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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2009-0143; Directorate Identifier 2009-NE-05-AD; Amendment 39-16135; AD 2009-25-14]**

**RIN 2120-AA64**

#### **Airworthiness Directives; General Electric Company GE90-110B1, GE90-113B, and GE90-115B Series Turbofan Engines**

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

**ACTION:** Final rule.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for General Electric Company (GE) GE90-110B1, GE90-113B, and GE90-115B series turbofan engines with stage 6 low-pressure turbine (LPT) blades, part number (P/N) 1765M37P03 or P/N 1765M37P04, installed. This AD requires initial and repetitive inspections for shroud interlock wear of the stage 6 LPT blades. This AD also requires replacing those blades with stage 6 LPT blades eligible for installation at the next engine shop visit as terminating action to the repetitive blade inspections. This AD results from eight reports of GE90-115B stage 6 LPT single-blade separation events. We are issuing this AD to prevent failure of stage 6 LPT blades, which could result in uncontained engine failure and damage to the airplane.

**DATES:** This AD becomes effective January 19, 2010. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of January 19, 2010.

**ADDRESSES:** You can get the service information identified in this AD from General Electric Company via GE-Aviation, Attn: Distributions, 111 Merchant St., Room 230, Cincinnati, Ohio 45246; telephone (513) 552-3272; fax (513) 552-3329.

The Docket Operations office is located at Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.

**FOR FURTHER INFORMATION CONTACT:** Barbara Caufield, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: barbara.caufield@faa.gov; telephone (781) 238-7146; fax (781) 238-7199.

**SUPPLEMENTARY INFORMATION:** The FAA proposed to amend 14 CFR part 39 with a proposed AD. The proposed AD applies to GE GE90-110B1, GE90-113B, and GE90-115B series turbofan engines with stage 6 LPT blades, P/N 1765M37P03 or P/N 1765M37P04, installed. We published the proposed AD in the Federal Register on June 24, 2009 (74 FR 30020). That action proposed to require initial and repetitive inspections for shroud interlock wear of the stage 6 LPT blades. That action also proposed to require replacing those blades with stage 6 LPT blades eligible for installation at the next engine shop visit as terminating action to the repetitive blade inspections.

### **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 provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

### **Comments**

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

### **Request To Include Service Bulletin (SB) Revision 3**

One commenter, All Nippon Airways, requests that we include GE SB No. GE90-100 SB 72-0260, Revision 3, dated July 17, 2008, in Previous Credit paragraph (i).

We do not agree. That SB does not specifically call out the need to inspect engines with replacement, original configuration, stage 6 LPT blades. We did not change the AD.

### **Request To Correct SB Paragraph References**

All Nippon Airways and Japan Airlines requests that in paragraph (f), we correct the reference of what paragraphs to use in the SB, from "3.A through 3.A.(3)(g)(12)", to "3.A through 3.A.(2)(g)(12)".

We agree the reference needs correcting. We made the correction, but listed the latest revision of the SB, which is GE SB No. GE90-100 SB 72-0260, Revision 7, dated June 2, 2009. We also added SB No. GE90-100 SB 72-0260, Revision 6, dated May 1, 2009, to the Previous Credit paragraph.

### **Requests To Change the Unsafe Condition Paragraph (d)**

GE Aviation requests that we change the Unsafe Condition paragraph (d) to state that, in each case, the engine continued to produce commanded thrust.

We do not agree. Although the statement is true, adding it would lessen the impact of, and detract from, the existing unsafe condition statement. We did not change the AD.

Boeing requests that we change the Unsafe Condition paragraph (d) to also state that there is a remote possibility of the unsafe condition event occurring on both engines on a given flight.

We do not agree. We considered the possibility of a dual-engine failure event during our safety analysis and when determining the appropriate compliance actions for this AD. We did not change the AD.

### **Request To Reference the Latest GE SB Revision**

GE Aviation, Japan Airlines, and Eva Air request that we reference using latest GE SB in the AD, which is SB No. GE90-100 SB 72-0260, Revision 7, dated June 2, 2009.

We agree and have referenced the use of Revision 7 in the AD.

### **Request To Reference the Use of Later-FAA-Approved SB Revisions**

One commenter, V Australia, requests that we state to use "or later-FAA-approved revision of the SB" in the AD. The commenter states that Revision 7 has been issued since the proposed AD was issued, and it is likely that GE will issue more revisions.

We do not agree. Rulemaking requirements do not permit advance approval of unknown future revisions to service bulletins. We did not change the AD.

### **Request To Add SB Revision 6 to Previous Credit Paragraph (i)**

GE Aviation and Japan Airlines request that we add GE SB No. GE90-100 SB 72-0260, Revision 6, dated May 1, 2009, to the list of SB revisions in the Previous Credit paragraph (i).

We agree and added SB Revision 6 to that paragraph.

### **Request for Change in Definition Paragraph (j)**

Japan Airlines requests that we change the Definition paragraph (j) to exclude the induction of engines into the shop for maintenance action that can be performed at line maintenance, but which is performed in the shop for operator convenience. The commenter states that making this change will help eliminate an unnecessary burden to the operators.

We do not agree. The existing engine shop visit definition is intended to lead operators to perform the terminating action as soon as possible. Doing this will reduce the reliance upon repetitive inspections and continued risk of blade failure. We did not change the AD.

### **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**

We estimate that this AD will affect four GE GE90-110B1, GE90-113B, and GE90-115B series engines installed on airplanes of U.S. registry. We also estimate that it will take about 18 work-hours per engine to perform one inspection of the stage 6 LPT blades, and that the average labor rate is \$80 per work-hour. Replacement stage 6 LPT blades will cost \$258,280 per engine. We estimate that no additional labor costs will be incurred to perform the required blade replacements, because the replacements will be done during a scheduled engine shop visit. Based on these figures, we estimate the total cost of the AD for one inspection to U.S. operators to be \$1,038,880.

## **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:



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**2009-25-14 General Electric Company:** Amendment 39-16135. Docket No. FAA-2009-0143; Directorate Identifier 2009-NE-05-AD.

**Effective Date**

(a) This airworthiness directive (AD) becomes effective January 19, 2010.

**Affected ADs**

(b) None.

**Applicability**

(c) This AD applies to General Electric Company (GE) GE90-110B1, GE90-113B, and GE90-115B series turbofan engines with stage 6 low-pressure turbine (LPT) blades, part number (P/N) 1765M37P03 or P/N 1765M37P04, installed. These engines are installed on, but not limited to, Boeing 777-200LR, 777-300ER, and 777 Freighter series airplanes.

**Unsafe Condition**

(d) This AD results from eight reports of GE90-115B stage 6 LPT single-blade separation events. We are issuing this AD to prevent failure of stage 6 LPT blades, which could result in 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.

**Inspections**

(f) Before accumulating 3,000 engine operating hours time-since-new, or 400 engine cycles-since-new, whichever occurs first, inspect the stage 6 LPT blades, P/N 1765M37P03 or P/N 1765M37P04 for shroud interlock wear. Thereafter, re-inspect within every 1,000 engine operating hours, or within 125 engine cycles-since-last inspection, whichever occurs first. Use paragraphs 3.A. through 3.A.(2)(g)(12) of the Accomplishment Instructions of GE Service Bulletin (SB) No. GE90-100 SB 72-0260, Revision 7, dated June 2, 2009, to do both the initial and repetitive inspections.

**Terminating Action**

(g) At the next engine shop visit, replace the stage 6 LPT blades, P/N 1765M37P03 or P/N 1765M37P04, with stage 6 LPT blades eligible for installation as terminating action to the repetitive inspections required by this AD.

## **Installation Prohibition of Affected Stage 6 LPT Blades**

(h) After the effective date of this AD, do not install any stage 6 LPT blades, P/N 1765M37P03 or P/N 1765M37P04, onto any engine.

### **Previous Credit**

(i) An inspection performed before the effective date of this AD using GE SB No. GE90-100 SB 72-0260, Revision 4, dated October 8, 2008, or Revision 5, dated November 7, 2008, or Revision 6, dated May 1, 2009, satisfies the initial inspection requirement of this AD.

### **Definition**

(j) For the purpose of this AD, an engine shop visit is induction of the engine into the shop for any cause.

### **Alternative Methods of Compliance**

(k) 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**

(l) Contact Barbara Caufield, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: barbara.caufield@faa.gov; telephone (781) 238-7146; fax (781) 238-7199, for more information about this AD.

(m) Guidance on determining which stage 6 LPT blades are eligible for installation can be found in GE Service Bulletin No. 72-0279, Revision 1, dated December 11, 2008, and GE Service Bulletin No. 72-0313, dated March 18, 2009.

### **Material Incorporated by Reference**

(n) You must use GE Service Bulletin No. GE90-100 SB 72-0260, Revision 7, dated June 2, 2009, to perform the inspections required by this AD. The Director of the Federal Register approved the incorporation by reference of this service bulletin in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact General Electric Company via GE-Aviation, Attn: Distributions, 111 Merchant St., Room 230, Cincinnati, Ohio 45246; telephone (513) 552-3272; fax (513) 552-3329, for a copy of this service information. You may review copies at the FAA, New England Region, 12 New England Executive Park, Burlington, MA; 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 December 4, 2009.  
Peter A. White,  
Assistant Manager, Engine and Propeller Directorate,  
Aircraft Certification Service.