



## Notification of a Proposal to issue an Airworthiness Directive

**PAD No.: 18-099**

**Issued: 19 July 2018**

Note: This Proposed Airworthiness Directive (PAD) is issued by EASA, acting in accordance with Regulation (EC) 216/2008 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 66 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 plc

**Type/Model designation(s):**

RB211 Trent 900 engines

**Effective Date:** [TBD – standard: 14 days after Final AD issue date]

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

**Foreign AD:** Not applicable

**Supersedure:** This AD supersedes EASA AD 2016-0061 dated 23 March 2016.

### ATA 72 – Engine – Oil Service Pipe Sealing Rings – Replacement

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**Manufacturer(s):**

Rolls-Royce plc (RR)

**Applicability:**

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

These engines are known to be installed on, but not limited to, Airbus A380 aeroplanes.

**Definitions:**

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

Where, in this AD, reference is made to an RR mod, Service Bulletin (SB) or Non-Modification SB (NMSB) with an 'A' (Alert) in the number, it should be recognised that an earlier or later revision may not have that 'A'. This kind of change does not effectively alter the publication references for the purpose of this AD.

**The NMSB:** RR Trent 900 Alert NMSB RB.211-72-AJ868.



**Affected part:** High pressure / intermediate pressure (HP/IP) support structure oil service tube buffer sealing rings, having Part Number (P/N) FW64487. These sealing rings are installed on HP/IP support structure assemblies, identified by P/N FW64881, P/N KH13661, P/N KH13811, P/N KH57620, P/N KH57797 and P/N KH66347.

**Serviceable part:** Affected parts that have not exceeded the applicable life limit as specified in Table 1 of this AD.

**Groups:** Group 1 engines are those identified by ESN as Population 1 in Appendix 1 of the NMSB. Group 2 engines are those identified by ESN as Population 2 in Appendix 2 of the NMSB. Group 3 engines are those that have embodied RR modification (mod) 72-J395 in production, or have embodied RR SB RB.211-72-J395 in service.

#### Reason:

Occurrences were reported of finding wear on certain HP/IP support structure oil service tube buffer sealing rings on in-service RB211 Trent 900 engines. Investigation showed the wear rate to be higher than expected. It was also determined that this was most likely due to a large pressure drop across the outer hub sealing ring, and consequent increased wear as a result of movement of the sealing ring across the hub surface.

This condition, if not corrected, could lead to cracking of the sealing ring, allowing high pressure air into the bearing chamber, consequent over-heating and failure of the IP shaft, possibly resulting in IP turbine disc burst and high-energy debris release, with consequent damage to, and reduced control of, the aeroplane.

To address this potential unsafe condition, RR initially published NMSB RB.211-72-AJ299, providing in-shop instructions for 11 ESN which were considered to have a high-wear risk. Consequently, EASA issued AD 2016-0061, to require removal of those engines from service for corrective action.

Since that AD was issued, RR published the NMSB, to provide instructions to replace the affected sealing rings on all pre-mod/SB 72-J395 engines.

For the reasons described above, this AD supersedes EASA AD 2016-0061, and requires implementation of a life limit for the affected parts. This AD also prohibits installation of affected parts on post-mod/SB 72-J395 engines.

This AD is still considered an interim measure and further AD action may follow.

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

Required as indicated, unless accomplished previously:

#### Replacement (life Limitation):

- (1) Within the compliance time specified in Table 1 of this AD, as applicable, or within 100 flight cycles (FC) after the effective date of this AD, whichever occurs later, and thereafter, before each affected part exceeds the limit as specified in Table 1 of this AD, replace each affected part in accordance with the instructions of the NMSB.



Table 1 – Affected Parts Replacement (see Note 1 of this AD)

Group	Compliance Time / Life Limitation (not to exceed)
1	2 800 FC
2	3 600 FC

Note 1: The FC specified in Table 1 of this AD are those accumulated by the affected part since its first installation on an engine. Consequently, the FC of the affected part may be less than the FC of the HP/IP support structure assembly on which it is installed, accumulated since its first installation on an engine.

**Optional Terminating Action:**

- (2) For Group 1 and Group 2 engines: Modification of an engine in accordance with the instructions of RR SB RB.211-72-J395 constitutes terminating action for the life limitation as required by this AD for that engine.

**Part Installation:**

- (3) For Group 1 and Group 2 engines: From the effective date of this AD, it is allowed to install an affected part on an engine, provided the part is a serviceable part as defined in this AD.
- (4) Do not install an affected part on an engine, as required by paragraph (4.1) or (4.2) of this AD, as applicable.

(4.1) For Group 1 and Group 2 engines: After modification of the engine as specified in paragraph (2) of this AD.

(4.2) For Group 3 engines: From the effective date of this AD.

**Engine Installation:**

- (5) From the effective date of this AD, except as required by paragraph (4) of this AD, it is allowed to install a Group 1 or Group 2 engine on any aeroplane, provided the affected part installed on that engine is a serviceable part as defined in this AD.

**Ref. Publications:**

Rolls-Royce Trent 900 NMSB RB.211-72-AJ868 original issue dated 18 July 2018.

Rolls-Royce Trent 900 SB RB.211-72-J395 original issue dated 20 April 2017.

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 16 August 2018.
2. Enquiries regarding this PAD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto: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 [http://www.rolls-royce.com/contact/civil\\_team.jsp](http://www.rolls-royce.com/contact/civil_team.jsp) identifying the correspondence as being related to **Airworthiness Directives**.

