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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2006-23705; Directorate Identifier 2005-NE-45-AD; Amendment 39-14567; AD 2006-08-10]**

**RIN 2120-AA64**

#### **Airworthiness Directives; General Electric Company CT64-820-4 Turboprop Engines**

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

**ACTION:** Final rule; request for comments.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for General Electric Company (GE) CT64-820-4 turboprop engines with certain part number (P/N) rotating parts. The parts are in the compressor rotor assembly, gas generator turbine rotor assembly, and power turbine rotor assembly that are subject to low-cycle fatigue. This AD requires removing from service these affected rotating parts at reduced compliance times. This AD results from the manufacturer's discovery of cracks in some rotating parts. We are issuing this AD to prevent cracks in the rotating parts that could cause compressor and turbine wheel fracture and uncontained engine failure. An uncontained engine failure could cause possible damage to the airplane.

**DATES:** This AD becomes effective May 24, 2006.

**ADDRESSES:** Use one of the following addresses to comment on this AD:

- DOT Docket Web site: Go to <http://dms.dot.gov> and follow the instructions for sending your comments electronically.
- Government-wide rulemaking Web site: Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically.
- Mail: Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-0001.
- Fax: (202) 493-2251.
- Hand Delivery: Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.  
Contact GE Aircraft Engines Customer Support Center, M/D 285, 1 Neumann Way, Evendale, OH 45215, telephone (513) 552-3272; fax (513) 552-3329; e-mail address: GEAE.csc@ae.ge.com, for the service information identified in this AD.

**FOR FURTHER INFORMATION CONTACT:** Anthony W. Cerra Jr., Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; telephone 781-238-7128; fax 781-238-7199; e-mail address: anthony.cerra@faa.gov.

**SUPPLEMENTARY INFORMATION:** GE has informed us that cracks have been found in certain P/N rotating parts. The manufacturer reported that cracks were found in the outer rim of a stage 1 aft cooling plate, P/N 4022T37P01, installed on the gas generator turbine (GGT) rotor of a military T64 engine. They also found cracks in the sawcut slots of the GGT rear air seals of stage 2 aft cooling plates, P/N 4022T36P01, in the CT64-820-4 engine model and a similar military T64 engine model. There have been at least 13 reports of cracked GGT rear air seals.

Investigation by the manufacturer showed that compressor rotor assemblies, GGT rotor assemblies, and power turbine rotor assemblies have small feature locations. A "small feature" location is any rotating hardware feature with drawing radii less than 0.020 inch. Engineering analysis determined that the small feature locations and other life-limited locations of the rotating parts identified in this action have levels of stress during engine operation that are higher than originally anticipated and could result in cracks on these parts. This condition, if not corrected, could cause compressor and turbine wheel fracture and uncontained engine failure. An uncontained engine failure could cause possible damage to the airplane.

### **FAA's Determination and Requirements of This AD**

Although no airplanes registered in the United States use these engines, the possibility exists that the engines could be used on airplanes that are registered in the United States in the future. The unsafe condition described previously is likely to exist or develop on other GE CT64-820-4 turboprop engines of the same type design. We are issuing this AD to prevent cracks in the rotating parts that could cause compressor and turbine wheel fracture and uncontained engine failure. An uncontained engine failure could cause possible damage to the airplane. This AD requires removing from service these affected life-limited rotating parts at reduced compliance times.

### **FAA's Determination of the Effective Date**

Since there are currently no domestic operators of this engine model, notice and opportunity for public comment before issuing this AD are unnecessary. A situation exists that allows the immediate adoption of this regulation.

### **Comments Invited**

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment; however, we invite you to send us any written relevant data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "AD Docket No. FAA-2006-23705; Directorate Identifier 2005-NE-45-AD" in the subject line of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify it. We will post all comments we receive, without change, to <http://dms.dot.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this AD. Using the search function of the DMS Web site, anyone can find and read the comments in any of our dockets, including the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.). You may review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78) or you may visit <http://dms.dot.gov>.

## **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 Offices 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.

## **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 the regulation:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the 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, Safety.

## **Adoption of the Amendment**

Under the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (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**

[www.faa.gov/aircraft/safety/alerts/](http://www.faa.gov/aircraft/safety/alerts/)

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).

**2006-08-10 General Electric Company:** Amendment 39-14567. Docket No. FAA-2006-23705; Directorate Identifier 2005-NE-45-AD.

## Effective Date

(a) This airworthiness directive (AD) becomes effective May 24, 2006.

## Affected ADs

(b) None.

## Applicability

(c) This AD applies to General Electric Company (GE) CT64-820-4 turboprop engines that use any of the rotating parts listed in Table 1 of this AD. These engines are installed on, but not limited to, DeHavilland DHC-5D Buffalo airplanes.

**TABLE 1.—AFFECTED ROTATING PARTS**

<b>Rotor assembly</b>	<b>Part nomenclature</b>	<b>Part No.</b>
Compressor	Shaft, Front	5007T03P03
	Disk, Stage 1	5015T92P01
	Retainer, Disk, Stage 1	5013T71P01
	Disk, Stage 2	5015T93P01
	Spacer, Disk, Stage 2	5015T94P01
	Disk, Stage 3	5015T95P01
	Spool, Rotor, Front	6003T84P02
	Spool, Rotor, Rear	6005T18P01
	Shaft, Rear	6005T26P01
Gas Generator Turbine	Disk and Shaft, Stage 1	6014T70P02
	Disk, Stage 2	4007T83P02
	Ring, Torque	3008T60P02
	Seal, Air, Stage 1	4007T94G02
	Plate, Cooling	3008T52P02
	Plate, Cooling	4022T37P01
	Seal, Interstage	5006T54P02
	Seal, Air, Rear	4022T36P01
Seal, Air, Rear	4022T36P03	

<b>Rotor assembly</b>	<b>Part nomenclature</b>	<b>Part No.</b>
Power Turbine	Disk, Stage 3	4008T65P02
	Disk, Stage 4	5006T16P03
	Disk, Stage 4	5006T16P04
	Seal, Interstage	4008T29P01
	Shaft, Main	5009T73P02
	Shaft, Main	6012T83P02
	Tiebolt, Power Turbine Rotor	3008T44P02

**Unsafe Condition**

(d) This AD results from the manufacturer's discovery of cracks in some rotating parts. We are issuing this AD to prevent cracks in the rotating parts that could cause compressor and turbine wheel fracture and uncontained engine failure. An uncontained engine failure could cause possible damage to the airplane.

**Definition of "Data Fleet" and "No-Data" Fleet Engines**

(e) For the purposes of this AD, "Data Fleet" is defined as a category of engines for which the engine serial numbers (SNs) are listed in Table 2 of this AD, and the following information has been provided to the manufacturer and included in the data analysis:

- (1) Current configuration of all life-limited parts.
- (2) Current cycles of life-limited parts.
- (3) Engine utilization rate (hours/month).

**TABLE 2.—ENGINE SNSIN THE DATA FLEET**

268504	268565	268605	268646	268662
268505	268569	268606	268647	268666
268509	268573	268608	268648	268667
268511	268574	268620	268649	268669
268514	268575	268622	268650	268670
268529	268580	268636	268653	268672
268534	268583	268637	268655	268674
268535	268588	268638	268656	268679
268537	268589	268641	268658	268686
268545	268590	268642	268659	268689
268549	268596	268643	268660	268690
268562	268603	268644	268661	268691

(f) For the purposes of this AD, "No-Data Fleet" is defined as a category of engines for which the engine SNs are not listed in Table 2 of this AD. The operators of the "No Data Fleet" engines did not supply the data listed in paragraph (e) to the manufacturer.

**Compliance**

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

(h) If performing the actions required by this AD for "Data Fleet" engines, follow paragraphs (j) through (o).

(i) If performing the actions required by this AD for "No-Data Fleet" engines, follow paragraphs (p) through (u).

### Data Fleet Rotating Part Removal Requirements

(j) For parts listed in Table 3 of this AD and installed in serviceable engines (those that are in service or have met the requirements for and have been approved for return to service) on the effective date of this AD, do the following:

(1) If the cycles-since-new (CSN) of a part listed in Table 3 of this AD are equal to or more than Table 3, Limit 2 as of the effective date of this AD, remove the part before exceeding 900 additional cycles-in-service (CIS) or Table 3, Limit 1, whichever occurs first, but not later than July 31, 2013.

(2) If the CSN for a part listed in Table 3 of this AD are fewer than Table 3, Limit 2 as of the effective date of this AD, remove the part from service before exceeding Table 3, Limit 3, but not later than July 31, 2013.

**TABLE 3.—AFFECTED DATA FLEET ROTATING PART REMOVAL REQUIREMENTS**

<b>Rotor</b>	<b>Nomenclature</b>	<b>Part No.</b>	<b>Limit 1 (cycles)</b>	<b>Limit 2 (cycles)</b>	<b>Limit 3 (cycles)</b>
Compressor	Shaft, Front	5007T03P03	30,000	29,100	30,000
	Disk, Stage 1	5015T92P01	13,000	8,100	9,000
	Retainer, Disk, Stage 1	5013T71P01	30,000	29,100	30,000
	Disk, Stage 2	5015T93P01	23,000	8,100	9,000
	Spacer, Disk, Stage 2	5015T94P01	30,000	8,100	9,000
	Disk, Stage 3	5015T95P01	9,000	8,100	9,000
	Spool, Rotor, Front	6003T84P02	5,100	2,100	3,000
	Spool, Rotor, Rear	6005T18P01	19,000	3,500	4,400
	Shaft, Rear	6005T26P01	30,000	8,100	9,000
Gas Generator Turbine	Disk and Shaft, Stage 1	6014T70P02	7,000	6100	7000
	Disk, Stage 2	4007T83P02	11,300	5,400	6,300
	Ring, Torque	3008T60P02	30,000	6,100	7,000
	Seal, Air, Stage 1	4007T94G02	30,000	11,700	12,600
	Plate, Cooling	3008T52P02	5,000	4,100	5,000
	Plate, Cooling	4022T37P01	5,000	4,100	5,000
	Seal, Interstage	5006T54P02	5,100	4,200	5,100
	Seal, Air, Rear	4022T36P01	5,000	4,100	5,000
	Seal, Air, Rear	4022T36P03	5,000	4,100	5,000
Power Turbine	Disk, Stage 3	4008T65P02	30,000	12,100	13,000
	Disk, Stage 4	5006T16P03	30,000	12,100	13,000
	Disk, Stage 4	5006T16P04	30,000	12,100	13,000
	Seal, Interstage	4008T29P01	30,000	12,100	13,000
	Shaft, Main	5009T73P02	13,000	12,100	13,000
	Shaft, Main	6012T83P02	13,000	12,100	13,000
	Tiebolt, Power Turbine Rotor	3008T44P02	13,000	12,100	13,000

(k) For all rotating parts listed in Table 3 of this AD and put into service after the effective date of this AD, remove from service before the CSN exceeds Table 3, Limit 3, but not later than July 31, 2013.

(l) After the effective date of this AD:

(1) Do not install any part listed in Table 3 of this AD that has a CSN equal to or more than Table 3, Limit 3.

- (2) If the CSN for a part listed in Table 3 of this AD are fewer than Table 3, Limit 3:
- (i) Until July 31, 2007, you may return the part to service, if the part passes the applicable inspections specified in the CT64-820-4 Engine Overhaul Manual, SEI-448.
  - (ii) You must remove the part from service before Table 3, Limit 3 is exceeded, but no later than July 31, 2013.
  - (iii) After July 31, 2007, do not install any part listed in Table 3 of this AD.

(m) On July 31, 2007, for engines in service that have a part listed in Table 3 of this AD, remove the affected part before exceeding Table 3, Limit 3, but no later than July 31, 2013.

(n) For main shafts, P/N 5009T73P02, and P/N 6012T83P02, and power turbine rotor tiebolt, P/N 3008T44P02, with unknown CSN do the following:

- (1) Assign each part a CSN value of 7,400 CSN as of the effective date of this AD and refer to Table 3 of this AD for removal requirements.
- (2) Continue to track the parts starting from 7,400 CSN and remove from service as specified in paragraphs (j) through (n) of this AD, but no later than July 31, 2013.

(o) For rear air seal, P/N 4022T36P03, and power turbine stage 4 disk, P/N 5006T16P04, with unknown CSN, remove the part before exceeding 10 additional cycles, but no later than July 31, 2013.

**No-Data Fleet Rotating Part Removal Requirements**

(p) For parts listed in Table 4 of this AD and installed in serviceable engines (those that are in service, or have met the requirements for and have been approved for return to service) on the effective date of this AD, do the following:

- (1) If the CSN of a part listed in Table 4 of this AD are equal to or more than Table 4, Limit 2 as of the effective date of this AD, remove the part before exceeding 50 additional CIS or Table 4, Limit 1, whichever occurs first, but not later than July 31, 2013.
- (2) If the CSN for a part listed in Table 4 of this AD are fewer than Table 4, Limit 2 as of the effective date of this AD, remove the part from service before exceeding Table 4, Limit 3, but not later than July 31, 2013.

(q) For all rotating parts listed in Table 4 of this AD and put into service after the effective date of this AD, remove from service before the CSN exceeds Table 4, Limit 3, but not later than July 31, 2013.

**TABLE 4.—AFFECTED NO-DATA FLEET ROTATING PART REMOVAL REQUIREMENTS**

<b>Rotor</b>	<b>Nomenclature</b>	<b>Part No.</b>	<b>Limit 1 (cycles)</b>	<b>Limit 2 (cycles)</b>	<b>Limit 3 (cycles)</b>
Compressor	Shaft, Front	5007T03P03	30,000	29,950	30,000
	Disk, Stage 1	5015T92P01	13,000	8,950	9,000
	Retainer, Disk, Stage 1	5013T71P01	30,000	29,950	30,000
	Disk, Stage 2	5015T93P01	23,000	8,950	9,000
	Spacer, Disk, Stage 2	5015T94P01	30,000	8,950	9,000
	Disk, Stage 3	5015T95P01	9,000	8,950	9,000
	Spool, Rotor, Front	6003T84P02	5,100	2,950	3,000
	Spool, Rotor, Rear	6005T18P01	19,000	4,350	4,400
	Shaft, Rear	6005T26P01	30,000	8,950	9,000

<b>Rotor</b>	<b>Nomenclature</b>	<b>Part No.</b>	<b>Limit 1 (cycles)</b>	<b>Limit 2 (cycles)</b>	<b>Limit 3 (cycles)</b>
Gas Generator Turbine	Disk and Shaft, Stage 1	6014T70P02	7,000	6,950	7,000
	Disk, Stage 2	4007T83P02	11,300	6,250	6,300
	Ring, Torque	3008T60P02	30,000	6,950	7,000
	Seal, Air, Stage 1	4007T94G02	30,000	12,550	12,600
	Plate, Cooling	3008T52P02	5,000	4,950	5,000
	Plate, Cooling	4022T37P01	5,000	4,950	5,000
	Seal, Interstage	5006T54P02	5,100	5,050	5,100
	Seal, Air, Rear	4022T36P01	5,000	4,950	5,000
	Seal, Air, Rear	4022T36P03	5,000	4,950	5,000
Power Turbine	Disk, Stage 3	4008T65P02	30,000	12,950	13,000
	Disk, Stage 4	5006T16P03	30,000	12,950	13,000
	Disk, Stage 4	5006T16P04	30,000	12,950	13,000
	Seal, Interstage	4008T29P01	30,000	12,950	13,000
	Shaft, Main	5009T73P02	13,000	12,950	13,000
	Shaft, Main	6012T83P02	13,000	12,950	13,000
	Tiebolt, Power Turbine Rotor	3008T44P02	13,000	12,950	13,000

(r) After the effective date of this AD:

(1) Do not install any part listed in Table 4 of this AD that has a CSN equal to or more than Table 4, Limit 3.

(2) If the CSN for a part listed in Table 4 of this AD are fewer than Table 4, Limit 3:

(i) Until July 31, 2007, you may return the part to service, if the part passes the applicable inspections specified in the CT64-820-4 Engine Overhaul Manual, SEI-448.

(ii) You must remove the part from service before Table 4, Limit 3 is exceeded, but no later than July 31, 2013.

(iii) After July 31, 2007, do not install any part listed in Table 4 of this AD.

(s) On July 31, 2007, for engines in service that have a part listed in Table 4 of this AD, remove the affected part before exceeding Table 4, Limit 3, but no later than July 31, 2013.

(t) For main shafts P/N 5009T73P02, and P/N 6012T83P02, and power turbine rotor tiebolt, PN 3008T44P02, with unknown CSN, remove the part before exceeding 50 additional cycles

(u) For rear air seal, P/N 4022T36P03, and power turbine stage 4 disk, P/N 5006T16P04, with unknown CSN, remove the part before exceeding 10 additional cycles, but no later than July 31, 2013.

### **Log Book Entry**

(v) For all engines, calculate the cycles remaining on the affected rotating parts and make an entry in the Engine Log Book marked with the engine S/N and its fleet category, either "DATA FLEET" or "NO-DATA FLEET."

(1) Date and file the record in the Engine Log Book.

(2) Note in the Engine Log Book that AD 2006-08-10 has been complied with.

## **Alternative Methods of Compliance**

(w) 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**

(x) GE Aircraft Engines CT64 Alert Service Bulletin CT64 S/B 72-A0130, dated January 24, 2006, pertains to the subject of this AD.

Issued in Burlington, Massachusetts, on April 12, 2006.

Francis A. Favara,

Manager, Engine and Propeller Directorate, Aircraft Certification Service.

[FR Doc. 06-3724 Filed 4-18-06; 8:45 am]

BILLING CODE 4910-13-P