



Notification of a Proposal to issue an Airworthiness Directive

PAD No.: 20-015

Issued: 23 January 2020

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 900 engines

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

TCDs Number(s): EASA.E.012

Foreign AD: Not applicable

Supersedure: None

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

Manufacturer(s):

Rolls-Royce plc

Applicability:

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

Definitions:

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

Affected part: Intermediate pressure compressor (IPC) rotor shaft, Part Number (P/N) FW20677.

The NMSB: Rolls-Royce Alert Non-Modification Service Bulletin (NMSB) RB.211-72-AK493. The NMSB has an 'A' (Alert) in the number, but a later revision may not have that 'A'. This kind of change does not effectively alter the publication references.

Reason:

An occurrence was reported where, during a shop visit visual inspection of a Trent 900 IPC rotor shaft P/N FW20677, a crack was found in an interstage spacer between the Stage 2 and Stage 3 IPC discs. During a subsequent shop inspection of another IPC rotor shaft P/N FW20677, a similar crack



was found in the same location. While investigation is on-going to identify the cause of these cracks, it has been determined that more engines could be affected by this cracking phenomenon.

This condition, if not detected and corrected, could lead to IPC rotor shaft failure, possibly resulting in release of high-energy debris, with consequent damage to, and/or reduced control of, the aeroplane.

To address this potential unsafe condition, Rolls-Royce published worldwide (WW) communication, reference WW11604 (which contains the NMSB on Ballot – consultation), providing inspection instructions.

For the reasons described above, this PAD proposes to require, for certain engines, a one-time on-wing borescope inspection and, for all engines, repetitive in-shop inspections of each affected part and, depending on findings, accomplishment of applicable corrective action(s). This PAD also proposes to require inspection of certain IPC rotor shafts, prior to installation.

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

Required as indicated, unless accomplished previously:

Inspection(s):

- (1) For engines in the condition as specified in Section 1.D.(1)(a)(i) of the NMSB, within 200 flight cycles after the effective date of this AD, accomplish a one-time on-wing borescope inspection of the affected part in accordance with the instructions of the NMSB.
- (2) For all engines: From the effective date of this AD, during each engine shop visit, inspect the affected part in accordance with the instructions of the NMSB.

Corrective Action(s):

- (3) If, during the inspection as required by paragraph (1) of this AD, any crack is detected, before next flight, remove the engine from service and, before release to service of the engine, contact Rolls-Royce for approved corrective action instructions and accomplish those instructions accordingly.
- (4) If, during any inspection as required by paragraph (2) of this AD, any crack is detected, before release to service of the engine, contact Rolls-Royce for approved corrective action instructions and accomplish those instructions accordingly.

Terminating Action:

- (5) None.

Parts Installation:

- (6) From the effective date of this AD, it is allowed to install on any engine an IPC rotor shaft P/N FW20677, provided the part is new (not previously installed on any engine), or the part has, prior to installation, passed an inspection (no defect detected) in accordance with the instructions of the NMSB.



Engine Installation:

- (7) From the effective date of this AD, an engine in the condition as specified in Section 1.D.(1)(a)(i) of the NMSB can be installed on an aeroplane, provided that, following installation, the engine is inspected as required by paragraph (1) of this AD.

Ref. Publications:

Rolls-Royce Alert NMSB RB.211-72-AK493 [to be published].

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

Remarks:

1. This Proposed AD will be closed for consultation on 20 February 2020.
2. Enquiries regarding this PAD should be referred to the EASA Programming and Continued Airworthiness 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](#).
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**.

