



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2019-1109; Project Identifier MCAI-2019-00115-E; Amendment 39-21135; AD 2020-12-01]

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) Trent XWB-75, XWB-79, XWB-79B, and XWB-84 model turbofan engines. This AD was prompted by analysis by the manufacturer of the low-pressure compressor (LPC) outlet guide vane (OGV) assembly and LPC OGV outer mount ring assembly. The analysis predicted that when the front engine mount is in the fail-safe condition, the most highly stressed LPC OGV outer mount ring assembly has a life that could be substantially less than one shop visit interval. This AD requires initial and repetitive inspections of the LPC OGV outer mount ring assembly and, depending on the results of the inspections, possible replacement of the LPC OGV outer mount ring assembly. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 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 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

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-2019-1109.

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-2019-1109; 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.

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 certain RRD Trent XWB-75, XWB-79, XWB-79B, and XWB-84 turbofan engines. The NPRM published in the Federal Register on February 12, 2020 (85 FR 7899). The NPRM was prompted by analysis by the

manufacturer of the LPC OGV assembly and LPC OGV outer mount ring assembly. The analysis predicted that when the front engine mount is in the fail-safe condition, the most highly stressed LPC OGV outer mount ring assembly has a life that could be substantially less than one shop visit interval. The NPRM proposed to require initial and repetitive inspections of the LPC OGV outer mount ring assembly and, depending on the results of the inspections, possible replacement of the LPC OGV outer mount ring assembly. 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 2019-0234, dated September 19, 2019 (referred to after this as “the MCAI”), to address the unsafe condition on these products. The MCAI states:

The purpose of the engine mount is to position the engine relative to the pylon and to transfer all loads and rotational moments between the engine and pylon. The front engine mount support structure (EMSS) consists of the low pressure compressor (LPC) outlet guide vane (OGV) assembly and OGV outer mount ring assembly. Revised analysis of these parts, when the front engine mount (FEM) is engaged in the fail-safe condition, has now been undertaken using more advanced modelling techniques. This analysis predicts that, once the FEM is in the fail-safe condition, the most highly stressed LPC OGV has a life that could be substantially less than one shop visit interval.

This condition, if not detected and corrected, could lead to failure of the EMSS, possibly resulting in engine separation and reduced control of the aeroplane.

To address this potential unsafe condition, Rolls-Royce introduced inspections to protect against the FEM entering the failsafe condition following a failure of the OGV outer mount ring assembly lugs, and published the NMSB to provide instructions. For the reason described above, this [EASA] AD requires repetitive inspections of the OGV outer mount ring assembly lug fillet area and, depending on findings, accomplishment of applicable 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-2019-1109.

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 Allow Replacement of the Engine

Delta Air Lines, Inc. (DAL) requested that the FAA revise paragraph (g)(4)(i), Required Actions, of this AD to "Before further flight or before release to service of the engine, as applicable, replace the engine or the OGV outer mount ring assembly with a part eligible for installation." DAL reasoned that neither the aircraft maintenance manual (AMM) nor Rolls-Royce plc (RR) Alert Non-Modification Service Bulletin (NMSB) Trent XWB 72-AK188, Revision 2, dated December 17, 2019, provide instructions on replacing the LPC OGV outer mount ring assembly. Therefore, if the LPC OGV outer mount ring assembly requires replacement, the engine will be removed per the AMM, and the LPC OGV outer mount ring assembly replaced per the engine manual.

The FAA agrees that the installation of another engine with an LPC OGV outer mount ring assembly that meets the initial and repetitive inspection requirements of paragraphs (g)(1) through (3) of this AD would be acceptable. However, the FAA disagrees with adding the language suggested by DAL because the operator is only responsible for correcting the unsafe condition. The FAA identified the unsafe condition in the LPC OGV outer mount ring assembly and this AD, therefore, requires that this part be replaced.

Request to Define Parts Eligible for Installation

DAL commented that the proposed AD does not define what would be considered a part eligible for installation. On the other hand, the MCAI requires that the LPC OGV outer mount ring assembly be replaced with a new part. DAL suggested that a part eligible for installation include an engine that satisfies the requirements of paragraphs (g)(1) through (3) of this AD or a new LPC OGV outer mount ring assembly.

The FAA agrees to add a definition of “a part eligible for installation” in this AD. The FAA disagrees with adding the language suggested by DAL because the FAA agrees with the MCAI requirement of replacing the LPC OGV outer mount ring assembly with a new part. As noted in the previous response, the operator may elect to install another engine that meets the initial and repetitive inspection requirements of paragraphs (g)(1) through (3) of this AD.

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

changes 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.

Related Service Information under 1 CFR Part 51

The FAA reviewed RR Alert NMSB Trent XWB 72-AK188, Revision 2, dated December 17, 2019. The NMSB describes procedures for performing fluorescent penetrant inspections (FPIs) of the LPC OGV outer mount ring 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.

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
FPI the LPC OGV outer mount ring assembly	3 work-hours x \$85 per hour = \$255	\$0	\$255	\$6,630

The FAA estimates the following costs to do any necessary replacements that would be required based on the results of the mandated 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 the LPC OGV outer mount ring assembly (KH10678)	8 work-hours x \$85 per hour = \$680	\$2,418,121	\$2,418,801

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.

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):

2020-12-01 **Rolls-Royce Deutschland Ltd & Co KG (Type Certificate previously held by Rolls-Royce plc):** Amendment 39-21135; Docket No. FAA-2019-1109; Project Identifier MCAI-2019-00115-E.

(a) Effective Date

This AD is effective [INSERT DATE 35 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 (RRD) (Type Certificate previously held by Rolls-Royce plc) Trent XWB-75, XWB-79, XWB-79B, and XWB-84 model turbofan engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7120, Engine Mount Section.

(e) Unsafe Condition

This AD was prompted by analysis by the manufacturer of the low-pressure compressor (LPC) outlet guide vane (OGV) assembly and LPC OGV outer mount ring assembly. The analysis predicted that when the front engine mount is in the fail-safe condition, the most highly stressed LPC OGV outer mount ring assembly has a life that could be substantially less than one shop visit interval. The FAA is issuing this AD to prevent failure of the front engine mount support structure. The unsafe condition, if not addressed, could result in engine separation, reduced control of the airplane, and loss of the airplane.

(f) Compliance

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

(g) Required Actions

(1) For affected RRD Trent XWB turbofan engines with 1,700 flight cycles since new (FCSN) or greater as of the effective date of this AD:

(i) Within 300 flight cycles (FCs) after the effective date of this AD, perform a fluorescent penetrant inspection (FPI) of the LPC OGV outer mount ring assembly.

(ii) Use Accomplishment Instructions, paragraph 3.A. or 3.B., as applicable, of Rolls-Royce plc (RR) Alert Non-Modification Service Bulletin (NMSB) Trent XWB 72-AK188, Revision 2, dated December 17, 2019, to perform the FPI of the LPC OGV outer mount ring assembly.

(iii) Thereafter, perform repetitive FPIs of the LPC OGV outer mount ring assembly within 1,000 FCs after the previous inspection.

(2) For affected RRD Trent XWB turbofan engines with fewer than 1,700 FCSN as of the effective date of this AD:

(i) Before exceeding 2,000 FCSN after the effective date of this AD, perform an FPI of the LPC OGV outer mount ring assembly.

(ii) Use Accomplishment Instructions, paragraph 3.A. or 3.B., as applicable, of RR Alert NMSB Trent XWB 72-AK188, Revision 2, dated December 17, 2019, to perform the FPI of LPC OGV outer mount ring assembly.

(iii) Thereafter, perform repetitive FPIs of the LPC OGV outer mount ring assembly within 1,000 FCs after the previous inspection.

(3) If, during any FPI required by paragraph (g)(1) or (2) of this AD, an LPC OGV outer mount ring assembly discrepancy is detected, as defined in the Accomplishment Instructions, paragraph 3.A. or 3.B., of RR Alert NMSB Trent XWB 72-AK188, Revision 2, dated December 17, 2019, repeat the FPI within the interval specified in Accomplishment Instructions, paragraph 3.A. or 3.B., of RR Alert NMSB Trent XWB 72-AK188, Revision 2, dated December 17, 2019.

(4) If, during any FPI required by paragraphs (g)(1) through (3) of this AD, an LPC OGV outer mount ring assembly is rejected as a result of the FPI, as defined in the Accomplishment Instructions, paragraph 3.A. or 3.B., of RR Alert NMSB Trent XWB 72-AK188, Revision 2, dated December 17, 2019:

(i) Before further flight, replace the LPC OGV outer mount ring assembly with a part eligible for installation.

(ii) [Reserved]

(h) Definition

For the purpose of this AD, “a part eligible for installation” is a new LPC OGV outer mount ring assembly that has not been previously installed on an engine.

(i) No Reporting Requirement

The reporting requirements in the Accomplishment Instructions, paragraph 3, of RR Alert NMSB Trent XWB 72-AK188, Revision 2, dated December 17, 2019, are not required by this AD.

(j) Credit for Previous Actions

You may take credit for the initial and repetitive FPIs that are required by paragraphs (g)(1) through (3) of this AD if you performed the FPIs before the effective date of this AD using RR Alert NMSB Trent XWB 72-AK188, Revision 1, dated September 20, 2019, or Initial Issue, dated August 13, 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 2019-0234, dated September 19, 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-2019-1109.

(m) 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-AK188, Revision 2, dated December 17, 2019.

(ii) [Reserved]

(3) For RR 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>.

(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, or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on May 27, 2020.

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

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