Airworthiness Directive

AD No.: 2025-0206R1

Issued: 18 December 2025

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:	**Type/Model designation(s):**
ROLLS-ROYCE DEUTSCHLAND Ltd & Co KG	Trent 1000 engines

Effective Date:	Revision 1: 25 December 2025 Original issue: 06 October 2025
TCDS Number(s):	EASA.E.036
Foreign AD:	None
Revision:	This AD revises EASA AD 2025-0206 dated 22 September 2025, which superseded EASA AD 2024-0118R1 dated 29 July 2024.

ATA 72 – Engine – High Pressure Turbine Blades – Inspection

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.

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-AK316 Revision 6.

Where, in this AD, reference is made to a Rolls-Royce modification (mod), 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.

Affected part: High pressure turbine (HPT) blades, having Part Number (P/N) KH10575 (pre-mod/SB 72-J550), or P/N KH64485 (post-mod/SB 72-J550).

Note 1: HPT blades, having P/N KH64485 can also be installed as a kit comprising a set of 66-off post-mod/SB 72-J550 HPT blades in accordance with Rolls-Royce SB TRENT 1000 72−L042.

Serviceable part: An affected part which is new (never previously installed), or an HPT blade having P/N KH83037.

Reason:

In-service experience has shown that the affected part can deteriorate to an unacceptable condition despite being subject of the inspections and limits published in Trent 1000 Configuration, Maintenance and Procedures and Maintenance Planning Document.

This condition, if not detected and corrected, could lead to HPT blade failure, possibly resulting in engine in-flight shutdown (IFSD) and consequent reduced control of the aeroplane.

To address this potential unsafe condition, Rolls-Royce developed on-wing borescope inspection instructions and issued NMSB TRENT 1000 72-AK316 accordingly. Prompted by this development, EASA issued AD 2019-0099 (later revised) to require repetitive inspections of the affected parts to detect leading edge axial cracking and, depending on findings, removal from service of the engine for in-shop replacement of the affected parts. That AD also introduced de-pairing instructions and a 1 000 flight cycles (FC) limitation.

After EASA AD 2019-0099R2 was issued, EASA published AD 2024-0118 superseding the previous AD and removing the de-pairing instructions, reducing the inspection thresholds and introducing Convex surface inspections. Later, EASA issued EASA AD 2024-0118R1 to include an additional acceptable method for installation of HPT blades having P/N KH64485 in accordance with Rolls-Royce SB TRENT 1000 72-L042.

After EASA AD 2024-0118R1 was issued, Rolls-Royce issued the NMSB, as defined in this AD, defining additional limits for axial cracks on the leading edge (Area A) and Convex (Area C4) surfaces, reducing the inspections threshold and removing the 1 000 FC life limit. Additionally, Rolls-Royce issued SB TRENT 1000 72−K335 introducing revised HPT blades featuring additional cooling holes in the blade aerofoil and shroud, and geometry changes to the blade root inlet duct feature to increase the cooling air flow. This SB also introduced a revised Combustion Rear Inner Casing bypass case assembly featuring geometry changes to the top-up holes to increase the pre-swirl air flow to the blades. Consequently, EASA issued AD 2025-0206 partially retaining the requirements of EASA AD 2024-0118R1, which was superseded (including its original issue), and required inspections within reduced compliance time, introduced follow-on inspections of cracked blades and, depending on findings, required replacement of the full set of affected parts. This AD also introduced optional terminating action for repetitive inspections required by that AD.

Since that AD was issued it was determined that certain IFSD events, which occur in a controlled and deliberate context, specifically during standard aeroplane acceptance tests, where one engine is intentionally shut down and automatically re-started immediately in accordance with approved

procedures, do not represent an abnormal or unsafe condition for the remaining running engine, but rather a planned verification of system functionality.

For the reason described above, this AD is revised to exclude engines from the requirement to accomplish a borescope inspection when the opposite engine was deliberately shut-down and automatically re-started immediately as part of a standard aeroplane acceptance test.

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(s):

(1) Before exceeding the compliance time as specified in Table 1 of this AD, as applicable, but not exceeding 50 FC since last inspection of the affected parts in accordance with the instructions of Rolls-Royce Alert NMSB TRENT 1000 72-AK316 up to Revision 6 (inclusive), and, thereafter, at intervals not to exceed 50 FC, accomplish an on-wing borescope inspections of the leading edge (Area A) and Convex surface (Area C4) of all affected parts in accordance with the instructions of Section 3.C of the NMSB.

Table 1 – Inspection Threshold(s) (see Note 1 of this AD)

FC Accumulated	Compliance Time
Less than 500 FC	Before exceeding 550 FC
500 FC or more	Within 50 FC after 06 October 2025 [the effective date of this AD at original issue]

Note 1: Unless indicated otherwise, the FC specified in Table 1 and paragraph (3) of this AD are those accumulated by the engine(s) since first flight, or since last in-service HPT blade set replacement(s), as applicable, on 06 October 2025 [the effective date of this AD at original issue].

(2) From 20 May 2019 [the effective date of EASA AD 2019-0099], within 10 FC after IFSD of an engine on an aeroplane, except when that engine is deliberately shut-down and automatically re-started immediately as part of a standard aeroplane acceptance test, accomplish an on-wing borescope inspection of all affected parts installed on the not-affected (no IFSD) engine of that aeroplane in accordance with the instructions of Section 3.C of the NMSB.

Follow-On Inspection:

(3) From 06 October 2025 [the effective date of this AD at original issue], if, during any inspection as required by paragraph (1) or (2) of this AD, any crack indication, as defined in the NMSB, is found on the leading edge (Area A) or Convex surface (Area C4) area of one or more affected parts, having a length less than or equal to 3 mm (0.12 in), within 10 FC after the inspection detecting crack(s) and, thereafter at intervals not to exceed 10 FC accomplish follow-on on-wing borescope inspections of the leading edge (Area A) and Convex surface (Area C4) of all affected parts in accordance with the instructions of Section 3.C of the NMSB.

Corrective Action(s):

(4) If, during any inspection as required by paragraph (1), (2) or (3) of this AD, any crack indication, as defined in the NMSB, is found on the leading edge (Area A), within the compliance time

specified in Table 2 of this AD, as applicable to crack length, remove the engine from service and, before release to service of that engine, replace the affected parts with a full set of serviceable parts, as defined in this AD, in accordance with the instructions of Rolls-Royce SB TRENT 1000 72-J550, SB TRENT 1000 72−L042, or SB TRENT 1000 72-K335.

Table 2 – Engine Removal from Service (leading edge (Area A) cracking)

Affected Part Finding(s)	Compliance Time
Crack(s) exceeding 4 mm (0.16 inch) in length	Before next flight
Crack(s) less than or equal to 4 mm (0.16 in) but more than 3 mm (0.12 inch) in length	Within 10 FC after the inspection detecting crack(s)

(5) If, during any inspection as required by paragraph (1), (2) or (3) of this AD, any crack indication, as defined in the NMSB, is found on the Convex surface (Area C4) having a length of more than 3 mm (0.12 in), before next flight remove the engine from service and, before release to service of that engine, replace the affected parts with a full set of serviceable parts, as defined in this AD, in accordance with the instructions of Rolls-Royce SB TRENT 1000 72-J550, SB TRENT 1000 72−L042, or SB TRENT 1000 72-K335.

(6) For engines operated in accordance with Boeing 787 Aircraft Maintenance Manual (AMM) Task B787-A-R72-00-00-23C-280C-A “High Pressure Turbine Blade Special Detailed Inspection (Borescope Inspection)”:
From 06 October 2025 [the effective date of this AD at original issue], during any inspection accomplished in accordance with Boeing AMM Task B787-A-R72-00-00-23C-280C-A, if a follow-on inspection is required with a repeat interval of less than 50 FC (also considering any hour-based limitation), accomplish the actions as required by paragraphs (6.1) and (6.2) of this AD, as applicable.

(6.1) Concurrently with the accomplishment of the follow-on inspection, perform a detailed inspection of the Convex surface (Area C4) of all affected parts in accordance with the instructions of Section 3.C of the NMSB.

(6.2) If, during any inspection of the Convex surface (Area C4), as required by paragraph (6.1) of this AD, any discrepancy is found, as defined in the NMSB, before next flight, accomplish the applicable corrective actions in accordance with the instructions of Section 3.C of the NMSB.

Optional Terminating Action:

(7) Modification of an engine in accordance with the instructions of Rolls-Royce SB TRENT 1000 72−K335 constitutes terminating action for repetitive inspections required by this AD for that engine.

Credit:

(8) Inspection(s) accomplished on an engine before 06 October 2025 [the effective date of this AD at original issue] in accordance with the instructions of Rolls-Royce Alert NMSB TRENT 1000 72-

AK316 up to Revision 5 (inclusive), are acceptable to comply with the requirements of paragraph (2) of this AD for that engine.

Ref. Publications:

Rolls-Royce Alert NMSB TRENT 1000 72-AK316 original issue dated 09 April 2019, or Revision 1 dated 18 April 2019, or Revision 2 dated 30 April 2019, or Revision 3 dated 16 July 2019, or Revision 4 dated 10 May 2024, or Revision 5 dated 30 May 2025, or Revision 6 dated 29 July 2025.

Rolls-Royce SB TRENT 1000 72-J550 original issue dated 21 November 2017.

Rolls-Royce SB TRENT 1000 72−L042 original issue dated 24 January 2024.

Rolls-Royce SB TRENT 1000 72−K335 original issue dated 06 March 2025.

Boeing Aircraft Maintenance Manual (AMM) Task B787-A-R72-00-00-23C-280C-A.

The use of later approved revisions of the above-mentioned documents 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 31 July 2025 as PAD 25-118 for consultation until 28 August 2025. 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**.