



# SERVICE INSTRUCTION

## RUNNING MODIFICATIONS ON ROTAX® 2-STROKE UL AIRCRAFT ENGINES SI-2ST-004 R1

### Repeating symbols:

Please, pay attention to the following symbols throughout this document 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.

### 1) Planning information

#### 1.1) Engines affected

All versions of the engine type:

- 447 UL SCDI
- 503 UL DCDI
- 582 UL DCDI mod. 90/99
- 618 UL DCDI

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

none

#### 1.3) Reason

ROTAX® reserves the right to change or render ineffective specifications, design, details, models or equipment at any time, without assuming any liability.

#### 1.4) Subject

Running modifications on ROTAX® 2-stroke UL aircraft engines.

#### 1.5) Compliance

NONE - For Information Only

#### 1.6) References

In addition to this technical information refer to current issue of

- Illustrated Parts Catalog (IPC)
- all relevant Service Instructions (SI)
- Maintenance Manual (MM)

### 2) Material Information

#### 2.1) Material - cost and availability

Price and availability will be supplied on request by ROTAX® Authorized Distributors or their Service Center.

#### 2.2) Special tooling/lubricant-/adhesives-/sealing compound - Price and availability

Price and availability will be supplied on request by ROTAX® Authorized Distributors or their Service Center.

### 3) Accomplishment / Instructions

#### Accomplishment

All the measures must be taken and confirmed by the following persons or facilities:

- ROTAX® -Distributors or their Service Centers
- Persons with type-specific training (applicable only for non-certified engines)

▲ **WARNING:** Proceed with this work only in a non-smoking area and not close to sparks or open flames. Switch off ignition and secure engine against unintentional operation.

- Secure aircraft against unauthorized operation.

- Disconnect negative terminal of aircraft battery.

▲ **WARNING:** Carry out work on a cold engine only.

▲ **WARNING:** Should removal of a locking device (e.g. lock tabs, self-locking fasteners, etc.) be required when undergoing disassembly/assembly, always replace with a new one.

#### 3.1) Introduction of a new rotary valve shaft unit on ROTAX® engine type 582 UL mod. 99

See fig. 1 and 2

By reason of standardization a new rotary valve shaft unit has been introduced on the 582 UL mod. 99.

The new rotary valve shaft (1) part no. 837 243 has two grooves for fixing the rotary valve shaft components.

■ **CAUTION:** At assembly of the rotary valve shaft components make sure to fit circlip (2) part no. 845 160 in the second groove of the rotary valve shaft (thus reaching a higher pretension on the rotary valve (3)). In the first groove, utilized on other engine types, no circlip shall be fitted!

◆ **NOTE:** For assembly details of the rotary valve shaft consult the relevant Illustrated Parts Catalog.

#### 3.2) Introduction of a new rotary valve seal and a shim on ROTAX® engine type 618 UL

See fig. 3

Owing to further development and standardization of parts the rotary valve seal (1) part no. 850 940 has been replaced by the rotary valve seal (2) part no. 850 942 along with an additional shim (3) part no. 944 382.

■ **CAUTION:** Because of the shorter design the new rotary valve seal (2) has to be fitted along with the shim (3).

◆ **NOTE:** For assembly details of the rotary valve shaft consult the relevant Illustrated Parts Catalog.

#### Parts requirement:

Fig.no.3	New p/n	Qty/engine	Description	Old p/n	Application
(1, 2)	850 942	1	rotary valve seal	850 940	rotary valve drive
(3)	944 382		shim		rotary valve drive

#### Special tooling:

Fig.no.3	New p/n	Qty/engine	Description	Old p/n	Application
	877 900	1	insert	877 255	rotary seal
	877 825		insertion jig		rotary seal

#### 3.3) New sealing components on reduction gearbox type „C“ and „E“

See fig. 4.

Owing to continuous refinement of the gearbox sealing a new combination of coupling flange (1) part no. 958 971 and oil seal (2) part no. 950 084 has been introduced.

■ **CAUTION:** A combination of components of old and new design must not be fitted i.e. the new type of coupling flange (1) with identification groove may only be fitted together with the new oil seal (2) part no. 950 084.

◆ **NOTE:** Commencing with production code O6 new sealing components has been introduced in serial production. The gasket set for the reduction gearbox type „C“ and „E“ contains the new oil seal (2) part no. 950 084, only.

#### Parts requirement:

Fig.no. 4	New p/n	Qty/engine	Description	Old p/n	Application
1	958 971	1	coupling flange	958 970	reduction gearbox type „C“ and „E“
2	950 084	1	oil seal	950 085	reduction gearbox type „C“ and „E“

### 3.4) Introduction of a new fly wheel on ROTAX® engine type 447 UL , 503 UL and 582 UL mod. 90/99

See fig. 5.

Owing to further development and standardization of parts a new fly wheel part no. 996822 (1) has been introduced.

In this connection the following changes became necessary:

- Omit the installation of washer (2) and lock washer (3) with the introduction of a new magneto flywheel with covered magnets and thus higher installation dimension of approx. 3mm (0.12 inch).
- Use of a new torx screw M5x16 (4) for stator plate (5) installation.

■ **CAUTION:** For the new magneto flywheel configuration part no. 996822 (1) the new torx screw (4) has to be used (tightening torque 6 Nm (55 in.lb.)). For the old design of the magneto flywheel (6) the allen screw (7) as well as the new torx screw (4) can be used for installation of the stator plate.

◆ **NOTE:** Due to the TUFLOK-coating of the torx screw it is necessary to remove the residues of the coating at disassembly and reuse. Use LOCTITE 221 in this case. Alternatively a new part can be installed.

#### **Parts requirement:**

<b>Fig.no.</b>	<b>5 New p/n</b>	<b>Qty/engine</b>	<b>Description</b>	<b>Old p/n</b>	<b>Application</b>
1	996822	1	magneto flywheel	996821	magneto generator
2	-	-	washer	927571	stator plate
3	-	-	lock washer	945750	stator plate
4	641521	2	torx-allen screw	840515	stator plate

- Restore aircraft to original operating configuration.

- Connect negative terminal of aircraft battery.

### 3.5) Summary

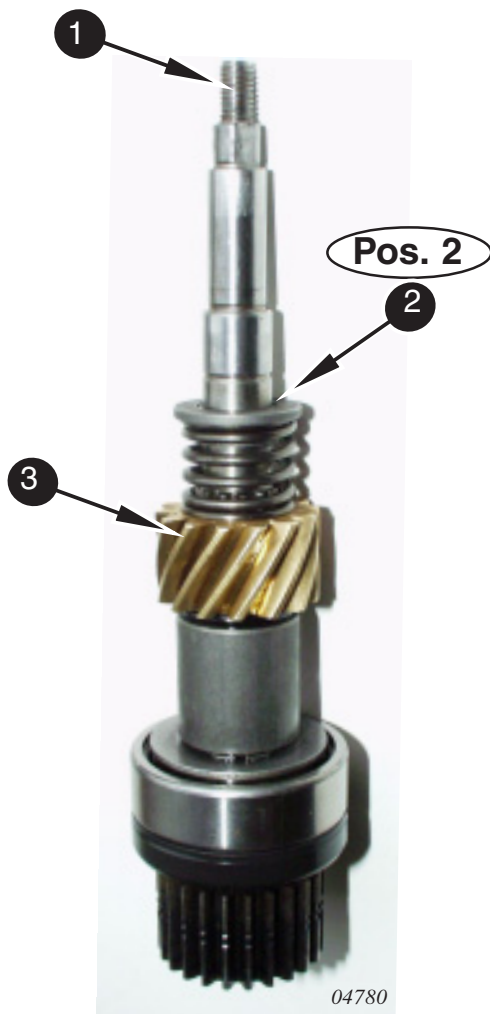
■ **CAUTION:** Use only genuine ROTAX® spare parts. If using other than genuine ROTAX® spare parts any warranty by ROTAX® is null and void (see warranty conditions).

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

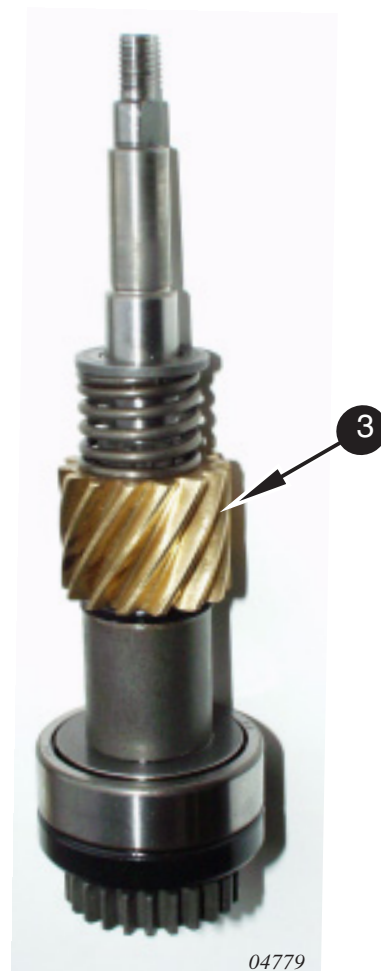
Following drawings should convey additional information:

Bild / Fig. 1



**582 UL mod. 99**

Bild / Fig. 2

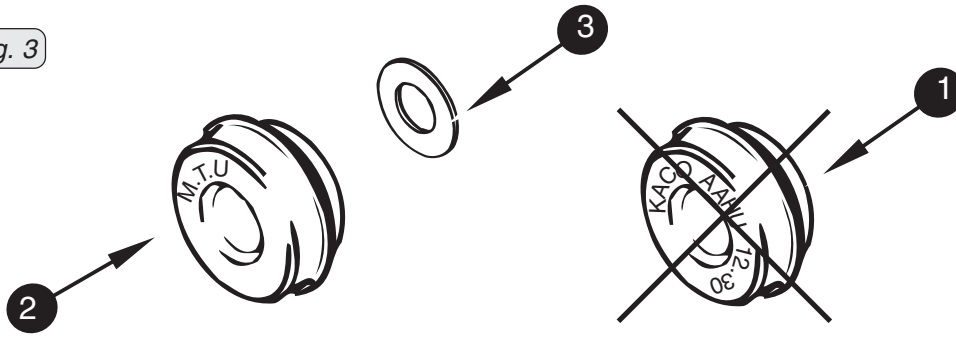


**582 UL mod. 90**

View: Rotary valve drive 582 UL  
Fig.: 1 and 2

Bild / Fig. 3

04738



### NEU / NEW

TNr.  
part no. 850 942

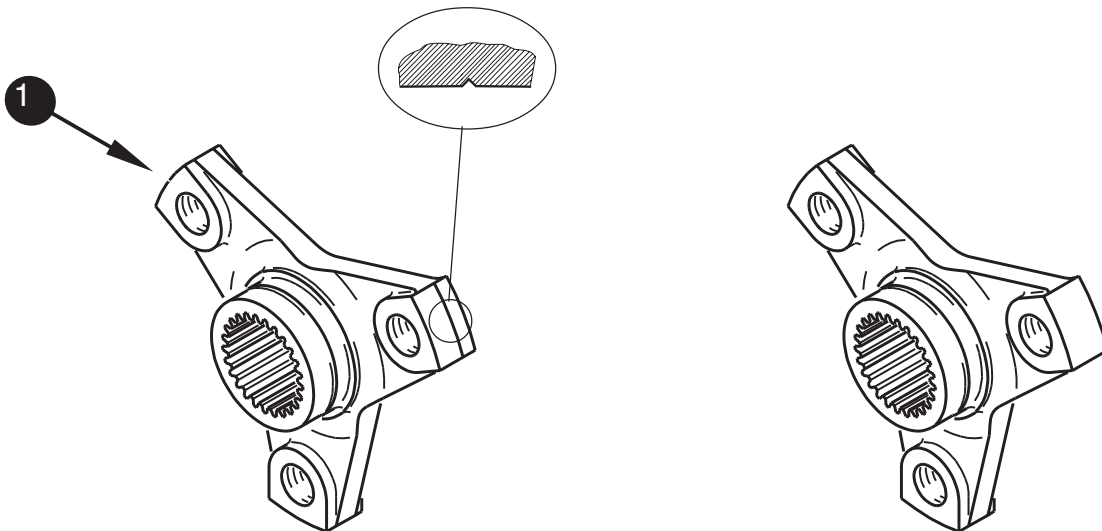
### ALT / OLD

TNr.  
part no. 850 940

Bild / Fig. 4

04763

Erkennungsrille  
identification groove



### NEU / NEW

TNr.  
part no. 958 971

### ALT / OLD

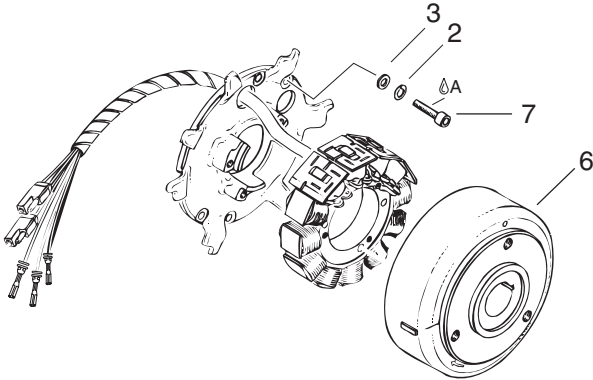
TNr.  
part no. 958 970

in Verwendung mit WD-Ring 950 084  
in use with sealing ring 950 084

in Verwendung mit WD-Ring 950 085  
in use with sealing ring 950 085

Bild / Fig 5

Loctite 221

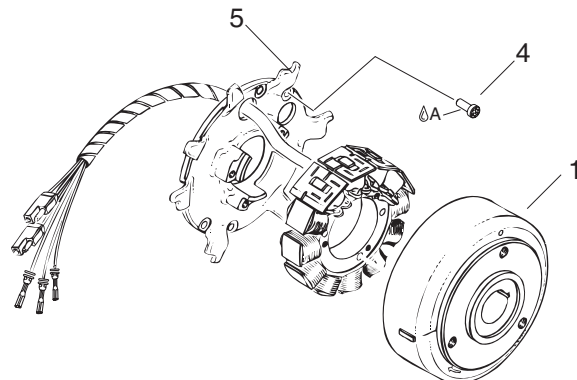


**ALT / OLD**

TNr. 996821  
part no.



07717



**NEU / NEW**

07719

TNr. 996822  
part no.



07718

◆ 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.