



## Airworthiness Directive

**AD No.:** 2024-0167

**Issued:** 22 August 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 M.L.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 M.L.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 XWB engines

**Effective Date:** 05 September 2024

**TCDS Number(s):** EASA.E.111

**Foreign AD:** Not applicable

**Supersedure:** This AD supersedes EASA AD 2020-0277 dated 11 December 2020.

### ATA 72 – Engine – Intermediate Pressure Compressor Rotor 1 Blades – Inspection

#### Manufacturer(s):

Rolls-Royce plc

#### Applicability:

Trent XWB-75, Trent XWB-79, Trent XWB-79B and Trent XWB-84 engines, all serial numbers.

These engines are known to be installed on, but not limited to, Airbus A350 aeroplanes.

#### Definitions:

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

**The NMSB:** Rolls-Royce Alert Non-Modification SB (NMSB) TRENT XWB 72-AK632.

**The inspection NMSB:** Rolls-Royce NMSB TRENT XWB 72-AK633 Revision 1.

Where, in this AD, reference is made to a Rolls-Royce Service Bulletin (SB) with an 'A' (Alert) in the number, it should be recognised that a 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:** Intermediate pressure compressor (IPC) Rotor 1 (R1) blades, having Part Number KH21559 (post-SB/modification 72-H408 standard).



**Serviceable part:** An affected part that is new (not previously installed), or that has not exceeded 2 300 engine flight cycles (EFC) since first installation on an engine; or an affected part that, prior to installation, has passed an inspection in accordance with the instructions of the inspection NMSB.

**Affected engine:** An engine with an affected part installed.

**Reason:**

Occurrences have been reported of finding cracked IPC R1 blades on certain Trent XWB engines that were close to their first planned refurbishment shop visit.

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

To address this potential unsafe condition and avoid dual engine IFSD, Rolls-Royce issued original issue of the NMSB TRENT XWB 72-K633 to provide inspection instructions and the NMSB to provide information on threshold and intervals. Consequently, EASA issued AD 2020-0277 to require repetitive inspections of the affected parts and, depending on findings, accomplishment of applicable corrective action(s).

Since that AD was issued, Rolls-Royce issued the inspection NMSB, as defined in this AD, introducing enhanced crack measuring and fly-on criteria.

For the reasons described above, this AD partially retains the requirements of EASA AD 2020-0277, which is superseded, and requires accomplishment of enhanced inspection instructions and, depending on findings, removal of affected engine from service within established compliance time.

This AD is still considered an interim action and further AD action may follow.

**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) Within the compliance time specified in Table 1 of this AD, as applicable, and, thereafter, at intervals not to exceed 200 EFC, accomplish an on-wing or in-shop inspection of each affected engine in accordance with the instructions of the inspection NMSB.



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

EFC Accumulated	Compliance Time
Less than 2 300 EFC	Before exceeding 2 300 EFC, or within 50 EFC after 25 December 2020 [the effective date of EASA AD 2020-0277], whichever occurs later
2 300 EFC or more	Within 50 EFC after 25 December 2020 [the effective date of EASA AD 2020-0277]

Note 1: Unless indicated otherwise, the EFC specified in Table 1 of this AD are those accumulated on 25 December 2020 by the oldest affected part in the IPC R1 blade set since the first installation of this blade on an engine. In the case when the EFC of the IPC R1 blade set cannot be established, use the EFC accumulated by the engine since new.

#### Corrective Action(s):

- (2) If, during any on-wing inspection as required by paragraph (1) of this AD, any affected part is found cracked, as defined in the inspection NMSB, within the compliance time defined in Table 2 of this AD, as applicable, depending on the size of the remaining material between the end of the crack and bottom of the blade root on front face(s), remove the engine from service and, before release to service of that engine, replace the affected part(s) with serviceable part(s) in accordance with approved Rolls-Royce maintenance instructions.

Table 2 – Removal of an Engine

Material remaining between the end of the crack and bottom of the blade root on front face(s)	Compliance Time
All blades: 3 mm or more	200 EFC
All blades: more than 1 mm but one or more blades: less than 3 mm	100 EFC
One blade or more: 1 mm or less	Before next flight

- (3) If, during any in-shop inspection as required by paragraph (1) of this AD, any affected part is found cracked, before release to service of the engine, replace the full set of affected parts with serviceable parts in accordance with the instructions of the inspection NMSB.

#### Credit:

- (4) Inspection(s) and corrective action(s) on an engine, accomplished before 25 December 2020 [the effective date of EASA AD 2020-0277] in accordance with the instructions of Rolls-Royce NMSB TRENT XWB 72-AK612 or NMSB TRENT XWB 72-AK613, as applicable, are an acceptable method to comply with the initial requirements of paragraphs (1) and (2) of this AD for that engine.
- (5) Inspection(s) accomplished on an engine before the effective of this AD in accordance with the instructions of Rolls-Royce TRENT XWB 72-K633 at original issue are an acceptable method to comply with the initial requirements of paragraph (1) of this AD for that engine.



- (6) Corrective action(s) accomplished on an engine before the effective of this AD in accordance with Rolls-Royce approved corrective actions are an acceptable method to comply with the initial requirements of paragraph (2) of this AD for that engine.

**Terminating Action:**

- (7) None.

**Ref. Publications:**

Rolls-Royce Alert NMSB TRENT XWB 72-AK632 original issue dated 07 August 2020.

Rolls-Royce NMSB TRENT XWB 72-K633 original issue dated 07 August 2020, or NMSB TRENT XWB 72-AK633 Revision 1 dated 08 July 2024.

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

Rolls-Royce Alert NMSB TRENT XWB 72-AK612 original issue dated 09 July 2020.

Rolls-Royce Alert NMSB TRENT XWB 72-AK613 original issue dated 17 July 2020.

**Remarks:**

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. This AD was posted on 09 July 2024 as PAD 24-081 for consultation until 06 August 2024. 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  
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or send an email through <https://www.rolls-royce.com/contact-us/civil-aerospace.aspx> identifying the correspondence as being related to **Airworthiness Directives**.

Superseded

