

Airworthiness Directive

AD No.: 2019-0061

Issued: 25 March 2019

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, 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 (EU) 2018/1139, Article 71 exemption].

Design Approval Holder's Name:

GE AVIATION CZECH

Type/Model designation(s):

M601 engines

Effective Date: 01 April 2019

TCDS Number(s): EASA.E.070

Foreign AD: Not applicable

Supersedure: This AD supersedes EASA AD 2016-0025-E dated 26 January 2016, including its Correction dated 27 January 2016, and EASA AD 2017-0100 dated 08 June 2017.

ATA 72 – Engine – Power Turbine Disc – Inspection / Replacement

Manufacturer(s):

GE Aviation Czech (GEAC) s.r.o., formerly Walter Engines a.s.

Applicability:

M601D, M601D-1, M601D-2, M601D-11, M601D-11NZ, M601E, M601E-11, M601E-11A, M601E-11AS, M601E-11S, M601E-21, M601F, M601FS, M601F-11, M601F-22, M601F-32, M601T and M601Z engines, all serial numbers (s/n).

These engines are known to be installed on, but not limited to, the following aeroplanes:

Aircraft Industries (formerly LET) L-410 series,
 Air Tractor AT-300, AT-400 and AT-500 series,
 Allied Ag Cat Productions Inc. (formerly Grumman) G-164 series,
 PZL "Warszawa-Okęcie" PZL-106 (Kruk),
 RUAG Aerospace Services (formerly Dornier) Do 28 series, and
 Thrush Aircraft Inc. (formerly Quality, Ayres, Rockwell) S-2R series.

Definitions:

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



The ASB: GEAC Alert Service Bulletin (ASB) ASB-M601E-72-50-00-0069[01], ASB-M601D-72-50-00-0052[01], ASB-M601T-72-50-00-0028[01], ASB-M601F-72-50-00-0035[01] and ASB-M601Z-72-50-00-0038[01] (single document), Revision 1.

Affected part: Power turbine (PT) discs having Part Number (P/N) M601-3220.5 and s/n 407560-158, 407560-164, 406380-196 or 407560-190, except those which passed an inspection (no defects detected) in accordance with the instructions of the ASB; and PT discs having P/N M601-3220.6 or P/N M601-3220.7.

Serviceable part: PT discs which are not an affected part.

Groups:

Group 1 engines are those that have a PT disc installed, having P/N M601-3220.5, and s/n 407560-158, 407560-164, 406380-196 or 407560-190.

Group 2 engines are those that have a PT disc installed, having P/N M601-3220.6 or P/N M601-3220.7, and a s/n as listed in Attachment C of the ASB.

Group 3 engines are those that have a PT disc installed, having P/N M601-3220.6 or P/N M601-3220.7, any s/n not listed in Attachment C of the ASB .

Group 4 engines are those that do not have an affected part installed.

Reason:

During engine shop visits or overhauls, certain PT discs may have been damaged in the area of the balance weights. Additional PT discs with non conforming geometry of the slot radius may also have been released to service as a result of incorrect machining of the PT disc slot.

This condition, if not detected and corrected, could lead to PT disc failure, with subsequent release of high-energy debris, possibly resulting in damage to, and/or reduced control of, the aeroplane.

To address this potential unsafe condition, GEAC published a Service Bulletin (SB) to provide instructions to inspect and, depending on findings, replace certain PT discs, and EASA issued AD 2016-0025-E accordingly.

After that AD was issued, it was identified that PT rotors with certain P/N discs have a reduction in the declared theoretical PT rotor overspeed limit. Consequently, GEAC issued a new ASB, providing PT disc replacement instructions, and EASA issued AD 2017-0100, to require replacement of the affected PT discs, and to prohibit their further installation.

Since those AD were issued, GEAC identified additional P/N and s/n of PT discs affected by damage or non-conformance. For those, as well as for the PT discs affected by the reduction of the declared theoretical PT rotor overspeed limit, an update of the risk assessment was performed, and GEAC issued the ASB providing applicable instructions.

For the reasons described above, this AD retains the requirements of EASA AD 2016-0025-E and EASA AD 2017-0100, which are superseded, and requires a one-time inspection and, depending on findings, replacement of certain PT discs identified by P/N and s/n. This AD also requires replacement of certain PT discs identified by P/N, and prohibits (re)installation of affected parts.



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

Required as indicated, unless accomplished previously:

Inspection:

- (1) For Group 1 engines: Before the affected part accumulates the number of cycles since first installation on an engine as specified in Attachment B of the ASB, as applicable to engine model and s/n, or at next engine shop visit, whichever occurs first after the effective date of this AD, inspect the affected part in accordance with the instructions of the ASB.

Corrective Action:

- (2) If, during the inspection as required by paragraph (1) of this AD, any damage is detected, or a non-conforming slot radius is found, exceeding the acceptability criteria as defined in the ASB, before next flight, replace that affected part with a serviceable part in accordance with the instructions of the ASB.

Modification:

- (3) For Group 2 engines: Before the affected part accumulates the number of cycles since first installation on an engine as specified in Attachment D of the ASB, as applicable to engine model and s/n, or within 9 months after the effective date of this AD, or during the next engine shop visit after 22 June 2017 [the effective date of EASA AD 2017-0100], whichever occurs first, replace the affected part with a serviceable part in accordance with the instructions of the ASB.
- (4) For Group 3 engines: Within 60 months, or during the next engine shop visit, whichever occurs first after 22 June 2017 [the effective date of EASA AD 2017-0100], replace the affected part with a serviceable part in accordance with the instructions of the ASB.

Credit:

- (5) Inspection, corrective action(s) and modification of an engine, accomplished before the effective date of this AD in accordance with the instructions of the original issue of the ASB, are acceptable to comply with the requirements of paragraphs (1) and (2), (3) or (4) of this AD, as applicable, for that engine.

Part(s) Installation:

- (6) Do not install on any engine an affected PT disc as required by paragraph (6.1), (6.2) or (6.3) of this AD, as applicable.
 - (6.1) For Group 1 engines: After inspection of the engine as required by paragraph (1) of this AD.
 - (6.2) For Group 2 and Group 3 engines: After modification of the engine as required by paragraph (3) or (4) of this AD, as applicable.
 - (6.3) For Group 4 engines: From the effective date of this AD.



Ref. Publications:

GE Aviation Czech ASB-M601E-72-50-00-0069, ASB-M601D-72-50-00-0052, ASB-M601T-72-50-00-0028, ASB-M601F-72-50-00-0035 and ASB-M601Z-72-50-00-0038 (single document), original issue dated 21 February 2017 and Revision 1 dated 15 March 2019.

The use of later approved revisions of this document 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: GE Aviation Czech, Beranových 65, 199 02 Praha 9 – Letňany, Czech Republic Tel.: +420 222 538 999; E-mail: tp.ops@ge.com.

