

SERVICE INSTRUCTION

INTRODUCTION OF A NEW ROCKER ARM BUSHING FOR ROTAX® ENGINE TYPE 912/914 (SERIES)

SI-912-009
SI-914-010

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

For all versions of the engine type:

- 912 A from S/N 4,410.472 onward
- 912 F from S/N 4,412.817 onward
- 912 S from S/N 4,922.768 onward
- 912 UL from S/N 4,404.621 onward
- 912 ULS from S/N 4,427.487 onward
- 912 ULSFR from S/N 4,429.709 onward
- 914 F from S/N 4,420.314 onward
- 914 UL from S/N 4,418.104 onward

1.2) Concurrent ASB/SB/SI and SL

none

1.3) Reason

Because of our ongoing commitment to product quality and innovation, we are proceeding with a change of the rocker arm bearings from a sintered bronze bushing to a synthetic bushing.

1.4) Subject

Introduction of a new rocker arm bushing for ROTAX® engine type 912/914 (Series).

This information is intended to assist the aircraft builder and operator in achieving the proper operating conditions, correct engine installation and consequently optimum performance and reliability.

1.5) Compliance

Optional at the time of overhaul or at necessary replacement of old style bushings.

1.6) References

In addition to this technical information refer to current issue of

- Illustrated Parts Catalog (IPC)
- Maintenance Manual (MM)

1.7) Interchangeability of parts

At replacement ensure that:

- Used rocker arms which are beyond the specified wear limit may be sent to an authorized overhaul facility for necessary rework. Wear limits according to the relevant Maintenance Manual.
- For parts volume per engine see section 2.2.

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) Material requirement per engine

2.2.1) Engines of the type

- 912 A from S/N 3,792.551 to S/N 4,005.195
- 912 UL from S/N 3,792.501 to S/N 4,005.195

a) parts requirement:

Fig.no.	New p/n	Qty/engine	Description	Old p/n	Application
-	854 340	NB	rocker arm left assy.	854 170/ 172	cylinder head
-	854 342	NB	rocker arm right assy.	854 175/ 177	cylinder head
-	933 397	NB*	rocker arm bushing	-	rocker arm

* 1 bushing per rocker arm required

◆ NOTE: Parts volume is valid only for cylinder heads with pressed-in rocker arm shafts.

b) wear limits:

Designation	new		wear limit
	mm	(in.)	

rocker arm bore (with rocker arm bushing p/n 933 397)

rocker arm shaft bore					
with synthetic bushing installed	12,060 ÷ 12,090	(0,4748 ÷ 0,4760)	.....	12,10	(0,4764)
rocker arm shaft.	12,023 ÷ 12,034	(0,4733 ÷ 0,4738)	.....	11,95	(0,4705)
rocker arm bushing radial clearance	0,026 ÷ 0,067	(0,0010 ÷ 0,0026)	.....	0,10	(0,0039)

2.2.2) Engines of the type

- 912 A from S/N 4,005.196
- 912 F commencing with serial production
- 912 S commencing with serial production
- 912 UL from S/N 4,005.196
- 912 ULS commencing with serial production
- 912 ULSFR commencing with serial production
- 914 F commencing with serial production
- 914 UL commencing with serial production

a) parts requirement:

Fig.no.	New p/n	Qty/engine	Description	Old p/n	Application
1	854381	NB	rocker arm left assy.	854385	cylinder head
1	854391	NB	rocker arm right assy.	854395	cylinder head
1	933395	NB*	rocker arm bushing	-	rocker arm

* 1 bushing per rocker arm required

b) wear limits:

Designation	new		wear limit
	mm	(in.)	

rocker arm bore (with rocker arm bushing p/n 933 395)

rocker arm shaft bore					
with synthetic bushing installed	12,020 ÷ 12,050	(0,4732 ÷ 0,4744)	.....	12,10	(0,4764)
rocker arm shaft.	11,983 ÷ 11,994	(0,4717 ÷ 0,4722)	.....	11,95	(0,4705)
rocker arm bushing radial clearance	0,026 ÷ 0,067	(0,0010 ÷ 0,0026)	.....	0,10	(0,0039)

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
- 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.

◆ **NOTE:** All work has to be performed in accordance with the current Maintenance Manual of the respective engine type.

3.1) General note

See fig. 1 and 2.

Be aware that the new rocker arm synthetic bushing (3) is fashioned as sliding fit in the rocker arm. The bushing is also floating in the rocker arm bore after installation. Therefore the synthetic bushing is furnished with a surrounding groove (1) to facilitate the oil supply.

The bushing is symmetrical and can be fitted therefore irrespective of position. For new wear limits and nominal dimensions see section 2.2).

3.2) Instructions

See fig. 1.

Apply oil on synthetic bushing accordingly, prior to fitting.

■ **CAUTION:** At installation of the rocker arm ensure that the bushing (3) is installed together with the rocker arm. Furtheron it has to be assured that the correct rocker arm bushing is used for the relevant engine type/engine serial number. See section 2 for identification and distinction of the rocker arm bushing p/n 933 397 has 2 opposite bores (2).

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

3.3) Test run

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

3.4) Summary

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

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:

rocker arm assembly, new version

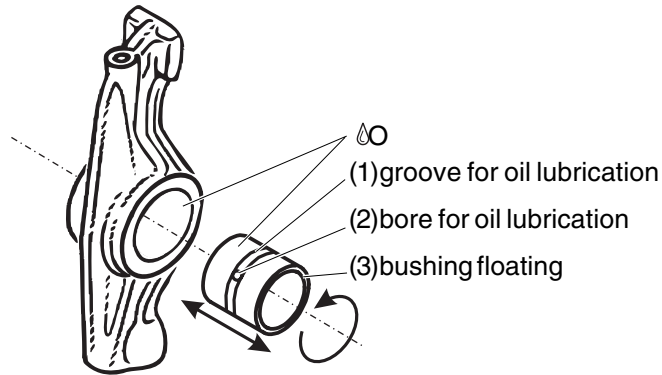


Fig. 1

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rocker arm assembly, old version

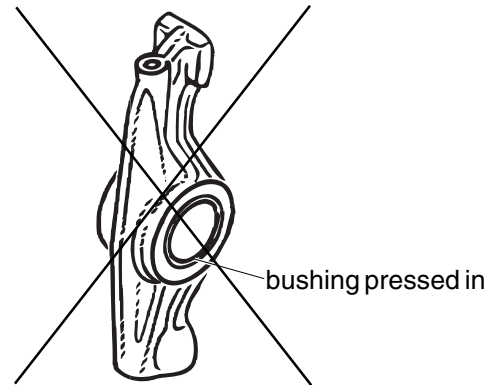


Fig. 2

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♻️: MOTORÖL (engine oil)

◆ 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.