

Airworthiness Directive

AD No.: 2020-0195R1

Issued: 15 May 2024

Note: This Airworthiness Directive (AD) 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.

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, or Annex Vb Part ML.A.301, as applicable, 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 Annex Vb Part ML.A.303, as applicable] or agreed with the Authority of the State of Registry [Regulation (EU) 2018/1139, Article 71 exemption].

Design Approval Holder's Name:

ROLLS-ROYCE DEUTSCHLAND Ltd & Co KG

Type/Model designation(s):

Trent 1000 engines

Effective Date: Revision: 22 May 2024
 Original issue: 22 September 2020

TCDS Number(s): EASA.E.036

Foreign AD: Not applicable

Revision: This AD revises EASA AD 2020-0195 dated 08 September 2020.

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.

Rolls-Royce approved repair instruction: Repair of the micro cracks on the seal fins FRSH 970, task 72-52-31-300-020 of the Rolls-Royce Cleaning, Inspection and Repair Manual CIR-TRENT-10RRC.

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 and EASA issued AD 2020-0195 to require repetitive ultra-high sensitivity fluorescent penetrant inspections of the seal fins of the affected parts and, depending on findings, replacement of affected parts.

Since that AD was issued, Rolls-Royce developed repair design FRSB 970 allowing to restore the LP turbine Stage 3 disc P/N KH36323 airworthiness and published that instruction in the Rolls-Royce Cleaning, Inspection and Repair Manual CIR-TRENT-10RRC. Rolls-Royce also issued Revision 1 of the NMSB TRENT 1000 72-AK416 introducing reference to Rolls-Royce repair design FRSB 970 which constitutes an alternative method to replacement of the affected part having P/N KH36323.

This AD is revised to introduce the Rolls-Royce approved repair instruction, as defined in this AD, as an alternative method to accomplish the corrective action required by this AD.

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

Required as indicated by this AD, unless the action(s) required by this AD have been already accomplished:

Inspection:

- (1) For Group 1 engines: During each qualified shop visit after 22 September 2020 [the effective date of the original issue 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 22 September 2020 [the effective date of the original issue 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.

Alternative Method and Terminating Action:

- (4) Repairing an affected part P/N KH36323 in accordance with the Rolls-Royce approved repair instruction is an acceptable alternative method to comply with the requirements of paragraph (2) of this AD for that affected part and constitutes terminating action for repetitive in-shop inspections as required by paragraph (1) of this AD for that part.

Ref. Publications:

Rolls-Royce Trent 1000 Alert NMSB 72-AK416 original issue dated 29 June 2020, or Revision 1 dated 03 May 2024.

The use of later approved revisions of the above-mentioned 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. The original issue of this AD was posted on 06 July 2020 as PAD 20-105 for consultation until 03 August 2020 and re-published on 12 August 2020 as PAD 20-105R1 for consultation until 26 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 AD.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: 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 AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, 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 AD 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 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 <https://www.rolls-royce.com/contact-us/civil-aerospace.aspx> identifying the correspondence as being related to **Airworthiness Directives**.

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