This document is scheduled to be published in the
Federal Register on 07/23/2018 and available online at
https://federalregister.gov/d/2018-15668, and on **govinfo.gov**

[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0590; Product Identifier 2018-NE-24-AD; Amendment 39-19319; AD 2018-13-07]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce plc Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: We are adopting a new airworthiness directive (AD) for all Rolls-Royce plc (RR) Trent 1000-A, Trent 1000-C, Trent 1000-D, Trent 1000-E, Trent 1000-G, and Trent 1000-H turbofan engine models. This AD requires inspecting the intermediate-pressure compressor (IPC) stage 1 rotor blades, IPC stage 2 rotor blades, and IPC stage 2 dovetail posts, and removing any cracked parts from service. This AD was prompted by crack findings on the IPC rotor blades, which could lead to separations resulting in engine failures. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

We must receive comments on this 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 http://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: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this final rule, 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: corporate.care@rolls-royce.com; Internet: https://customers.rolls-royce.com/public/rollsroycecare. You may view this service information at the FAA, Engine & Propeller Standards 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 on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2018-0590.

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-2018-0590; 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), the regulatory evaluation, any comments received, and other information. The street address for Docket Operations (phone: 800-647-5527) is listed above. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Kevin M. Clark, Aerospace 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:

Discussion

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD 2018-0128, dated June 12, 2018 (referred to hereinafter as "the MCAI"), to address an unsafe condition for the specified products. The MCAI states:

> Occurrences were reported on RR Trent 1000 'Pack B' engines, where some IPC Rotor 1 and Rotor 2 blades were found cracked.
>
> This condition, if not detected and corrected, could lead to in-flight blade release, possibly resulting in reduced control of the aeroplane.
>
> To address this potential unsafe condition, RR issued the NMSB and the applicable NMSB to provide instructions to inspect IPC Rotor 1 blades, IPC Rotor 2 blades (front and rear face) and IPC shaft Stage 2 dovetail posts.
>
> For the reason described above, this [EASA] AD requires a one-time inspection of the affected parts and, depending on the findings, accomplishment of applicable corrective action(s).

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-2018-0590.

Related Service Information under 1 CFR Part 51

We reviewed RR Alert Non-Modification Service Bulletin (NMSB) Trent 1000 72-AK130, Initial Issue, dated June 11, 2018. The NMSB describes procedures for performing a one-time inspection of the IPC stage 1 rotor blades, IPC stage 2 rotor blades, and IPC stage 2 dovetail posts, and lists engine serial numbers. 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.

Other Related Service Information

We reviewed RR NMSB Trent 1000 72-K099, Initial Issue, dated June 11, 2018; RR NMSB Trent 1000 72-K100, Initial Issue, dated June 11, 2018; and RR NMSB Trent 1000 72-K129, Initial Issue, dated June 11, 2018. RR NMSB Trent 1000 72-K099 describes procedures for an ultrasonic inspection of the IPC stage 1 rotor blades. RR NMSB Trent 1000 72-K100 describes procedures for a visual borescope inspection of the IPC stage 2 rotor blades and IPC stage 2 dovetail posts. RR NMSB Trent 1000 72-K129 describes procedures for an ultrasonic inspection of the IPC stage 2 rotor blades.

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. We are issuing 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.

AD Requirements

This AD requires inspecting the IPC stage 1 rotor blades, IPC stage 2 rotor blades, and IPC stage 2 dovetail posts, and removing any cracked parts from service.

FAA's Justification and Determination of the Effective Date

No domestic operators use this product. Therefore, we find good cause that notice and opportunity for prior public comment are unnecessary. In addition, for the reason stated above, we find that good cause exists for making this amendment effective in less than 30 days.

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 any written data, views, or arguments about this final rule. Send your comments to an address listed under the ADDRESSES section. Include the docket number FAA-2018-0590 and Product Identifier 2018-NE-24-AD at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this final rule. We will consider all comments received by the closing date and may amend this final rule because of 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 we receive about this final rule.

Costs of Compliance

We estimate that this AD affects 0 engines installed on airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspect IPC blades and dovetail post	20 work-hours X $85 per hour = $1700	$0	$1,700	$0

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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to engines, propellers, and associated appliances to the Manager, Engine and Propeller Standards Branch, Policy and Innovation Division.

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) 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, 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.

Adoption of 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):

2018-13-07 **Rolls-Royce plc:** Amendment 39-19319; Docket No. FAA-2018-0590; Product Identifier 2018-NE-24-AD.

(a) Effective Date

This AD is effective [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to all Rolls Royce plc (RR) Trent 1000-A, Trent 1000-C, Trent 1000-D, Trent 1000-E, Trent 1000-G, and Trent 1000-H turbofan engine models.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by reports of intermediate-pressure compressor (IPC) rotor blade cracks, which could lead to separations resulting in engine failures. We are issuing this AD to prevent failure of the IPC. The unsafe condition, if not addressed, could result in failure of one or more engines, loss of thrust control, and loss of the airplane.

(f) Compliance

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

(g) Required Actions

(1) Inspect the IPC stage 1 rotor blades, at the applicable compliance times specified in paragraphs (g)(1)(i), (ii), or (iii) after the effective date of this AD, whichever comes first:

(i) Within 30 days for the serial number IPC modules installed in the referenced serial number engines listed in Group 1 in Appendix 1 of RR Alert Non-Modification Service Bulletin (NMSB) Trent 1000 72-AK130, dated June 11, 2018, using the Accomplishment Instructions, paragraph 3.A.(1)(a), of RR Alert NMSB Trent 1000 72-AK130, dated June 11, 2018.

(ii) Within 60 days for all IPC modules not listed in Group 1 in Appendix 1 of RR Alert NMSB Trent 1000 72-AK130, dated June 11, 2018, using the Accomplishment Instructions, paragraph 3.A.(1)(a), of RR Alert NMSB Trent 1000 72-AK130, dated June 11, 2018. Those serial number IPC modules specifically identified in Group 2 in Appendix 1 of RR Alert NMSB Trent 1000 72-AK130, dated June 11, 2018, do not require inspection.

(iii) At the next engine shop visit, using the Accomplishment Instructions, paragraph 3.A.(2)(a), of RR Alert NMSB Trent 1000 72-AK130, dated June 11, 2018.

(2) For IPC modules with 1,000 or more flight cycles, inspect the IPC stage 2 rotor blades and IPC stage 2 dovetail posts within 30 days of the effective date of this AD or at the next engine shop visit, whichever comes first.

(i) For IPC stage 2 rotor blades and IPC stage 2 dovetail posts inspected on-wing, use Accomplishment Instructions, paragraphs 3.B.(1)(a) and 3.C.(1)(a), of RR Alert NMSB Trent 1000 72-AK130, dated June 11, 2018.

(ii) For IPC stage 2 rotor blades and IPC stage 2 dovetail posts inspected in shop, use Accomplishment Instructions, paragraphs 3.B.(2)(a) and 3.C.(2)(a), of RR Alert NMSB Trent 1000 72-AK130, dated June 11, 2018.

(3) For engines that are in an engine shop visit on the effective date of this AD, inspect IPC stage 1 rotor blades, IPC stage 2 rotor blades, and IPC stage 2 dovetail posts before returning the engine to service.

(4) If any IPC stage 1 rotor blade, IPC stage 2 rotor blade, or an IPC shaft stage 2 dovetail post is found cracked during any inspection required by this AD, remove the part from service and replace the part with a part eligible for installation before further flight.

(h) Definition

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 (lettered flanges). The separation of engine flanges solely for the purpose of transportation of the engine without subsequent engine maintenance does not constitute an engine shop visit.

(i) Special Flight Permits

(1) Special flight permits, as described in Section 21.197 and Section 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199), are subject to the requirements of paragraph (i)(1)(i) of this AD.

(i) Operators who are prohibited from further flight due to an IPC stage 1 rotor blade, IPC stage 2 rotor blade, or an IPC stage 2 dovetail post being found cracked, may

perform a one-time non-revenue ferry flight to a location where the engine can be removed from service. This ferry flight must be performed without passengers, involve non-extended operations (ETOPS), and consume no more than three flight cycles.

(ii) Reserved.

(2) Reserved.

(j) 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 paragraph (k)(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.

(k) Related Information

(1) For more information about this AD, contact Kevin M. Clark, Aerospace 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 Aviation Safety Agency (EASA) AD 2018-0128, dated June 12, 2018, for more information. You may examine the EASA AD in the AD docket on the Internet at http://www.regulations.gov by searching for and locating it in Docket No. FAA-2018-0590.

(l) 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 plc (RR) Alert Non-Modification Service Bulletin (NMSB) Trent 1000 72-AK130, Initial issue, dated June 11, 2018.

(ii) Reserved.

(3) For service information identified in this 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: corporate.care@rolls-royce.com; Internet: https://customers.rolls-royce.com/public/rollsroycecare.

(4) You may view this service information at FAA, Engine & Propeller Standards Branch, 1200 District Avenue, Burlington, MA. 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, call 202-741-6030, or go to: http://www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued in Burlington, Massachusetts, on July 17, 2018.

Robert J. Ganley,
Manager, Engine and Propeller Standards Branch,
Aircraft Certification Service.

[FR Doc. 2018-15668 Filed: 7/20/2018 8:45 am; Publication Date: 7/23/2018]