



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-0257; Project Identifier MCAI-2020-00712-E]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Deutschland Ltd & Co KG (Type Certificate previously held by Rolls-Royce Deutschland GmbH, formerly BMW Rolls-Royce GmbH) 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 (type certificate previously held by Rolls-Royce Deutschland GmbH, formerly BMW Rolls-Royce GmbH) (RRD) BR700-710A2-20 model turbofan engines. This proposed AD was prompted by flight data obtained from airplanes equipped with certain Rockwell Collins avionics and auto-throttle systems that demonstrated significant oscillation of the engine rotor revolution speed during flight. This proposed AD would require initial and repetitive recalculation of the consumed and remaining service life of certain life-limited parts (LLPs). This proposed AD would also require removal of an LLP prior to its approved life limit or within 90 days after the effective date of this AD, whichever occurs later. 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, Dahlewitz, 15827 Blankenfelde-Mahlow, Germany; phone: +49 (0) 33 7086-4040; 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-2021-0257; 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: Wego Wang, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7134; fax: (781) 238-7199; email: Wego.Wang@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-2021-0257; Project Identifier MCAI-2020-00712-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 final rule 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 final rule, 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 Wego Wang, 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 2018-0268, dated December 11, 2018 and corrected on February 20, 2019 (referred to after this as “the MCAI”), to address the unsafe condition on these products. The MCAI states:

Flight data obtained from aeroplanes equipped with certain Rockwell Collins avionics and auto-throttle system demonstrated significant oscillation of the engine rotor revolution speed during

cruise. Analysis indicates that this affects the service life of the affected LLP.

This condition, if not corrected, may lead to failure of an affected LLP, possibly resulting in release of high-energy debris, with consequent damage to, and/or reduced control of, the aeroplane.

To address this potentially unsafe condition, RRD issued the NMSB, providing instructions to recalculate the consumed and remaining service life of the affected LLP.

For the reasons described above, this [EASA] AD requires repetitive recalculation of the service life (consumed and remaining) of each affected LLP and, depending on the results, replacement of each affected LLP before exceeding the life limit, taking the re-calculated life consumption into account.

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-2021-0257.

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 the agency 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.

Related Service Information under 1 CFR Part 51

The FAA reviewed RRD Alert Non-Modification Service Bulletin (NMSB) SB-BR700-72-A900584, Revision 2, dated November 22, 2017 (the NMSB). The NMSB describes procedures for amending flight cycle counting requirements for affected LLPs on RRD BR700-710A2-20 model turbofan engines. 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.

Other Related Service Information

The FAA reviewed Bombardier Service Bulletin (SB) 700-34-5021, Revision 03, dated January 5, 2018, and Bombardier SB 700-34-6021, Revision 03, dated January 5, 2018. These SBs describe procedures for the implementation of the Global Vision Flight Deck Version 5 (V5) software load on Bombardier Inc. Model BD-700-1A11 and BD-700-1A10 airplanes, respectively.

Proposed AD Requirements in this NPRM

This proposed AD would require repetitive recalculation of the consumed and remaining service life of certain LLPs and replacement of any LLP that has exceeded its approved life limit.

Differences Between this Proposed AD and the MCAI or Service Information

EASA AD 2018-0268 includes in its applicability engines installed and operated on a pre-mod airplane during a period of 24 months prior to the current installation. Instead of a period of 24 months, this AD proposes to apply to engines installed and operated on a pre-mod airplane at any time after January 1, 2017 to adjust for the additional time since publication of the EASA AD.

In addition, EASA AD 2018-0268 requires an initial recalculation of consumed and remaining service life of the low-pressure compressor (LPC) disk at each engine removal for maintenance within 250 flight cycles or 12 months, whichever occurs first after its effective date. EASA AD 2018-0268 also requires recalculation of the consumed and remaining life of the other affected LLPs after this period. This proposed AD does not include the initial recalculation of the consumed and remaining life of the LPC disk, but requires recalculation of consumed and remaining service life of the disk and all other affected LLPs within 90 days after the effective date of this proposed AD. The FAA determined that the initial recalculation of the consumed and remaining service life of the LPC disk, separately from the other LLPs, is not needed to resolve the unsafe condition because the 12-month initial inspection period in EASA AD 2018-0268 has passed.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 284 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
Recalculate service life for affected LLPs	20 work-hours x \$85 per hour = \$85	\$0	\$1,700	\$482,800

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 Deutschland GmbH, formerly BMW Rolls-Royce GmbH): Docket No. FAA-2021-0257; Project Identifier MCAI-2020-00712-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 Deutschland GmbH, formerly BMW Rolls-Royce GmbH) (RRD) BR700-710A2-20 model turbofan engines:

(1) Installed and operated on a Bombardier Model BD-700-1A10 and BD-700-1A11 airplane, with serial number 9381, 9386, 9401, or 9432 to 9786, inclusive, that have not incorporated Bombardier Service Bulletin (SB) 700-34-5021, Revision 3, dated January 5, 2018 or Bombardier SB 700-34-6021, Revision 3, dated January 5, 2018, as applicable, referred to after this as a “pre-mod airplane,” or

(2) Installed and operated on a pre-mod airplane at any time after January 1, 2017.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by flight data obtained from airplanes equipped with certain Rockwell Collins avionics and auto-throttle systems which demonstrated significant oscillation of the engine rotor revolution speed during flight. The FAA is issuing this AD to prevent failure of an affected life-limited part (LLP). The unsafe condition, if not addressed, could result in uncontained release of high-energy debris, 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) Within 90 days after the effective date of this AD, recalculate the consumed and remaining service life of each affected LLP using Accomplishment Instructions, paragraph 3.D., of RRD Alert Non-Modification Service Bulletin (NMSB) SB-BR700-72-A900584, Revision 2, dated November 22, 2017 (the NMSB).

(2) For engines installed and operated on a pre-mod airplane, after performing the initial recalculations required by paragraph (g)(1) of this AD, for each flight, calculate the consumed and remaining service life of each affected LLP using paragraph 3.D. of the Accomplishment Instructions of the NMSB.

(3) Remove each affected LLP prior to exceeding its approved life limit or within 90 days after the effective date of this AD, whichever occurs later.

(h) Credit for Previous Actions

You may take credit for the recalculation of the consumed and remaining service life of each LLP required by paragraph (g)(1) of this AD if the action was performed before the effective date of this AD using RRD Alert NMSB SB-BR700-72-A900584, Revision 1, dated October 5, 2017, or original issue, dated January 31, 2017.

(i) Definition

For the purpose of this AD, an affected LLP is: an LPC disk, LPC fan blade, fan

shaft, low-pressure turbine (LPT) stage 1 disk, LPT stage 2 disk, LPT rotor shaft and annulus filler, high-pressure compressor (HPC) stage 1-6 rotor disk, HPC stage 7-10 rotor disk, curvic ring, high pressure turbine (HPT) stage 1 disk, and an HPT stage 2 disk.

(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 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.

(k) Related Information

(1) For more information about this AD, contact Wego Wang, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7134; fax: (781) 238-7199; email: Wego.Wang@faa.gov.

(2) Refer to European Union Aviation Safety Agency (EASA) AD 2018-0268, dated December 11, 2018, 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-2021-0257.

(3) For service information identified in this AD, contact Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, Dahlewitz, 15827 Blankenfelde-Mahlow, Germany; phone: +49 (0) 33 7086-4040; 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 March 29, 2021.

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

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