

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2010-0068; Directorate Identifier 2010-NE-05-AD; Amendment 39-15240; AD 2010-06-15]

RIN 2120-AA64

#### Airworthiness Directives; General Electric Company CF6-45 and CF6-50 Series Turbofan Engines

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

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

**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for General Electric Company (GE) CF6-45 and CF6-50 series turbofan engines with certain low-pressure turbine (LPT) stage 3 disks installed. This AD requires fluorescent penetrant inspection (FPI) of the LPT stage 3 disk under certain conditions and removal of the disk from service before further flight if found cracked. This AD also requires initial and repetitive borescope inspections of the high-pressure turbine (HPT) rotor stage 1 and stage 2 blades for wear and damage, including excessive airfoil material loss. This AD results from three reports of uncontained failures of LPT stage 3 disks and eight reports of cracked LPT stage 3 disks found during shop visit inspections. We are issuing this AD to prevent critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane.

**DATES:** This AD becomes effective April 1, 2010.

You must receive any comments on this AD by May 17, 2010.

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

- Federal eRulemaking Portal: Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically.
- Mail: U.S. Docket Management Facility, Department of Transportation, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- Fax: (202) 493-2251.

**FOR FURTHER INFORMATION CONTACT:** Christopher J. Richards, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: christopher.j.richards@faa.gov; telephone (781) 238-7133; fax (781) 238-7199.

**SUPPLEMENTARY INFORMATION:** Since July 2008, we received three reports of uncontained failures of LPT stage 3 rotor disks and eight reports of cracked LPT rotor stage 3 disks found during shop visit inspections. GE reports that these failures were caused by HPT rotor blade airfoil material loss which leads to LPT rotor unbalance, vibration, and LPT disk separation. GE's investigation also revealed that certain part number LPT stage 3 rotor disks could have micro-cracking on the inner diameter surface forward cone body (forward spacer arm) that, when exposed to rotor unbalance and other conditions, would allow crack growth and disk failure. This condition, if not corrected, could result in critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane.

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

The unsafe condition described previously is likely to exist or develop on other GE CF6-45 and CF6-50 series turbofan engines of the same type design. For that reason, we are issuing this AD to prevent critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane. This AD requires FPI of the LPT stage 3 disk under the conditions described previously and permanent removal from service of the disk before further flight if found cracked. This AD also requires an initial borescope inspection of the HPT rotor for evidence of stage 1 and stage 2 blade excessive airfoil material loss within 50 cycles-in-service (CIS) after the effective date of this AD, and thereafter repetitive borescope inspections within every 175 CIS.

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

Since an unsafe condition exists that requires the immediate adoption of this AD, we have found that notice and opportunity for public comment before issuing this AD are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

### **Interim Action**

These actions are interim actions and we may take further rulemaking actions in the future.

### **Comments Invited**

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and 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-2010-0068; Directorate Identifier 2010-NE-05-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://www.regulations.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 Web site, anyone can find and read the comments in any of our dockets, including, if provided, 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).

## Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is the same as the Mail address provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

## Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules of 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 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:

**SUPERSEDED**



**2010-06-15 General Electric Company:** Amendment 39-16240. Docket No. FAA-2010-0068; Directorate Identifier 2010-NE-05-AD.

#### Effective Date

- (a) This airworthiness directive (AD) becomes effective April 1, 2010.

#### Affected ADs

- (b) None.

#### Applicability

(c) This AD applies to General Electric Company (GE) CF6-45A, CF6-45A2, CF6-50A, CF6-50C, CF6-50CA, CF6-50C1, CF6-50C2, CF6-50C2B, CF6-50C2D, CF6-50C2F, CF6-50C2R, CF6-50E, CF6-50E1, and CF6-50E2, series turbofan engines, with any of the following low-pressure turbine (LPT) stage 3 disks installed:

9061M23P06	9061M23P07	9061M23P08	9061M23P09	9224M75P01
9061M23P10	1473M90P01	1473M90P02	1473M90P03	1473M90P04
9061M23P12	9061M23P14	9061M23P15	9061M23P16	1479M75P01
1479M75P02	1479M75P03	1479M75P04	1479M75P05	1479M75P06
1479M75P07	1479M75P08	1479M75P09	1479M75P11	1479M75P13
1479M75P14	N/A	N/A	N/A	N/A

These engines are installed on, but not limited to, Airbus A300 series, Boeing 747 series, McDonnell Douglas DC-10 series, and DC-10-30F (KDC-10) airplanes.

#### Unsafe Condition

(d) This AD results from three reports of uncontained failures of LPT stage 3 disks and eight reports of cracked LPT stage 3 disks found during shop visit inspections. We are issuing this AD to prevent critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane.

#### 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.

#### Borescope Inspection of High-Pressure Turbine (HPT) Stage 1 and Stage 2 Rotor Blades

(f) Within 50 cycles-in-service (CIS) after the effective date of this AD, borescope-inspect the HPT stage 1 and stage 2 rotor blades for wear and damage, including excessive airfoil material loss.

(g) Thereafter, within every 175 CIS, repetitively borescope-inspect the HPT stage 1 and stage 2 rotor blades for wear and damage, including excessive airfoil material loss.

**Actions Required Whenever the HPT Rotor Blade Cumulative Airfoil Material Loss is 50% of a Blade or More**

(h) Whenever the HPT rotor blade cumulative airfoil material loss is 50% of a blade or more, then before further flight, fluorescent penetrant inspect the inner diameter surface forward cone body (forward spacer arm) of the LPT stage 3 disk.

(i) If the LPT stage 3 disk is cracked or if a circumferential band of fluorescence appears, permanently remove the disk from service.

**Alternative Methods of Compliance**

(j) 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 39.13.

**Related Information**

(k) Contact Christopher J. Richards, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: christopher.j.richards@faa.gov; telephone (781) 238-7133; fax (781) 238-7199, for more information about this AD.

**Material Incorporated by Reference**

(l) None.

Issued in Burlington, Massachusetts on March 10, 2010.  
Peter A. White,  
Assistant Manager, Engine and Propeller Directorate,  
Aircraft Certification Service