



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).

**Serviceable part:** An affected part which is new (not previously installed).

**Reason:**

In-service experience with Trent 1000 TEN engines has shown that the affected parts may deteriorate, despite being subject to the inspections and life limits as specified in the current Rolls-Royce Time Limits Manual, T-Trent-10RRT, Chapters 05-10 and 05-20.

This condition, if not detected and corrected, could lead to HPT blade failure, possibly resulting in engine in-flight shut-down (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 limitations.

Since EASA AD 2019-0099R2 was issued, Rolls-Royce issued the NMSB, as defined in this AD, removing the de-pairing instructions, reducing the inspection thresholds and introducing Convex surface inspections.

For the reasons described above, this AD partially retains the requirements of EASA AD 2019-0099R2, which is superseded, requires inspections within reduced inspection threshold and expands the inspection area to include the HPT blade Convex surface.

This AD is still considered to be an interim action and further AD action is expected.

**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 flight cycles (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 3 (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 550 FC	Before exceeding 600 FC
550 FC or more	Within 50 FC after the effective date of this AD

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.

- (2) From 20 May 2019 [the effective date of the EASA AD 2019-0099], within 10 FC after IFSD of an engine on an aeroplane, 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.

**Limitations:**

- (3) From 20 May 2019 [the effective date of the EASA AD 2019-0099], do not operate an aeroplane having an engine installed that has accumulated 1 000 FC or more (see Note 1 of this AD).

**Corrective Action(s):**

- (4) 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), within the compliance time specified in Table 2 of this AD, as applicable, 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.

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

Affected Part Finding(s)	Compliance Time
Cracks exceeding 4 mm (0.16 inch) in length	Before next flight
Cracks up to 4 mm (0.16 inch) in length	Within 10 FC after the inspection detecting crack(s)

- (5) 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 Convex surface (Area C4), within the compliance time specified in Table 3 of this AD, as applicable, 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.



Table 3 – Engine Removal from Service (Convex surface (Area C4) cracking)

Affected Part Finding(s)	Compliance Time
Cracks exceeding 3 mm (0.12 inch) in length	Before next flight
Cracks up to 3 mm (0.12 inch) in length	Within 6 FC after the inspection detecting crack(s)

- (6) Following removal from service of an engine, prompted by the limitations as required by paragraph (3) of this AD, in-shop replacement on that engine of 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, allows that engine to be returned to service.

**Terminating Action:**

- (7) None.

**Credit:**

- (8) Inspection(s) accomplished on an engine before the effective date of this AD in accordance with the instructions of Rolls-Royce Alert NMSB TRENT 1000 72-AK316 up to Revision 3 (inclusive), are acceptable to comply with the requirements of paragraph (2) of this AD, as applicable, 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.

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

The use of later approved revisions of the above-mentioned documents is acceptable for compliance with the requirements of this AD.

**Remarks:**

1. This Proposed AD will be closed for consultation on 20 June 2024.
2. Enquiries regarding this PAD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto:ADs@easa.europa.eu).
3. 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.



4. 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>.

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