



## Airworthiness Directive

**AD No.:** 2018-0194

**Issued:** 04 September 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 DEUTSCHLAND Ltd & Co KG

### Type/Model designation(s):

BR700-715 engines

**Effective Date:** 18 September 2018

**TCDS Number(s):** EASA.E.023

**Foreign AD:** Not applicable

**Supersedure:** None

## ATA 72 – Engine – High Pressure Turbine Stage 1 Turbines Blades and Blade Damper – Replacement

### Manufacturer(s):

Rolls-Royce Deutschland (RRD) Ltd & Co KG

### Applicability:

RRD BR700-715A1-30, BR700-715B1-30 and BR700-715C1-30 engines, all manufacturer serial numbers.

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-A900640, containing instructions to embody SB-BR700-72-102005 (P/N KH82098 dampers) and SB-BR700-72-101671 (P/N FW75735 blades).

**Affected assembly:** High pressure (HP) turbine stage 1 blades, having Part Number (P/N) BRH17133, P/N BRH19984, P/N BRH20011, P/N BRH20237, P/N 20351, P/N FW35594, P/N FW45914, P/N FW64379, or P/N FW75735; assembled in combination with HP turbine stage 1 blade dampers, having P/N BRH10943, P/N BRH20353, or P/N FW45770.



**Serviceable assembly:** HP turbine stage 1 blades, having P/N FW75735, new or serviceable, which are, or have only been, fitted with HP turbine stage 1 blade dampers, having P/N KH82098.

**Groups:** Group 1 engines are those that have an affected assembly installed. Group 2 engines are those that do not have an affected assembly installed, or are exclusively operated under the Hawaiian Flight Mission (see applicable RRD Time Limits Manual, task 05-00-02-800-001).

**Reason:**

Occurrences have been reported on RRD BR700-715 engines where certain HP turbine stage 1 blades failed in service. Investigation of these events showed that these were caused by sulphidation and subsequent crack initiation, due to contamination of the blade shank passing by the blade damper.

This condition, if not corrected, could lead to further HP turbine stage 1 blade failures, possibly resulting in engine in-flight shut-down and consequent reduced control of the aeroplane.

To address this potential unsafe condition, RRD published the NMSB to provide instructions to replace the affected assembly.

For the reasons described above, this AD requires determination of the engine configuration and, depending on findings, removal of the engine from service to replace the affected assembly.

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

Required as indicated, unless accomplished previously:

**Determination:**

- (1) For Group 1 engines: Within 30 days after the effective date of this AD, determine the flight cycles (FC) of the HP turbine stage 1 blade installed on the affected assembly, having accumulated the highest number of FC since first installation on an engine.

**Replacement / Modification:**

- (2) Based on the FC, determined as required by paragraph (1) of this AD, before exceeding 10 000 FC since first installation of that affected HP turbine stage 1 blade, or within 50 FC after the effective date of this AD, whichever occurs later, remove the engine from service in accordance with the instructions of Part B of the NMSB and, before release to service of the engine, modify the engine by replacing the affected assembly with a serviceable assembly in accordance with the instructions of Part C of the NMSB.
- (3) For Group 1 engines engines that have previously been inspected in accordance with RRD NMSB SB-BR700-72-900118, within 1 500 FC after the latest inspection, or within 10 FC after the effective date of this AD, whichever occurs later, remove the engine from service in accordance with the instructions of Part B of the NMSB and, before release to service of the engine, modify the engine by replacing the affected assembly with a serviceable assembly in accordance with the instructions of Part C of the NMSB.



- (4) For Group 2 engines operated under the Hawaiian Flight Mission: Upon change of flight mission, the engine becomes a Group 1 engine and the relevant requirements of this AD must be complied with.

**Parts Installation:**

- (5) For Group 1 engines: After modification of an engine as required by paragraph (2) or (3) of this AD, it is allowed to install an assembly of HP turbine stage 1 blades and damper, provided the assembly is a serviceable assembly, as defined in this AD.
- (6) For Group 2 engines, except those operated under the Hawaiian Flight Mission: From the effective date of this AD, do not install an assembly of HP turbine stage 1 blades and damper, unless the assembly is a serviceable assembly, as defined in this AD.

**Ref. Publications:**

Rolls-Royce Deutschland Alert NMSB SB-BR700-72-A900640, original issue dated 20 July 2018, or Revision 1 dated 31 Augustus 2018.

Rolls-Royce Deutschland SB-BR700-72-101671, original issue dated 29 January 2010.

Rolls-Royce Deutschland SB-BR700-72-102005, original issue dated 20 March 2018.

Rolls-Royce Deutschland NMSB SB-BR700-72-900118, original issue dated 06 June 2017.

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. This AD was posted on 27 July 2018 as PAD 18-108 for consultation until 24 August 2018. 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](#).
5. For any question concerning the technical content of the requirements in this AD, please contact: Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, Dahlewitz, 15827 Blankenfelde-Mahlow, Germany, Telephone: +49 (0) 337086 1200, [E-mail: rrd.techhelp@rolls-royce](mailto:rrd.techhelp@rolls-royce).

