



Notification of a Proposal to issue an Airworthiness Directive

PAD No.: 23-004

Issued: 17 January 2023

Note: This Proposed Airworthiness Directive (PAD) 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.

In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below.

All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation date indicated.

Design Approval Holder's Name:

ROLLS-ROYCE DEUTSCHLAND Ltd & Co KG

Type/Model designation(s):

RB211 Trent 800 engines

Effective Date: [TBD - standard: 14 days after AD issue date]

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:

- (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. This Proposed AD will be closed for consultation on 14 February 2023.
2. Enquiries regarding this PAD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
3. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this PAD, and which may occur, or have occurred on a product, part or appliance not affected by this PAD, 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 PAD 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.



4. For any question concerning the technical content of the requirements in this PAD, 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**.

