

SERVICE INSTRUCTION

RUNNING MODIFICATIONS ON ROTAX® ENGINE TYPE 912 AND 914 (SERIES) SI-25-1997

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.
- **ATTENTION:** 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:

- 912 Series all
- 914 Series all
- all 912 pre-series engines
- all 914 pre-series engines

1.2) Concurrent ASB/SB/SI and SL

none

1.3) Reason

ROTAX® reserves the right to abandon or modify specifications, design, details, models or equipment at any time without obligation.

1.4) Subject

Running modifications on ROTAX® engine type 912 and 914 (series).

1.5) Compliance

NONE - For Information Only

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

1.6) References

In addition to this technical information refer to

- current issue of the Operator's Manual (OM)
- engine data sheet
- power, torque and fuel consumption curves
- current issue of the Illustrated Parts Catalog (IPC)
- Installation Manual (IM) and Check List
- all relevant Alert Service Bulletins (ASB)
- all relevant Service Bulletins (SB)
- all relevant Service Instructions (SI)
- all relevant Service Letters (SL)
- Repair Manual (RM)
- Maintenance Manual (MM)
- Users Guide

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 will be supplied on request by ROTAX[®] Authorized Distributors or their Service Center.

3) Accomplishment / Instructions

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

- ROTAX[®] -Distributors or their Service Center
- Persons with the respective Aviation Authority
- Persons with type-specific training (applicable only for non-certified engines)

▲ **WARNING:** Proceed with this work only in a non-smoking area and not near 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) Modified muffler clamp on engine 914

In the course of continuous development a modified muffler clamp part no. 851 311 has been introduced instead of the exhaust clamp 851 310.

The tightening torque of the new clamp 851 311 is reduced from 20 Nm (180 in.lb.) to **15 Nm** (133 in.lb.).

3.2) Change of the slipping torque in the overload clutch

The slipping torque has been reduced to 475 ± 25 Nm (350±18 ft.lb.). Check has to be performed by ROTAX[®] authorized overhaul facilities.

3.3) Changing of the tightening torque for the oil pressure sensor

The tightening torque for the oil pressure sensor 956 357/956 355 and 956 410/956 415 has been reduced from 30 Nm (266 in.lb) to **15 Nm** (133 in.lb) and has to be considered for all 912 and 914 engines at the next assembly.

3.4) Changing of the tightening torque on the main current terminals of the starter relay and on the plus terminal of the electric starter

(see fig. 4)

The tightening torque of the cable connections on starter relay and on electric starter has been reduced from 8 Nm (70 in.lb) to **4 Nm** (35 in. lb). The new tightening torque has to be considered at assembly of all 912 and 914 engines.

Furthermore the fitting position of the electric starter is limited now to only one position from formerly two positions.

3.5) Changing of the tightening torque for the resistance thermometer

The tightening torque of the resistance thermometer 966 430 and 966 435 has been reduced from 20 Nm (178 in.lb) to **15 Nm** (133 in.lb). The new tightening torque has to be considered at next assembly of engine type 914.

3.6) Determination of the tightening torque for screw nipple of Bowden cable

Tighten torque for screw nipple of Bowden cable 897 940 (servo motor) has been specified to 2,5 Nm (22 in.lb). This tightening torque has to be considered at next assembly of engine type 914.

3.7) Introduction of a new O-ring as replacement part on the choke valve

(see fig. 2)

On the 912/914 carburetor parts list the O-ring part no. 850 510 has been replaced by O-ring 950 420. But consider when ordering parts, that the O-ring 850 510 remains in the list for the spare parts service of the electric starter 912/914.

3.8) Trigger coil kit, part no. 965 175 is not available any longer

(see fig. 3)

The trigger coil kit, part no. 965 175 and the trigger coil for the rev-counter, part no. 264 080 can not be supplied any more as from now on. For parts service the trigger coil kit **965 177** and rev-counter trigger coil **264 085** have to be ordered. Old and new version of these items are interchangeable but take note of the different trigger gap.

Trigger gap for trigger coil kit part no. 965 177: **0,3 - 0,4 mm**

(0,012 - 0,016 in.)

3.9) Employment of exhaust mufflers on 912 engines:

The exhaust muffler (part no. 973.670) especially designed for the ROTAX engines 912 S / ULS can be used also on the ROTAX engines 912 UL / A / F. Engine performance and specific fuel consumption remain unchanged or are slightly better when using this muffler (part no. 973.670).

The main advantage is the weight reduction. The weight is 2,2 kg, making this muffler 0,3 kg lighter than the muffler part no. 978.482.

By optimizing the design of the muffler part no. 973.670 the noise emission may seem subjectively higher compared with muffler part no. 978.482. The exact measuring of the actual noise emission can be conducted only when the muffler is installed in the aircraft.

3.10) Adjustment of the tightening torque of the crankcase fasteners

Owing to continuous development and standardization the Allen screws M6, M8 and M10 of the crankcase joint have been introduced in the strength group 10.9 and with DACROMET®-coating.

◆ NOTE: DACROMET®-screws can be recognized by their silver metallic finish. Up to now these screws were bright galvanized and are recognizable by the yellow finish.

The tightening torque for the Allen screw M8 in DACROMET®-coating has been changed from 25 Nm to **30 Nm** (266 in.lb).

The tightening torque for the Allen screws M6 was increased from 10 Nm to **12 Nm** (107 in.lb).

The tightening torque for the Allen screws M10 remains unchanged at 35 Nm (310 in.lb).

■ ATTENTION: The Allen screws M8 of the galvanized type must not be tightened excess of 25 Nm (221 in.lb).

The new type of Allen screws and the newly specified tightening torque are already in use on the following engines and have to be considered on the next engine repair or overhaul:

- 912 UL commencing with engine S/N 4,403.811
- 912 ULS commencing with engine S/N 4,425.963
- 912 ULSFR commencing with engine S/N 4,429.535
- 912 A commencing with engine S/N 4,410.402
- 912 F commencing with engine S/N 4,412.807
- 912 S commencing with engine S/N 4,922.568
- 914 UL commencing with engine S/N 4,417.896
- 914 F commencing with engine S/N 4,420.215

List of part no.:

item no.	New part no.	Qty.	Description	Old part no.	application
	440.427	2	Allen screw M8x100	440.421	crankcase
	640.932	1	Allen screw M8x90	440.361	crankcase
	440.217	2	Allen screw M8x80	440.211	crankcase
	841.847	1	Allen screw M8x65	841.841	crankcase
	640.942	2	Allen screw M8x45	841.561	crankcase 912
	640.942	1	Allen screw M8x45	841.561	crankcase 914
	840.887	9	Allen screw M6x30	840.880	crankcase
	440.107	1	Allen screw M8x50	841.566	crankcase 914
	941.487	1	Allen screw M10x110	941.481	engine suspension frame assy.
	841.946	2	Allen screw M10x50	640.572	engine suspension frame assy. 914
	840.947	3/1	Allen screw M10x35	840.941	engine suspension frame assy.

◆ NOTE: In case of repair use exclusively DACROMET®-screws for the crankcase joint.

■ **ATTENTION: Use only genuine ROTAX® replacement parts. Use of replacement parts other than ROTAX® parts will render any warranty granted by ROTAX® null and void.**

- Re-connect minus pole of the aircraft battery.

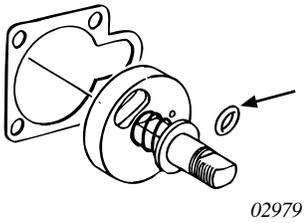
3.11) Summary

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

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:



O-Ring TNr. **850 510**
Identifizierung: schwarz
O-ring part no. **850 510**
Identification: black colour
Alt (old)

O-Ring TNr. **950 420**
Identifizierung: grün
O-ring part no. **950 420**
Identification: green colour
Neu (new)

Bild / Fig. 2

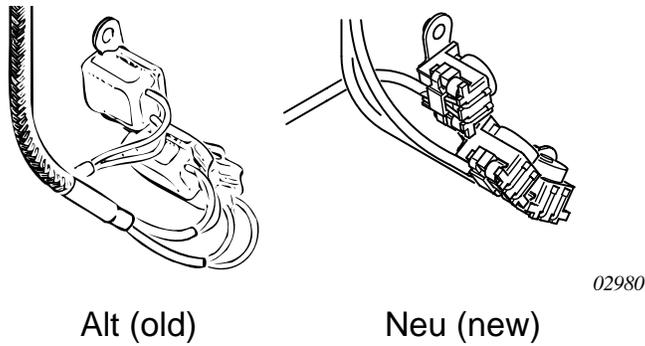


Bild / Fig. 3



Bild / Fig. 4