

Airworthiness Directive

AD No.: 2023-0152**Issued:** 25 July 2023

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):

BR700-715 engines

Effective Date: 01 August 2023**TCDS Number(s):** EASA.E.023**Foreign AD:** Not applicable**Supersedure:** This AD supersedes EASA AD 2022-0252R1 dated 28 April 2023.

ATA 72 – Engine – Low Pressure Compressor Booster Rotor – Inspection

Manufacturer(s):

Rolls-Royce Deutschland Ltd & Co KG (RRD)

Applicability:

BR700-715A1-30, BR700-715B1-30 and BR700-715C1-30 engines, all serial numbers (s/n).

These engines are known to be installed on, but not limited to, Boeing 717 aeroplanes.

Definitions:

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

The NMSB: RRD Alert Non-Modification Service Bulletin (NMSB) SB-BR700-72-A900738 Revision 1.

Affected part: Low pressure (LP) compressor booster rotors, having Part Number (P/N) BRH19871 or P/N BRH20241, and an s/n in the range of 256 to 493 (inclusive).

Flight mission: Hawaiian Flight missions (FM 1); all other Flight missions (FM 2); and combined Hawaiian and other Flight missions (FM 3).

Reason:

Occurrences have been reported of finding malformed scallop edge geometry and surface conditions at the front flange scallops of certain LP compressor booster rotors.

This condition, if not detected and corrected, could lead to failure of an affected part, possibly resulting in release of high-energy debris with consequent engine in-flight shut-down and reduced control of the aeroplane.

To address this potential unsafe condition, RRD issued the NMSB to provide inspection instructions and accept/reject criteria. Consequently, EASA issued AD 2022-0252 to require repetitive fluorescent-penetrant inspections (FPI) of the front flange scallops of the affected part and, depending on findings, removal from service of the engine for corrective action(s).

Following new risk assessment, EASA AD 2022-0252R1 was issued, as it had been determined that, for any engine where the affected part had passed (no defect found) an in-shop piece part level FPI in accordance with the instructions of the Engine Manual (EM), that engine would be safe to operate for a certain number of engine flight cycles (EFC) after that shop visit.

Since that AD was issued, it was determined that the initial FPI must be accomplished not later than 31 August 2023; that EM task 72-38-18-200-801 contains the FPI instructions; that the post-initial-FPI 'safe to operate' period for FM 1 operated engines is extended to 6 000 EFC, while that same period for FM 2 and FM 3 operated engines is reduced to 2 500 EFC; and that the FPI interval for engines under FM 2 or FM 3 needs to be reduced from 5 000 EFC to 2 500 EFC.

For the reasons described above, this AD retains the requirements of EASA AD 2022-0252R1, which is superseded, and requires implementation of the changed EM task and FPI compliance times accordingly.

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

Required as indicated, unless accomplished previously:

Inspections:

- (1) Within the compliance time as specified in Table 1 of this AD, as applicable, or within 6 000 EFC (FM 1) or 2 500 EFC (FM 2 or FM 3) after the last in-shop piece part level FPI of the affected part accomplished before the effective date of this AD in accordance with the instructions of EM task 72-38-12-200-801, or within 500 EFC after the effective date of this AD, whichever occurs later, but not later than 31 August 2023, and, thereafter, at intervals not to exceed the value as specified in Table 2 of this AD, as applicable, accomplish an FPI (on-wing or in-shop) of the front flange scallops of the affected part in accordance with the instructions of the NMSB.

Table 1 – Affected Parts Initial FPI

Flight Mission	Compliance Time
FM 1	Before the affected part exceeds 36 000 EFC since new (first installation on an engine)
FM 2 and FM 3	Before the affected part exceeds 18 000 EFC since new (first installation on an engine)



Table 2 – Affected Parts FPI Interval

Flight Mission	Interval (not to exceed)
FM 1	6 000 EFC
FM 2 and FM 3	2 500 EFC

Corrective Action(s):

- (2) If, during any on-wing FPI as required by paragraph (1) of this AD, any crack is detected, before next flight, remove the engine from service and, before return to service of that engine, contact RRD for approved corrective action(s) and accomplish those actions accordingly.
- (3) If, during any in-shop FPI as required by paragraph (1) of this AD, any crack is detected, before release to service of that engine, contact RRD for approved corrective action(s) and accomplish those actions accordingly.

Credit:

- (4) Inspections and corrective actions on an engine, accomplished before the effective date of this AD in accordance with the instructions of RRD NMSB SB-BR700-72-A900738 at original issue, are acceptable to comply with the initial requirements of this AD.

Part(s) Installation:

- (5) From the effective date of this AD, it is allowed to install an affected part on any engine, or install an engine equipped with an affected part on an aeroplane, provided that the part has not exceeded 36 000 EFC (for FM 1) or 18 000 EFC (for FM 2 and FM 3), as applicable, or has passed an FPI (no crack detected) in accordance with the instructions of the NMSB and that, following installation, the affected part is inspected as required by this AD.

Terminating Action:

- (6) Inspection of an engine in accordance with the instructions of Part C of the NMSB, including validation of the results from RRD, confirming that the affected part has no malformed scallop edge geometry or surface conditions at the front flange scallops, constitutes terminating action for the repetitive FPI as required by paragraph (1) of this AD (Table 2 intervals) for that engine.

Ref. Publications:

RRD Alert NMSB SB-BR700-72-A900738 original issue dated 15 December 2022, or Revision 1 dated 11 July 2023.

The use of later approved revisions of the above-mentioned document are 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](#). 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: Rolls-Royce Deutschland Ltd & CoKG, Eschenweg 11, Dahlewitz, 15827 Blankenfelde-Mahlow, Germany, Telephone: +49 (0) 337086 1200, E-mail: rrd.techhelp@rolls-royce.com.

