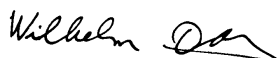


- Gegenstand : Bekanntgabe der EASA AD Nr. 2019-0029 und Solo TM 4603-18 betreffend Triebwerk Solo 2350C
a) Einbau einer Mutter mit Flansch an der Exzenterachse.
b) Beschränkung der Lebensdauer der Kugellager am Lagerbock des Untersetzungsgetriebes auf 15 Jahre Betriebszeit.
- Subject : Introducing EASA AD No. 2019-029 and Solo SB 4603-18 concerning Solo engine 2350C
a) Introduction of a nut with flange at the excentric axle.
b) Intoduction of a lifetime limit of 15 years of operation for the ball bearings at the bearing block of the reduction gear.
- Betroffen : DG-1000
Applicability : Baureihe/variant DG-1000T alle W.Nr. / all ser. No.s
- Dringlichkeit : Bis zur nächsten Jahresnachprüfung.
Effectivity : Before the next annual inspection
- Vorgang : Die EASA AD Nr. 2019-0029 und die Solo TM 4603-18 wurden veröffentlicht. Davon sind alle in die DG-1000Ts eingebauten Motoren betroffen.
- Reason : EASA AD No. 2019-029 and Solo SB 4603-18 have been published. All engines installed in DG-1000Ts are affected.
- Massnahmen : Siehe Solo TM 4603-18 Vorgang, Maßnahmen, Materialliste und Hinweis mit Bildern.
Spannen der Riemen und Propellermontage siehe WHB DG-1000T Abschnitte 4.10.1 und 4.10.2.
Die Beschränkung der Lebensdauer der Kugellager der Propellerlagerung auf 15 Jahre ist in der Betriebszeitenübersicht Ihrer DG-1000T zu ergänzen.
- Instructions : See Solo SB 4603-18 Condition, Actions, Material list and note with pictures.
Drive belt tensioning and propeller-mounting see MM DG-1000T Sections 4.10.1 and 4.10.2.
The lifetime limit of 15 years of the ball-bearings of the propeller mounting must be added to the „Summary of operating hours“ of your DG-1000T.
- Anlagen/Attachments : SOLO TM/SB 4603-18, EASA AD No. 2019-0029
- Hinweise/Remarks : 1. Die Arbeiten sind in einem zertifizierten Instandhaltungsbetrieb durchzuführen und von einer freigabeberechtigten Person freizugeben.
The change has to be done in a certified maintenance organization and released by certifying staff.
2. Beim Tausch der Propellerachse (TM1000/26 Maßnahme 3) wurden normalerweise keine neuen Kugellager eingebaut. Falls neue Kugellager eingebaut wurden, so wurde dies von der Fa. Solo in ihrem Form 1 vermerkt.
When the propeller axle was replaced (TN1000/26 instructions 3) in general the ball-bearing haven't been replaced. If the ball-bearings have been replaced the Solo company has mentioned it in their Form 1).

Bruchsal 12.02.2019

Bearbeiter/Author:
Dipl. Ing. Wilhelm Dirks



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Motortyp: Solo 2350B, 2350BS, 2350C, 2350D
Engine type: Solo 2350B, 2350BS, 2350C, 2350D

Gegenstand a) Einbau einer Mutter mit Flansch an der Exzenterachse.
b) Beschränkung der Lebensdauer der Kugellager am Lagerbock des Untersetzungsgetriebes auf 15 Jahre Betriebszeit.

Subject a) Introduction of a nut with flange at the excentric axle.
b) Intoduction of a lifetime limit of 15 years of operation for the ball bearings at the bearing block of the reduction gear.

Betroffen: Alle Werknummern der Motoren 2350B, 2350BS, 2350C und 2350D
Affected All serial numbers of the engines 2350B, 2350BS, 2350C and 2350D
In Serie ab den Werknummern:
In serial production from serial numbers:

2350BS	2350C	2350D
1134	2187	362

Dringlichkeit Bis zur nächsten Jahresnachprüfung.
Urgency Before the annual check.

Vorgang a) Propeller vom Motor demontieren. Splint, Spannstift oder Drahtsicherung entfernen und Mutter an der Exzenterwelle lösen und abschrauben. Neue Mutter mit Flansch montieren und bis zum Anschlag festziehen. Dann wieder lösen bis eine der Nuten mit der Bohrung in der Exzenterachse fluchtet. Spannstift (bei 2350C), Splint (bei 2350B, 2350BS) oder Drahtsicherung (2350D) montieren. Propeller wieder montieren. Material siehe Materialliste.
b) Propeller vom Motor demontieren. Sicherungsstift, Splint oder Drahtsicherung entfernen und Mutter an der Exzenterwelle lösen und abschrauben. Klemmschrauben am Lagerbock lösen und Riemen durch verdrehen der Exzenterachse entspannen. Exzenterachse mit Riemenscheibe ausbauen. Kugellager wechseln (siehe Hinweise zum Zerlegen und Zusammenbau). Exzenterachse mit Riemenscheibe wieder einbauen. Riemen montieren und Riemenspannung durch Verdrehen der Achse einstellen. Propeller wieder montieren.

Condition a) Dismantle the propeller from the engine. Remove the safety pin, cotter pin or the safety wire and dismantle the nut at the excentric shaft. Mount the new nut with flange up to the stop. Then loosen the nut until one of the slots in the nut is in line with the bore in the axle. Mount the spring-type pin (2350C), cotter pin (2350B, 2350BS) or the safety wire (2350D). Then mount the propeller. Material see bill of material.
b) Dismantle the propeller from the engine. Remove the safety pin, the cotter pin or the safety wire and dismantle the nut at the excentric shaft. Loosen the clamping screws and loosen the tension of the drive belts by rotating the excentric shaft. Dismantle the shaft together with the pulley from the reduction gear. Replace the two ball bearings (See hints for dismantling and assembly). Assemble the excentric shaft together with the pulley to the reduction gear. Assemble the belts and adjust tension by rotating the excentric axle. Assemble the propeller to the pulley.

Datum / Date: 12.12.2018	Ersetzte Ausgabe / replaced issue -----	Verantw. Person/respons. person W. Emmerich
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Maßnahmen Die Arbeiten sind in einem zertifiziertem Instandhaltungsbetrieb durchzuführen und von einer freigabeberechtigten Person freizugeben.
 Actions The change has to be done in a certified maintenance organization and released by certifying staff.

Material Siehe folgende Liste

Material See the following bill of material

Teile die entfallen/Parts which are obsolete			
Pos.	Teilenummer/ Part-No.	Menge/Number of pieces	Bezeichnung/Description
Teil a) / part a)			
1	0042319	1	Splint / cotter pin
2	0028143	1	Sechskantmutter / Hex-nut
Teil b) / part b)			
1	0050110	2	Kugellager - 25 x 52 x 15 - 6205 - 2 RS / Ball bearing

Neue Teile/New parts			
Pos.	Teilenummer/ Part-No.	Menge/Number of pieces	Bezeichnung/Description
Teil a) / part a)			
1	0028143-V2	1	Flanschmutter / flange-nut
2	na	1	Sicherungsdraht / safety wire beim Motor 2350D
3	0042319	1	Splint / cotter pin beim Motor 2350 B und BS, DG 1000T, Antares
4	0042323	1	Spannhülse ISO 8752 4,5x30/ Spring-type straight pin beim Motor 2350C (Ventus cm)
	0042324	1	Spannhülse ISO 8752 5x30/ Spring type straight pin wenn Bohrung in der Welle 5 mm
	0510985	1	Teilesatz bestehend aus den Positionen 1 – 4 Parts kit containing pos. 1 -4
Teil b) / part b)			
1	0050110	2	Kugellager - 25 x 52 x 15 - 6205 - 2 RS / Ball bearing

Datum / Date: 12.12.2018	Ersetzte Ausgabe / replaced issue -----	Verantw. Person/respons. person W. Emmerich
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Hinweis

Zerlegen und Zusammenbau der Riemenscheibe mit Lagern.

1. Riemenscheibe mit Achse und Lagern im Ofen auf 160°C erwärmen. Achse mit Stift nach hinten heraustreiben. Dabei verbleibt das hintere Lager auf der Achse (Bild 1).
2. Vorderes Lager im warmen Zustand ausbauen (Bild 2)
3. Lager von der Achse mit Abzieher ausbauen.
4. Achse und Riemenscheibe reinigen.
5. 1 Lager und die Riemenscheibe auf 160°C erwärmen (Bild 3).
6. Erwärmtes Lager auf Achse stecken, beim Motor 2350D Distanzhülse aufstecken (Bild 4).
7. Wenn das Lager wieder abgekühlt ist wird die Achse mit Lager in die erwärmte Riemenscheibe gesteckt (Bild 5).
8. Vorderes Lager mit einer Presse montieren. Dabei kann die Riemenscheibe abgekühlt sein (Bild 6).
9. Flanschnutter und Sicherung montieren wie oben beschrieben.

Note

Dismantling and assembly of the pulley with bearings.

1. Heat the pulley with axle and bearings to 160°C (320°F). Drive axle with pin backwards. The rear bearing remains on the axle. (Pic. 1).
2. Remove the front bearing in hot condition (Pic. 2).
3. Remove the bearing on the axle with a puller.
4. Clean axle and pulley
5. Heat 1 bearing and the pulley to 160°C (320°F) (Pic.3)
6. Assemble the heated bearing with the axle. Assemble the spacer with the axle for the engine 2350D (Pic. 4).
7. After the bearing on the axle has cooled down to room temperature assemble the axle with the bearing into the heated pulley (Pic. 5)
8. Assemble the front bearing with a manual press. The pulley can be at room temperature (Pic. 6)
9. Assemble the safety nut and the safeguard as described above.

Datum / Date: 12.12.2018	Ersetzte Ausgabe / replaced issue -----	Verantw. Person/respons. person W. Emmerich
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Bilder / Pictures



Bild 1 / Picture 1



Bild 2 / Picture 2



Bild 3 / Picture 3



Bild 4 / Picture 4



Bild 5 / Picture 5



Bild 6 / Picture 6

Datum / Date:
12.12.2018

Ersetzte Ausgabe / replaced issue

Verantw. Person/respons. person
W. Emmerich



Airworthiness Directive

AD No.: 2019-0029

Issued: 08 February 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:

SOLO KLEINMOTOREN GmbH

Type/Model designation(s):

Solo 2350 engines

Effective Date: 22 February 2019

TCDS Number(s): EASA.E.219

Foreign AD: Not applicable

Supersedure: None

ATA 72 – Engine – Propeller Reduction Gear Excentric Axle Bearings – Replacement

Manufacturer(s):

SOLO Kleinmotoren GmbH (Solo)

Applicability:

Solo 2350 B, 2350 BS, 2350 C and 2350 D engines, all serial numbers.

These engines are known to be installed on, but not limited to, powered sailplanes manufactured by DG Flugzeugbau, Alexander Schleicher Segelflugzeugbau, Schempp-Hirth Flugzeugbau and Technoflug Leichtflugzeugbau.

Definitions:

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

The SB: Solo Kleinmotoren Technische Mitteilung/Service Bulletin (TM/SB) 4603-18.

Affected ball bearing: Ball bearing 25 x 52 x 15 – 6205-2-RS, Part Number (P/N) 0050110.

Serviceable ball bearing: Any affected ball bearing having accumulated less than 15 years since first installation on engine.

Affected part: Hex-nut P/N 0028143.



Serviceable part: Flange-nut P/N 0028143-V2.

Groups: Group 1 engines are those that have an affected part installed. Group 2 engines are those that have a serviceable part installed.

Reason:

An occurrence was reported of failure of the bearing of the upper pulley of the belt driven reduction gear, resulting in separation of the propeller from the engine.

This condition, if not corrected, could lead to similar occurrences, with possible reduced control of, and damage to, the aircraft.

To address this potential unsafe condition, Solo redesigned the nut securing the pulley bearing on the axle and introduced a life time limit of 15 years for the reduction gear bearings.

For the reason stated above, this AD requires replacement of affected parts with serviceable parts, and introduces a life limit for the affected ball bearings.

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

Required as indicated, unless accomplished previously:

Modification:

- (1) For Group 1 engines: Within 12 months after the effective date of this AD, modify the engine by replacing the affected part with a serviceable part in accordance with the instructions of the SB.

Ball Bearing Replacement / Life Limit:

- (2) For Group 1 and Group 2 engines: Before an affected ball bearing accumulates 15 years since first installation on an engine, or within 12 months after the effective date of this AD, whichever occurs later, replace that affected ball bearing with a serviceable ball bearing in accordance with the instructions of the SB.

Parts Installation:

- (3) From the effective date of this AD, do not install an affected part on any engine as required by paragraph (3.1) or (3.2) of this AD, as applicable.
 - (3.1) Group 1 engines: After modification of the engine as required by paragraph (1) of this AD.
 - (3.2) Group 2 engines: From the effective date of this AD.
- (4) From the effective date of this AD, it is allowed to install a ball bearing on any engine, provided it is a serviceable ball bearing and that, following installation, it is replaced as required by paragraph (2) of this AD.

Ref. Publications:

Solo Kleinmotoren TM/SB 4603-18 original issue dated 12 December 2018.



The use of later approved revisions of the above-mentioned 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. This AD was posted on 09 January 2019 as PAD 19-004 for consultation until 06 February 2019. 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.
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: Solo Kleinmotoren GmbH, Postfach 600152, 71050 Sindelfingen, Germany, Telephone: +49 7031301-0, Fax: +49 7031301-136, E-mail: aircraft@solo-germany.com.

