



AIRCRAFT ENGINES

# SERVICE BULLETIN

## CHECK OF SUPPORT BEARING ON THE CRANKSHAFT AND OF THE BEARING BUSHING IN THE PROPELLER GEARBOX ON ROTAX® ENGINE TYPE 912/914 (SERIES)

SB-912-046UL

SB-914-031UL

### **MANDATORY**

#### 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:

- 912 UL                    from S/N 4,407.247 to S/N 4,407.293
- 912 ULS                 from S/N 5,645.088 to S/N 5,645.267
- 912 ULSFR             from S/N 4,430.140 to S/N 4,430.150
- 914 UL                  from S/N 4,419.063 to S/N 4,419.079

Following engines are already checked by the manufacturer and therefore not affected from this Service Bulletin:

- 912 UL:                 4,407.267 / 4,407.279 bis 4,407.291
- 912 ULS:               5,645.172 / 5,645.173 / 5,645.177 / 5,645.178 / 5,645.179 / 5,645.184 / 5,645.185 / 5,645.230 bis 5,645.257 / 5,645.260
- 914 UL:                 4,419.068 / 4,419.069

For complete instructions and compliance to this service bulletin refer to Service Bulletin SB-912-046/ SB-914-031, 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.

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### **SB-912-046**

### **SB-914-031**

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### **1) Planning information**

#### **1.1) Engines affected**

All versions of the engine type:

- 912 A not affected
- 912 F not affected
- 912 S from S/N 4,923.183 to S/N 4,923.194
- 914 F from S/N 4,420.476 to S/N 4,420.480

Following engines are already checked by the manufacturer and therefore not affected from this Service Bulletin:

- 912 S 4,923.187 / 4,923.188 / 4,923.192 / 4,923.193

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

none

#### **1.3) Reason**

In limited cases a production deviation of the crankshaft bearing in the gearbox cover may lead to reduced bearing clearance which may result in scoring marks.

#### **1.4) Subject**

Check of support bearing on the crankshaft and of the bearing bushing of the propeller gearbox on ROTAX® engine type 912/914.

#### **1.5) Compliance**

- At the first 25 hour inspection
- During the next maintenance event if the TSN of 25 hour has already been passed.
- Not yet delivered engines must be checked before delivery.
- At the latest April 1<sup>st</sup>, 2006.

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

#### **1.6) Approval**

The technical content is approved under the authority of DOA Nr. EASA.21J.048.

**1.7) Manpower**

Estimated man-hours:

Engine installed in the aircraft - manpower time will depend on installation and thus, no estimate is available from the engine manufacturer.

**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  
- Maintenance Manual (MM) of relevant engine type

**1.12) Other publications affected**

none

**1.13) Interchangeability of parts**

All used parts become unusable and must be returned F.O.B. to a ROTAX<sup>®</sup> Authorized Distributors or their Service Centers for repair/overhaul.

**2) Material Information**

**2.1) Material - cost and availability**

Price and availability will be supplied on request by ROTAX<sup>®</sup> Authorized Distributors or their Service Centers.

**2.2) Company support information**

none

**2.3) Material requirement per engine**

parts requirement:

Fig. no.	New part no.	Qty./ engine	Description	Old part no.	Application
	XXXXXX*	1	propeller gearbox assy.		engine
	845430	1	friction washer		drive gear
	950141	1	sealing ring		crankshaft fixation
	825701	1	oil filter		oil pump

\* depends on engine type. Correct part no. can be found on the gearbox housing next to the S/N.

**2.4) Material requirement per spare part**

none

**2.5) Rework of parts**

none

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

- Price and availability will be supplied on request by ROTAX<sup>®</sup> Authorized Distributors or their Service Centers.
- Parts requirement:

Fig. no.	New part no.	Qty./ engine	Description	Old part no.	Application
	240880	1	crankshaft locking pin		crankcase
	877660	1	puller device		gearbox housing
	899784	n.B.	Loctite <sup>®</sup> 574		sealing surface gearbox housing
	899785	n.B.	Loctite <sup>®</sup> 221		nut M30x1,5 (left hand thread)
	n.a.*	n.B.	Scotch Brite SR 4600-very fine		cleaning crankshaft stub

\* or equivalent

### 3) Accomplishment / Instructions

#### Accomplishment

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

- ROTAX<sup>®</sup> -Airworthiness representative
- ROTAX<sup>®</sup> -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 (namely lock tabs, self-locking fasteners) be required when undergoing disassembly/assembly, always replace with a new one.

#### 3.1) Check of propeller gearbox

(see fig. 1 and 2)

■ **CAUTION:** All work has to be performed in accordance with the relevant Maintenance Manual.

- Fix the crankshaft.
- Remove the propeller gearbox.
- Detailed check of crankshaft journal (1) and the bearing bushing in the gearbox housing (2) for scoring marks in connection with discolouration.

◆ **NOTE:** Conditional on operation, minimal or usual break-in marks are normal and can be ignored.

- If necessary clean the crankshaft stub with Scotch Brite until no discolouration is there. If the discolouration cannot be removed, engine must be sent to the authorized distributor responsible for the distribution area for repair/overhaul.
- On signs of scoring marks in the bearing bushing replace the whole propeller gearbox and check the oil filter for metal chips. If unusual marks of metal chips are detected in the filter mat, empty and clean the oil tank. Carry out an oil change. The replaced propeller gearbox must be sent to the authorized distributor responsible for the distribution area.
- Reinstall the checked propeller gearbox.
- If a new gearbox is required, the drive gear on the crankshaft must be replaced too.

◆ **NOTE:** Drive gear and dog gear are paired and have the same s/n and therefore must be replaced only combined.

- Remove crankshaft fixation.
- Connect negative terminal of aircraft battery.

#### 3.3) Test run

Start the engine. Conduct test run including ignition check and leakage test according relevant Maintenance Manual.

#### 3.4) Summary

These instructions (section 3) have to be conducted in compliance with section 1.5.

The execution of the mandatory Service Bulletin must be confirmed in the logbook.

Approval of translation to best knowledge and judgment - in any case the original text in the German language and the metric units (SI-system) are authoritative.

#### 4) Appendix

The following drawings should provide additional information:

- CAUTION: The pictures show one of several damage possibilities. Scoring marks in connection with discolouration is not permitted (see section 3.1).



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Fig. 1

If discoloration and grooves (1) are not removeable with Scotch Brite, engine must be sent to the authorized distributor responsible for the distribution area.



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Fig. 2

Replacement of propeller gearbox required if unusual scoring (2) in the bearing bushing is discovered.

- ◆ 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.