

SERVICE LETTER

NON-APPROVED MODIFICATIONS OR USE OF ROTAX® UNAPPROVED ENGINE COMPONENTS OR ACCESSORIES FOR ROTAX® AIRCRAFT ENGINES

SL-912 i-005 R1

SL-912-014 R5

SL-914-012 R5

SL-2ST-008 R5

This SL revises SL-912 i-005 Initial Issue, SL-912-014 R4, SL-914-012 R4 and SL-2ST-008 R4 dated 23. July 2014

Repeating symbols:

Please, pay attention to the following symbols throughout the Service Bulletin emphasizing particular information.

- ▲ **WARNING:** Identifies an instruction, which if not followed, may cause serious injury or even death.
- **CAUTION:** Denotes an instruction which if not followed, may severely damage the engine or could lead to suspension of warranty.
- ◆ **NOTE:** Information useful for better handling.
- | || A revision bar outside of page margin indicates a change to text or graphic.

1) Planning information

1.1) Engines affected

All versions of the engine type:

- 912 i (series/pre-series engines)
- 912 (series/pre-series engines)
- 914 (series/pre-series engines)
- 2-stroke UL-engines (series/pre-series engines)
- 2-stroke certified-engines (series/pre-series engines)

1.2) Concurrent ASB/SB/SI and SL

- SL-912-006/SL-914-006, "Use of third party after-market piston kits" current issue.

1.3) Reason

ROTAX® has been informed that third party after-market replacement kits, modifications and non-genuine ROTAX® components or accessories are presently being marketed. The manufacturer indicate partial diverse reasons such as performance increase, low fuel consumption etc. for their application. The various claims for increase in performance, fuel consumption reduction and enticing low prices are not approved by ROTAX® for ROTAX® aircraft engines.

- ▲ **WARNING:** The use of any third party after-market replacement kits, modifications and non-genuine ROTAX® components or accessories is not approved by ROTAX® and may result in engine damage and/or engine failure resulting in personal injury and/or death.

1.4) Subject

Non-approved modifications or use of ROTAX® unapproved engine components or accessories for ROTAX® aircraft engines.

1.5) Compliance

NONE - For Information Only

- ▲ **WARNING:** Non-compliance with these instructions could result in engine damage, personal injury or death!

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1.6) Approval

The technical content of this document is approved under the authority of DOA ref. EASA.21J.048.

1.7) Manpower

Estimated man-hours:

engine installed in the aircraft - - - manpower time will depend on installation and therefore no estimate is available from the engine manufacturer.

1.8) Mass data

change of weight - - - unknown.

moment of inertia - - - unknown.

1.9) Electrical load data

no change

1.10) Software accomplishment summary

no change

1.11) References

In addition to this technical information refer to current issue of

- Operators Manual (OM)
- Illustrated Parts Catalog (IPC)
- Installation Manual (IM)
- Maintenance Manual (MM)

◆ NOTE: The status of Manuals can be determined by checking the table of amendments of the Manual. The 1st column of this table is the revision status. Compare this number to that listed on the ROTAX WebSite: www.flyrotax.com.

Updates and current revisions can be downloaded for free.

1.12) Other publications affected

none

1.13) Interchangeability of parts

not affected

2) Material Information

none

3) Accomplishment / Instructions

3.1) Information about third party after-market replacement piston kits

The manufacturers of various modifications are suggesting that replacement of the parts in the ROTAX[®] engines can be easily undertaken by owners or operators. ROTAX[®] strongly recommends to have the maintenance, especially the removal and replacement of the engine components in ROTAX[®] engines carried out by ROTAX[®] authorized representatives, like an authorized Distributor, Service Center, or properly trained and endorsed technician.

▲WARNING: The use of non approved parts in ROTAX[®] engines is not recommended and is strongly discouraged.

No factory testing has been done with engines equipped with these third party replacement kits, modifications and non-genuine ROTAX[®] components or accessories in ROTAX[®] engines, therefore the effects on engine performance, reliability and serviceability cannot be predicted.

The design, materials and workmanship has not been verified. Defects in design, materials or construction may result in engine damage and / or catastrophic engine failure.

Use of third party replacement kits, modifications and non-genuine ROTAX[®] components or accessories or spare parts (e.g. pistons, cylinder, carburetor, fuel injection system, turbo charger retrofit set,...) may result in some of the following:

- cylinder and piston failure
- crankshaft or connecting rod failure
- damage to crankcase
- lean mixture operating conditions resulting in rough running and / or valve seat- and valve guide burning

- damage from detonation or pre-ignition
- hard starting
- damage to the reduction gear unit
- negative effect on different systems (fuel system, lubrication system, cooling system)

The manufacturers of some third party replacement kits also supplying instructions for the removal and replacement of components in the ROTAX[®] engines. These instructions may not be complete and may lead to engine damage during disassembly or re-assembly of the engine.

Engine damage may also occur due to incorrect re-assembly of the engine or by the improper reuse of parts such as O-rings and seals.

▲WARNING: Removal and replacement of components in the ROTAX[®] engines is a procedure that requires the correct tools and proper training, and should not be attempted outside of an authorized ROTAX[®] Distributor or Service Center.

Damages resulting from the use of any improper third party replacement kits, improper modifications and improper non-genuine ROTAX[®] components or accessories will not be covered by the ROTAX[®] limited warranty on the engine.

3.1.1) Example of a “repaired” crankshaft

(see fig. 1, 2 and 3)

A supposed exchange crankshaft was purchased and was tested for its quality of repair and overhaul according to the ROTAX[®]-instructions and following was found:

- The crankshaft has a ROTAX[®] part no. 888164 and a serial number (S/N) of S/N 11798, but was not marked as overhauled and shows some serious deficiencies:
 - signs of corrosion in the area of the oil seal (see fig. 1)
 - crankshaft was beyond the out of round limit
 - torque at twist test was below limit
 - a conrod bearing shows signs of wear (see fig. 2)
 - contamination in the oil channels (see fig. 3)

Such a crankshaft is not airworthy and should not be installed or any parts reused according to ROTAX[®]-instructions.

◆ **NOTE:** The repair has neither a work report nor a release certificate (e.g. Form One Tag) available.

3.1.2) Example of a non-genuine ROTAX[®] oil filter

(see fig. 4, 5 and 6)

Based on reports from the field a non-genuine ROTAX[®] oil filter was tested for its quality and suitability according to the ROTAX[®]-instructions, where following was found:

- The oil filter infringes on copyright/without permission ROTAX[®] a ROTAX ENGINE Type 912/914 label (1) and has some serious technical deficiencies:
 - no by-pass valve (2) = in case of contamination this can lead to a completely blocked oil system
 - filter insert (3): shorter than the genuine = less filter surface and reduced dirt pick-up
 - no genuine ROTAX[®] part number
 - sharp-edged inner spring (4) = this can cause wear and cracks in the filter housing
 - no return-valve (5) = after switching-off the engine self-draining of the oil filter will not be avoided. When the engine is started again it will require a longer time (less film lubrication) until the necessary operating pressure is reached.

Such an oil filter is not airworthy and should not be installed or be further used according to ROTAX[®]-instructions.

3.1.3) Example of a non-genuine ROTAX[®] electric starter

(see fig. 7, 8 and 9)

Based on reports from the field a non-genuine ROTAX[®] electric starter for ROTAX[®] 912/914 was verified for its quality and suitability according to the ROTAX[®]-instructions, where following was found:

- The electric starter uses a ROTAX[®] 912/914 engine label (1) without permission from ROTAX[®] and has some serious technical deficiencies:
 - no oil seal (1) in support (2)
 - ▲WARNING: This can cause oil return issues into the oil tank due to loss of crankcase pressure.
 - no genuine ROTAX[®] part number (4)
 - no standard serial number (4), which is signed on essential components for traceability at ROTAX[®]

Such an electric starter is not airworthy and should not be installed or be further used according to ROTAX[®]-instructions.

3.2) Recommendation

- Ensure before purchase the source and technical release of the part.
- For repaired and overhauled parts request the relevant report and take care that these are documented in accordance with ROTAX[®] instructions.
- For certified parts/engines request further on an Airworthiness Approval Tag.

3.3) Summary

- The use of any third party replacement kits, modifications and non-genuine ROTAX[®] components or accessories for ROTAX[®] engines is NOT approved by ROTAX[®] and is very strongly discouraged.
- Use of any improper third party replacement kits, improper modifications and non-genuine ROTAX[®] components or accessories may cause engine damage resulting in catastrophic engine failure.
- Damages resulting from the use of any improper third part replacement kits, improper modifications and improper non-genuine ROTAX[®] components or accessories will not be covered by the ROTAX[®] limited warranty on the engine.

Approval of translation to best knowledge and judgement - in any case the original text in German language and the metric units (SI-system) are authoritative.

4) Appendix

the following drawings should convey additional information:



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fig. 1



08366

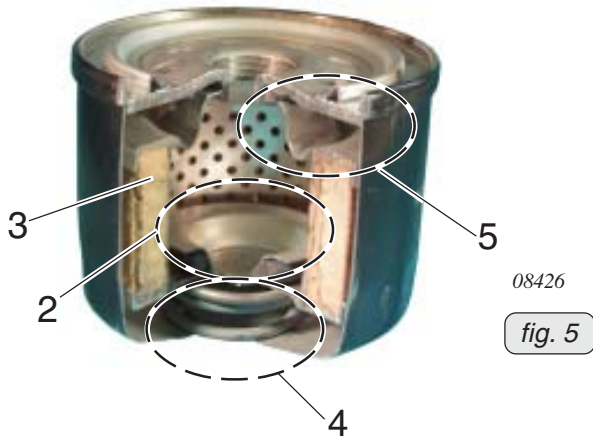
fig. 2



08367

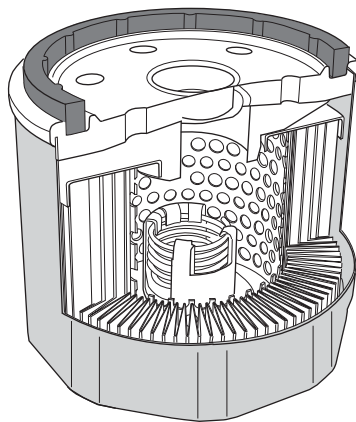
fig. 3

non-genuine ROTAX® oil filter



- 1 label
- 2 by-pass valve
- 3 filter insert
- 4 spring
- 5 no return valve installed

genuine ROTAX® oil filter



non-genuine ROTAX® electric starter



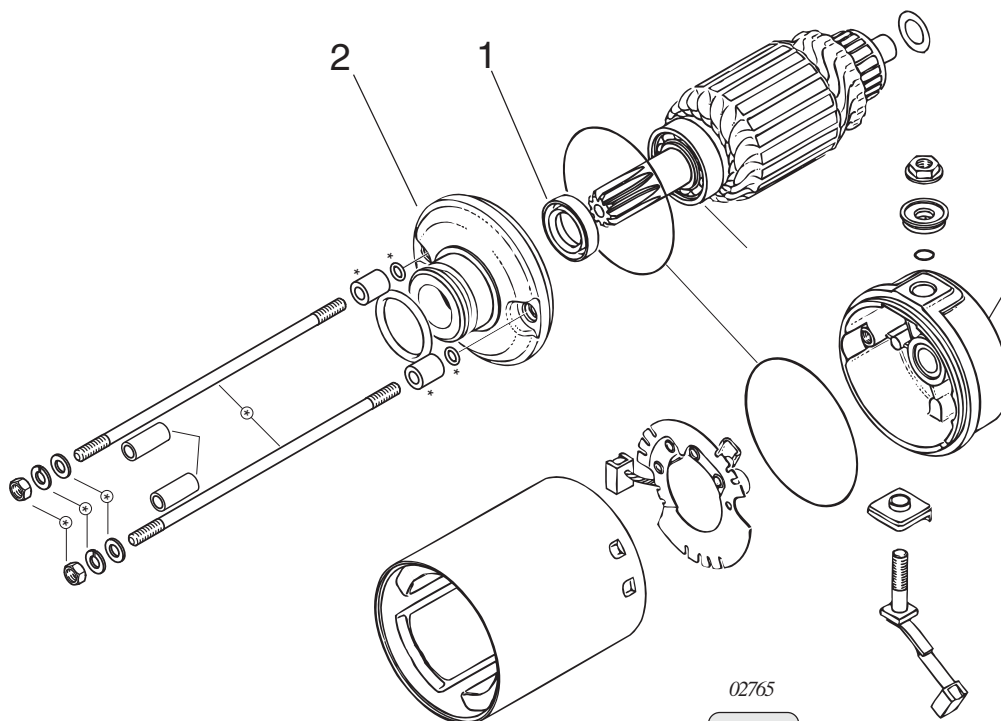
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fig. 7

- 1 oil seal
- 2 support
- 3 label
- 4 ROTAX® part number and serial number



genuine ROTAX® electric starter



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fig. 9

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fig. 8



09467

◆ NOTE: The illustrations in this document show the typical construction. They may not represent full detail or the exact shape of the parts which have the same or similar function. Exploded views are **no technical** drawings and are for reference only. For specific detail, refer to the current documents of the respective engine type.