



## Airworthiness Directive

**AD No.:** 2016-0061

**Issued:** 23 March 2016

Note: This Airworthiness Directive (AD) 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.

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, 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 agreed with the Authority of the State of Registry [Regulation (EC) 216/2008, Article 14(4) exemption].

### Design Approval Holder's Name:

ROLLS-ROYCE plc

### Type/Model designation(s):

RB211 Trent 900 engines

**Effective Date:** 06 April 2016

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

**Foreign AD:** Not applicable

**Supersedure:** None

### ATA 72 – Engine – High Pressure / Intermediate Pressure Structure Oil Service Tube Buffer Sealing Rings – Removal and Inspection

#### Manufacturer(s):

Rolls-Royce plc (RR)

#### Applicability:

RB211 Trent 970-84, and Trent 972-84 engines, serial numbers 91049, 91053, 91067, 91097, 91109, 91134, 91142, 91144, 91159, 91181 and 91191.

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

#### Reason:

Wear to the High Pressure/Intermediate Pressure (HP/IP) support structure oil service tube buffer sealing ring has been reported on some Trent 900 structures inspected in shop. Analysis showed that the large pressure drop across the outer hub sealing ring loads the sealing ring against the outer hub, leading to movement of the sealing ring across the hub surface, resulting in wear of the sealing ring. The wear rate of the sealing rings is higher than expected during service operation. This wear can potentially lead to cracking of the sealing ring, allowing HP Compressor Stage 3 air to enter the bearing chamber.



This condition, if not detected and corrected, could lead to auto ignition of the oil mist, or overheating and failure of the IP shaft and/or IP disc, possibly resulting in release of high energy debris from the IP turbine rotor, with consequent damage to, or reduced control of, the aeroplane.

To address this potential unsafe condition, Rolls-Royce published Alert Non-Modification Service Bulletin (NMSB) RB.211-72-AJ299, providing in-shop instructions for a certain number of engines. These engines contain HP/IP support structures which have been determined to potentially feature the highest wear rates of the sealing rings in the fleet. This AD also requires the affected sealing rings to be sent to Rolls-Royce for further investigation and assessment of the wear rate of the Trent 900 fleet.

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

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

Required as indicated, unless accomplished previously:

Note: Where, in this AD, reference is made to an RR Mod, SB or 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.

- (1) Within 3 months after the effective date of this AD, remove the engine from service.
- (2) Within 5 months after the effective date of this AD, accomplish an in-shop inspection of the HP/IP oil tube sealing rings in accordance with the instructions of Section 3 of Rolls-Royce Alert NMSB RB.211-72-AJ299. Before release to service of the engine after this in-shop inspection, contact Rolls-Royce for approved corrective action instructions and accomplish those instructions accordingly.
- (3) Within 30 days after the in-shop inspection as required by paragraph (2) of this AD, send the inspection results and the affected HP/IP oil tube sealing rings to Rolls-Royce in accordance with the instructions of Appendix 2 of Rolls-Royce Alert NMSB RB.211-72-AJ299.

**Ref. Publications:**

Rolls-Royce Alert NMSB RB.211-72-AJ299, initial issue dated 18 March 2016.

The use of later approved revisions of this 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. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.



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. 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 [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**.

SUPERSEDED

