



Airworthiness Directive

AD No.: 2023-0040

Issued: 16 February 2023

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 800 engines

Effective Date: 02 March 2023

TCDS Number(s): EASA.E.047

Foreign AD: Not applicable

Supersedure: None

ATA 72 – Engine – Intermediate Pressure Compressor Rotor Shaft – Inspection

Manufacturer(s):

Rolls-Royce plc

Applicability:

RB211 Trent 875-17, 877-17, 884-17, 884B-17, 892-17, 892B-17 and 895-17 engines, all serial numbers (s/n).

These engines are known to be installed on, but not limited to, Boeing 777 series aeroplanes.

Definitions:

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

The NMSB: Rolls-Royce Non-Modification Service Bulletin (NMSB) RB.211-72-AK863 original issue, which defines the applicable compliance time(s). The NMSB has an 'A' (Alert) in the number, but a later revision may not have that 'A'. This does not effectively alter the publication references.

Affected part: Intermediate pressure compressor (IPC) shafts, having Part Number (P/N) FK24100, and having an s/n as listed in Appendix 1 of the NMSB, except those in a condition as identified in section 1.D.(1)(a)(i) of the NMSB.

Serviceable part: Any IPC shaft that is not an affected part.



Groups: Group 1 engines are those that have an affected part installed. Group 2 engines are those that do not have an affected part installed.

Reason:

Cracking to the IPC rotor shaft balance land has been historically observed on Rolls-Royce RB211 Trent 800 engines.

This condition, if not detected and corrected, could lead to IPC rotor shaft failure and consequent release of high energy debris, possibly resulting in damage to the aeroplane and injury to occupants.

To initially address this unsafe condition, Rolls-Royce developed modification 72-AG401, which introduced a revised balancing method, removing the original balancing weights from the balance land. Rolls-Royce issued Service Bulletin (SB) RB.211-72-AG401 (now at Revision 4) accordingly, providing instructions for in-service modification. In addition, Rolls-Royce issued NMSB RB.211-72-AG085 (now at Revision 3) to provide instructions for eddy current (EC) inspection of the IPC rotor shaft balance land in shop. Consequently, EASA issued AD 2014-0152 (later revised).

Recently, it was determined that a number of post-SB RB.211-72-AG401 engines have inadvertently not been inspected during engine refurbishment in accordance with NMSB RB.211-72-AG085. Rolls-Royce identified the affected batch of IPC rotor shafts and published the NSMB, as defined in this AD, providing instructions for visual borescope inspection until accomplishment of in-shop EC inspection in accordance with Rolls-Royce NMSB RB.211-72-AG085.

For the reasons described above, this AD requires repetitive on-wing or in-shop inspections of each affected part and, depending on findings, accomplishment of applicable corrective action(s). Accomplishment of the next in-shop EC inspection in accordance with the instructions of Rolls-Royce NMSB RB.211-72-AG085, as required by EASA AD 2014-0152R1, or replacement of an affected part with a serviceable part, as applicable, is terminating action for the inspections required by this AD.

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

Required as indicated, unless accomplished previously:

Inspection(s):

- (1) For Group 1 engines: Within the compliance time as specified in Table 1 of this AD, and, thereafter, at intervals not to exceed 475 engine flight cycles (EFC), accomplish an on-wing or in-shop visual borescope inspection of the affected part stage 8 balance land in accordance with the instructions of the NMSB.

Table 1 – Initial Visual Borescope Inspection (see Note 1 of this AD)

EFC Accumulated	Compliance Time
6 800 EFC or more	Within 100 EFC after the effective date of this AD
Less than 6 800 EFC	Before exceeding 6 900 EFC



Note 1: Unless indicated otherwise, the EFC specified in Table 1 of this AD are those accumulated by the affected part on the effective date of this AD, since its latest EC inspection in accordance with NMSB RB.211-72-AG085.

Corrective Action(s):

- (2) If, during any inspection as required by paragraph (1) of this AD, any discrepancy as detailed in the NMSB is detected, within the time period specified in the NMSB, or before release to service of the engine, as applicable, accomplish the applicable corrective action(s) in accordance with the instructions of the NMSB, or replace the affected part with a serviceable part.

Terminating Action(s):

- (3) Accomplishment of an in-shop EC inspection of an affected part on an engine, after the effective date of this AD in accordance with the instructions of Rolls-Royce NMSB RB.211-72-AG085 Revision 3, constitutes terminating action for the repetitive visual borescope inspections as required by paragraph (1) of this AD for that engine.
- (4) Replacement on an engine of an affected part with a serviceable part constitutes terminating action for the repetitive visual borescope inspections as required by paragraph (1) of this AD for that engine.

Part(s) Installation:

- (5) For Group 1 and Group 2 engines: From the effective date of this AD, do not install an affected part on any engine.

Ref. Publications:

Rolls-Royce NMSB RB.211-72-AK863 original issue dated 11 January 2023.

Rolls-Royce NMSB RB.211-72-AG085 Revision 2 dated 07 July 2011, or Revision 3 dated 27 August 2021.

The use of later approved revisions of the above-mentioned documents 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 January 2023 as PAD 23-004 for consultation until 14 February 2023. No comments were received during the consultation period.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: 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**.

