

293841

FAA-04-18869-4  
**Aircraft Certification Service  
AD PROPOSAL WORKSHEET**

DOCKET NUMBER: 04-NE-23

TECH WRITER:

PROPOSED ACTION:

- Telegraphic AD
- Priority Letter
- Immediately Adopted AD
- Federal Register version of Telegraphic AD or Priority Letter
- Final Rule after NPRM (\*See Note on next page)
- Notice of Proposed Rulemaking
- Other \_\_\_\_\_

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DEPT OF TRANSPORTATION  
DOCKETS

Is this proposed action one of the following? (Check if applicable):

Supercedure of an AD  Revision of an AD  Supplemental NPRM

**1. Product Manufacturer.**

General Electric Company

**2. Applies to (models, serial numbers or references, installations, part numbers, as applicable).**

General Electric Company CF34-3A1 series turbofan engines, installed on, but not limited to Bombardier series Regional Jet Model CL-600-2B19 (Regional Jet Series 100 and 440) containing the following 10 components (12 part numbers):

<u>Component</u>	<u>Part Number</u>
Seal, Balance Piston Air	6078T90P01
Shaft, HPT Rotor	6017T00P05
Plate, Stage 1 Front Cooling	4027T15P03
Disk, Stage 1 Turbine	6078T93P01
	6078T93P02
Plate, Stage 1 Aft Cooling	5041T70P03
Plate, Stage 2 Rear Cooling	5023T97P03
Disk, Stage 2 Turbine	6078T94P01
	6078T94P02
Plate, Stage 2 Front Cooling	5042T29P02
Coupling, Outer Torque	5041T67P02
Coupling, Inner Torque	5079T02P01

**3. ACO project engineer.**

Name/Title/Branch: Robert Grant, Aerospace Engineer, ANE-141

Telephone: 781-238-7757

Fax: 781 238-7199

4. Directorate Project Officer (if applicable) and title.

Name/Title/Branch: Dorina Mihail, Aerospace Engineer, ANE-110

Telephone: 781 238-7153

Fax: 781 238-7199

5. If this action is a Final Rule after NPRM, list the docket number and the number of public comments received. **Fill out the "AD Proposal Worksheet Attachment: Disposition of Comments."**

Docket No.:

Number of comments received:

***\*NOTE: For Final Rules after NPRM, if any of the following requested information (in Questions 6 through 23) is unchanged from the NPRM, you may so indicate this in the space provided, rather than repeat the information.\****

6a. Describe the **unsafe condition**.

We are proposing this AD to prevent LCF cracks and failure of High Pressure Turbine (HPT) turbine components, which could result in an uncontained engine failure and damage to the airplane.

6b. Describe the **cause** of the unsafe condition.

CF34-3A1 engines are used in both business jet and regional jet service. In May 2003, GE issued a temporary revision (TR) to the engine manual, which removed the above HPT part numbers from the Chapter 5 life limits for the regional jet application. This AD results from an engine, with the applicable HPT part numbers, being introduced into the regional jet fleet without life limits.

6c. Describe the occurrences that **prompted** this proposed AD action.

In March 2004, the FAA became aware that a GE lease engine, with the applicable HPT part numbers, was operating in a regional jet without life limits on the HPT components.

6d. How many such occurrences have been reported?

2.

6e. On what date did the FAA become aware of the situation?

March 2004.

7. Was this proposed action prompted by a manufacturer's quality control (QC) problem? If so, is a reporting requirement needed in the AD to determine the scope of the problem? *(If yes to either of these questions, coordinate with cognizant MIDO.)*

No.

8. Was this proposed action prompted by the use of suspected unapproved parts (SUP)?

No.

9. Is this action related to an NTSB safety recommendation? If yes, attach a copy of that recommendation and the FAA response.

No.

10. If this proposed action will revise, supersede, or withdraw an existing AD, please provide the following information about the existing AD.

Amendment No.:

Docket No.:

Federal Register Citation:

11a. What are the proposed types of corrective actions (i.e., one-time inspections, recurring inspections, terminating actions, modifications, operational restrictions, etc.) **AND** What are the corresponding compliance times?

(See attached "**SAMPLE: ProposeError! Bookmark not defined.d Corrective Action**" for an example of how this information should be provided.)

§ Have you considered all of the aspects of what you are proposing, such as overlapping requirements, the effect these actions will have on other existing requirements, and other sensitive issues? (Be as specific as possible.)

[Note to Word users: The area below is formatted as a "Table." It allows you to insert as much information as needed into each cell. To move to the next cell, use the Tab key.]

## PROPOSED CORRECTIVE ACTION

### Applicability

<u>HPT Components</u>	<u>Part Number</u>
Seal, Balance Piston Air	6078T90P01
Shaft, HPT Rotor	6017T00P05
Plate, Stage 1 Front Cooling	4027T15P03
Disk, Stage 1 Turbine	6078T93P01
	6078T93P02
Plate, Stage 1 Aft Cooling	5041T70P03
Plate, Stage 2 Rear Cooling	5023T97P03
Disk, Stage 2 Turbine	6078T94P01
	6078T94P02
Plate, Stage 2 Front Cooling	5042T29P02
Coupling, Outer Torque	5041T67P02
Coupling, Inner Torque	5079T02P01

### Replace

Replace the applicable CF34-3A1 HPT part numbers prior to accumulating 6,000 cycles since new (CSN).

11b. How was the compliance time(s) established?

The stage 1 aft cooling plate, P/N 5041T70P03 life limit of 6,000 CSN was established by using low cycle fatigue (LCF) analysis results, fracture mechanics calculations of crack propagation

lives, and the stage 1 aft cooling plate age distributions in a risk assessment to calculate compliance times which meet the FAA approved level of risk. The remaining eleven applicable HPT part number life limits were established by LCF analysis.

11c. Has the manufacturer issued relevant service information? If so, attach 2 copies. *(Copies must be legible and of very good quality. Originals are preferred.)*

No. Temporary Revision 05-0073 for CF34 Engine Manual SEI-756 Chapter 5 will re-establish life limits for the CF34-3A1 engine for the applicable HPT part numbers.

11d. If this action relates to a non-U.S. product, has the foreign civil airworthiness authority (FCAA) issued a parallel AD? If yes, please provide the following information:

FCAA AD Number:

Date of issuance:

11e. Are there any differences between the manufacturer's service information referenced above, other AD's (foreign or U.S.), and the requirements of this AD? (For example, does the compliance time of this AD action differ significantly from that recommended in the referenced service information?) If so, explain these differences and the reasons for each.

11f. Are notes, drawings, or diagrams needed in the AD to explain procedures or differences from the service instructions? *(If so, please explain below or attach a copy.)*

No

12. Number of aircraft/products that will be affected? *(Use numerical figures).*

CF34-3 8 domestic Engines                      0 foreign registered Engines

13. Provide the number of work hours/associated costs per aircraft/product for **EACH** proposed corrective action (i.e., inspection, modification, etc.) in the table below.

**FOR THE PROPOSED AD.**

Type of Corrective Action	Number of Workhours per Engine	Number of U.S. engines Affected	Parts Costs per Aircraft
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Remove at life limit		8	
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Notes:

1) The applicable part numbers had a 6,000 cycle life limit before mistakenly being removed from Chapter 5 of Engine Manual. This AD will re-establish the applicable HPT component life limits by part number.

FOR THE **EXISTING** AD (i.e., the one to be superseded or revised), **if applicable.**

Type of Corrective Action	Number of Workhours per Engine	Number of U.S. Aircraft Affected	Parts Costs per Aircraft
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14. If parts are **required**, are they available for all aircraft?

No. New parts are not required.

15. If known, please indicate the number of affected engines that are already in compliance with the proposed inspection, modification, installation, or replacement, etc.

None.

16. Should a special flight permit be:

Permitted

Permitted with limitations (*List the limitations on a separate sheet.*)

Prohibited

17. In general, how is the product utilized (i.e., air carrier, general aviation, commuter, military, agri-business, training, etc.)?

Commercial regional jet carrier.

18a. If this proposed AD would revise or supersede an existing AD, have alternative methods of compliance (AMOC) been approved for the existing AD?

N/A

18b. If yes, should those AMOC's continue to be considered approved for all or any portion of the proposed AD?

N/A

18c. If yes, state for what portions of the proposed AD the previously approved AMOC's should continue to be considered approved.

N/A.

19. With whom outside the FAA has this proposal been discussed (i.e., ATA, NBAA, RAA, AOPA, ALPA, GAMA, etc.)? (*A separate record may need to be submitted to the Rules Docket. See paragraph 3, "Ex parte Contacts," of the AD Manual.*)

**NOTE: This item should be completed prior to submission of the AD Proposal Worksheet.**

Organization	Person Contacted	Date	Reaction
GE	Mike Herp	3/11/04	Concurs

GE	Victor Zakak	3/11/04	Concurs
GE	Norm Leong	3/11/04	Concurs
GE	Ed Nicholas	3/11/04	Concurs
ATA	Charlie Bautz	4/12/04	None
RAA	Dave Lotterer	4/12/04	None

20. Are there any special considerations or concerns that need to be taken into account in the drafting of this proposal? (Use a separate sheet to detail these items, if necessary.)

No

21. Do you have reason to believe that this action would be considered "sensitive?" (See Section 15 of the AD Manual for a definition of "sensitive".) If yes, please explain below.

No.

22. Please indicate Yes or No to the following questions:

No Is this considered interim action?

No Do you know of any optional or alternative methods of accomplishing the proposed action?

No Have you considered any alternatives to an AD action?

No Are other Directorates involved in any similar actions?

No Does this action affect the Presidential fleet?

No Does this action affect the FAA fleet?

N/A Have the proposed procedures been verified (i.e., by MIDO, AEG, ACDO, FSDO)?

23. Check the category that best describes the cause of the unsafe condition addressed by this AD:

     Design Problem      Quality Control Problem

     Operational      Maintenance      Unapproved Parts

  X   Other (specify): Temporary Revision to the Engine Manual was mistakenly implemented.

## Supplementary Information

We are proposing this AD to prevent LCF cracks and failure of HPT turbine hardware, which could result in an uncontained engine failure and damage to the airplane.

CF34-3A1 engines are used in both business jet and regional jet service. In May 2003, GE issued a temporary revision (TR) to the engine manual, which removed the applicable HPT part numbers from the Chapter 5 life limits for the regional jet application. This AD results from an engine, with the applicable high pressure turbine part numbers, being introduced into the regional jet fleet.

### Applicability

<u>Component</u>	<u>Part Number</u>
Seal, Balance Piston Air	6078T90P01
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Coupling, Inner Torque	5079T02P01

### Compliance:

To prevent LCF cracks and failure of HPT turbine hardware, which could result in an uncontained engine failure and damage to the airplane, do the following:

- 1) Replace the applicable CF34-3A1 HPT part numbers prior to accumulating 6,000 cycles since new (CSN).



**Kevin P McLaughlin**  
04/13/2004 10:52 AM

To: Robert Grant/ANE/FAA@FAA  
cc:  
Subject: Re: AD worksheet: CF34-3A1 HPT Bolted Turbine Life limits 

Bob,  
Here is the worksheet signed (I hope)  
Still haven't mastered this e-mail stuff.



wkst cf34-3a1 HPTrotorlifedoc040408.c  
Kevin