



# Notification of a Proposal to issue an Airworthiness Directive

**PAD No.:** 20-105R1

**Issued:** 12 August 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):**

Trent 1000 engines

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

**TCDS Number(s):** EASA.E.036

**Foreign AD:** Not applicable

**Supersedure:** None

## ATA 72 – Engine – Low Pressure Turbine Discs – Inspection

**Manufacturer(s):**

Rolls-Royce plc

**Applicability:**

Trent 1000-A2, Trent 1000-AE2, Trent 1000-C2, Trent 1000-CE2, Trent 1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2 and Trent 1000-L2 engines, all serial numbers.

These engines are known to be installed on, but not limited to, Boeing 787 aeroplanes.

**Definitions:**

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

**The NMSB:** Rolls-Royce Alert Non-Modification Service Bulletin (NMSB) TRENT 1000 72-AK416.

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.

**Affected part:** Low pressure (LP) turbine Stage 3 discs, having Part Number (P/N) KH36323, and LP turbine Stage 4 discs, having P/N KH33943.



**Qualified shop visit:** Engine Refurbishment shop visit.

**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:**

Analysis of certain LP turbine discs in service has determined that, due to rubbing contact with interstage static seals, cracks may initiate in the front seal fins which could lead to cracks in the disc of the affected parts, as defined in this AD.

This condition, if not detected and corrected, could lead to crack propagation, possibly resulting in LP turbine disc failure and high-energy debris release, with consequent damage to, and reduced control of, the aeroplane.

To address this potential unsafe condition, Rolls-Royce published the NMSB to provide inspection instructions.

Since PAD 20-105 was issued, it was decided to require repetitive inspections of the affected parts. As this expands the scope of the requirements, this PAD is revised for additional consultation.

For the reason described above, this AD requires repetitive ultra-high sensitivity fluorescent penetrant inspections of the seal fins of the affected parts and, depending on findings, replacement of affected parts.

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

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

Required as indicated, unless accomplished previously:

**Inspection:**

- (1) For Group 1 engines: During each qualified shop visit after the effective date of this AD, inspect the seal fins of each affected part in accordance with the instructions of sections 3.B and 3.C of the NMSB.

For an engine that, on the effective date of this AD, is in a qualified shop visit, as defined in this AD, accomplish the initial inspection before release to service of that engine, if the parts are exposed.

**Corrective Action(s):**

- (2) If, during any inspection as required by paragraph (1) of this AD, any crack indication is detected on the seal fins of an affected part, before release to service of the engine, replace that affected part in accordance with the instructions of the NMSB.

**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 any engine, provided that, following installation, the part is inspected as required by paragraph (1) of this AD.



**Ref. Publications:**

Rolls-Royce Trent 1000 Alert NMSB 72-AK416 original issue dated 29 June 2020.

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 26 August 2020.
2. The original issue of this PAD was posted on 06 July 2020 as PAD 20-105 for consultation until 03 August 2020. The Comment Response Document can be found in the [EASA Safety Publications Tool](#), in the compressed (zipped) file attached to the record for this PAD.
3. Enquiries regarding this PAD should be referred to the EASA Programming and Continued Airworthiness Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto:ADs@easa.europa.eu).
4. 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.
5. 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**.

