



# Notification of a Proposal to issue an Airworthiness Directive

**PAD No.: 17-167**

**Issued: 12 December 2017**

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 700 engines

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

**TCDS Number(s):** EASA.E.042

**Foreign AD:** Not applicable

**Supersedure:** None

## ATA 72 – Engine – Critical Parts – Reduction of Declared Safe Cyclic Life

**Manufacturer(s):**

Rolls-Royce plc (RR)

**Applicability:**

RB211 Trent 768-60, 772-60, 772B-60 and 772C-60 engines, all serial numbers.

These engines are known to be installed on, but not limited to, Airbus A330 aeroplanes.

**Reason:**

Prompted by evidence, indicating that engines are operated outside of the assumptions used in establishing the approved lives of engine critical parts, RR identified the need to introduce a revised flight profile. This encompasses all historical operation of Trent 700 engines from the available data, with margin for future operation. Introduction of this new flight profile has resulted in a reduction of the declared safe cyclic life (DSCL) for a low pressure (LP) turbine shaft, Part Number (P/N) FK14385. Additionally, for a number of other P/Ns, which are obsolete and should no longer be in service, the life was reduced to zero. Furthermore, the Time Limits Manual (TLM) was revised to implement Beta factors which should be applied to determine the life of critical parts. This, however, applies only to engines used on Non-Standard Operations (NSO) and operated using flight profiles M1 and M2.



Failure to implement these critical parts limitations could lead to failure of a part, possibly resulting in damage to, and reduced control of, the aeroplane.

To address this potential unsafe condition, RR have revised the Trent 700 Time Limits Manual (TLM) and published Alert Non-Modification Service Bulletin (NMSB) RB.211-72-AJ305, introducing the reduced lives, and providing instructions to replace these critical parts.

For the reason described above, this AD requires implementation of the reduced life of LP turbine shaft, P/N FK14385, and to remove the obsolete P/Ns from service. This AD also requires, for engines used on NSO, to ensure that an assessment of critical parts in service is conducted, and that the use of Beta factors is applied.

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

Required as indicated, unless accomplished previously:

Note 1: Where, in this AD, reference is made to an RR 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.

Note 2: Temporary Revision (TR) 05-41 of the RR Trent 700 TLM, affecting Task 05-00-01-800-801, provides instructions on how to determine the flight profiles and whether standard operations or NSO are conducted.

Note 3: RR Alert NMSB RB.211-72-AJ305 dated 8 November 2017 is hereafter referred to as 'the NMSB' in this AD.

#### **Identification / Removal from Service:**

- (1) Within 100 standard duty cycles (SDC) or 30 days, whichever occurs first after the effective date of this AD, identify and remove from service any critical parts, having a P/N with a DSCL of zero SDC (as defined in the TLM).

#### **Life Limit Implementation:**

- (2) From the effective date of this AD, before each LP turbine shaft P/N FK14385 exceeds 8 800 SDC since new, or within 100 SDC after the effective date of this AD, whichever occurs later, replace the part with a serviceable part (see Note 4 of this AD).

Note 4: For the purpose of this AD, a serviceable part is an LP turbine shaft P/N FK14385 that has not exceeded 8 800 SDC since new (first installation on an engine), or any other LP turbine shaft, having a P/N listed in the applicable TLM, that has not exceeded its DSCL.

- (3) For engines used on NSO (see Note 2 of this AD), within 30 days after the effective date of this AD, review the engine service utilisation since new, amend the critical parts remaining lives accordingly, and, thereafter, apply the appropriate Beta factor(s) for critical part life consumption in accordance with the instructions of Section 3.A.(4) of the NMSB.



**Parts Installation:**

- (4) From the effective date of this AD, do not install on any engine a critical part, having a DSCL set at zero. For details, refer to Section 3.A.(1) of the NMSB.

**Ref. Publications:**

Rolls-Royce Alert NMSB RB.211-72-AJ305 dated 8 November 2017.

Rolls-Royce Trent 700 TLM, including TR 05-41 dated 15 November 2017.

The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.

**Remarks:**

1. This Proposed AD will be closed for consultation on 09 January 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. 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**.

