

## Airworthiness Directive

**AD No.:** 2022-0247

**Issued:** 14 December 2022

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:** 28 December 2022

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

**Foreign AD:** Not applicable

**Supersedure:** This AD supersedes EASA AD 2020-0243 dated 05 November 2020.

## ATA 05 – Time Limits / Maintenance Checks – Time Limits Manual / Maintenance Programme – Amendment

### Manufacturer(s):

Rolls-Royce plc

### Applicability:

Trent 1000-AE3, Trent 1000-CE3, Trent 1000-D3, Trent 1000-G3, Trent 1000-H3, Trent 1000-J3, Trent 1000-K3, Trent 1000-L3, Trent 1000-M3, Trent 1000-N3, Trent 1000-P3, Trent 1000-Q3 and Trent 1000-R3 engines, all serial numbers.

### Definitions:

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

**The TLM:** Rolls-Royce Trent 1000 Time Limits Manual (TLM) T-Trent-10RRT, Chapters 05-10 and 05-20, Revision 23 dated 01 July 2022.

**The AMP:** The Aircraft Maintenance Programme (AMP) contains the tasks on the basis of which the scheduled maintenance is conducted to ensure the continuing airworthiness of each operated engine. For engines installed on aeroplanes operated under EU regulations, the operator or the owner ensures compliance with the AMP as stipulated in Commission Regulation (EU) [1321/2014](#).

**New and/or more restrictive tasks:** This includes all tasks and limitations that are new, or for which a threshold, life limit or interval was reduced, which were introduced into the TLM (as defined in this AD) since the previous TLM Revision that is currently incorporated in the AMP.

**Reason:**

The airworthiness limitations and/or certification maintenance instructions for certain Trent 1000 engines (also known as 'TEN'), which are approved by EASA, are defined and published in TLM T-Trent-10RRT. These instructions have been identified as mandatory for continued airworthiness.

Failure to accomplish these instructions could result in an unsafe condition.

Previously, EASA issued AD 2020-0243 to require accomplishment of the tasks and limitations specified in TLM T-Trent-10RRT at Revision 16.

Since that AD was issued, Rolls-Royce revised the TLM to change the Direct Accumulation Counting (DAC) life-usage calculator (LUC) software (RMR144463) (WP497080) in Revision 17; to change DAC data file names, to add notes on low pressure (LP) compressor balanced shaft assembly (RMR151723) (WP499597), and to change Engine Flight Cycles to Standard Duty Cycles for critical part inspection limits (RMR15173) (WP499599) in Revision 18; to introduce the LP compressor shaft assembly as a sub-assembly of the LP compressor balanced shaft assembly (RMR146837) (WP501358), to introduce a new inspection of the high pressure (HP) nozzle guides vane (NGV) flap seals (RMR150348), and to change the fan rotor shaft engine illustrated parts catalogue reference number (RMR146837) (WP501362) in Revision 19; to add intermediate pressure (IP) compressor shaft assembly part numbers and update DAC tables (RMR152950) (WP503582), to add reference to Non-Modification Service Bulletin 72-AK635 for specific serial number life management (RMR153682) (WP503934), and to delete reference to the use of the DAC tool to track inspection intervals (RMR152950) (WP503584) in Revision 20; to introduce a new overhaul limit for the fuel pump (RMR154854) (WP507419) in Revision 21; to introduce new HP NGV modification standard part numbers to the existing inspection (RMR155223) (WP511278) in Revision 22; and to introduce a change of publishing systems that includes non-technical and formatting changes in current TLM Revision 23.

For the reasons described above, this AD retains the requirements of EASA AD 2020-0243, which is superseded, and requires accomplishment of the actions specified in the TLM.

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

Required as indicated, unless accomplished previously:

**Maintenance Tasks and Replacement of Critical Parts:**

- (1) From the effective date of this AD, accomplish the following actions, as specified in the TLM, as applicable to engine model and depending on engine configuration:
  - (1.1) Replace each component before exceeding the applicable life limit.
  - (1.2) Within the thresholds and intervals, accomplish all applicable maintenance tasks.



- (1.3) Ensure that DAC tables shown in the DAC LUC tool match the applicable DAC Data Files as specified in the TLM.

**Corrective Action(s):**

- (2) In case of finding discrepancies (as defined in the TLM) during accomplishment of any task as required by paragraph (1) of this AD, within the compliance time specified in the TLM, accomplish the applicable corrective action(s) in accordance with approved Rolls-Royce maintenance documentation. If no compliance time is identified in the TLM, accomplish the applicable corrective action(s) before next flight. If a detected discrepancy is not identified in the TLM, before next flight, contact Rolls-Royce for approved instructions and accomplish those instructions accordingly.

**AMP Revision:**

- (3) Within 12 months after the effective date of this AD, revise the approved AMP by incorporating the limitations, tasks and associated thresholds and intervals described in the TLM, as applicable to engine model and depending on engine configuration.

**Credit:**

- (4) If, before the effective date of this AD, the AMP has been revised to incorporate the maintenance tasks and life limitations as specified in a previous revision of Rolls-Royce Trent 1000 TLM T-Trent-10RRT, that action ensures the continued accomplishment of those tasks and limitations.

Consequently, for an aeroplane to which that AMP applies, it is acceptable to accomplish the new and/or more restrictive tasks, as defined in this AD, as applicable to engine model and depending on engine configuration, within the compliance times as specified in the TLM to comply with paragraph (1) of this AD.

For that AMP, it is acceptable to incorporate the new and/or more restrictive tasks, as defined in this AD, as applicable to engine model and depending on engine configuration, into the AMP to comply with paragraph (3) of this AD.

**Recording AD compliance:**

- (5) When the AMP of an aeroplane has been revised as required by paragraph (3) or (4) of this AD, as applicable, that action ensures continued accomplishment of the tasks as required by paragraphs (1) and (2) of this AD for the engine(s) installed on that aeroplane. Consequently, after revising the AMP, as required by paragraph (3) or (4) of this AD, as applicable, it is not necessary that accomplishment of individual action is recorded for demonstration of AD compliance on a continued basis.

**Ref. Publications:**

Rolls-Royce Trent 1000 TLM T-Trent-10RRT, Revision 23 dated 01 July 2022.

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. This AD was posted on 11 November 2022 as PAD 22-152 for consultation until 09 December 2022. 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](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 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**.

