SERVICE INFORMATION

Hardness test on cylinder for ROTAX® 912 (Series), 914 (Series), 912 i (Series), 915 i (Series) and 916 i (Series) Aircraft Engines

ATA System: 72-20-00 Cylinder

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

All versions of ROTAX® engine types are affected if at least one of following criteria applies:

Criterion A) Engine S/N:

Engine type	Serial number
912 UL	from S/N 10003451
912 A	from S/N 10003451
912 F	from S/N 10003451
912 ULS	from S/N 10004330
912 S	from S/N 10004330
914 UL	from S/N 10003451
914 F	from S/N 10003451
912 iS Sport	from S/N 10004330
912 iSc Sport	from S/N 10004330
915 iS A	from S/N 10004533
915 iSc A	from S/N 10004533
916 iS A	from S/N 10004533
916 iSc A	from S/N 10004533
916 iSc B	from S/N 10004533

Engines identified in Criterion A) shall not be considered automatically affected. Applicability is limited to those engines which were originally assembled and delivered from the factory with cylinders p/n 913229 or 913223. Verification of installed cylinder part numbers is required to confirm applicability.

Criterion B) Spare parts

Further, all engines are affected which have been equipped with cylinder part no. 913229 or 913223 during engine repair, maintenance, general overhaul, or delivered as spare parts from October 2nd, 2023.

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1.2) Concurrent ASB/SB/SI and SL

In addition to this Service Instruction the following documents must be observed:

- in general all relevant Alert Service Bulletins (ASB), Service Bulletins (SB), Service Instructions (SI), Service Letters (SL), Service Instruction - Parts and Accessories (SI-PAC) with relevance to perform this maintenance, repair or overhaul task.

1.3) Reason

Maintenance information regarding hardness testing location and minimum value for new cylinder part no. 913229 and 913223. These new cylinders do not have a flat surface like their predecessors, so new hardness test instructions are required. Such test method it is only required to verify the cylinders in case of damages, such as overheating, and/or during overhaul or repairs.

1.4) Subject

Hardness test on cylinder for ROTAX® 912 (Series), 914 (Series), 912 i (Series), 915 i (Series) and 916 i (Series) Aircraft Engines

1.5) Compliance

NONE - For Information Only

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

These maintenance instructions shall be considered at any maintenance events, retrofitting, repair and overhaul.

1.6) Approval

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

1.7) Labor time

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.

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1.11) References

In addition to this technical information refer to current issue of

- in general Illustrated Parts Catalog (IPC) and in particular:
  Chapter 72-20-00
- in general Operators Manual (OM)
- in general Installation Manual (IM)
- in general Maintenance Manual Line (MML) and in particular:
  Chapters 05-20-00 and 12-20-00
- in general Maintenance Manual Heavy (MMH) and in particular:
  Chapter 72-30-10

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

2) Material Information

2.1) Material

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

See Fig.1.

Fig.no.	Part no.	Qty/engine	Description	Application
1-1	913229	4	Cylinder	912 S/ULS, 912 iS, 915 iS and 916 iS (Series)
1-2	913223	4	Cylinder	912 A/F/UL and 914 (Series)

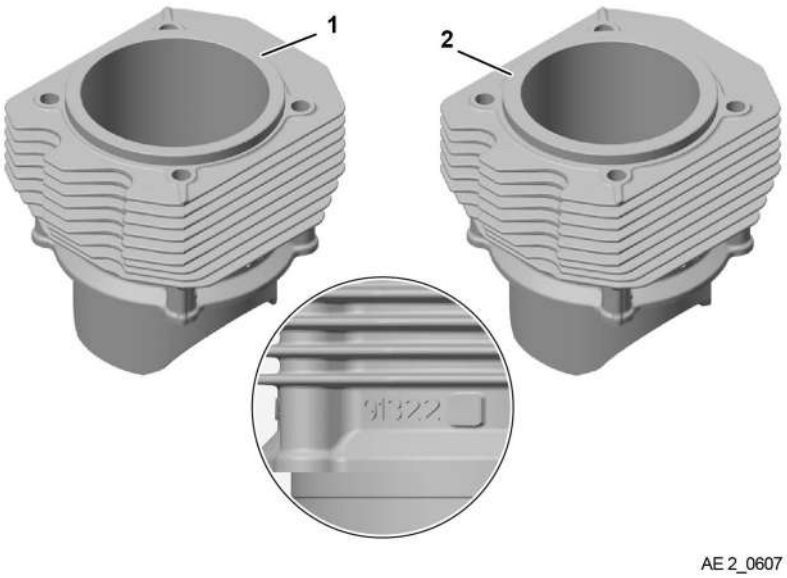

Fig. 1
Cylinder part no. 913229 / 913223

2.4) Material requirement per spare part

None.

2.5) Rework of parts

None.

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

See Fig.2.

Description	Part no.	Application
Mitech MH600 Portable leeb hardness tester*	-	Cylinder hardness inspection

* or equivalent

NOTICE If using these special tools observe the manufacturers specifications.

Fig. 2
Sample portable hardness tester

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.

Accomplishment

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 approved by the respective Aviation Authorities
- 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.

3.1) Illustrated Parts Catalog - related information

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

3.2) Installation - related information

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

3.3) Operation - related information

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

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3.4) Maintenance (Line) - related information

See current Maintenance Manual Line (MML) for the respective engine type, Chapters 05-50-00 & 12-20-00.

3.5) Maintenance (Heavy) - related information

3.5.1) Hardness Inspection - Cylinder

Only these locations provide reliable results. Other areas may not show representative values.
See Fig. 3.

Step	Procedure
1	Perform hardness tests 3 times on the cylinder at one of the machined surfaces indicated in Fig. 3. Calculate the average of the measurements. NOTE: Follow the instructions of the tester manufacturer for calibration, the impact device connection status and direction before performing the hardness tests.
2	If the average hardness value is below 89 HB, the cylinder must be replaced.
3	If the average hardness value is 89 HB or higher, the cylinder is serviceable.

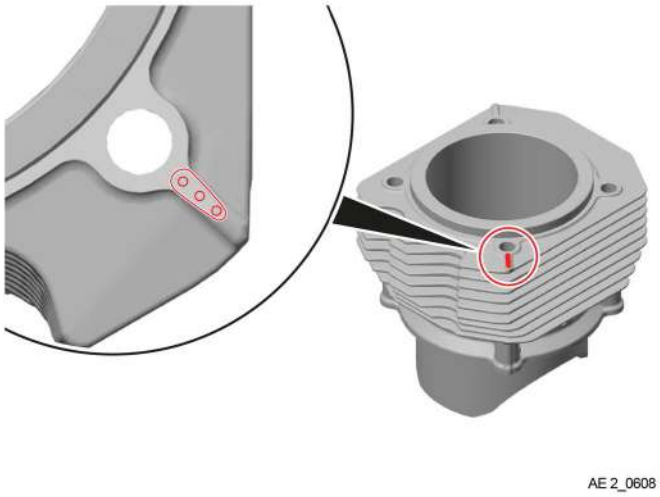

Fig. 3
Hardness testing locations

3.6) Finishing work

Return the engine to original operating configuration.

See current Maintenance Manual Heavy (MMH) for the respective engine type.

3.7) Test run

Conduct test run.

In case of uninstalled engines test run is accomplished with the mandatory test run after installation into aircraft.

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

Perform a leakage check of the whole system, see current Maintenance Manual Line (MML) for the respective engine type.

3.8) Summary

These instructions (section 3) have to be followed in accordance with the deadlines specified in section 1.5.

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.