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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2019-0213; Project Identifier 2019-NE-03-AD; Amendment 39-21324; AD 2020-23-08]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Deutschland Ltd & Co KG (Type Certificate Previously Held by Rolls-Royce plc) Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Rolls-Royce Deutschland Ltd & Co KG (RRD) Tay 611-8C model turbofan engines. This AD was prompted by reports of low-pressure compressor (LPC) rotor blade retention lug failure. This AD requires limiting the service life of the LPC rotor blades based on the number of dry-film lubricant (DFL) re-applications. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective December 18, 2020.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of December 18, 2020.

ADDRESSES: For service information identified in this final rule, contact Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, Dahlewitz, Blankenfelde-Mahlow, Germany; phone: +49 0 33-7086-4040; fax: +49 0 33-7086-51-4040; email: rrd.techhelp@rolls.royce.com. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759. It is also available at <https://www.regulations.gov> by searching for and locating Docket No.FAA-2019-0213.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2019-0213; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The

address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Barbara Caufield, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7146; fax: (781) 238-7199; email: barbara.caufield@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain RRD Tay 611-8C model turbofan engines. The NPRM published in the Federal Register on May 6, 2019 (84 FR 19745). The NPRM was prompted by reports of LPC rotor blade retention lug failures. In the NPRM, the FAA proposed to require a determination of the number of DFL re-applications that have been applied to the LPC rotor blades and, depending on the number of DFL re-applications, replacement of LPC rotor blades. The FAA is issuing this AD to address the unsafe condition on these products.

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD 2018-0055, dated March 12, 2018 (referred to after this as “the MCAI”), to address the unsafe condition on these products. The MCAI states:

The airworthiness limitations for the Tay 611-8C engines, which are approved by EASA, are currently defined and published in the ALS. Among others, the ALS contains limitation(s) applicable to the maximum number of Dry Film Lubrication (DFL) treatments applied on fan blade retention lugs. These instructions have been identified as mandatory for continued airworthiness. Failure to accomplish these instructions could result in an unsafe condition.

In addition to the ALS, RRD issued the NMSB to provide alternative methods to establish, in case this cannot be determined from the engine maintenance records, the number of DFL treatments that have been applied to an engine.

You may obtain further information by examining the MCAI in the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2019-0213.

Comments

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request To Modify Applicability

NetJets Aviation (NJA) requested that engines which have incorporated the 12,000 cycle life limit on LPC rotor blade, part number JR58319, per the Airworthiness Limitations section 05-10-01-870-002, chapter 05-10-01, Rolls-Royce (RR) Tay Propulsion System Time Limits Manual, be excluded from the applicability of this AD.

The FAA disagrees because the low cycle fatigue life limit of 12,000 cycles for the LPC rotor blade is a separate requirement from the requirement of this AD to also limit the number of dry film lubricant re-applications.

Comment Regarding DFL Re-application Limit

NJA noted that dry film re-application is only accomplished in an engine overhaul shop, and the 12 DFL-application limit every 1,300 cycles will not be exceeded if the life limit is being tracked. The FAA disagrees. The FAA notes that there are tasks in the Aircraft Maintenance Manual (AMM) for DFL re-applications that are not limited to shop visits. Therefore, this AD is necessary to address those cases in which the AMM DFL re-application tasks are necessary and the engine is not in the shop. This AD requires that when a complete record of the total number of DFL re-applications is unavailable, count one DFL re-application for every 1,300 flight cycles of blade use.

Request to Add Engine Serial Numbers

NJA requested that the serial numbers for the 12 affected engines be included in this AD.

The FAA disagrees. The applicability of this AD is to RRD Tay 611-8C model turbofan engines, with LPC rotor blades, P/N JR58319, installed, and is not based on serial numbers of the engines. The number “12” in the Costs of Compliance section is an estimate of the number of affected engines installed on airplanes of U.S. registry.

Conclusion

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule as proposed except for minor editorial changes. The FAA has determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

Related Service Information under 1 CFR Part 51

The FAA reviewed RRD Non-Modification Service Bulletin TAY-72-1835, Initial Issue, dated December 15, 2017. The service information describes procedures for marking the LPC rotor blades with a suffix code during the next scheduled LPC fan blade removal. 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 ADDRESSES.

Costs of Compliance

The FAA estimates that this AD affects 12 engines installed on airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated costs				
Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Record Search to establish number of DFL re-applications	1.5 work-hours × \$85 per hour = \$127.50	\$0	\$127.50	\$1,530

The FAA estimates the following costs to do any necessary replacements that would be required based on the results of the inspection. The agency has no way of determining the number of aircraft that might need these replacements.

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Replace LPC rotor blade	2 work-hours × \$85 per hour = \$170	\$11,270	\$11,440

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.

The FAA is 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

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 this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, 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.

List of Subjects in 14 CFR Part 39

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

The Amendment

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



2020-23-08 Rolls-Royce Deutschland Ltd & Co KG (Type Certificate Previously Held by Rolls-Royce plc): Amendment 39-21324; Docket No. FAA-2019-0213; Project Identifier 2019-NE-03-AD.

(a) Effective Date

This airworthiness directive (AD) is effective December 18, 2020.

(b) Affected ADs

None.

(c) Applicability

This AD applies to Rolls-Royce Deutschland Ltd & Co KG (RRD) Tay 611-8C model turbofan engines, with low-pressure compressor (LPC) rotor blades, part number (P/N) JR58319, installed.

(d) Subject

Joint Aircraft System Component (JASC) Code, 7230 Turbine Engine Compressor Section.

(e) Unsafe Condition

This AD was prompted by reports of LPC rotor blade retention lug failures. The FAA is issuing this AD to prevent failure of the LPC rotor blade. The unsafe condition, if not addressed, could result in loss of engine power in flight and reduced control of the airplane.

(f) Compliance

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

(g) Required Actions

(1) Within 30 days after the effective date of this AD, determine the number of dry film lubrication (DFL) re-applications that were applied to each LPC rotor blade by reviewing the maintenance records. If a complete record of the total number of DFL re-applications is unavailable, count one DFL re-application for every 1,300 flight cycles of blade use.

(i) If the number of DFL re-applications is less than 13, mark the LPC rotor blade with a suffix code during the next scheduled LPC fan blade removal using the instructions in the Accomplishment Instructions, paragraph 3.B.(1)(c)[2] or 3.F.(1)(c)[2], as applicable, of RRD Non-Modification Service Bulletin TAY-72-1835, Initial Issue, dated December 15, 2017.

(ii) If the number of DFL re-applications is 13 or more, replace the LPC rotor blade with a part eligible for installation before further flight.

(2) [Reserved]

(h) Installation Prohibition

After the effective date of this AD, do not install a LPC rotor blade on any engine unless it has been determined that the LPC rotor blade has less than 13 DFL re-applications and has been marked in accordance with paragraph (g)(1)(i) of this AD.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ECO Branch, send it to the attention of the person identified in paragraph (j)(1) of this AD. You may email your request to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(j) Related Information

(1) For more information about this AD, contact Barbara Caufield, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7146; fax: (781) 238-7199; email: barbara.caufield@faa.gov.

(2) Refer to European Union Aviation Safety Agency (EASA) AD 2018-0055, dated March 12, 2018, for more information. You may examine the EASA AD in the AD docket at <https://www.regulations.gov> by searching for and locating it in Docket No. FAA-2019-0213.

(k) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Rolls-Royce Deutschland Ltd & Co KG (RRD) Non-Modification Service Bulletin TAY-72-1835, Initial Issue, dated December 15, 2017.

(ii) [Reserved]

(3) For RRD service information identified in this AD, contact Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, Dahlewitz, Blankenfelde-Mahlow, Germany; phone: +49 0 33-7086-4040; fax: +49 0 33-7086-51-4040; email: rrd.techhelp@rolls.royce.com.

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: fedreg.legal@nara.gov, or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on November 3, 2020.

Lance T. Gant,

Director, Compliance & Airworthiness Division, Aircraft Certification Service.

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