



## Airworthiness Directive

**AD No.:** 2022-0264

**Issued:** 21 December 2022

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation.

This AD is issued in accordance with Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 Annex I Part M.A.301, or Annex Vb Part ML.A.301, as applicable, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [Regulation (EU) 1321/2014 Annex I Part M.A.303, or Annex Vb Part ML.A.303, as applicable] or agreed with the Authority of the State of Registry [Regulation (EU) 2018/1139, Article 71 exemption].

### Design Approval Holder's Name:

ROLLS-ROYCE DEUTSCHLAND Ltd & Co KG

### Type/Model designation(s):

RB211 Trent 900 engines

**Effective Date:** 04 January 2023

**TCDS Number(s):** EASA.E.012

**Foreign AD:** Not applicable

**Supersedure:** None

## ATA 73 – Engine Fuel & Control – Fuel Pumps – Replacement (Life Limitation)

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### Manufacturer(s):

Rolls-Royce plc

### Applicability:

RB211 Trent 970-84, Trent 970B-84, Trent 972-84, Trent 972B-84, Trent 972E-84, Trent 977-84, Trent 977B-84 and Trent 980-84 engines, all serial numbers.

### Definitions:

For the purpose of this AD, the following definitions apply:

**Affected part:** Fuel pumps, having Part Number (P/N) 1703697C, P/N 1703697E or P/N 1703697G.

**FH:** Flight hours (FH) specified in this AD are those accumulated by the affected part since new (first installation) or since last overhaul, or since embodiment of Rolls-Royce Trent 900 Service Bulletin (SB) RB.211-73-J319, as applicable.

**Serviceable part:** An affected part that has not exceeded 11 500 FH (in-shop limitation), or 15 000 FH (on-wing limitation); or any other fuel pump that is eligible for installation.

**The NMSB:** Rolls-Royce Trent 900 Non-Modification Service Bulletin (NMSB) RB.211-73-AK615.



**Reason:**

Rolls-Royce put in place a fuel pump life management policy (Trent 900 NMSB RB.211-73-H310) to mitigate the loss of servo pump flow performance, which resulted in low servo system pressures after engine shutdown and before engine ignition at engine start. This was addressed by Rolls-Royce Trent 900 SB RB.211-73-J319. Since then, however, pump performance and windmill relight flow shortfall concerns remained at high life of the pump. Investigation has shown that this is due to main pump cavitation damage, progressive loss of fuel pump flow performance being caused by cavitation erosion of the high-pressure gear stage bearing bridge.

This condition, if not corrected, could lead to engine thrust shortfall, or insufficient fuel flow for an in-flight windmill relight in the event of a multi-engine flameout, possibly resulting in reduced control of the aeroplane.

To address this potential unsafe condition, Rolls-Royce issued the NMSB to introduce life limits for the affected parts.

For the reason described above, this AD requires removal from service of all affected parts before exceeding the applicable life limit, and introduces conditions for installation of affected parts.

**Required Action(s) and Compliance Time(s):**

Required as indicated, unless accomplished previously:

**Replacement:**

- (1) In-shop: During the next engine shop visit after the affected part on an engine has exceeded 11 500 FH, before release to service of that engine, replace the affected part with a serviceable part in accordance with the instructions of the NMSB. For an engine that, on the effective date of this AD, is in a shop visit and the affected part on that engine has exceeded 11 500 FH, replace the affected part before release to service of that engine.
- (2) On-Wing: Within the compliance time specified in Table 1 of this AD, as applicable, replace the affected part with a serviceable part in accordance with the instructions of the NMSB.

Table 1 – Affected Part Replacement On-Wing

<b>FH Accumulated</b> (on the effective date of this AD)	<b>Compliance Time</b>
13 200 FH or less	Before exceeding 15 000 FH
more than 13 200 FH	Within 1 800 FH after the effective date of this AD

- (3) For certain P/N 1703697G post-SB RB.211-73-J319 fuel pumps, identified in Appendix 1 of the NMSB, within 30 days after the effective date of this AD, adjust / calculate the FH of the affected part in accordance with the instructions of the NMSB; thereafter, within the compliance time specified in paragraph (1) or Table 1 of this AD, as applicable, replace the affected part with a serviceable part in accordance with the instructions of the NMSB.



**Parts Installation:**

- (4) From the effective date of this AD, it is allowed to install on any engine an affected part, provided it is a serviceable part, as defined in this AD.

**Ref. Publications:**

Rolls-Royce RB211 Trent 900 NMSB RB.211-73-AK615 original issue dated 16 November 2022.

The use of later approved revisions of the above-mentioned document is acceptable for compliance with the requirements of this AD.

**Remarks:**

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. This AD was posted on 17 November 2022 as PAD 22-155 for consultation until 15 December 2022. The Comment Response Document can be found in the [EASA Safety Publications Tool](#), in the compressed (zipped) file attached to the record for this AD.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto:ADs@easa.europa.eu).
4. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, can be reported to the [EU aviation safety reporting system](#). This may include reporting on the same or similar components, other than those covered by the design to which this AD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.
5. For any question concerning the technical content of the requirements in this AD, please contact your designated Rolls-Royce representative, or download the publication from your Rolls-Royce Care account at <https://customers.rolls-royce.com>.

If you do not have a designated representative or Rolls-Royce Care account, please contact **Corporate Communications** at **Rolls-Royce plc**, P.O. Box 31, Derby, DE24 8BJ, United Kingdom Telephone +44 (0)1332 242424,

or send an email through <https://www.rolls-royce.com/contact-us/civil-aerospace.aspx> identifying the correspondence as being related to **Airworthiness Directives**.

