This SB revises SB-912-064/SB-914-045 Initial issue dated 10 October 2013

SERVICE BULLETIN

Periodic checking of the crankshaft journal (power take off side) for ROTAX® Engine Type 912 and 914 (Series)

ATA System: 72-20-00 Engine block

MANDATORY

Symbols used:

Please, pay attention to the following symbols throughout this document emphasizing particular information.

General note

⚠WARNING **Identifies an instruction which, if not followed, may cause serious injury or even fatal injury.**

⚠CAUTION **Identifies an instruction which, if not followed, may cause minor or moderate injury.**

NOTICE **Denotes an instruction which if not followed, may severely damage the engine or could lead to suspension of warranty.**

ENVIRONMENT NOTE

Environment note gives you tips and behaviors to environmental protection.

NOTE: Information useful for better handling.

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

To obtain satisfactory results, procedures specified in this publication must be accomplished with accepted methods and prevailing government regulations.

BRP-Powertrain GmbH & Co KG. cannot be responsible for the quality of work performed in accomplishing the requirements of this publication.

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1) Planning information

1.1) Applicability

All versions of the engine type:

Engine type	Serial number
912 A	from S/N 4,410.884 up to S/N 4,410.940 inclusive
912 F	from S/N 4,412.984 up to S/N 4,413.005 inclusive
912 S	from S/N 4,924.042 up to S/N 4,924.358 inclusive
914 F	from S/N 4,420.965 up to S/N 4,421.088 inclusive

NOTE: Crankshafts with the following serial number (S/N) that were installed or delivered as spare parts in the above-mentioned engines and short blocks (from S/N 9999627 up to S/N 9999678 inclusive) are also affected, if removed: S/N 40232 up to S/N 44338 inclusive

1.2) Concurrent ASB/SB/SI and SL

none

1.3) Reason

Due to a deviation in the manufacturing process some crankshafts may develop a crack on the power take off side. These cracks can cause breakage of the crankshaft in the support bearing during operation. In this case the function of the support bearings (consisting of 3 main bearings and 2 support bearings) is compromised. The operating reliability, however, is given until the next maintenance.

1.4) Subject

Perodic checking of the crankshaft journal (power take off side) for ROTAX® engine type 912 and 914 (Series).

1.5) Compliance

- During the next mandatory maintenance event, prescribed by BRP, or at the next 100 hours of operation, the checking of the crankshaft journal (power take off side) must be performed on the engines listed in section 1.1) according to the following instructions in section 3. If the engine was operated less than 100 hours of operation during one year, an inspection should also be performed every 12 months.
  See also chapter 05-20-00 “Scheduled maintenance checks“ of the current Maintenance Manual (Line) of the respective engine type.
- Periodically at every additional 100 hours of operation, this check of the crankshaft journal (power take off side) has to be performed on the engines listed in section 1.1) according to the following instructions in section 3.
- Up to a TSN of 1000 h this periodic checking of the crankshaft journal (power take off side) must be performed on the engines listed in section 1.1) according to the following instructions in section 3.

⚠WARNING Non-compliance with these instructions could result in engine damages, personal injuries or even fatal injury.

NOTE: In the event of a sudden drop in oil pressure of at least 0.5 bar (7.3 psi) in the same operating point (also within operating limits) the checking of the crankshaft journal (power take off side) must be conducted as soon as possible on the engines listed in section 1.1) according to the following instructions in section 3. This sudden drop in oil pressure can be a symptom of a broken crankshaft journal.

1.6) Approval

The technical content of this document is approved under the authority of DOA ref. EASA.21J.048.

1.7) Labor time

Estimated labor time:

engine installed in the aircraft - - - labor time will depend on installation and therefore 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 additon to this technical information refer to current issue of

- Illustrated Parts Catalog (IPC)
- 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.FLYROTAX.com Updates and current revision can be downloaded for free.

1.12) Other Publications affected

none

1.13) Interchangeability of parts

- All used parts and spare parts cannot further be used and have to be returned F.O.B to a ROTAX® Authorized Distributor or their Service Center.

2) Material Information

2.1) Material- cost and availability

Price, availability and any possible support will be provided on request by ROTAX® Authorized Distributors or their Service Center.

2.2) Company support information

- Shipping costs, down time, loss of income, telephone costs etc. or costs of conversion to other engine versions or additional work, as for instance simultaneous engine overhaul is not cov red in this scope and will not be borne or reimbursed by ROTAX®.

2.3) Material requirement per engine

none

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 will be supplied on request by ROTAX® Authorized Distributors or their Service Centers.

Fig. no.	New p/n	Qty/engine	Description	Old p/n	Application
-	876260	1	Check gauge CS-PTO	-	propeller gearbox/ magnetic plug

NOTICE In using these special tools observe the manufacturers specifications.

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3) Instructions/Accomplishment

NOTE: Before maintenance, review the entire documentation to make sure you have a complete understanding of the procedure and requirements.

Accomplishment

All measures must be taken and confirmed by at least one of the following persons or organization:

- ROTAX® - Airworthiness representative
- ROTAX® - Distributors or their Service Center
- Persons approved by the respective Aviation Authority

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

Safety notice

⚠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.

NOTICE 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.

⚠CAUTION Danger of cutting your fingers!
Risk of injury due to sharp-edged components.
Wear protective gloves.

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3.1) Checking of crankshaft journal (power take off side)

See Fig. 1, Fig. 2, Fig. 3.

Step	Procedure
1	Remove the magnetic plug in accordance with the relevant Maintenance Manual (Line).
2	Install guide pin (2) of the check gauge CS-PTO into the magnetic plug thread until stop. Adjust the guide pin with the flat spot (X) in the direction of the propeller and parallel to the gearbox/housing contact surfaces. Hold it in fixed position not allowing any rotation. Pliers or an open-end spanner can be used.
3	Insert feeler gauge of check gauge CS-PTO into the guide pin. NOTE: The feeler gauge is symmetrical, both sides can be used.
4	Insert feeler gauge until a first resistance can be felt. Now the feeler gauge faces the cylindrical crankshaft journal (see Fig. 3, Step. 1).
5	With slightly elevated force you can push the feeler gauge about 2 mm (.078 in.) further in, until it touches the plan surface of the pinion gear (see Fig. 3, Step. 2). NOTE: The mark on the feeler gauge is still visible outside the slot.

Further procedure and possible inspection result 1:

Step	Procedure
6	Push the check gauge into the guide pin with increased force and make sure that the guide pin has not turned. If the drive gear is in correct position and cannot be moved the crankshaft is OK. The feeler gauge cannot be further moved in and the mark (5) remains visible outside the slotted screw.
Result = Crankshaft journal OK	
7	Remove the check gauge CS-PTO (feeler gauge and guide pin).
8	Install the magnetic plug in accordance with the relevant Maintenance Manual (Line).

Further procedure and possible inspection result 2:

Step	Procedure
6	Hold it in fixed position not allowing any rotation. If the feeler gauge can be pushed further in, so that the mark disappears in the slot, then the gearbox must be removed and the crankshaft must be checked (see Fig. 3, Pos. C).
Result = Crankshaft journal broken	
7	Please find further explanations if needed in this chapter 3.2).

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3.2) Replace the crankshaft

The replacement of the crankshaft is only necessary, if inspection result 2 is applicable.

- In case of a broken crankshaft journal or any doubt contact your aircraft manufacturer and your nearest authorized ROTAX® aircraft engine distributor.

NOTICE The engine must not be taken into operation until the cause has been identified and eliminated.

3.3) Test run

Conduct test run including ignition check and leakage test.

3.4) Summary

These instructions (section 3) have to be conducted in accordance with the deadlines from section 1.5. The execution of the mandatory Service Bulletin must be confirmed in the logbook.

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.

3.5) Enquiries

Enquiries regarding this Service Bulletin should be sent to the ROTAX® authorized distributor of your area. A list of all distributors is provided on www.FLYROTAX.com.

4) Appendix

The following illustrations should convey additional information:

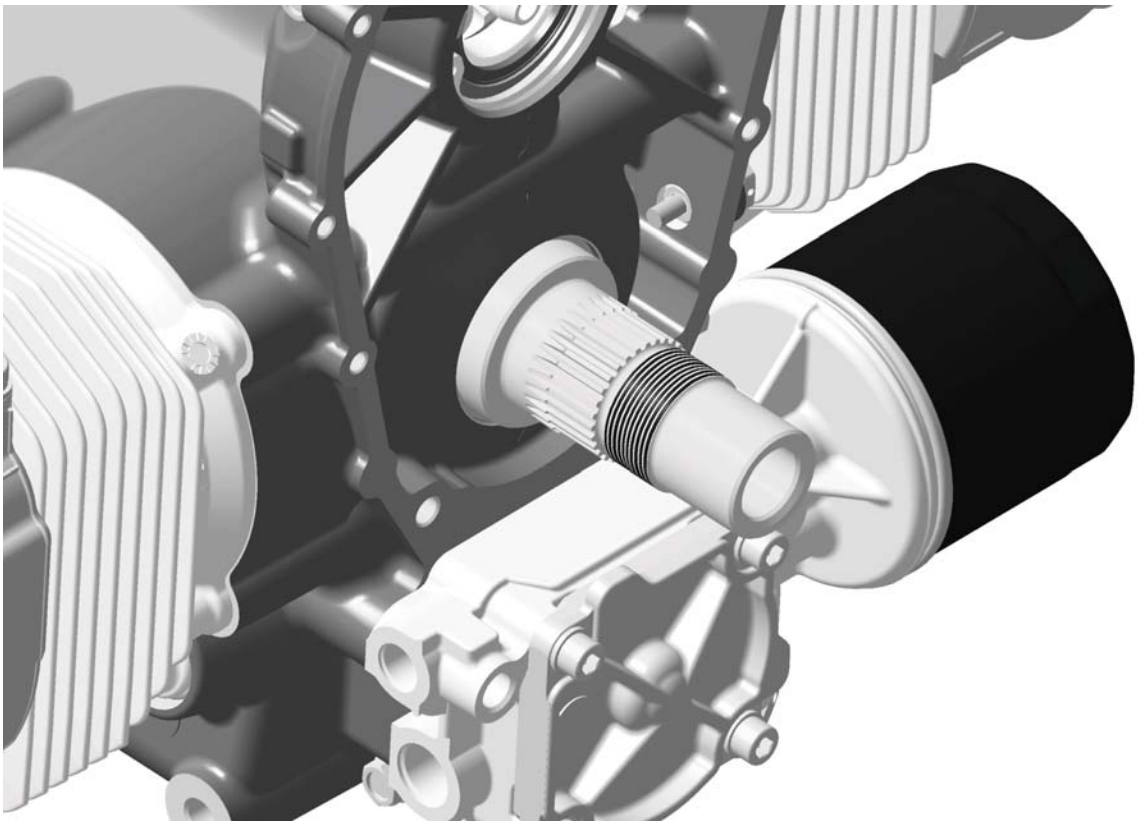

Fig. 1 *06485*
Crankshaft journal

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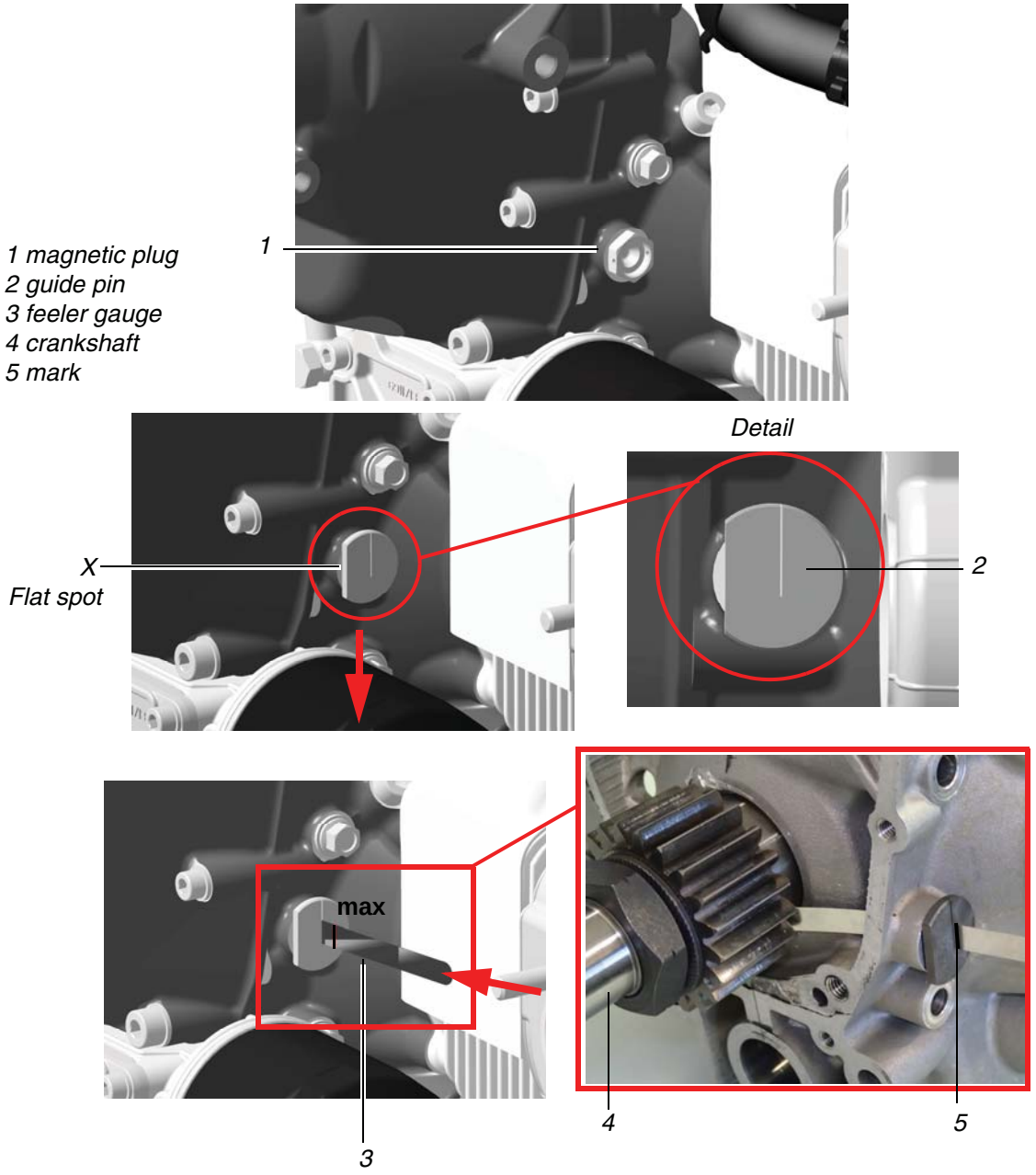

Fig. 2 *09893,09894,09897,09895,09899*
Inspection with feeler gauge

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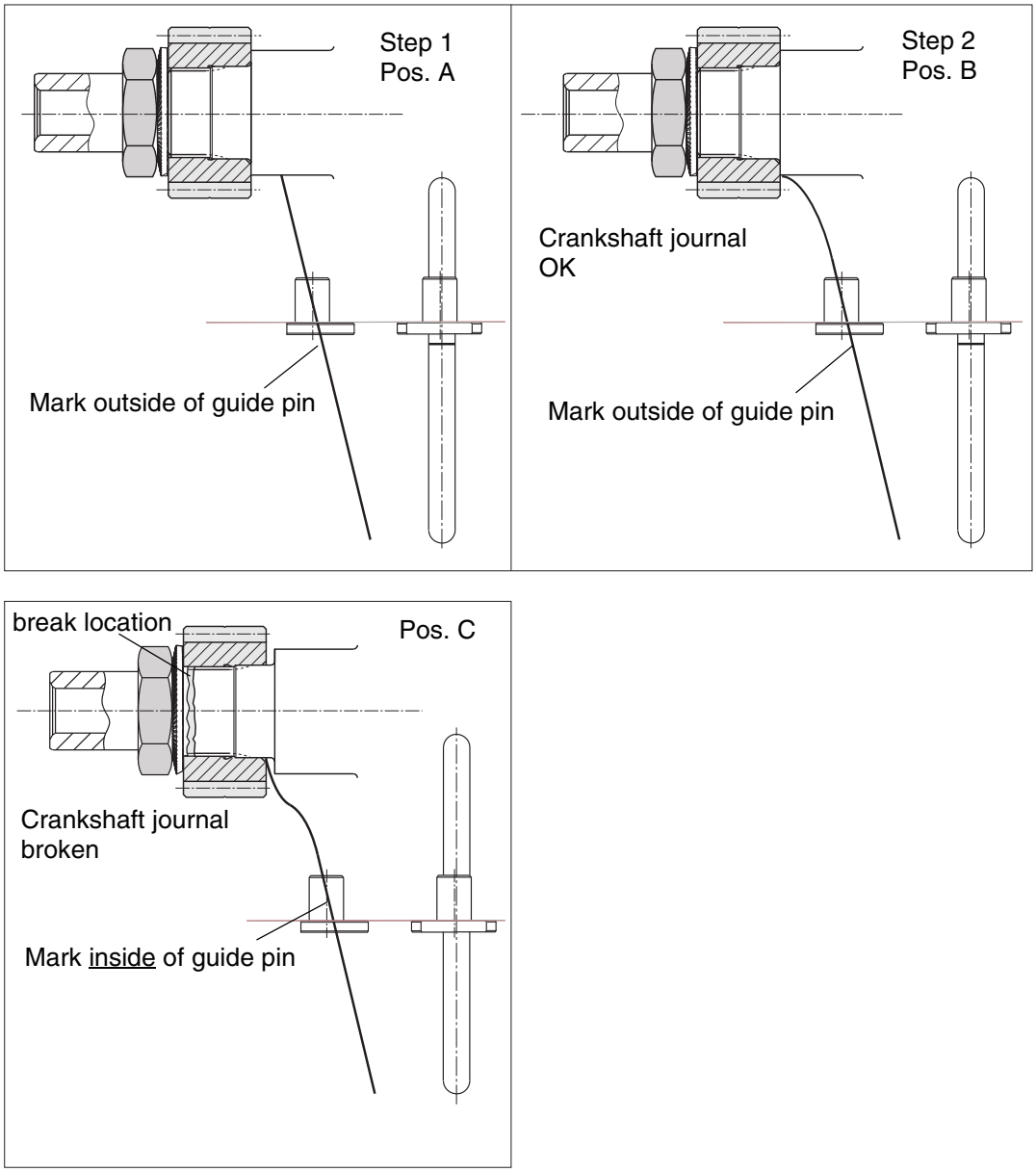

Fig. 3 *09898*

Instructions on use of check gauge CS-PTO

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.

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