

# Non-approved modifications or use of ROTAX® unapproved engine components or accessories for ROTAX® Aircraft Engines

ATA System: 00-00-00 General

## 1) Planning information

To obtain satisfactory results, procedures specified in this publication must be accomplished with accepted methods in accordance with prevailing legal regulations.

BRP-Rotax GmbH & Co KG cannot accept any responsibility for the quality of work performed in accomplishing the requirements of this publication.

### 1.1) Applicability

All versions of ROTAX® engine types:

Engine type	Serial number
912 i Series	all
915 i Series	all
916 i Series	all
912 Series	all
914 Series	all
2-stroke UL aircraft engines	all
2-stroke certified aircraft engines	all

### 1.2) Concurrent ASB/SB/SI and SL

In addition to this Service Letter the following documents must be observed and complied with:

- in general all relevant Alert Service Bulletins (ASB), Service Bulletins (SB), Service Instructions (SI), Service Letters (SL), Service Instruction - Parts and Accessories (SI-PAC) with relevance to perform this maintenance, repair or overhaul task.
- SL-912-006/SL-914-006, title "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.



Non-compliance with these instructions could result in engine damages, personal injuries or death.

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.

## SERVICE LETTER

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### 1.4) Subject

Non-approved modifications or use of ROTAX<sup>®</sup> unapproved engine components or accessories for ROTAX<sup>®</sup> Aircraft Engines.

### 1.5) Compliance

NONE - For Information Only



Non-compliance with these instructions could result in engine damages, personal injuries or death.

### 1.6) Approval

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

### 1.7) Labor time

Estimated labor hours:

Engine installed in the aircraft ---labor time will depend on airframe 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 modifications

No change.

## 1.11) References

In addition to this technical information refer to current issue of

- in general Illustrated Parts Catalog (IPC)
- in general Operators Manual (OM)
- in general Installation Manual (IM)
- in general Maintenance Manual Line (MML)
- in general Maintenance Manual Heavy (MMH)

NOTE: The status of the Manuals can be determined by checking the table of amendments. The 1<sup>st</sup> column of this table shows the revision status. Compare this number to the one listed on the ROTAX website:

[www.flyrotax.com](http://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

### 2.1) Material

Price and availability will be provided on request by ROTAX® Authorized Distributors or their independent Service Centers.

### 2.2) Company support information

None.

### 2.3) Material requirement per engine

Not affected.

### 2.4) Material requirement per spare part

Not affected.

### 2.5) Rework of parts

None.

### 2.6) Special tooling/lubricants- /adhesives- /sealing compounds

None.

## 3) Accomplishment/Instructions

- ROTAX® reserves the right to make any amendments to existing documents, which might become necessary due to this standardization, at the time of next revision or issue.

### General

Further material on general inspection, maintenance and repair can also be found in relevant Advisory Circular AC 43.13 from FAA.

### Advisory Circular

The Advisory Circular (AC) contains maintenance methods, techniques and practices.

### 3.1) Illustrated Parts Catalog - related information



See current Illustrated Parts Catalog (IPC) for the respective engine type.

### 3.2) Installation - related information



See current Installation Manual (IM) for the respective engine type.

### 3.3) Operation - related information



See current Operation Manual (OM) for the respective engine type.

### 3.4) Maintenance (Line) - related information



See current Maintenance Manual Line (MML) for the respective engine type.

### 3.5) Maintenance (Heavy) - related information



See current Maintenance Manual Heavy (MMH) for the respective engine type.

### 3.6) 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

Non-compliance with these instructions could result in engine damages, personal injuries or death.

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 or more 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 are 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

Non-compliance with these instructions could result in engine damages, personal injuries or death.

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 a ROTAX® Authorized 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.

## SERVICE LETTER

### 3.6.1) Example of a “repaired” crankshaft

See Fig. 1.

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 (pos. 1)
  - crankshaft was beyond the out of round limit
  - torque at twist test was below limit
  - a conrod bearing shows signs of wear (pos. 2)
  - contamination in the oil channels (pos. 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.

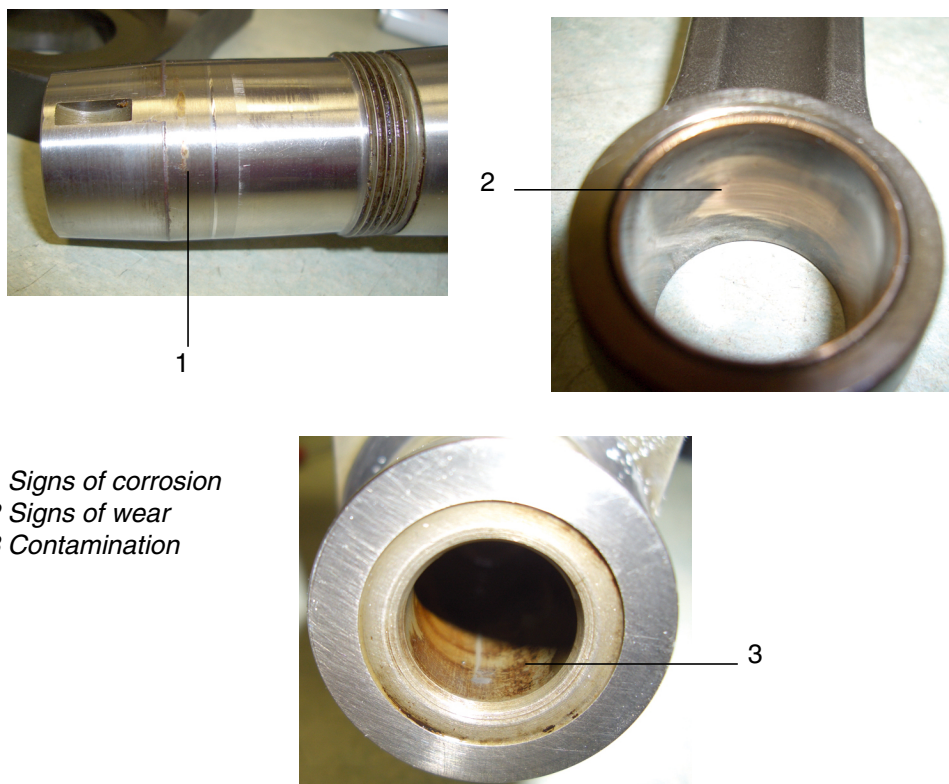


Fig. 1  
Crankshaft

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## 3.6.2) Example of non-genuine ROTAX® oil filter

See Fig. 2.

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 from ROTAX® a ROTAX ENGINE Type 912/914 label (pos. 1) and has some serious technical deficiencies:
  - no by-pass valve (pos. 2) = in case of contamination this can lead to a completely blocked oil system
  - filter insert (pos. 3): shorter than the genuine = less filter surface and reduced dirt pick-up
  - no genuine ROTAX® part number
  - sharp-edged inner spring (pos. 4) = this can cause wear and cracks in the filter housing
  - no return-valve (pos. 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

*non-genuine ROTAX® oil filter*

- 1 Label
- 2 By-pass valve
- 3 Oil filter insert
- 4 Spring
- 5 No return valve installed

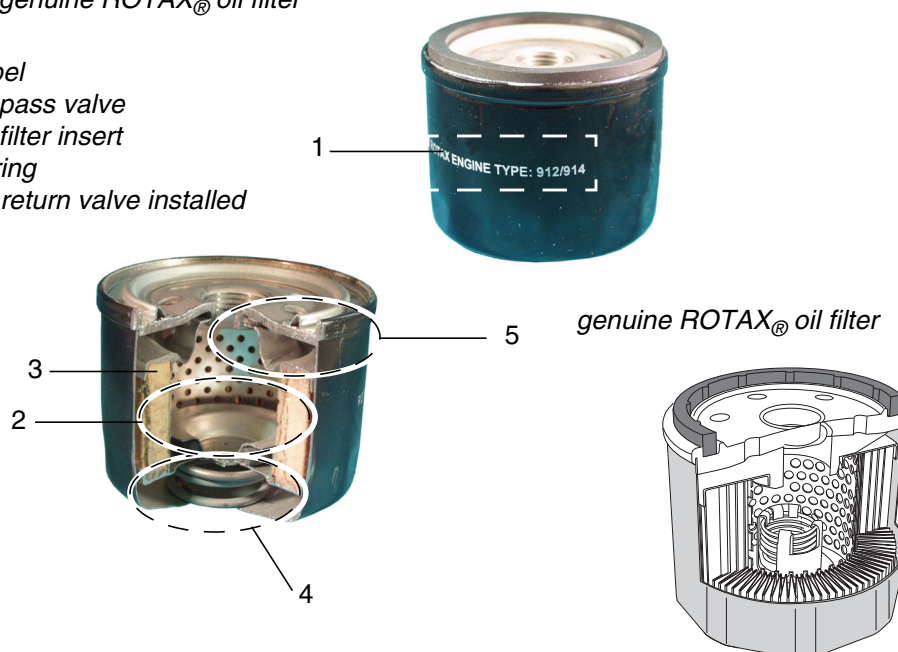


Fig. 2  
Oil filter

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## SERVICE LETTER

### 3.6.3) Example of a non-genuine ROTAX electric starter

See Fig. 3 and Fig. 4.

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 (pos. 5) without permission from ROTAX® and has some serious technical deficiencies:

- no oil seal (pos. 1) in support (pos. 2)

#### **⚠ WARNING**

Non-compliance with these instructions could result in engine damages, personal injuries or death.

This can cause oil return issues into the oil tank due to loss of crank-case pressure.

- no genuine ROTAX® part number (pos. 3)
- no standard serial number (pos. 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.

*Non-genuine ROTAX® electric starter*



*5 Engine label*



*Fig. 3*

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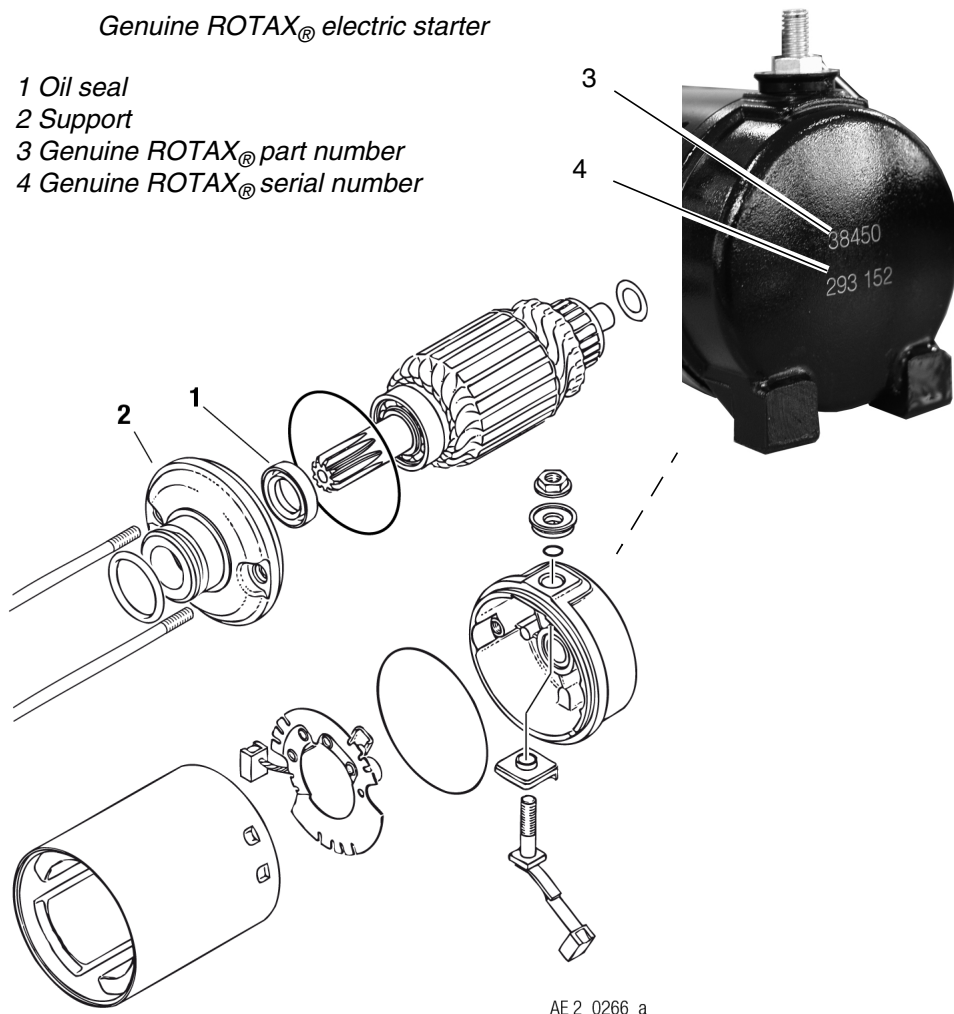
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# SERVICE LETTER

## Genuine ROTAX® electric starter

- 1 Oil seal
- 2 Support
- 3 Genuine ROTAX® part number
- 4 Genuine ROTAX® serial number



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Fig. 4

## SERVICE LETTER

### 3.6.4) Example of a non-genuine ROTAX® air filter

See Fig. 5.

Based on reports from the field a non-genuine ROTAX® air filter for ROTAX® 915 iS engine was verified for its quality and suitability according to the ROTAX® instructions, where following was found:

- A 9 mm (0.355 in.) hole (pos. 1) was present at the clamping side of the filter. This can allow unfiltered air, moisture and contamination to be ingested and damage turbocharger and other internal engine components
- no ROTAX® logo nor no genuine ROTAX® part number (pos. 2) was present

Such an air filter is not airworthy and should not be installed or be further used according to ROTAX® instructions.

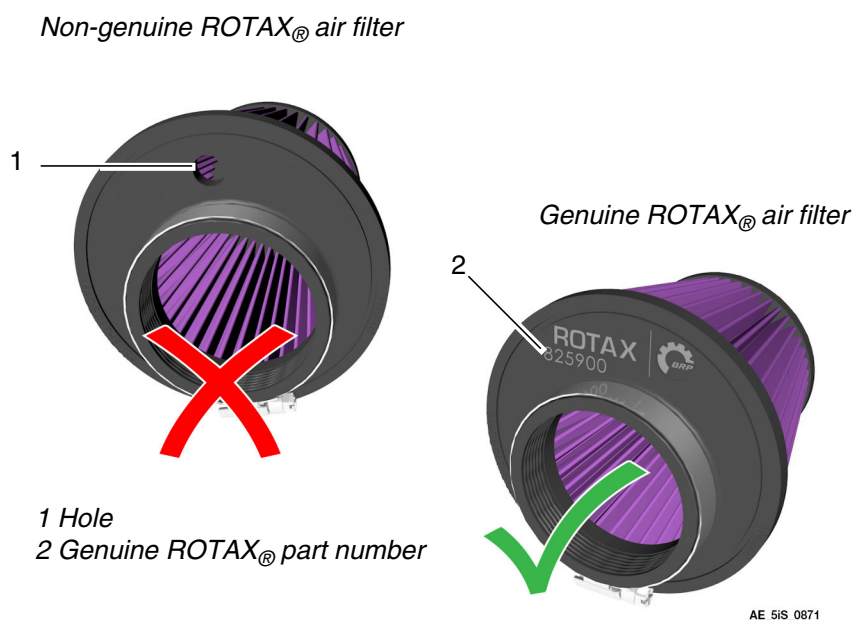


Fig. 5

### 3.7) 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.

## SERVICE LETTER

### 3.8) 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 replacements kits, improper modifications and improper non-genuine ROTAX® components or accessories will not be covered by the ROTAX® limited warranty on the engine.

The execution of the Service Letter must be confirmed in the logbook.

NOTE: Work on EASA certified parts might affect the EASA Form 1 and does require appropriate documentation by authorized persons. Repairs must be entered into the engine logbook and also do apply for the EASA Form 1.

A revision bar outside of the page margin indicates a change to text or graphic.

Translation into other languages might be performed in the course of language localization but does not lie within ROTAX® scope of responsibility.

In any case the original text in English language and the metric units are authoritative.

### 3.9) Inquiries

Inquiries regarding this Service Letter should be sent to the ROTAX® Authorized Distributor of your area.

A list of all ROTAX® Authorized Distributors or their independent Service Centers is provided on <https://dealerlocator.flyrotax.com>.

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 **not technical drawings** and are for reference only. For specific detail, refer to the current documents of the respective engine type.