

SERVICE INSTRUCTION

Introduction of sodium filled exhaust valves and new cylinder heads for ROTAX® Aircraft Engine types 912 and 912 i (Series)

ATA System: 72-20-00 Cylinder head

1) Planning information

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

BRP-Rotax GmbH & Co KG cannot accept any responsibility for the quality of work performed in accomplishing the requirements of this publication.

1.1) Applicability

The new sodium filled exhaust valves have already been installed on the following ROTAX® engines:

Engine type	Serial number
912 S	from S/N 10007360
912 ULS	from S/N 10007175
912 iSc Sport	from S/N 10007216
912 iS Sport	from S/N 10007220
912 UL	from S/N 10007345
912 A	from S/N 10007216
912 F	from S/N 10007216

The new cylinder heads have already been installed on the following ROTAX® engines:

Engine type	Serial number
912 S	from S/N 9139937
912 ULS	from S/N 9142497
912 iS Sport	from S/N 7706127
912 iSc Sport	from S/N 7702218
912 UL	from S/N 9581014
912 A	from S/N 4411654
912 F	from S/N 4413197

NOTE: Engines with serial numbers higher than those listed in section 1.1 have already been equipped with sodium filled exhaust valves and cylinder heads and are therefore not affected.

NOTE: It is NOT mandatory to retrofit engines to the new sodium exhaust valves and/or new cylinder heads. They can be individually replaced, allowing the mixing of the different components within an engine.

SERVICE INSTRUCTION

1.2) Concurrent ASB/SB/SI and SL

In addition to this Service Instruction, the following Service documents must be observed and complied with:

- SB-912-066, SB-914-047, SB-912-066-UL, SB-914-047-UL Change of Measurement Method from Cylinder Head Temperature to Coolant Temperature for ROTAX® Engine Type 912 and 914 (Series)
- SI-912-025, SI-912 i-010, SI-914-026 Change of Tightening Torque Procedure for the Installation of Cylinder Heads on ROTAX Engine Type 912 i, 912 and 914 (Series)
- in general, all relevant Alert Service Bulletins (ASB), Service Bulletins (SB), Service Instructions (SI), Service Letters (SL), Service Instructions - Parts and Accessories (SI-PAC).

1.3) Reason

In the course of continuous improvement and standardization, new type of exhaust valve and cylinder heads for engine type 912 and 912 i Series has been introduced.

1.4) Subject

Introduction of sodium filled exhaust valves and new cylinder heads for ROTAX® Aircraft Engine types 912 and 912 i (Series).

1.5) Compliance

None - For Information Only.

Optional at the time of overhaul or replacement of old style exhaust valves or cylinder heads.

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 hours:

Engine installed in the aircraft - - - labor time will depend on airframe 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 modifications

No change.

1.11) References

In addition to this technical information refer to current issue of

- in general Operators Manual (OM)
- in general Illustrated Parts Catalog (IPC), and in particular Chapter 72-20-00
- in general Installation Manual (IM)
- in general Maintenance Manual Line (MML), and in particular Chapter 05-10-00 and Chapter 05-20-00
- in general Maintenance Manual Heavy (MMH), and in particular Chapter 72-30-00

d07183.fm

SERVICE INSTRUCTION

NOTE: The status of the Manuals can be determined by checking the table of amendments. The 1st column of this table shows the revision status. Compare this number to the one 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 parts are interchangeable

SERVICE INSTRUCTION

2) Material Information

2.1) Material- cost and availability

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

2.2) Company support information

- Any possible support by BRP-Rotax will be provided on request by ROTAX® Authorized Distributors or their independent Service Centers.

2.3) Material requirement per engine

Parts requirement:

New part no.	Qty/ engine	Description	Old part no.	Application
413186	(AR)	CYLINDERHEAD 2/3 ASSY.	413185	912 S / ULS
413196	(AR)	CYLINDERHEAD 1/4 ASSY.	413195	912 S / ULS
623774	(AR)	CYLINDERHEAD 2/3 ASSY.	623775	912 i (Series)
623784	(AR)	CYLINDERHEAD 1/4 ASSY.	623785	912 i (Series)
413237	(AR)	CYLINDER HEAD 2/3 ASSY.	413236	912 A / F / UL
413238	(AR)	CYLINDER HEAD 1/4 ASSY.	413248	912 A / F / UL
854585	(AR)	EXHAUST VALVE 32MM	854111	Valve train

2.4) Material requirement per spare part

None.

2.5) Rework of parts

None.

2.6) Special tooling/lubricants- /adhesives- /sealing compounds

None.

SERVICE INSTRUCTION

3) Accomplishment/Instructions

ROTAX reserves the right to make any amendments to existing documents which might become necessary due to this standardization, at the time of next revision or issue.

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

Accomplish- ment

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

- ROTAX® Airworthiness representatives
- ROTAX® - Authorized Distributors or their independent Service Centers
- Persons with approved qualifications for the corresponding engine types. Only authorized persons (IRMT, Level Heavy Maintenance) are entitled to carry out this work.
- Persons with type-specific training.

NOTE: Indicates supplementary information which may be needed to fully complete or understand an instruction.



All work has to be performed in accordance with the relevant ROTAX® Instructions for Continued Airworthiness (ICA) of the respective engine type.

General

Further material on general inspection, maintenance and repair can also be found in relevant Advisory Circular AC 43.13 from FAA.

Advisory Circular

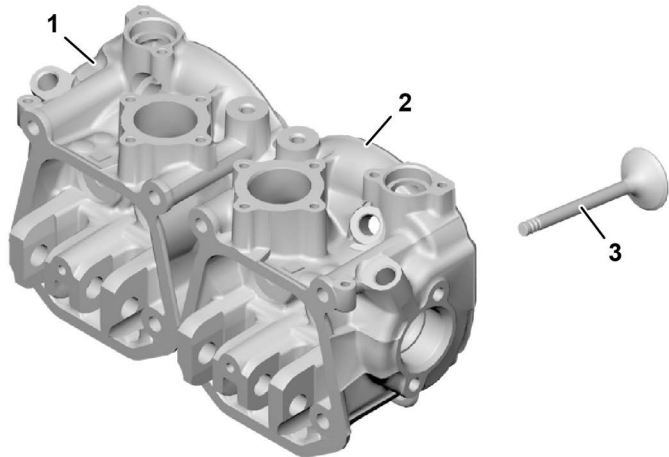
The Advisory Circular (AC) contains maintenance methods, techniques and practices.

SERVICE INSTRUCTION

3.1) Spare parts - related information



See current Illustrated Parts Catalog (IPC) for the respective engine type, Chapter 72-20-00.



AE_2iS_0801

Fig. 1

Pos.	Description	Part no.
1	CYLINDERHEAD 2/3 ASSY.	413186
2	CYLINDERHEAD 1/4 ASSY.	413196
1	CYLINDERHEAD 2/3 ASSY.	623774
2	CYLINDERHEAD 1/4 ASSY.	623784
1	CYLINDER HEAD 2/3 ASSY.	413237
2	CYLINDER HEAD 1/4 ASSY.	413238
3	EXHAUST VALVE 32MM	854585

3.2) Operation - related information



See current Operators Manual (OM) for the respective engine type.
See also Aircraft Flight Manual (AFM) / Pilot Operating Handbook (POH).

SERVICE INSTRUCTION

3.3) Installation - related information



See current Installation Manual (IM) for the respective engine type.

3.4) Maintenance (Line) - related information



See current Maintenance Manual Line (MML) for the respective engine type, Chapter 05-10-00 and 05-20-00.

3.5) Maintenance (Heavy) - related information



See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 72-30-00.

- When installing sodium exhaust valves and cylinder heads, the engine log book or overhaul record must reflect the execution, including cylinder head position etc.
- Exhaust valves (part no. 854585) contain sodium (Natrium). Sodium, when in contact with water, can produce a violent and potentially explosive exothermic chemical reaction. Avoid any contact of the sodium inside the valve with water.

NOTE: Do not cut open the exhaust valve.

When handling damaged sodium exhaust valves (part no. 854585), protect against contact with water.

Dispose of exhaust valves in compliance with your local regulations.

3.6) Finishing work

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

3.7) Test run

In case of uninstalled engines test run can be skipped as this is covered by the mandatory test run after installation.



Conduct an engine test run.

See current Maintenance Manual Line (MML) for the respective engine type, Chapter 12-20-00.

SERVICE INSTRUCTION

3.8) Summary

The execution of the Service Instruction must be confirmed in the logbook.

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

Translation into other languages might be performed in the course of language localization but does not lie within ROTAX' scope of responsibility.

In any case the original text in English language and the metric units are authoritative.

3.9) Inquiries

Inquiries regarding this Service Instruction should be sent to the ROTAX® Authorized Distributor of your area.

A list of all ROTAX® Authorized Distributors or their independent Service Centers is provided on <https://dealerlocator.flyrotax.com>.

SERVICE INSTRUCTION

4) Appendix

The following drawings should convey additional information:

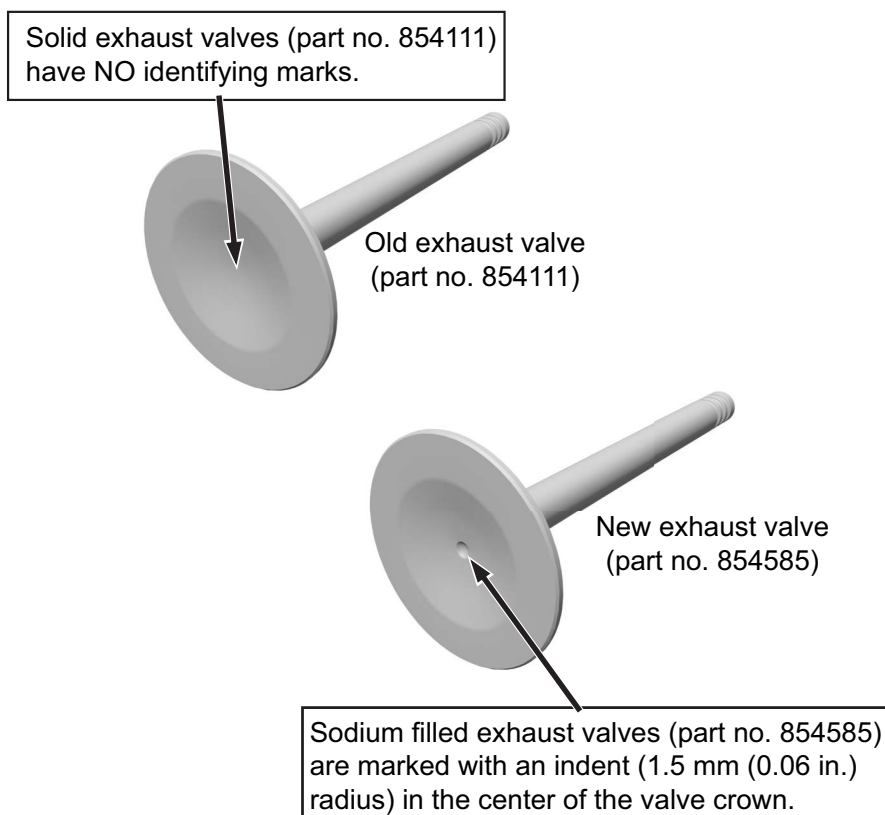
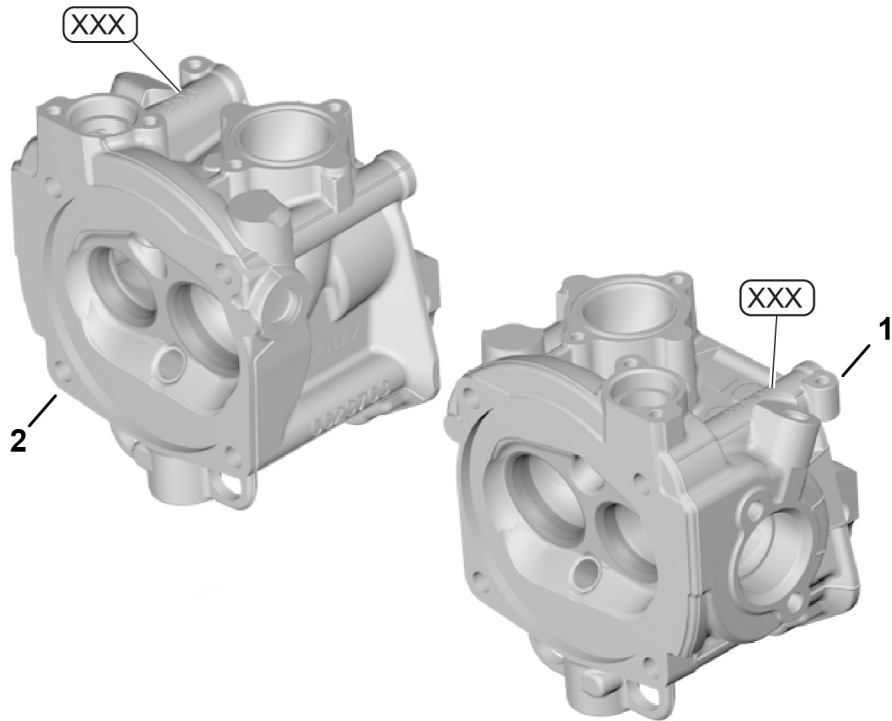


Fig. 2

AE_2iS_0804

SERVICE INSTRUCTION



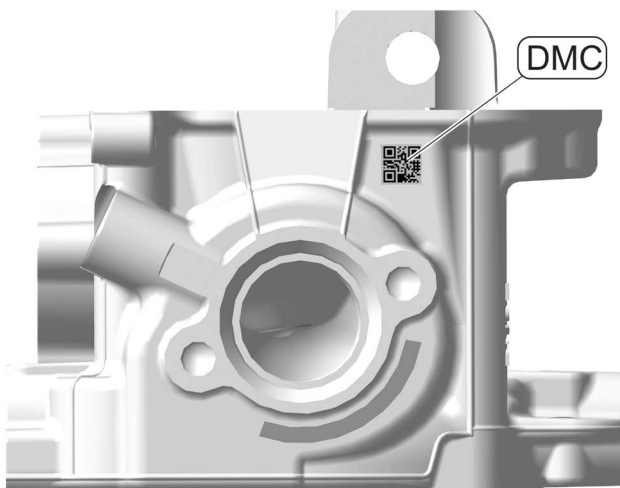
AE_2iS_0803

Fig. 3

NOTE: XXX - Location of part number.

Pos.	Description	Part no.	Application
1	CYLINDER HEAD 2/3 ASSY.	413186	912 S / ULS
2	CYLINDER HEAD 1/4 ASSY.	413196	912 S / ULS
1	CYLINDER HEAD 2/3 ASSY.	623774	912 i (Series)
2	CYLINDER HEAD 1/4 ASSY.	623784	912 i (Series)
1	CYLINDER HEAD 2/3 ASSY.	413237	912 A / F / UL
2	CYLINDER HEAD 1/4 ASSY.	413238	912 A / F / UL

SERVICE INSTRUCTION



AE_2IS_0824

Fig. 4

NOTE: DMC - Data Matrix Code
All the cylinder heads are marked with DMC, a two-dimensional code containing information encoded as text and/or numeric data, that allow the component traceability verification.

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.