Airworthiness Directive

AD No.: 2022-0044R1

Issued: 29 April 2022

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:

SOLO KLEINMOTOREN GmbH

Type/Model designation(s):

Solo 2350 C and 2350 D engines

Effective Date:	Revision 1: 29 April 2022 Original issue: 29 March 2022
TCDS Number(s):	EASA.E.219
Foreign AD:	Not applicable
Revision:	This AD revises EASA AD 2022-0044 dated 15 March 2022, which superseded EASA AD 2015-0052R1 dated 19 November 2015.

ATA 72 – Engine – Modification / Inspection

Manufacturer(s):

SOLO Vertriebs- und Entwicklungs- GmbH (Solo), formerly Solo Kleinmotoren GmbH

Applicability:

Solo 2350 C and 2350 D engines, all manufacturer serial numbers, known to be installed on DG-Flugzeugbau Model DG-1000T powered sailplanes (Solo 2350 C) and certain Schempp-Hirth powered sailplanes (Solo 2350D).

Definitions:

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

The SB: Solo Service Bulletin (SB) 4603-17 for 2350 C engines, and SB 4603-19 for 2350 D engines, as applicable.

Affected part: Excentre shaft/axle, having Part Number (P/N) 2031216 (for 2350 C engines), or P/N 2031211 (for 2350 D engines).

Serviceable part: Excentre shaft/axle, having P/N 2031211 V2.

Reason:

In 2013 an occurrence was reported on a Solo 2350 C engine of rupture of the excentre axle and consequent shaft failure and propeller detachment. To address this unsafe condition, EASA issued Emergency AD 2013-0217-E to prohibit operation of the engine. That AD was later revised to introduce an optional modification (Solo SB 4603-14) to install a modified excentre pulley-axle, allowing to resume operation of the engine.

Since EASA AD 2013-0217R1 was issued, in 2015 another occurrence was reported on a Solo 2350 C engine of rupture of the excentre axle and consequent shaft failure and propeller detachment, which had resumed operation after being modified in accordance with Solo SB 4603-14.

Consequently, EASA issued Emergency AD 2015-0052-E, which superseded AD 2013-0217R1, to prohibit again operation of all Solo 2350 C engines. That AD was later revised to introduce new, improved optional modifications, developed by Solo (SB 4603-17) and by DG Flugzeugbau GmbH (Technical Note (TN) 1000/26) which include replacement of excentre pulley-axle and installation of an elastomeric damper element between the propeller and the upper pulley.

Since EASA AD 2015-0052R1 was issued, a similar occurrence of rupture of the excentre axle and consequent shaft failure and propeller detachment was reported on a Solo 2350 D engine, installed on a Schempp-Hirth powered sailplane.

This condition, if not detected and corrected, could lead to additional cases of shaft/axle failure and consequent release of the propeller, possibly resulting in damage to the sailplane, or injury to persons on the ground.

Therefore, Solo also introduced for its 2350 D engines the installation of a modified excentre pulley-axle, in accordance with drawing 2031211-V2, and issued SB 4603-19, providing in-service modification instructions, and EASA issued AD 2022-0044, retaining the requirements of EASA AD 2015-0052R1, which was superseded, and additionally required modification of Solo 2350 D engines. That AD also required, for those engines, a one-time inspection of the propeller shaft to detect possible cracks, reporting of the results, and corrective action(s) in case of findings. Finally, that AD introduced a life limit for serviceable parts and prohibited (re)installation of affected parts, as defined in that AD.

Since that AD was issued, EASA received several comments, mainly about the fact that the AD requires (within 30 day after AD effective date) an inspection of ‘all’ Solo 2350 D engines, (irrespective how many hours these have run), and modification of ‘all’ Solo 2350 D engines, (within 30 days after AD effective date, or before exceeding 30 ‘engine’ operating hours, whichever occurs later), therefore, including engines that are relatively new or recently modified, having an affected part installed with only (very) few operating hours.

Following further investigation, a life limit of 30 hours was introduced by the TC holder for the ‘old’ excentre axles (affected part) and it was determined that the inspection of (removed) affected parts as required by paragraph (4) of the original AD is not appropriate. In addition, modification of a Solo

2350 D engine is not considered necessary before the installed affected part accumulates 30 operating hours since initial installation on an engine.

Consequently, this AD is revised to remove the calendar time limitation of 30 days for the 2350 D engine modification. This AD also deletes the paragraphs (4) and (5) which contained inspection requirements for affected parts removed from the engine (after replacement with a serviceable part), which are outside the scope of an AD.

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

Required as indicated, unless accomplished previously:

Modification:

(1) For Solo 2350 C engines, except those modified in accordance with Solo Kleinmotoren GmbH drawing 2031211-V2: Before next flight after 31 March 2015 [the effective date of the original issue of EASA AD 2015-0052], modify the engine in accordance with the instructions of the SB.

(2) For Solo 2350 C engines installed on DG-Flugzeugbau Model DG-1000T powered sailplanes, except those modified in accordance with DG-Flugzeugbau drawing 10 M 067: Concurrently with the modification as required by paragraph (1) of this AD, modify the engine in accordance with the instructions of the SB and the instructions of DG Flugzeugbau TN 1000/26.

(3) For Solo 2350 D engines: Before the engine exceeds 30 operating hours since first installation on a sailplane, or before the affected part exceeds 30 operating hours since first installation on an engine, whichever occurs later, modify the engine in accordance with the instructions of the SB.

Note 1: It is allowed to operate a powered sailplane, having an affected Solo 2350 C or 2350 D engine installed that is not (yet) modified as required by this AD, as a sailplane (engine inoperative), provided this is done in accordance with the limitations and instructions as specified in the applicable powered sailplane's flight manual.

Inspection / Reporting:

(4) DELETED – The intent of this paragraph was to inspect the removed affected part and report the results to Solo, or to return the removed part to Solo for inspection. These actions cannot be required by AD, as its purpose is to make the engine safe for operation (correct the unsafe condition), which is achieved by the required modification.

Corrective Action(s):

(5) DELETED.

Life Limitation:

(6) After modification of an engine as required by this AD, before exceeding 50 hours of engine operation, replace the serviceable part, as defined in this AD, with a new (not previously installed) serviceable part or a serviceable part that has not (yet) reached its life limit.

Part(s) Installation:

(7) From 29 March 2022 [the effective date of this AD at original issue], do not install an affected part on any engine.

Ref. Publications:

Solo Kleinmotoren GmbH Inspection Instruction 4603-1 dated 26 March 2015.

Solo Kleinmotoren GmbH SB 4603-17 dated 15 July 2015.

Solo Kleinmotoren GmbH SB 4603-19 dated 31 January 2022.

DG Flugzeugbau TN 1000/26 dated 23 September 2015.

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. 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:
   Regarding Solo Inspection Instruction 4603-1, SB 4603-17 and SB 4603-19:
   Solo Vertriebs- und Entwicklungs-GmbH, Postfach 600152, 71050 Sindelfingen, Germany,
   Telephone: +497031301-0, Fax: +497031301-136, E-Mail: aircraft@solo-germany.com.

   Regarding TN 1000/26:
   DG Aviation GmbH, Otto Lilienthal Weg 2 / Am Flugplatz, 76646 Bruchsal,
   Telephone: +4972513020-0, Fax: +4972513020-200, E-mail: wassenaar@dg-aviation.de.