[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2020-0293; Project Identifier MCAI-2019-00122-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 Trent 1000-AE3, Trent 1000-CE3, Trent 1000-D3, Trent 1000-G3, Trent 1000-H3, Trent 1000-J3, Trent 1000-K3, Trent 1000-L3, Trent 1000-M3, Trent 1000-N3, Trent 1000-P3, Trent 1000-Q3, Trent 1000-R3, Trent 7000-72, and Trent 7000-72C model turbofan engines. This proposed AD was prompted by a report of a crack finding of the front air seal on the intermediate-pressure compressor (IPC) shaft assembly during the stripping of a flight test engine. This proposed AD would require initial and repetitive borescope inspections (BSIs) of the IPC shaft assembly and, depending on the results of the inspection, replacement of the IPC shaft assembly with a part eligible for installation. 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 Deutschland Ltd. & Co KG, Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany; phone: +49 (0) 33 708 6 0; email: https://www.rolls-royce.com/contact-us.aspx. You may view this service information at the FAA, Engine and Propeller Standards 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 on the Internet at https://www.regulations.gov by searching for and locating Docket No. FAA-2020-0293; 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. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Stephen Elwin, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7236; fax: 781-238-7199; email: stephen.l.elwin@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 the ADDRESSES section. Include "Docket No. FAA-2020-0293; Project Identifier MCAI-2019-00122-E" at the beginning of your comments. The FAA specifically invites comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. The FAA will consider all comments received by the closing date and may amend this NPRM 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 final rule.

Confidential Business Information

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 NPRM. Submissions containing CBI should be sent to Stephen Elwin, Aerospace 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.

Discussion

The European Union Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD 2019-0282, dated November 20, 2019 (referred to after this as "the MCAI"), to address the unsafe condition on these products. The MCAI states:

> An occurrence was reported of finding cracks in the front air seal of the IPC shaft assembly during stripping of a flight test engine. Follow-up inspections of other in-shop engines revealed two more cracked front air seals of IPC shaft assemblies.
>
> This condition, if not detected and corrected, could lead to IPC shaft failure, possibly resulting in engine in-flight shut-down and consequent reduced control of the aeroplane.
>
> To address this potential unsafe condition, Rolls-Royce developed an inspection method and issued the NMSB, providing those inspection instructions.
>
> For the reason described above, this [EASA] AD requires repetitive on-wing inspections of the front air seal of the affected part at a specific area between the fourth (rearmost) seal fin of the IPC shaft assembly front air seal and the IPC Stage 1 disc and, depending on findings, removal from service of the engine for corrective action(s).

You may obtain further information by examining the MCAI in the AD docket on the Internet at https://www.regulations.gov by searching for and locating Docket No. FAA-2020-0293.

Related Service Information under 1 CFR Part 51

The FAA reviewed Rolls-Royce Trent 1000 Alert Non-Modification Service Bulletin (NMSB) 72-AK451, Initial Issue, dated November 14, 2019. The Alert NMSB describes procedures for initial and repetitive BSIs of the IPC shaft assembly. 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

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 proposing this AD because we evaluated all the relevant information provided by EASA and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would require initial and repetitive BSIs of the IPC shaft assembly and, depending on the results of the inspection, replacement of the IPC shaft assembly with a part eligible for installation.

Costs of Compliance

The FAA estimates that this proposed AD affects 14 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
BSI IPC shaft assembly	3.5 work-hours x $85 per hour =	$0	$297.50	$4,165

	$297.50			

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 engines that might need this replacement:

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Replace IPC shaft assembly	1,080 work-hours x $85 per hour = $91,800	$1,365,219	$1,457,019

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) 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 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 Deutschland Ltd & Co KG (Type Certificate Previously Held by Rolls-Royce plc): Docket No. FAA-2020-0293; Project Identifier MCAI-2019-00122-E.

(a) Comments Due Date

The FAA must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to:

(1) Rolls-Royce Deutschland Ltd & Co KG (RRD) (Type Certificate previously held by Rolls-Royce plc) Trent 1000-AE3, Trent 1000-CE3, Trent 1000-D3, Trent 1000-G3, Trent 1000-H3, Trent 1000-J3, Trent 1000-K3, Trent 1000-L3, Trent 1000-M3, Trent 1000-N3, Trent 1000-P3, Trent 1000-Q3, and Trent 1000-R3 model turbofan engines.

(2) RRD Trent 7000-72 and Trent 7000-72C model turbofan engines.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by a report of a crack finding of the front air seal on the intermediate-pressure compressor (IPC) shaft assembly during the stripping of a flight test engine. The FAA is proposing this AD to prevent failure of the IPC shaft assembly. The unsafe condition, if not addressed, could result in loss of thrust control 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 the compliance times specified in Table 1 to paragraph (g)(1) of this AD, and thereafter, at intervals not to exceed 200 flight cycles (FCs), perform a borescope inspection (BSI) of the IPC shaft assembly, part number KH18436, in accordance with the Accomplishment Instructions, paragraph 3.B., of Rolls-Royce (RR) Trent 1000 Alert Non-Modification Service Bulletin (NMSB) 72-AK451, Initial Issue, dated November 14, 2019.

Table 1 to Paragraph (g)(1) – Initial Inspection of Affected Part

FCs Accumulated (since new)	Compliance Time
700 FCs or less.	Before exceeding 500 FCs, or within 100 FCs after the

	effective date of this AD, whichever occurs later
More than 700 FCs up to 1,000 FCs (inclusive).	Within 50 FCs after the effective date of this AD
1,001 FCs or greater.	Within 25 FCs or 30 calendar days, whichever occurs first after the effective date of this AD

(2) An in-shop BSI in accordance with Accomplishment Instructions, paragraph 3.A, of RR Trent 1000 Alert NMSB 72-AK451, Initial Issue, dated November 14, 2019, may be substituted for any on-wing BSI, provided the compliance time specified in Table 1 to paragraph (g)(1) of this AD is not exceeded.

(3) If, during any initial or repetitive BSI of the IPC shaft assembly required by paragraph (g)(1) or (2) of this AD, any crack is detected, before further flight, remove the IPC shaft assembly and replace it with a part eligible for installation.

(h) Definitions

For the purpose of this AD, a "part eligible for installation" is:

(1) An IPC shaft assembly that is new (not previously installed on an engine);

(2) An IPC shaft assembly that, before (re)installation, has passed an inspection (no crack detected) in accordance with Accomplishment Instructions, paragraph 3.B., of RR Trent 1000 Alert NMSB 72-AK451, Initial Issue, dated November 14, 2019.

(i) No Reporting Requirement

The reporting requirements in the Accomplishment Instructions, paragraphs 3.A. and 3.B., of RR Trent 1000 Alert NMSB 72-AK451, Initial Issue, dated November 14, 2019, are not required by this AD.

(j) Credit for Previous Actions

You may take credit for the initial BSI of the IPC shaft assembly that is required by paragraph (g)(1) of this AD if you performed the BSI before the effective date of this AD using RR Trent 1000 NMSB 72-K452, Initial Issue, dated October 21, 2019.

(k) 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 (l)(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.

(l) Related Information

(1) For more information about this AD, contact Stephen Elwin, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7236; fax: 781-238-7199; email: stephen.l.elwin@faa.gov.

(2) Refer to European Union Aviation Safety Agency (EASA) AD 2019-0282, dated November 20, 2019, for more information. You may examine the EASA AD in the AD docket on the Internet at https://www.regulations.gov by searching for and locating it in Docket No. FAA-2020-0293.

(3) For service information identified in this AD, contact Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, 15827 Blankenfelde-Mahlow, Germany; phone: +49 (0) 33 708 6 0; email: https://www.rolls-royce.com/contact-us.aspx. You may view this referenced service information at the FAA, Engine and Propeller Standards Branch, 1200 District Avenue, Burlington, MA, 01803. For information on the availability of this material at the FAA, call 781-238-7759.

Issued on March 26, 2020.

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