[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2020-1138; Project Identifier MCAI-2020-01258-E]

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: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for certain Rolls-Royce Deutschland Ltd & Co KG (RRD) Trent 1000-A2, 1000-AE2, 1000-C2, 1000-CE2, 1000-D2, 1000-E2, 1000-G2, 1000-H2, 1000-J2, 1000-K2 and 1000-L2 model turbofan engines. This proposed AD was prompted by the manufacturer's analysis which determined that cracks may initiate in the front seal fins and cause cracks in the low-pressure turbine (LPT) disk. This proposed AD would require repetitive inspection of the seal fins and, depending on the results of the inspection, replacement of the LPT disk before further flight. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to https://www.regulations.gov. Follow the instructions for submitting comments.

• Fax: (202) 493-2251.

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

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Rolls-Royce plc, P.O. Box 31, Derby, DE24 8BJ, United Kingdom, phone: +44 (0)1332 242424; website: https://www.rolls-royce.com/contact-us.aspx. 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.

Examining the AD Docket

You may examine the AD docket at https://www.regulations.gov by searching for and locating Docket No. FAA-2020-1138; 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 NPRM, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Kevin M. Clark, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7088; fax: (781) 238-7199; email: kevin.m.clark@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2020-1138; Project Identifier MCAI-2020-01258-E" at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all

comments received, without change, to https://www.regulations.gov, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about this NPRM.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this final rule. Submissions containing CBI should be sent to Kevin Clark, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The European Union Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD 2020-0195, dated September 8, 2020 (referred to after this as "the MCAI"), to address the unsafe condition on these products. The MCAI states:

> Analysis of certain LP turbine discs in service has determined that, due to rubbing contact with interstage static seals, cracks may initiate in the front seal fins which could lead to cracks in the disc of the affected parts, as defined in this [EASA] AD.
>
> This condition, if not detected and corrected, could lead to crack propagation, possibly resulting in LP turbine disc failure and high-energy debris release, with consequent damage to, and reduced control of, the aeroplane.

> To address this potential unsafe condition, Rolls-Royce published the NMSB to provide inspection instructions.
>
> For the reason described above, this [EASA] AD requires repetitive ultra-high sensitivity fluorescent penetrant inspections of the seal fins of the affected parts and, depending on findings, replacement of affected parts.

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-2020-1138.

FAA's Determination

This product has been approved by EASA 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 and service information referenced above. The FAA is issuing this NPRM because the agency evaluated all the relevant information provided by EASA and determined the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Related Service Information under 1 CFR Part 51

The FAA reviewed Rolls-Royce Non-Modification Service Bulletin Trent 1000 72-AK416, dated June 29, 2020 (the NMSB). The NMSB provides instructions for inspecting the LPT stage 3 disk and the LPT stage 4 disk. 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.

Proposed AD Requirements in this NPRM

This proposed AD would require inspection of the seal fins of the LPT stage 3 disks and LPT stage 4 disks during each engine shop visit after the effective date of this AD and, depending on the results of the inspection, replacement of the LPT stage 3 or LPT stage 4 disk before further flight.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 26 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Inspect the LPT stage 3 disk and LPT stage 4 disk	80 work-hours x $85 per hour = $6,800	$0	$6,800	$176,800

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

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Replace LPT stage 3 disk	0 work-hours x $85 per hour = $0	$336,158	$336,158
Replace LPT stage 4 disk	0 work-hours x $85 per hour = $0	$406,345	$406,345

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

The FAA 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) Would not affect intrastate aviation in Alaska, and

(3) Would 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:

Rolls-Royce Deutschland Ltd & Co KG (Type Certificate previously held by Rolls-Royce plc): Docket No. FAA-2020-1138; Project Identifier MCAI-2020-01258-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Rolls-Royce Deutschland Ltd & Co KG (Type Certificate previously held by Rolls-Royce plc) (RRD) Trent 1000-A2, 1000-AE2, 1000-C2, 1000-CE2, 1000-D2, 1000-E2, 1000-G2, 1000-H2, 1000-J2, 1000-K2 and 1000-L2 model

turbofan engines with a low-pressure turbine (LPT) stage 3 disk with part number (P/N) KH36323, or an LPT stage 4 disk with P/N KH33943, installed.

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

(e) Unsafe Condition

This AD was prompted by the manufacturer's analysis of certain LPT disks in service. The analysis determined that, due to rubbing contact with interstage static seals, cracks may initiate in the front seal fins, which could lead to cracks in the LPT stage 3 and stage 4 disks. The FAA is issuing this AD to prevent failure of the LPT disk. The unsafe condition, if not addressed, could result in uncontained LPT disk release, damage to the engine, and damage to the airplane.

(f) Compliance

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

(g) Required Actions

(1) During each engine shop visit after the effective date of this AD, inspect the seal fins of the LPT stage 3 disk and the LPT stage 4 disk in accordance with the Accomplishment Instructions, paragraphs 3.B and 3.C, of the Rolls-Royce Alert Non-Modification Service Bulletin (NMSB) Trent 1000 72-AK416, Initial Issue, dated June 29, 2020.

(i) For an engine that is in an engine shop visit on the effective date of this AD, if the LPT stage 3 disk and LPT stage 4 disk are exposed, perform the inspection before the engine is returned to service.

(ii) [Reserved]

(2) If, during any inspection required by paragraph (g)(1) of this AD, any crack is detected, before further flight, remove the affected LPT disk and replace it with a part eligible for installation.

(h) Definitions

(1) For the purpose of this AD, an "engine shop visit" is the induction of an engine into the shop for maintenance involving the separation of pairs of major mating engine flanges, with the exception of the separation of engine flanges solely for the

purpose of transporting the engine without subsequent maintenance.

(2) For the purpose of this AD, a "part eligible for installation" is an LPT stage 3 disk or LPT stage 4 disk with zero flight cycles since new, or an LPT stage 3 disk or LPT stage 4 disk that has passed the inspection required by paragraph (g)(1) 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 certification office, send it to the attention of the person identified in Related Information. 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 Kevin M. Clark, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7088; fax: (781) 238-7199; email: kevin.m.clark@faa.gov.

(2) Refer to European Union Aviation Safety Agency (EASA) AD 2020-0195, dated September 8, 2020, 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-2020-1138.

(3) For service information identified in this AD, contact Rolls-Royce plc, P.O. Box 31, Derby, DE24 8BJ, United Kingdom, phone: +44 (0)1332 242424; website: https://www.rolls-royce.com/contact-us.aspx. You may view this referenced 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.

Issued on December 15, 2020.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.
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