



ALERT SERVICE BULLETIN

Checking of the cylinder head assy. 2/3 for ROTAX® Engine Type 912 and 914 (Series)

ATA System: 72-30-00 Cylinder head

MANDATORY

Symbols used:

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

General note



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



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



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 UL	from S/N 6,770.826 up to S/N 6,770.874 inclusive/6,770.877 up to 6,770.884 inclusive/6,770.888 up to S/N 6,770.892 inclusive
912 ULS	S/N 6,779.708/from S/N 6,780.435 up to S/N 6,780.436 inclusive/6,780.706 up to 6,780.735 inclusive/6,780.761 up to 6,780.917 inclusive/6,780.919 up to 6,780.985 inclusive/6,780.987 up to 6,781.004 inclusive/6,781.006 up to 6,781.051 inclusive/6,781.058 up to 6,781.059 inclusive/6,781.064 up to 6,781.075 inclusive/6,781.100/6,781.173 up to 6,781.180 inclusive
914 UL	from S/N 7,682.341 up to S/N 7,682.360 inclusive/7,682.389 up to 7,682.403 inclusive/7,682.425 up to 7,682.504 inclusive/7,682.526 up to 7,682.532 inclusive/7,682.576 up to 7,682.595 inclusive

For complete instruction and compliance to this Alert Service Bulletin refer to Alert Service Bulletin ASB-912-062/ASB-914-044, 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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1) Planning information

1.1) Applicability

All versions of the engine type:

Engine type	Serial number
912 A	from S/N 4,410,965 up to S/N 4,410,976 inclusive
912 F	from S/N 4,413,013 up to S/N 4,413,017 inclusive

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912 S	from S/N 4,924,468 up to S/N 4,924,491 inclusive
914 F	from S/N 4,421,156 up to S/N 4,421,169 inclusive

1.2) Concurrent ASB/SB/SI and SL

none

1.3) Reason

Due to a deviation in the manufacturing process some cylinder heads may have an oil leak in the intake channel in the area of the valve guide. There is a possibility of small machined through holes, which can increase the oil consumption which may result in an engine stoppage.

1.4) Subject

Checking of the cylinder head assy. of cylinder no. 2 and 3 (2/3) for ROTAX for engine type 912 and 914 (Series).

1.5) Compliance

- before next flight, check of the cylinder head assy. 2/3 part no. 623682 or part no. 632687 of an engine with a serial number (S/N) listed in section 1.1) in accordance with the instructions in section 3.



WARNING

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

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 addition to this technical information refer to current issue of

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

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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 revisions can be downloaded for free.

1.12) Other Publications affected

none

1.13) Interchangeability of parts

- all defective parts are unservicable and must be returned F.O.B to ROTAX® Authorized Distributors 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

- Replaced parts must be returned F.O.B to ROTAX® Authorized Distributors or their Service Center.
- Shipping costs, downtime costs, 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 covered in this scope and will not be borne or reimbursed by ROTAX®.

2.3) Material requirement per engine

parts required if cylinder head change is necessary:

Fig. no.	New part no.	Qty/ engine	Description	Old part no.	Application
-	-	as required	cylinder head assy. 2/3	623682	Power section
-	-	as required	cylinder head assy. 2/3	623687	Power section
-	-	as required	O-ring 6.4x1.8	430205	valve cover
-	-	as required	O-ring 105x2.5	250285	valve cover
-	-	as required	O-ring 16x5	850930	oil return tube
-	-	as required	valve stem seal	230810	cylinder head
-	-	as required	O-ring 43x2	230910	intake manifold
-	-	as required	O-ring 19x2	950180	bent socket
-	-	as required	Lock nut M8	842950	exhaust bend
-	-	as required	Lock washer A6	945751	intake manifold

2.4) Material requirement per spare part

none

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2.5) Rework of parts

none

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

Price and availability will be provided on request by ROTAX® Authorized Distributors or their Service Centers.

parts required if cylinder head change is necessary:

Fig. no.	New part no.	Qty/engine	Description	Old part no.	Application
	-	as required	valve spring loading jig assy.	877387	cylinder head

NOTICE

When using these special tools observe the manufacturers specifications.

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.

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3.1) Checking of cylinder head assy. 2/3

3.1.1) Introduction

This check has to be done in order to establish if there is evidence of excessive oil consumption. New or used engines have to be checked by examining for this evidence as detailed under 3.1.2) Checking of spark plug tip on cylinder 2 and 3.

3.1.2) Checking of spark plug tip on cylinder 2 and cylinder 3

See fig.1.

See current issue of Maintenance Manual (Line) of the relevant engine type.

Step	Procedure
1	Visual check of both spark plugs per cylinder (top and bottom).

NOTE: Unusual deposits (excessive carbon or oil) on the spark plugs are an indication of a defective cylinder head which must be replaced. Figure 1 shows comparison between a used spark plug in normal condition and one that is not.

NOTICE

Affected spark plugs with such deposits shown in chapter 4 Fig. 1, have to be removed and can not be reinstalled.

3.1.3) Replacement of the affected cylinder head

If excessive deposits (oil or carbon) are found on one of the spark plugs the cylinder head must be replaced in accordance with the relevant Maintenance Manual (Heavy) and any relevant aircraft manufacturer instructions.

NOTE: At tightening the cylinder head with 2 collar cap nuts M8 and 2 hex. nuts M8 pay attention to the changed tightening torque. Tighten to 10 Nm (90 in.lb) and then in addition tighten further by applying a 120° rotation.

- install new spark plugs
- Restore aircraft to original operating configuration.
- Connect negative terminal of aircraft battery.

3.2) Other Possible symptoms of oil leakage in cylinder head

The following additional symptoms, could be a result of oil entering the combustion chamber which may indicate a defective cylinder head and necessitate further investigation:

- Blue smoke from the exhaust system (at startup).
- Low EGT (Exhaust Gas Temperature) on the affected cylinder compared to the other 3 cylinders (up to 200 °C (392 °F) difference).
- Higher than normal mag drop outside the limits specified in the Operators Manual.
- HC-value (Hydrocarbon) high approx. 700 ppm as opposed to a normal reading of around 150 ppm.
- Excessive oil consumption.
- Signs of oil leakages in exhaust system/exhaust flange and, if installed, also on cowling.

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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 time scales specified in section 1.5. The execution of the mandatory Alert Service Bulletin must be confirmed in the log-book.

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.

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4) Appendix

The following illustrations/drawings should convey additional information:



*Fig. 1
spark plug*

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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.