SERVICE BULLETIN
SPECIAL INSPECTION TO INCREASE THE TBO
FOR ROTAX® ENGINE TYPE 912 (SERIES)
SB-912-005UL

OPTIONAL

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.

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

1) Planning information

1.1) Engine affected

a) Extension of TBO is already valid for engine type 912 UL (Series) from 600 h to 1200 h or to 15 years period of operation:
   - 912 UL up to S/N 4,152,666
b) On all engines up to S/N 4,152,666 the 600 h examination has to be carried out to obtain the TBO of 1200 h or to 15 years.
c) From engine S/N 4,152,667 onwards the 1200 h TBO is covered by SB-912-004UL.

1.2) Concurrent ASB/SB/SI and SL

In addition to this Service Bulletin the following additional Service Bulletins/Service Instructions must be observed:

1.3) Reason

A program for extending the period of operation was carried out in agreement with the type Certificate Authority Austro Control GmbH (ACG). The TBO (engines concerned see section 1.1) can be extended on account of the positive results of the examined engines.

1.4) Subject

Special inspection to increase the TBO for ROTAX® Engine Type 912 (Series).
1.5) Compliance
At release of this Service Bulletin.

1.6) Approval
The technical content is approved under the authority of DOA No. EASA.21J.048.

1.7) Manpower
none

1.8) Mass data
change of weight - - - none.
moment of inertia - - - unaffected.

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)
- all relevant Service Bulletins (SB)
- 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.rotax-aircraft-engines.com. Updates and current revisions can be downloaded for free.

1.12) Other publications affected
The following Service Instruction as a consequence of these Service Bulletin will become invalid thus.
- SI-27-1994,“Special inspection to increase the TBO for ROTAX engine type 912 UL (Series), current issue.
For complete instructions and compliance to this Service Bulletin refer to Service Bulletin-SB -912-005, latest edition section 1.2 onward.

◆ NOTE: Section 1.6) Approval: Is not required for engines of the type UL (series).
Section 3) Accomplishment: In addition: persons with adequate type-specific training.

1.13) Interchangeability of parts
not affected
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) Company support information
- Shipping cost, down time, loss of income, telephone costs etc. or cost of conversion to other engine versions or additional work, as for instance simultaneous engine overhaul is not covered in this scope and will not be borne or reimbursed by ROTAX®.

2.3) Material requirement per engine
Parts requirement:
Depending on the engine modification state (see chapter. 3).

2.4) Material requirement per spare part
none

2.5) Reworks of parts
none

2.6) Special tooling/lubricant-/adhesives-/sealing compound
Price and availability will be supplied on request by ROTAX® Authorized Distributors or their Service Centers.
parts requirement:
- according relevant Maintenance Manual.

■ CAUTION: When using special tools observe the manufacturer’s specifications.
3) Accomplishment / Instructions

Accomplishment
All the measures must be taken and confirmed by the following persons or facilities:
- ROTAX® -Airworthiness representative
- ROTAX® -Distributors or their Service Centers
- Persons approved by the respective Aviation Authority

⚠️ 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: Risk of scalds and burns! Allow engine to cool sufficiently and use appropriate safety gear while performing work.

⚠️ 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.

◆ NOTE: All work has to be performed in accordance with the relevant Maintenance Manual.

3.1) General
A program for extending the period of operation (extension of the TBO) for engines from a certain manufacturing period and onward has been introduced. For engines which have already been accepted into this program, see section 1.1a). However, engines not listed in section 1.1a) and b) can increase the TBO according to the following instructions.

3.2) Extension of the TBO
An extension of the TBO for applicable is basically possible according to table 1. A necessary prerequisite would be the implementation of all relevant Service Bulletins or Service Instructions. See section 1.2.

■ CAUTION: An engine may be affected again by a previous modification. Retrieve the necessary information from the respective maintenance documents or the engine log book.

The SB’s or SI’s to be performed are assigned to the respective engine S/N ranges. All SB’s or SI’s need to be carried out in ascending order.

◆ NOTE: You need to keep the correct sequence and order to attain an extension of the TBO according to the respective engine types (600 h to 1200 h, 1200 h to 1500 h and 1500 h to 2000 h).
### 3.3) State of amendments

The following modifications as per list of amendments have to be carried out.

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### 3.4) Propeller gear

Remove of the propeller gear in according to current Maintenance Manual (Heavy Maintenance).

#### 3.4.1 Friction washer

See Fig. 1

If hex. nut is still secured by a lock washer, it has to be exchanged for the friction washer (1) according to current Maintenance Manual (Heavy Maintenance).

#### 3.4.2 Replace of oil seal and roller bearing

According to current Maintenance Manual (Heavy Maintenance).

As on type 912 version configuration 3 no oil seal is used on this location, only renewal of roller bearing at detection of pittings on bearing rollers is necessary.

Installation of the propeller gear in according to current Maintenance Manual (Heavy Maintenance).
3.5) **Oil pump**

See Fig. 2 and 3.

Detailed inspection in accordance to current Maintenance Manual (Heavy Maintenance).

From engine S/N 4,005.186 onwards, to improve oil pressure control the following parameters of the relief valve were changed. Free length of the compression spring (3) was reduced from 46 mm (1.81 in.) to 39 mm (1.55 in.). Spring rate was changed by increase of wire dia. from 0.8 mm (.031 in.) to 0.9 mm (.035 in.), and dia. of ball was increased from 8 mm (.31 in.) to 8.5 mm (.33 in.). If existing, remove shim (4), but if specified oil pressure can’t be reached, adjust pressure by adding shim again.

◆ **NOTE:** Starting with engine S/N 3,792.944 the oil pump housing and oil pump cover is in pressure die cast. On this occasion capacity of the pump was increased by lengthening of the rotary piston assy. from 13 mm (.51 in.) to 16 mm (.63 in.) along with the respective changes of oil pump housing, pump shaft and O-rings.

From engine S/N 4,152.101 onward the follower in the oil pump shaft (6) was changed to notched pin (5) instead of the former dowel tube.

At a renewal of components change oil pump to the version with the 16 mm (.63 in.) long rotors.

3.5.1 **Oil tank**

Starting with the engine S/N 4,005.537 on oil tank out of steel instead of aluminium is installed. On this occasion a drain plug was fitted too. Exchange aluminium tank for steel tank to comply with thermic specifications.

■ **CAUTION:** After the installation of the oil tank connect oil lines correctly, wire secure drain plug, fill up with engine oil according to specification in Manual and vent lubrication system.

3.5.2 **Venting of lubrication system**

In accordance to current Maintenance Manual (Heavy Maintenance) or SI-912-018, "Purging of lubrication system for ROTAX type 912 and 914 (Series)", current issue.

3.6) **Rubber plate**

To prevent chafing of the expansion tank a protective rubber plate is glued to underside of expansion tank since May 1993. Inspect expansion tank and stick rubber plate to underside of tank.

3.7) **Water pump**

See Fig. 4

Operation of the engine without antifreeze in the coolant is not permitted since increased formation of corrosion. Therefore the material of the pump shaft was changed with engine S/N 4,152.414. Because of galvanic reactions, caused by the use of various materials, the washer (1) and the screw (2) are of stainless steel since engine S/N 4,152.607.

Remove, checking and installation in accordance to current Maintenance Manual (Heavy Maintenance).

3.8) **Check of float chamber, float and float needle valve**

See Fig. 5 and 6.

Check of float chamber, float and float needle valve in accordance to current Maintenance Manual (Heavy Maintenance).

Remove float chamber and lift out both floats. If float chamber is still without distance pieces (1), part no. 861920, add them now, thus avoiding possible sticking of the floats in the float chamber.

Check support pin (2) of floats. At heavy wear of float bracket contact faces, caused by excessive vibration, exchange these floats to floats of modified shape and renew float bracket as required.
3.9) **Check of valve spring tension**
Check in according to current Maintenance Manual (Heavy Maintenance) or SB-912-004UL, “TBO for ROTAX engine type 912 UL (Series)“, current issue.

- Restore aircraft to original operating configuration.
- Connect negative terminal of aircraft battery.

3.10) **Test run**
Conduct test run including ignition check and leakage test.

3.11) **Summary**
These instructions (section 3) have to be conducted in accordance with compliance in section 1.5. The execution of the Service Bulletin must be confirmed in the logbook.

▲ WARNING: Non-compliance with these instructions/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:

**Fig. 1**
Friction washer

1. lock washer
2. friction washer

**Fig. 2**
Improved oil pressure control

1. plug screw
2. shim
3. pressure spring
4. ball

**Fig. 3**
Oil pump shaft

5. oil pump shaft
6. notched pin
Fig. 4

Water pump

Fig. 5

Check of float chamber

Fig. 6

Check of float

◆ 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.