Airworthiness Directive

AD No.: 2018-0128R1

Issued: 06 July 2018

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) 216/2008 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 66 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, 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 agreed with the Authority of the State of Registry [Regulation (EC) 216/2008, Article 14(4) exemption].

Design Approval Holder's Name:

ROLLS-ROYCE plc

Type/Model designation(s):

Trent 1000 engines

Effective Date:	Revision 1: 06 July 2018 Original issue: 12 June 2018
TCDS Number(s):	EASA.E.036
Foreign AD:	Not applicable
Revision:	This AD revises EASA AD 2018-0128 dated 12 June 2018.

ATA 72 – Engine – Intermediate Pressure Compressor Blades / Shafts – Inspection

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Manufacturer(s):

Rolls-Royce plc (RR)

Applicability:

Trent 1000-A, Trent 1000-AE, Trent 1000-C, Trent 1000-CE, Trent 1000-D, Trent 1000-E, Trent 1000-G, and Trent 1000-H 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: RR Alert Non-Modification Service Bulletin (NMSB) TRENT 1000 72-AK130 original issue dated 11 June 2018, or Revision 1 dated 29 June 2018.

Affected part: Intermediate Pressure Compressor (IPC) Stage 1 rotor (Rotor 1) blades, Part Number (P/N) FW61601 and P/N KH16052, IPC Stage 2 rotor (Rotor 2) blades, P/N FW61602 and P/N KH16053, and IPC Shaft Stage 1-8 Rotor assemblies P/N FW58316 and P/N FW75680.

Affected module: Group 1 IPC modules, as listed by serial number (s/n) in Appendix 1 of the NMSB at Revision 1; and Group 2 IPC modules, not listed in the NMSB, except those s/n excluded from Group 2, as listed by s/n in Appendix 1 of the NMSB at Revision 1.

The applicable NMSB: RR NMSB TRENT 1000 72-K099 (for IPC Rotor 1 blades), NMSB TRENT 1000 72-K100 (for IPC Rotor 2 blades front face and IPC Shaft Stage 2 dovetail posts) and NMSB TRENT 1000 72-K129 (for IPC Rotor 2 blades rear face), as applicable.

Reason:

Occurrences were reported on RR Trent 1000 'Pack B' engines, where some IPC Rotor 1 and Rotor 2 blades were found cracked.

This condition, if not detected and corrected, could lead to in-flight blade release, possibly resulting in reduced control of the aeroplane.

To address this potential unsafe condition, RR issued the NMSB and the applicable NMSB to provide instructions to inspect IPC Rotor 1 blades, IPC Rotor 2 blades (front and rear face) and IPC shaft Stage 2 dovetail posts.

For the reason described above, EASA issued AD 2018-0128 to require a one-time inspection of the affected parts and, depending on findings, accomplishment of applicable corrective action(s).

Since that AD was issued, RR issued Revision 1 of the NMSB, removing modules and engines from Group 1, introducing changes to those excluded from Group 2, and listing engines on which certain actions have been accomplished in new Tables 3 and 4 in the NMSB. This AD is revised accordingly, confirming the changes as introduced by Revision 1 of the NMSB.

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

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

Required as indicated, unless accomplished previously:

Inspection:

(1) Within the compliance time specified in Table 1 of this AD, as applicable, or during the next engine or module shop visit (any workscope level), whichever occurs first after 12 June 2018 [the effective date of the original issue of this AD], accomplish an ultrasonic inspection of the affected IPC Rotor 1 blades in accordance with the instructions of the applicable NMSB.

Table 1 – Group 1 and Group 2 Modules On-wing Inspection

Module	Compliance Time
Group 1	Within 30 days
Group 2	Within 60 days

(2) For an engine having an affected module installed that, on the effective date of this AD, has accumulated more than 1 000 engine flight cycles (EFC) since first installation on an engine, within 30 days, or during the next engine or module shop visit (any workscope level), whichever

occurs first after 12 June 2018 [the effective date of the original issue of this AD], accomplish a visual borescope inspection of the affected IPC Rotor 2 blades (front face) and IPC Shaft Stage 2 dovetail posts in accordance with the instructions of the applicable NMSB.

(3) For an engine having an affected module installed that, on 12 June 2018 [the effective date of the original issue of this AD], has accumulated more than 1 000 EFC since first installation on an engine, within 30 days, or during the next engine or module shop visit (any workscope level), whichever occurs first after 12 June 2018 [the effective date of the original issue of this AD], accomplish an ultrasonic inspection of the affected IPC Rotor 2 blades (rear face) in accordance with the instructions of the applicable NMSB.

(4) For an engine or module that, on 12 June 2018 [the effective date of the original issue of this AD], is in a shop visit (any workscope level), before release to service of the engine or affected module, as applicable, inspect all affected parts in accordance with the instructions of the applicable NMSB.

Corrective Action(s):

(5) If, during any on-wing inspection as required by paragraph (1), (2) or (3) of this AD, as applicable, any discrepancies or crack indications are detected, before next flight, remove the engine from service, contact RR for approved repair instructions and accomplish those instructions accordingly. A single ferry flight of up to three flight cycles is permitted to move the aeroplane to a location where the engine can be removed from service.

(6) If, during any in-shop inspection as required by paragraph (1), (2), (3) or (4) of this AD, as applicable, any discrepancies or crack indications are detected, before release to service of the engine, or before installation of the module on an engine, as applicable, contact RR for approved repair instructions and accomplish those instructions accordingly.

Parts Installation:

(7) From 12 June 2018 [the effective date of the original issue of this AD], it is allowed to install an affected module on an engine, provided that the affected parts installed on that module have passed an inspection (no defects found) in accordance with the instructions of the applicable NMSB, or the module has been corrected as required by paragraph (5) or (6) of this AD, as applicable.

Ref. Publications:

RR Alert NMSB TRENT 1000 72-AK130 original issue dated 11 June 2018, or Revision 1 dated 29 June 2018.

RR NMSB TRENT 1000 72-K099 original issue dated 11 June 2018, or Revision 1 dated 03 July 2018.

RR NMSB TRENT 1000 72-K100 original issue dated 11 June 2018.

RR NMSB TRENT 1000 72-K129 original issue dated 11 June 2018, or Revision 1 dated 02 July 2018.

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. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.

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.

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**.