

[Federal Register: December 24, 2008 (Volume 73, Number 248)]
[Rules and Regulations]
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[DOCID:fr24de08-3]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2008-0975; Directorate Identifier 2008-NE-29-AD; Amendment 39-15772; AD 2008-26-06]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Corporation (RRC) AE 3007A Series Turbofan Engines

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

ACTION: Final rule; request for comments.

SUMMARY: The FAA is superseding emergency airworthiness directive (AD) 2008-19-51 that we sent previously to all known U.S. owners and operators of RRC AE 3007A series turbofan engines. That AD requires performing initial and repetitive eddy current inspections (ECIs) on the high-pressure turbine (HPT) stage 2 wheel for cracks. This AD continues to require those same inspections, but revises the compliance schedule for the initial inspection and specifies the affected HPT stage 2 wheels by part number (P/N). This AD results from reports of cracked HPT stage 2 wheels. We are issuing this AD to detect cracks in the HPT stage 2 wheel, which could result in a possible uncontained failure of the HPT stage 2 wheel and damage to the airplane.

DATES: Effective January 8, 2009.

We must receive any comments on this AD by February 23, 2009.

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: Docket Management Facility, U.S. 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.

Contact Rolls-Royce Corporation, P.O. Box 420, Speed Code U15, Indianapolis, IN 46206-0420, e-mail: indy.pubs.services@rolls-royce.com, for the service information identified in this AD.

FOR FURTHER INFORMATION CONTACT: Kyri Zaroyiannis, Aerospace Engineer, Chicago Aircraft Certification Office, Small Airplane Directorate, FAA, 2300 E. Devon Ave., Des Plaines, IL 60018; e-mail: kyri.zaroyiannis@faa.gov; telephone (847) 294-7836; fax (847) 294-7834.

SUPPLEMENTARY INFORMATION: On September 8, 2008, we issued emergency AD 2008-19-51, that applies to RRC AE 3007A series turbofan engines. That AD requires performing initial and repetitive ECIs on HPT stage 2 wheels that have accumulated 6,500 or more cycles-since-new (CSN). That AD resulted from reports of HPT stage 2 wheels that had cracks in the bores of the wheels. This condition, if not corrected, could result in a possible uncontained failure of the HPT stage 2 wheel, which could cause damage to the airplane.

Actions Since AD 2008-19-51 Was Issued

Since we issued that AD, we have determined that the cracks in the HPT stage 2 wheel bores are caused by a thermally-induced high stress in the disk bore which was not identified at the time of the original certification. We performed a new risk assessment for cracking in the bore of the HPT stage 2 wheel using the FAA methodology guidelines in FAA Advisory Circular 39.8 and the results of the inspections from AD 2008-19-51. The risk assessment takes into account physical characteristics about the cracks that were not available when we issued AD 2008-19-51. This risk assessment, in combination with a sufficient number of early inspections relative to the existing AD, shows that the risk profile is not rapidly increasing, which was a concern when we issued AD 2008-19-51. Using this new information, we determined we could change the compliance requirements for the ECI while still maintaining a level of safety consistent with the intent of the original AD. We changed the new compliance schedule to an interval of 150 cycles-in-service (CIS) between wheel populations. The intervals for the wheel populations are based on CSN and they vary because of the current distribution of the affected wheels throughout the fleet. This distribution results in a compliance schedule that inspects the fleet from the highest time, highest risk wheels to the lowest time, lowest risk wheels, and allows us to control the overall risk consistent with the intent of the original AD.

We determined that a requirement to perform the ECI by a certain CIS is by itself sufficient to maintain the level of safety consistent with the intent of the original AD. Because of that determination, we no longer prohibit installing any engine that has an HPT stage 2 wheel with more than 6,500 CSN unless the wheel was inspected. Instead, we modified that requirement to apply only to HPT stage 2 wheels removed from service as a result of complying with this AD.

Finally, we specify the P/Ns for the affected HPT stage 2 wheels to ensure proper identification.

Relevant Service Information

We have reviewed and approved the technical contents of RRC Alert Service Bulletin (ASB) AE 3007A-A-72-367, dated September 5, 2008. That ASB describes procedures for ECI of the HPT stage 2 wheel on AE 3007A series engines.

FAA's Determination and Requirements of This AD

The unsafe condition described previously is likely to exist or develop on other RRC AE 3007A series turbofan engines of the same type design. We are issuing this AD to detect cracks in the HPT stage 2 wheel, which could result in a possible uncontained failure of the HPT stage 2 wheel and damage to the airplane. This AD requires:

- Removing from service any engine with certain P/N HPT stage 2 wheels by the compliance time specified in Table 1 of this AD; and
- Performing an ECI on any HPT stage 2 wheel in any engine that was removed from service as a requirement of this AD before returning that HPT stage 2 wheel to service.

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 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-2008-0975; Directorate Identifier 2008-NE-29-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 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 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 a new airworthiness directive, Amendment 39-15772, to read as follows:



2008-26-06 Rolls-Royce Corporation (Formerly Allison Engine Company): Amendment 39-15772. Docket No. FAA-2008-0975; Directorate Identifier 2008-NE-29-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective January 8, 2009.

Affected ADs

(b) This AD supersedes emergency AD 2008-19-51.

Applicability

(c) This AD applies to Rolls-Royce Corporation (RRC) AE 3007A series turbofan engines with high-pressure turbine (HPT) stage 2 wheels, part numbers (P/Ns) 23065892, 23069116, 23069438, 23069592, 23074462, 23074644, 23075345, 23084520, or 23084781, installed. These engines are installed on, but not limited to, Empresa Brasileira de Aeronautica S. A. (EMBRAER) EMB-135 and EMB-145 airplanes.

Unsafe Condition

(d) This AD results from reports of cracked HPT stage 2 wheels. We are issuing this AD to detect cracks in the HPT stage 2 wheel, which could result in a possible uncontained failure of the HPT stage 2 wheel 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.

Removing Engines From Service

(f) For engines with an HPT stage 2 wheel, P/Ns 23065892, 23069116, 23069438, 23069592, 23074462, 23074644, 23075345, 23084520, or 23084781, remove the engine from service by the cycles-in-service (CIS) specified in Table 1 of this AD.

Table 1 – Compliance Times for Engine Removal for ECI of the HPT Stage 2 Wheels

If the HPT Stage 2 Wheel has Accumulated on the Effective Date of This AD:	Then Remove the Engine From Service:
16,200 cycles-since-new (CSN) or more.	Within 150 CIS.
15,800 to 16,199 CSN.	Within 300 CIS.
15,500 to 15,799 CSN.	Within 450 CIS.

Installation Prohibition

(g) After the effective date of this AD, don't return to service, any HPT stage 2 wheel that was installed in any RRC AE 3007A series engine removed as a result of paragraph (f) of this AD, unless the HPT stage 2 wheel was inspected as specified in RRC Alert Service Bulletin (ASB) AE 3007A-A-72-367, dated September 5, 2008.

Alternative Methods of Compliance

(h) The Manager, Chicago Aircraft 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.

(i) Alternative Methods of Compliance (AMOCs) currently approved for AD 2008-19-51 will remain in effect until the effective date for this AD. After that date the AMOCs will expire.

Special Flight Permits

(j) Under 14 CFR part 39.23, we are limiting the special flight permits for this AD by restricting the flight to essential flight crew only.

Related Information

(k) Contact Kyri Zaroyiannis, Aerospace Engineer, Chicago Aircraft Certification Office, Small Airplane Directorate, FAA, 2300 E. Devon Ave., Des Plaines, IL 60018; e-mail: kyri.zaroyiannis@faa.gov; telephone (847) 294-7836; fax (847) 294-7834, for more information about this AD.

(l) Rolls-Royce Corporation ASB AE 3007A-A-72-367, dated September 5, 2008, contains information on performing ECIs on HPT stage 2 wheels. Contact Rolls-Royce Corporation, P.O. Box 420, Speed Code U15, Indianapolis, IN 46206-0420; e-mail: indy.pubs.services@rolls-royce.com, for a copy of this service information.

Material Incorporated by Reference

(m) None.

Issued in Burlington, Massachusetts, on December 12, 2008.
Francis A. Favara,
Manager, Engine and Propeller Directorate,
Aircraft Certification Service.