



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-6744; Directorate Identifier 2016-NE-12-AD]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce plc Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain Rolls-Royce plc (RR) RB211-Trent 875-17, RB211-Trent 877-17, RB211-Trent 884-17, RB211-Trent 884B-17, RB211-Trent 892-17, RB211-Trent 892B-17, and RB211-Trent 895-17 turbofan engines that have not incorporated RR modification 72-J195 in production or RR Service Bulletin (SB) RB.211-72-J195. This proposed AD was prompted by inspection of RR Trent 800 engines returned from service that revealed flame erosion and axial cracking on the aft face of the stage 3 disk rim of the high-pressure compressor (HPC) stage 1-4 rotor disks shaft. This proposed AD would require machining the HPC stage 3 inner shroud, inspecting the HPC stage 1-4 rotor disks shaft, and replacing the HPC stage 1-4 rotor disks shaft if found defective. We are proposing this AD to prevent uncontained failure of the HPC stage 1-4 rotor disks shaft, damage to the engine, and damage to the airplane.

DATES: We must receive comments on this NPRM by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.

- 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.

For service information identified in this NPRM, contact Rolls-Royce plc, Corporate Communications, P.O. Box 31, Derby, England, DE24 8BJ; phone: 011-44-1332-242424; fax: 011-44-1332-249936; email: http://www.rolls-royce.com/contact/civil_team.jsp; Internet: <https://customers.rolls-royce.com/public/rollsroycecare>. You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-6744; 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 proposed AD, the mandatory continuing airworthiness information (MCAI), the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Robert Green, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7754; fax: 781-238-7199; email: robert.green@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2016-6744; Directorate Identifier 2016-NE-12-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. We will consider all comments received by the closing date and may amend this NPRM based on those comments.

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 NPRM.

Discussion

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD 2016-0078, dated April 20, 2016 (corrected April 27, 2016) (referred to hereinafter as “the MCAI”), to correct an unsafe condition for the specified products. The MCAI states:

Inspection of Trent 800 engines returned from service revealed flame eroded areas and axial cracking on the rear Stage 3 disc of the High Pressure Compressor (HPC) Stage 1-4 drum. This is considered to be the result of a localised fire originating from an excessive rub at the stage 3-4 forward seal fin.

This condition, if not detected and corrected, could lead to an uncontained engine failure and release of high energy debris, possibly resulting in damage to the aeroplane and injury to occupants.

You may obtain further information by examining the MCAI in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-6744.

Related Service Information under 1 CFR part 51

RR has issued SB RB.211-72-J195, dated February 26, 2016. The SB describes procedures to machine the HPC stage 3 inner shroud and to inspect the HPC stage 1-4 rotor disks shaft.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

FAA's Determination and Requirements of This Proposed AD

This product has been approved by the aviation authority of the United Kingdom, and is approved for operation in the United States. Pursuant to our bilateral agreement with the European Community, EASA has notified us of the unsafe condition described in the MCAI. We are proposing this AD because we evaluated all information provided by EASA and determined the unsafe condition exists and is likely to exist or develop on other products of the same type design. This proposed AD would require machining the HPC stage 3 inner shroud, inspecting the HPC stage 1-4 rotor disks shaft, and replacing the HPC stage 1-4 rotor disks shaft if found defective.

Costs of Compliance

We estimate that this proposed AD affects 125 engines installed on airplanes of U.S. registry. We estimate it would take 8 hours to comply with the inspection required by this proposed AD. Machining the HPC stage 3 inner shroud is required during routine overhaul; therefore, no additional time is needed for this action. The average labor rate is \$85 per hour. Based on these figures, we estimate the cost of this proposed AD on U.S. operators to be \$85,000.

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 determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 this proposed 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),
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and
- (4) 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.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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 (AD):

Rolls-Royce plc: Docket No. FAA-2016-6744; Directorate Identifier 2016-NE-12-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Rolls-Royce plc (RR) RB211-Trent 875-17, RB211-Trent 877-17, RB211-Trent 884-17, RB211-Trent 884B-17, RB211-Trent 892-17, RB211-Trent 892B-17, and RB211-Trent 895-17 turbofan engines that have not incorporated RR modification 72-J195, in production; or RR Service Bulletin RB.211-72-J195, dated February 26, 2016, in service.

(d) Reason

This AD was prompted by inspection of RR Trent 800 series engines returned from service that revealed flame erosion and axial cracking on the aft face of the stage 3

disk rim of the high-pressure compressor (HPC) stage 1-4 rotor disks shaft. We are issuing this AD to prevent uncontained failure of the HPC stage 1-4 rotor disks shaft, damage to the engine, and damage to the airplane.

(e) Actions and Compliance

Comply with this AD within the compliance times specified, unless already done.

(1) Before exceeding 5,000 duty cycles, since new or since last HPC stage 1-4 rotor disks shaft piece-part inspection, whichever occurs later, do the following:

(i) Perform dimensional, fluorescent penetrant, and visual inspections of the HPC stage 1-4 rotor disks shaft forward stage 3-4 seal fin and aft face of the stage 3 disk rim for wear, cracks, and flame erosion. Any findings of wear, cracks, or flame erosion constitute a failure of the HPC stage 1-4 rotor disks shaft.

(ii) Machine the HPC stage 3 inner shroud to the dimensions shown in Figure 1 of RR Service Bulletin (SB) RB.211-72-J195, dated February 26, 2016.

(2) If the HPC stage 1-4 rotor disks shaft fails the inspections required by paragraph (e)(1)(i) of this AD, remove and replace with a part eligible for installation before further flight.

(f) Alternative Methods of Compliance (AMOCs)

The Manager, Engine Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request. You may email your request to: ANE-AD-AMOC@faa.gov.

(g) Related Information

(1) For more information about this AD, contact Robert Green, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7754; fax: 781-238-7199; email: robert.green@faa.gov.

(2) Refer to MCAI European Aviation Safety Agency AD 2016-0078, dated April 20, 2016 (corrected April 27, 2016), for more information. You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating it in Docket No. FAA-2016-6744.

(3) RR SB RB.211-72-J195, dated February 26, 2016, can be obtained from RR, using the contact information in paragraph (g)(4) of this proposed AD.

(4) For service information identified in this proposed AD, contact Rolls-Royce plc, Corporate Communications, P.O. Box 31, Derby, England, DE24 8BJ; phone: 011-44-1332-242424; fax: 011-44-1332-249936; email: http://www.rolls-royce.com/contact/civil_team.jsp; Internet: <https://customers.rolls-royce.com/public/rollsroycecare>.

(5) You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on July 13, 2016.

Colleen M. D'Alessandro,
Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

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