



Airworthiness Directive

AD No.: 2017-0010

Issued: 16 January 2017

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):

TAY 620-15 and TAY 620-15/20 engines

Effective Date: 30 January 2017

TCDS Number(s): EASA.E.063

Foreign AD: Not applicable

Supersedure: None

ATA 72 – Engine – High Pressure Compressor Stage 12 Rotor Disc – Replacement [Life Limit]

Manufacturer(s):

Rolls-Royce plc

Applicability:

TAY 620-15 and TAY 620-15/20 engines, all manufacturer serial numbers, equipped with High Pressure Compressor (HPC) module M03100AA, or M03100AB, or M03100AC.

These engines are known to be installed on, but not limited to Fokker F28 Mark 0100 and Fokker F28 Mark 0070 aeroplanes.

Reason:

Based on revised stress analysis and life calculation, Rolls-Royce Deutschland (RRD) determined new provisional life limits for HPC stage 12 rotor disc Part Number (P/N) JR18449, reducing the maximum approved life limit defined in the Tay 620-15 and Tay 620-15/20 engine Time Limits Manual (TLM), Chapter 05-10-01, Task 05-10-01-800-000, currently at revision dated 15 September 2014.

Failure to replace a HPC stage 12 rotor disc P/N JR18449, before exceeding the thresholds defined by this AD, could lead to an uncontained HPC stage 12 rotor disc failure, possibly resulting in damage to, and/or reduced control of, the aeroplane.



To address this potentially unsafe condition, RRD issued Alert Non-Modification Service Bulletin (NMSB) TAY-72-A1813 to provide instructions to determine or re-calculate the consumed (and remaining) service life.

For the reasons described above, this AD requires re-calculation of the service life accumulated by each HPC stage 12 rotor disc P/N JR18449 based on operation in different flight profiles and, depending on the result of that calculation, replacement.

It is expected that the affected reduced life limits are introduced into a next revision of the TAY 620-15 and TAY 620-15/20 engine TLM.

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

Required as indicated, unless accomplished previously:

Note 1: For the purpose of this AD, HPC stage 12 rotor disc P/N JR18449 are hereafter referred to as 'affected part' in this AD.

Note 2: RRD TAY 620-15 and TAY 620-15/20 engine TLM revision dated 15 September 2014 is hereafter referred to as 'the TLM' in this AD. RRD Alert NMSB TAY-72-A1813 dated 11 October 2016 is hereafter referred to as 'the NMSB' in this AD.

Note 3: For the purpose of this AD, a serviceable part is an affected part (see Note 1 of this AD) that has not exceeded the life limit since new, as defined in the TLM (Flight Plan A) or 16 700 flight cycles (FC) (Flight Plan B), as applicable to engine operation.

Consumed Service Life Re-calculation:

- (1) Within 30 days after the effective date of this AD, accomplish the actions as required by paragraphs (1.1) and (1.2) of this AD, in accordance with the instructions of the NMSB.
 - (1.1) Determine whether the affected part installed on an engine has an operation history in both flight plan A and B.
 - (1.2) If it is determined, as required by paragraph (1.1) of this AD, that the affected part installed on an engine has been or is operated in both flight profile A and B, re-calculate the consumed service life accumulated since new by the affected part, as applicable to engine operation.
- (2) From the effective date of this AD, each time when the operational flight profile of an engine equipped with an affected part is changed (from flight plan A to B, or from flight plan B to A), re-calculate the consumed service life accumulated since new by the affected part, as applicable to engine operation, in accordance with the instructions of the NMSB.

Life Limit Implementation / Part Replacement:

- (3) For an engine equipped with an affected part and operated in flight plan A: From the effective date of this AD, before the re-calculated service life, as required by paragraph (1) or (2) of this AD, exceeds the applicable life limit as defined in the TLM, replace



each affected part with a serviceable part (see Note 3 of this AD) in accordance with the instructions of the NMSB.

- (4) For an engine equipped with an affected part and operated in flight plan B:
From the effective date of this AD, before the service life accumulated since new (for affected parts never operated in flight plan A), or re-calculated as required by paragraph (1) or (2) of this AD, as applicable, exceeds the threshold(s) as defined in Table 1 of this AD, replace each affected part with a serviceable part (see Note 3 of this AD) in accordance with the instructions of the NMSB.
Thereafter, replace each affected part with a serviceable part (see Note 3 of this AD), before an affected part exceeds 16 700 FC accumulated since new, in accordance with the instructions of the NMSB.

Table 1 – HPC stage 12 rotor disc P/N JR18449 Initial Replacement – engines in service

Service Life on the effective date of this AD (see Note 4 of this AD)	Compliance Time
Less than 15 700 FC	Before exceeding 16 700 FC since new
Equal to or more than 15 700 FC, but less than 16 700 FC	<p style="text-align: center;">A or B, whichever occurs later</p> <p>A: Within 1 000 FC or 19 months after the effective date of this AD, whichever occurs first</p> <p>B: Before exceeding 16 700 FC since new</p>
Equal to or more than 16 700 FC	<p style="text-align: center;">A, B or C, whichever occurs first</p> <p>A: Within 1 000 FC after the effective date of this AD</p> <p>B: Before exceeding 20 000 FC since new</p> <p>C: Within 19 months after the effective date of this AD</p>

Note 4: For the purpose of Table 1 of this AD, the FC are those accumulated by the affected part since new (for affected parts never operated in flight plan A) or re-calculated, as required by paragraph (1) or (2) of this AD, as applicable.

Parts Installation:

- (5) From the effective date of this AD, installation of a serviceable spare engine on an aeroplane, or release to service of an engine after any sort of shop visit, as applicable, is allowed, provided that, prior to operational use of the engine, it is determined that the installed affected part (see Note 1 of this AD) is a serviceable part (see Note 3 of this AD).

Ref. Publications:

RRD Alert NMSB TAY-72-A1813 original issue dated 11 October 2016.

Tay 620-15 and Tay 620-15/20 engine TLM, revision dated 15 September 2014.

The use of later approved revisions of these 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 12 December 2016 as PAD 16-169 for consultation until 09 January 2017. No comments were received during the consultation period.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
3. For any question concerning the technical content of the requirements in this AD, please contact: Rolls-Royce Deutschland Ltd & Co KG
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