



Airworthiness Directive

AD No.: 2019-0286R1

Issued: 03 July 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 GmbH & Co KG

Type/Model designation(s):

Trent 1000 engines

Effective Date: Revision 1: 10 July 2024
Original issue: 10 December 2019

TCDS Number(s): EASA.E.036

Foreign AD: Not applicable

Revision: This AD revises EASA AD 2019-0286 dated 26 November 2019.

ATA 72 – Engine – Low Pressure Compressor Front Cases – Removal from Service

Manufacturer(s):

Rolls-Royce plc

Applicability:

Trent 1000-A, Trent 1000-A2, Trent 1000-AE, Trent 1000-AE2, Trent 1000-C, Trent 1000-C2, Trent 1000-CE, Trent 1000-CE2, Trent 1000-D, Trent 1000-D2, Trent 1000-E, Trent 1000-E2, Trent 1000-G, Trent 1000-G2, Trent 1000-H, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2 and Trent 1000-L2 engines, all serial numbers (ESN).

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:

Affected part: Low pressure compressor (LPC) front cases, having Part Number (P/N) KH26266 and an s/n as listed in Appendix 1 of the NMSB.

The NMSB: Rolls-Royce Alert NMSB TRENT 1000 72-AK294. Appendix 1 of the NMSB contains the serial numbers (s/n) of the affected parts, the ESN of the engines on which these are installed, and the ultimate date to remove each engine from service for replacement of the affected part.



Where, in this AD, reference is made to a Rolls-Royce 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.

Groups: Group 1 engines are those that have an ESN listed in Appendix 1 of the NMSB. Group 2 engines are those that have an ESN not listed in Appendix 1 of the NMSB.

Reason:

Engineering analysis has identified that 38 LPC front cases have non-optimal material properties. This could inhibit the intended function of the LPC front case to contain certain engine failures.

This condition, if not corrected, could, in case of fan blade failure, lead to high energy debris release, possibly resulting in damage to, and reduced control of, the aeroplane.

To address this potential unsafe condition, Rolls-Royce developed an updated life management and published the original issue of NMSB TRENT 1000 72-AK294, identifying those ESN that have an affected part installed, and providing the corresponding limit (date) for in-shop front fan case replacement. Consequently, EASA issued AD 2019-0286 to require removal from service of the affected engines to replace the affected parts. That AD also prohibited re-installation of affected parts.

Since this AD was issued Rolls-Royce identified a population of affected parts which, under certain condition, may remain in service and issued Revision 1 of NMSB TRENT 1000 72-AK294 providing inspection instruction to measure the LPC front case thickness at 16 locations (2 off axial locations and 8 off circumferential locations for each axial location).

This AD is revised to introduce provisions allowing continuation of service for affected parts listed in Appendix 3 of Rolls-Royce NMSB TRENT 1000 72-AK294 at Revision 1.

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

Required as indicated by this AD, unless the actions required by this AD have been already accomplished:

Removal from Service:

- (1) For Group 1 engines: Not later than the 'Required Removal Date' as specified in Appendix 1 of the NMSB, as applicable to ESN, remove the affected engine from service.

Corrective Action(s):

- (2) After removing an engine from service as required by paragraph (1) of this AD, before release to service of that engine, replace the affected part, unless that affected part is listed in Appendix 3 of Rolls-Royce NMSB TRENT 1000 72-AK294 at Revision 1 and passed the thickness inspection in accordance with the instructions of Rolls-Royce NMSB TRENT 1000 72-AK294 at Revision 1.



Part Installation:

- (3) For Group 1 and Group 2 engines: From 10 December 2019 [the effective date of this AD at original issue], do not install (see Note 1 of this AD) an affected part on any engine, unless that affected part is listed in Appendix 3 of Rolls-Royce NMSB TRENT 1000 72-AK294 at Revision 1 and, before installation, passed the thickness inspection in accordance with the instructions of Rolls-Royce NMSB TRENT 1000 72-AK294 at Revision 1.

Note 1: Removal of an affected part from a Group 1 engine, for a purpose other than to comply with this AD, and re-installation of that affected part on that same engine during the same maintenance visit does not constitute 'install' for the purpose of paragraph (3) of this AD.

Ref. Publications:

Rolls-Royce Alert NMSB TRENT 1000 72-AK294 original issue dated 16 July 2019, or Revision 1 dated 04 June 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 11 October 2019 as PAD 19-189 for consultation until 08 November 2019. 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 http://www.rolls-royce.com/contact/civil_team.jsp identifying the correspondence as being related to **Airworthiness Directives**.

