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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2020-0265; Project Identifier MCAI-2019-00131-E; Amendment 39-21201; AD 2020-16-17]**

**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.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for all Rolls-Royce Deutschland Ltd. & Co KG (RRD) Trent XWB-75, Trent XWB-79, Trent XWB-79B, and Trent XWB-84 model turbofan engines. This AD was prompted by reports of a lack of weld fusion on the resistance welding during manufacturing, which could result in air leakage through the low-pressure turbine (LPT) rear support seal panel assembly (“LPT seal panel”). This AD requires replacement of the LPT seal panel. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective September 21, 2020.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of September 21, 2020.

**ADDRESSES:** For service information identified in this final rule, 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, 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 on the internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0265.

#### **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-2020-0265; 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:** 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](mailto:stephen.l.elwin@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all RRD Trent XWB-75, Trent XWB-79, Trent XWB-79B, and Trent XWB-84 model turbofan engines. The NPRM published in the Federal Register on March 30, 2020 (85 FR 17513). The NPRM was prompted by reports of a lack of weld fusion on the resistance welding during manufacturing, which could result in air leakage through the LPT seal panel. The NPRM proposed to require replacement of the LPT seal panel. The FAA is issuing this AD to address the unsafe condition on these products.

The European Union Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD 2019-0071, dated March 28, 2019 (referred to after this as “the MCAI”), to address the unsafe condition on these products. The MCAI states:

The affected parts, as defined in this [EASA] AD, are static parts, located behind the intermediate pressure (IP) turbine 2 disc, forming a seal between the IP and LP cavities through an interface with the rotating IP flying seal. It was recently determined that, on certain affected parts, insufficient fusion was achieved on the resistance welding during manufacturing.

This condition, if not corrected, could lead to air leakage through the LP seal panel, affecting the service lives of the IP turbine 2 and LP turbine 1 discs, possibly resulting in premature disc failure and high energy uncontained debris release from the engine, with consequent damage to, and reduced control of, the aeroplane.

To address this potential unsafe condition, Rolls-Royce identified the affected parts and published the NMSB, providing instructions to replace these affected parts.

For the reason described above, this [EASA] AD requires replacement of affected parts during a qualified shop visit.

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-2020-0265.

### **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 Revise Definition of Module 51

Delta Air Lines, Inc. (DAL) requested that the definition of “module 51” in paragraph (h) of this AD be revised to “intermediate pressure turbine module.” DAL reasoned that the RRD Trent XWB Engine Manual and Rolls-Royce plc (RR) Alert Non-Modification Service Bulletin (NMSB) Trent XWB 72-AJ994, Revision 2, dated August 29, 2019, both refer to module 51 as the intermediate-pressure turbine (IPT) module and refer to module 52 as the LPT module. Therefore, revising this definition would alleviate confusion.

The FAA agrees and revised the definition of module 51 to read, “For the purpose of this AD, ‘module 51’ is the IPT module.”

## Support for the AD

The Air Line Pilots Association, International, expressed support for the AD as written.

## 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 with the change described previously and 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.

The FAA has also determined that these changes will not increase the economic burden on any operator or increase the scope of this final rule.

## Service Information Incorporated by Reference Under 1 CFR Part 51

The FAA reviewed RR Alert NMSB Trent XWB 72-AJ994, Revision 2, dated August 29, 2019. The Alert NMSB describes procedures for removing and replacing the LPT seal panel. 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.

## Costs of Compliance

The FAA estimates that this AD affects 26 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
Replace the LPT seal panel	1 work-hour × \$85 per hour = \$85	\$282,890	\$282,975	\$7,357,350

According to the manufacturer, all of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected individuals. The FAA does not control warranty coverage for affected individuals. As a result, the FAA has included all costs in our cost estimate.

## **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) 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.

## **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):



## AIRWORTHINESS DIRECTIVE

[www.faa.gov/aircraft/safety/alerts/](http://www.faa.gov/aircraft/safety/alerts/)  
[www.gpoaccess.gov/fr/advanced.html](http://www.gpoaccess.gov/fr/advanced.html)

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**2020-16-17 Rolls-Royce Deutschland Ltd & Co KG (Type Certificate previously held by Rolls-Royce plc):** Amendment 39-21201; Docket No. FAA-2020-0265; Project Identifier MCAI-2019-00131-E.

**(a) Effective Date**

This AD is effective September 21, 2020.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to all Rolls-Royce Deutschland Ltd. & Co KG (Type Certificate previously held by Rolls-Royce plc) Trent XWB-75, Trent XWB-79, Trent XWB-79B, and Trent XWB-84 model turbofan engines.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by reports of a lack of weld fusion on the resistance welding during manufacturing, which could result in air leakage through the low-pressure turbine (LPT) rear support seal panel assembly (“LPT seal panel”) causing a life reduction to the intermediate-pressure turbine (IPT) 2 and LPT 1 disks. The FAA is issuing this AD to prevent failure of the IPT 2 and LPT 1 disks. The unsafe condition, if not addressed, could result in uncontained debris 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**

During the next qualified shop visit after the effective date of this AD, or during the current shop visit, if, on the effective date of this AD, the engine or module 51 is in a qualified shop visit, remove the affected LPT seal panel from service and replace it with a part eligible for installation in accordance with the Accomplishment Instructions, paragraph 3.A., of Rolls-Royce plc Alert Non-Modification Service Bulletin (NMSB) Trent XWB 72-AJ994, Revision 2, dated August 29, 2019.

## **(h) Definitions**

(1) For the purpose of this AD, a “qualified shop visit” is a Level 4 (Overhaul) or Level 3 (Refurbishment) shop visit of an affected engine with an affected LPT seal panel installed, or Level 2 shop visit (Check and Repair) of module 51 with an affected LPT seal panel installed.

(2) For the purpose of this AD, “module 51” is the IPT module.

(3) For the purpose of this AD, an “affected LPT seal panel” is LPT rear support seal panel assembly, identified as catalogue serial number (CSN) 72512301890, with a serial number (S/N) listed in Appendix 1 of RR Alert NMSB Trent XWB 72-AJ994, Revision 2, dated August 29, 2019. This appendix additionally lists the module 51 S/N and engine S/N in which these panels were originally installed.

(4) For the purpose of this AD, a “part eligible for installation” is a LPT seal panel, CSN 72512301890, with a S/N not listed in Appendix 1 of RR Alert NMSB Trent XWB 72-AJ994, Revision 2, dated August 29, 2019.

## **(i) Credit for Previous Actions**

You may take credit for replacement of the LPT seal panel requirements of paragraph (g) of this AD if you performed the replacement before the effective date of this AD using RR Alert NMSB Trent XWB 72-AJ994, Revision 1, dated November 15, 2018, or Initial Issue, dated September 5, 2018.

## **(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 ECO Branch, 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 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 AD 2019-0071, dated March 28, 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 Docket No. FAA-2020-0265.

## **(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 Trent XWB 72-AJ994, Revision 2, dated August 29, 2019.

(ii) [Reserved]

(3) For RR service information identified in this AD, contact Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, Blankenfelde-Mahlow, Germany; phone: 9 011 49 03370860.

(4) You may view this service information at 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](mailto:fedreg.legal@nara.gov), or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on July 29, 2020.

Gaetano A. Sciortino,

Deputy Director for Strategic Initiatives, Compliance & Airworthiness Division, Aircraft Certification Service.

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