



Notification of a proposal to issue an Airworthiness Directive

PAD No.: 22-148

Issued: 28 October 2022

Note: This Proposed Airworthiness Directive (PAD) 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.

In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below.

All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation date indicated.

Design Approval Holder's Name: **Type/Model designation(s):**

ROLLS-ROYCE DEUTSCHLAND Ltd & Co KG RB211-524 engines

Effective Date: [TBD - standard: 14 days after final AD issue date]

TCDS Number(s): EASA.E.062

Foreign AD: Not applicable

Supersedure: This AD supersedes EASA AD 2020-0059 dated 17 March 2020.

ATA 72 – Engine – Low Pressure Turbine Stage 1 Discs – Life Reduction

Manufacturer(s):

Rolls-Royce plc

Applicability:

RB211-524G2-19, RB211-524G2-T-19, RB211-524G3-19, RB211-524G3-T-19, RB211-524H2-19, RB211-524H2-T-19, RB211-524H-36 and RB211-524H-T-36 engines, all serial numbers.

These engines are known to be installed on, but not limited to, Boeing 747 and Boeing 767 aeroplanes.

Definitions:

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

The NMSB: Rolls-Royce Alert Non-Modification Service Bulletin (NMSB) RB.211-72-AK422 Revision 2. The NMSB has an 'A' (Alert) in the number, but a later revision may not have that 'A'. This kind of change does not effectively alter the publication references.

Affected part: Low pressure turbine (LPT) Stage 1 discs, having Part Number (P/N) UL37606, P/N UL37607, P/N UL37608, P/N UL37722 or P/N UL37790, as identified in the NMSB, Section 3.A



and Section 3.B, Tables 1 through 10 inclusive, which also provide the corresponding Declared Safe Cyclic Limit (DSCL) for each part.

Groups: Group 1 engines are those that have an affected part installed. Group 2 engines are those that do not have an affected part installed.

Reason:

A review of operational flight data revealed that some RB211-524 engines may have been operated beyond the currently valid datum flight profile (FP) published in the applicable Aircraft Maintenance Manuals. The purpose of the datum FPs is to establish the operational limits (life limits) within which the corresponding critical parts are allowed to remain installed. In addition, as this FP exceedance was investigated, it was realised that the current life limits of certain P/N corresponding to reworked LPT Stage 1 discs (time since new, or since entry into service following rework) could no longer be supported.

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

Prompted by these findings, Rolls-Royce published worldwide (WW) communication, reference WW11575-1, which identified certain parts, some of which were believed to have exceeded their respective safe cyclic life, to collect information in relation to the history of affected parts. Rolls-Royce also published Alert NMSB RB.211-72-AK422 Revision 1, providing instructions for timely removal from service of the affected parts. Consequently, EASA issued AD 2020-0059 to require removal from service of the affected parts. That AD also prohibited (re)installation of affected parts that had exceeded the new reduced limits.

Since that AD was issued, further investigation identified additional affected parts, introduced into Table 3, and the need to move a certain part from Table 8 to Table 1; see Section 3.A of the NMSB.

Prompted by these developments, Rolls-Royce published the NMSB, as defined in this AD. The NMSB also introduces component lives associated with a new flight profile ('plus') having a higher N1 en-route limit.

For the reasons described above, this AD retains the requirements of EASA AD 2020-0059, which is superseded, and additionally requires implementation of the changes introduced by the NMSB.

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

Required as indicated, unless accomplished previously:

Removal from Service:

- (1) For Group 1 engines: Before an affected part reaches its DSCL as specified in the NMSB, or within 2 months after the effective date of this AD, whichever occurs later, remove the engine from service and, before release to service of the engine, replace that affected part with a serviceable part. This can be accomplished in accordance with the standard RB211 Engine Manual instructions.



Part(s) Installation:

- (2) For Group 1 and Group 2 engines: From the effective date of this AD, it is allowed to install an affected part on any engine, provided that the part has not exceeded the applicable DSCL, as specified in the NMSB, and, that, following installation, the affected part is replaced with a serviceable part as required by paragraph (1) of this AD.

Engine Installation:

- (3) For Group 1 engines: From the effective date of this AD, it is allowed to install an engine on an aeroplane, provided that no affected part installed on that engine has exceeded the applicable DSCL, as specified in the NMSB, and, that, following installation, the affected part on that engine is replaced with a serviceable part as required by paragraph (1) of this AD.

Ref. Publications:

Rolls-Royce NMSB RB.211-72-AK422 Revision 2 dated 24 August 2021.

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

Remarks:

1. This Proposed AD will be closed for consultation on 25 November 2022.
2. Enquiries regarding this PAD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: 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>.

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 <https://www.rolls-royce.com/contact-us/civil-aerospace.aspx> identifying the correspondence as being related to **Airworthiness Directives**.

