C2 S/B 72-1052, Revision 02, dated May 25, 2005, for the inspection. Table 2 follows:

TABLE 2.—REPAIR AND REPLACEMENT LIMITS FOR SPOOL SHAFTS BY FORGING GROUP AND LOCATION OF THE CIRCUMFERENTIAL CUT REPAIR

Engine model	Forging group (from Table 1)	Stage	Location of circumferential cut repair	Repair by (CSR) limit	Replace by (CSR) limit
(1) CF6–80C2	Group 1	14	(i) Aft Seal Wire Groove Not in Area X	3,600	4,200
			(ii) Aft Seal Wire Groove—In Area X	None—Replace spool	4,200
			(iii) Forward Seal Wire Groove—Not in Area X.	7,100	7,100
			(iv) Forward Seal Wire Groove—In Area X.	None—Replace spool	7,100
(2) CF6–80C2	Group 1	13	(i) Aft Seal Wire Groove—Not in Area X	7,100	7,100
			(ii) Aft Seal Wire Groove—In Area X	2,740	7,100
			(iii) Forward Seal Wire Groove—Not in Area X.	7,100	7,100
			(iv) Forward Seal Wire Groove—In Area X.	7,100	7,100
(3) CF6–80C2	Group 1	12	Aft Seal Wire Groove—In Area X	7,100	7,100
(4) CF6–80C2	Group 2	14	(i) Aft Seal Wire Groove—Not in Area X	13,700	13,700
			(ii) Aft Seal Wire Groove—In Area X	None—Replace spool	13,700
			(iii) Forward Seal Wire Groove—In Area X.	9,830	10,000

Engine model	Forging group (from Table 1)	Stage	Location of circumferential cut repair	Repair by (CSR) limit	Replace by (CSR) limit
(5) CF6–80C2	Group 2	13	(i) Aft Seal Wire Groove—In Area X	9,830	10,000
			(ii) Forward Seal Wire Groove—In Area X.	9,830	10,000
(6) CF6–80C2	Group 2	12	Aft Seal Wire Groove—In Area X	9,830	10,000
(7) CF6–80E1	Not Applicable	14	(i) Aft Seal Wire Groove—Not in Area X	11,600	11,600
			(ii) Aft Seal Wire Groove—In spool Area X.	None—Replace spool	11,600
			(iii) Forward Seal Wire Groove—In Area X.	8,080	11,600
(8) CF6–80E1	Not Applicable	13	(i) Aft Seal Wire Groove—In Area X	8,080	11,600
			(ii) Forward Seal Wire Groove—In Area X.	8,080	11,600
(9) CF6–80E1	Not Applicable	12	Aft Seal Wire Groove—In Area X	8,080	11,600

(g) If you have a Group 2 spool shaft, and the circumferential cut repair is in the Stage 14 forward location, and not in Area X, no further action is required by this AD. However, GEAE recommends that you repair these spools at the next exposure of the spool shaft.

Replacement of the Spool Shaft

(h) After the effective date of this AD, replace spool shafts as follows:

(1) If the spool shaft exceeds the CSR limit in the column titled, Repair by (CSR), in Table 2 of this AD, replace the spool shaft within 420 cycles-in-service (CIS) or prior to exceeding the CSR limit in the column titled, Replace by (CSR), in Table 2 of this AD, whichever occurs later.

(2) If the spool shaft exceeds the CSR limit in the column titled, Replace by (CSR), in Table 2 of this AD, replace the spool shaft within 420 CIS or within the published part life limit, whichever occurs first.

Repair of the Spool Shaft

(i) You may repair the spool if the CSR on the spool shaft are fewer than or equal to the limit in the column titled, Repair by (CSR), in Table 2 of this AD. Use 3.B. of the Accomplishment Instructions of GEAE SB No. CF6-80C2 S/B 72-1052, Revision 02, dated May 25, 2005, for the repair.

CF6-80E1 Engines

(j) For CF6-80E1 series engines with HPCR stage 11-14 spool shafts with SNs listed in 1.A.(2) of GEAE SB No. CF6-80E1 S/B 72-0232, Revision 01, dated February 5, 2004, do the following:

(1) Inspect the spool shaft for the location of the cut circumferential repair at the next piece-part exposure, but before exceeding 11,600 CSR. Use 3.A.(1) of the Accomplishment Instructions of GEAE SB No. CF6-80E1 S/B 72-0232, Revision 01, dated February 5, 2004 for the inspection.

(2) For the purposes of this AD, CSR limit is defined as the current CSN minus the CSN at the time of the repair.

(3) If the CSR limit cannot be determined from the engine records, then CSN must be used.

(4) If the circumferential cut repair is in the Stage 14 forward location, and not in Area X, no further action is required by this AD. However, GEAE recommends that you repair these spools at the next exposure of the spool shaft.

Replacement of the Spool Shaft

(k) After the effective date of this AD, replace spool shafts as follows:

(1) If the spool shaft exceeds the CSR limit in the column titled, Repair by (CSR), in Table 2 of this AD, replace the spool shaft within 420 CIS or prior to exceeding the CSR limit in the column titled, Replace by (CSR), in Table 2 of this AD, whichever occurs later.

(2) If the spool shaft exceeds the CSR limit in the column titled, Replace by (CSR), in Table 2 of this AD, replace the spool shaft within 420 CIS or within the published part life limit, whichever occurs first.

Repair of the Spool Shaft

(l) You may repair the spool shaft if the CSR on the spool shaft are fewer than or equal to the limit in the column titled, Repair by (CSR), in Table 2 of this AD. Use 3.B. of the Accomplishment Instructions of GEAE SB CF6-80E1 S/B 72-0232, Revision 01, dated February 5, 2004, for the repair.

Alternative Methods of Compliance

(m) 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.

Material Incorporated by Reference

(n) You must use the service information specified in Table 3 of this AD to perform the actions required by this AD.

TABLE 3.—INCORPORATION BY REFERENCE

Service bulletin No.	Page	Revision	Date
CF6–80C2 S/B 72–1052 Total Pages: 11	ALL	02	May 25, 2005.
CF6–80E1 S/B 72–0232 Total Pages: 9	ALL	01	February 5, 2004.

The Director of the Federal Register approved the incorporation by reference of the documents listed in Table 3 of this AD in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact General Electric Company via Lockheed Martin Technology Services, 10525 Chester Road, Suite C, Cincinnati, Ohio 45215, telephone (513) 672-8400, fax (513) 672-8422, 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*.

Issued in Burlington, Massachusetts, on August 12, 2005.

Peter A. White,

Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.

[FR Doc. 05-16454 Filed 8-22-05; 8:45 am]

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