

SERVICE BULLETIN

EXTENSION OF TIME BETWEEN OVERHAULS (TBO) FOR ROTAX® ENGINE TYPE 912 AND 914 (SERIES)

SB-912-041UL R2

SB-914-027UL R2

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/ULS/ULSFR from 1200 h to 1500 h or from 10 years to 12 years period of operation for all engines of type:

- 912 UL from S/N 4,404.718 to S/N 4,409.715
- 912 ULS from S/N 4,427.533 to S/N 6,775.789

provided the 1000 h special check has been performed. Refer to section 3.3).

- 912 ULSFR from S/N 4,429.715 to S/N 6,775.789

provided the 1000 h special check has been performed. Refer to section 3.3).

b) Extension of TBO is already valid for engine type 914 UL from 1000 h to 1200 h or from 10 years to 12 years period of operation for all engines of type:

- 914 UL from S/N 4,418.104 to S/N 6,773.778

c) For all engine S/N lower than given a) and b) a TBO extension, to 1000 h, 1200 h, 1500 h or from 10 years to 12* years period of operation, according to the Service Bulletins mentioned in chapter 3) can be effected. Prerequisite for that is accomplishment of all specified and appropriate Service Bulletins as well as modifications stated in section 3.2), 3.3), and 3.4).

*not affected 912 UL = 15 years period of operation.

1.2) Concurrent ASB/SB/SI and SL

In addition to this Service Bulletin the following additional Service Bulletins must be observed and complied with:

- SB-912-004UL, "TBO increase 1000 h", current issue.
- SB-912-005UL, "Special inspection to increase the TBO for engine", current issue.
- SB-912-022UL/SB-914-011UL, "Replacement of valve spring retainer", current issue.
- SB-912-026UL/SB-914-014UL, "Checking and replacement of stator assy", current issue.
- SB-912-027UL/SB-914-010UL, "Checking or replacement of the propeller gearbox", current issue.
- SB-912-028UL/SB-914-016UL, "Inspection or replacement of engine suspension frame", current issue.
- SB-912-029UL/SB-914-018UL, "Checking of the crankcase", current issue.
- SB-912-030UL/SB-914-019UL, "Cracks, wear and distortion on the carburetor flange", current issue.
- SB-912-031UL, "Checking or replacement of the fuel pump assy. part no. 996596", current issue.

- SB-912-033UL/SB-914-020UL, "Inspection of the propeller gearbox when using leaded fuel", current issue
- SB-914-017UL, "Checking or replacement of the exhaust bend", current issue.

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

Extension of time between overhauls (TBO) for ROTAX® Engine Type 912 and 914 (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

none

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) and b).

However, engines not listed in section 1.1a) and b) can increase the TBO according to the following instructions.

The following table 1 gives an overview of the current engine TBO status at the time of delivery and the associated SB's that, if complete with, can allow. TBO's of 1000 h, 1200 h, 1500 or 2000 h to be reached accordingly.

Engine Type description	engines affected engine S/N	TBO Time Between Overhaul	effective SB for extension of the TBO ⁽¹⁾
912 UL			
912 UL	up to and incl. 4,152.666	600 h or 10 years, whichever comes first	SB-912-005UL (600 h to 1000 h)
912 UL	from 4,152.667 up to and incl. 4,404.717	1200 h or 15 years, whichever comes first	SB-912-041UL (1200 h to 1500 h)
912 UL	from 4,404.718 up to and incl. 4,409.715	1500 h or 15 years, whichever comes first	SB-912-057UL (1500 h to 2000 h)
912 UL	from 4,409.716	2000 h or 15 years, whichever comes first	none
912 ULS			
912 ULS	up to and incl. 4,427.532	1200 h or 10 years, whichever comes first	SB-912-041UL (1200 h to 1500 h)
912 ULS	from 4,427.533 up to and incl. 6,775.789	1500 h or 12 years, whichever comes first	SB-912-057UL (1500 h to 2000 h)
912 ULS	from 6,775.790	2000 h or 15 years, whichever comes first	none

Table 1

Engine Type description	engines affected engine S/N	TBO Time Between Overhaul	effective SB for extension of the TBO ⁽¹⁾
912 ULSFR			
912 ULSFR	up to and incl. 4,429.714	1200 h or 10 years, whichever comes first	SB-912-041UL (1200 h to 1500 h)
912 ULSFR	from 4,429.715 up to and incl. 6,775.789	1500 h or 12 years, whichever comes first	SB-912-057UL (1500 h to 2000 h)
912 ULSFR	from 6,775.790	2000 h or 15 years, whichever comes first	none
914 UL			
914 UL	up to and incl. 4,418.103	1000 h or 10 years, whichever comes first	SB-914-027UL (1000 h to 1200 h)
914 UL	from 4,418.104 to 6,773.778	1200 h or 12 years, whichever comes first	SB-914-039UL (1200 h to 2000 h)
914 UL	from 6,773.779	2000 h or 15 years, whichever comes first	none

Table 1

⁽¹⁾ An extension of the TBO is possible and regulated by the Service Bulletin (SB) complied with for the respective engine type. Respective engine SB's that have already been complied with should be verified by the technical records such as the engine log book and/or the release certificate.

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 1000 h, 1000 h to 1200 h and 1200 h to 1500 h).

3.3) Inspecting the propeller gearbox 912 ULS and 912 ULSFR

◆ **NOTE:** All engines of type 912 ULS and 912 ULSFR need to receive a inspection of the propeller gearbox at 800 h TSN. If a TSN of 1000 h has already been exceeded the check must be done at the next 100 h inspection. Perform check according to the latest relevant Maintenance Manual (see chapter 12-00-00 section 7.2).

3.4) Extension of TBO from 1200 h to 1500 h according to SB-912-041UL/SB-914-027UL

An extension of the TBO according to SB-912-041UL/SB-914-027UL is possible provided all stated retrofits (if applicable) are performed.

The following list gives an overview for which engine or S/N the modifications mentioned have already been introduced in series production.

The components on the affected engines need to be retrofitted to extend the TBO.

Besides the part no. also the Amendment Modification (AM) number per engine type is stated. The respective AM numbers can be taken from the maintenance documents or the engine log book.

- ◆ NOTE: Check the technical records to see if the components listed (Propeller shaft, Dog hub and Circlip) have already been upgraded for any reason (maintenance, repair etc.) if they have, they do not have to be replaced again for the purpose of this SB.

3.4.1 Propeller shaft

Installation of a propeller shaft with additional lubricating bore is required for TBO extension.

- ◆ NOTE: Only applicable for engines of configuration 3 (912 UL3, 912 ULS3, 912 ULSFR3, 914 UL3). Take this into account when re-retrofitting Series 4 to 3 or Series 2 to 3.

Following engines are affected:

- 912 UL up to S/N 4,402.387 or gearbox up to S/N 14194
- 914 UL up to S/N 4,417.665 or gearbox up to S/N 14194

- ◆ NOTE: Type 912 ULS and 912 ULSFR was manufactured with propeller shaft part no. 837284 from start of series production and is therefore not affected.

This modified propeller shaft has already been installed on engines beyond this S/N.

The amendment modifications (AMs) that have been introduced into series production after the above mentioned time.

propeller shaft part no. 837283 or propeller shaft part no. 837284

3.4.2 Dog hub

To extend the TBO, installation of a dog hub with 30° backlash (instead of 15°) is required.

- ◆ NOTE: Only engines are affected with gearbox which optionally with a slipper clutch equipped are.

Following engines are affected:

- 912 UL from S/N 4,400.826 up to S/N 4,403.282 or gearbox from S/N 11910 to S/N 15528
- 914 UL from S/N 4,417.501 up to S/N 4,417.790 or gearbox from S/N 11910 to S/N 15528

This modified dog hub has already been installed on engines before or beyond these S/N ranges.

- ◆ NOTE: Type 912 ULS, 912 ULSFR, 914 UL was manufactured with 30° dog hub from start of series production and is therefore not affected.

The amendment modifications (AMs) that have been introduced into series production after the above mentioned time.

Dog hub part no. 958920 with 30°

3.4.3 Circlip SB 70

To extend the TBO, installation of a circlip SB 70 part no. 845425 is necessary. See also SI-912-006/SI-914-008, latest edition.

Following engines are affected:

- 912 UL up to S/N 4,404.188
- 912 ULS up to S/N 4,426.723
- 912 ULSFR up to S/N 4,429.601
- 914 UL up to S/N 4,417.988

This modified circlip SB 70 has already been installed on engines beyond this S/N.

The amendment modifications (AMs) that have been introduced into series production after the above mentioned time.

Circlip SB 70 part no. 845425

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

3.5) Test run

Conduct test run including ignition check and leakage test in accordance with the current Maintenance Manual of the respective engine type

3.6) 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

none