

Optional airbox preheated air restrictor for ROTAX® aircraft engines

ATA System: 73-10-00 Airbox Assy.

1) Planning information

“PAC” Service Instruction Documents provide detailed information on non-certified ROTAX® Aircraft Engine Parts and Accessories. Referenced parts and accessories are provided without EASA certification or ASTM compliance. Certification / Compliance of referenced Parts and Accessories must be completed by the aircraft OEM.

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

Refer to the latest issue of the relevant Illustrated Parts Catalog of your specific engine type.

NOTICE

The optional air restrictor is not a part of the Engine Type Design. The air restrictor has been tested and released by BRP-Rotax, but it is not certified. The correct function in conjunction with the entire system and the certification of the air restrictor is the responsibility of the aircraft manufacturer and must be carried out jointly with the aircraft.

1.2) Concurrent ASB/SB/SI and SL

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

- SB-912-079 - Essential information regarding engine installation, operation, and maintenance for ROTAX® 912 (Series) Aircraft Engines, current revision.
- SB-912-044 - Use of the ROTAX® supplied airbox for ROTAX® 912 (Series), current revision.
- In general - all relevant Alert Service Bulletins (ASB), Service Bulletins (SB), Service Instructions (SI), Service Letters (SL), Service Instruction - Parts and Accessories (SI-PAC).

1.3) Reason

Genuine ROTAX® airbox assy. part no. 667355 provides optimal airflow to carburetors with selectable inputs for “Fresh Air” and “Preheated Air”. In some engine installations and / or operating conditions, the incorrect and extended use of “Preheated Air” combined with usage of fuels with low octane can cause engine damage. Especially for various high efficient preheating systems this information does apply.

ROTAX® has provided an optional air restrictor designed to fit within the airbox “Preheated Air” inlet which assists in balancing the fuel mixture. **It is the responsibility of the aircraft manufacturer to ensure that intake air pressure (plenum pressure) measurements remain within the limits in all operating conditions, including during the use of “Preheated Air” or “Carburetor Heat”.**

NOTICE

Do not exceed the plenum pressure over the full rpm range.

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NOTE: In order to obtain maximum engine performance with preheated air adjust the diameter of the restrictor to a maximum of 25.3 inch Hg (see Fig.1 in - SB-912-079 Essential information regarding engine installation, operation, and maintenance for ROTAX® 912 (Series) Aircraft Engines, current revision). RON 95 and RON 98 lines are valid for manifold air temperature up to max. 50 °C / 122 °F.

1.4) Subject

Optional airbox preheated air restrictor for ROTAX® aircraft engines.

1.5) Compliance

None - For Information Only.

1.6) Approval

None.

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

Weight: 0,018 kg (0,39 lb).

Dimensions: See [Fig. 3](#)

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 Illustrated Parts Catalog (IPC) and in particular:
Chapter 73-10-00.
- In general Operators Manual (OM) and in particular:
Chapters 2 and 3.
- In general Installation Manual (IM) and in particular:
Chapter 72-60-00.
- 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 73-10-00.

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

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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

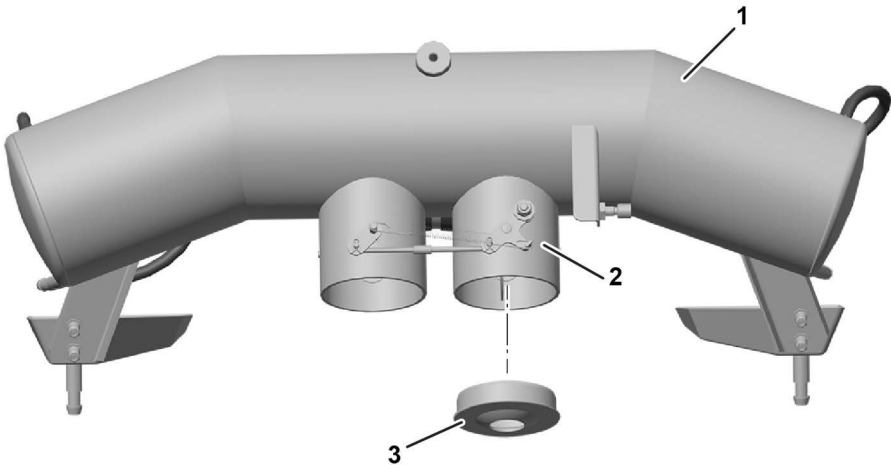
- Any possible support by BRP-Rotax will be provided on request by ROTAX® Authorized Distributors or their independent Service Centers

2.3) Material requirement per engine

Parts requirement:

Fig.no.	New part no.	Qty/en-gine	Description	Application
1-3	667920*	(1)	RESTRICTOR	Airbox Preheated Air inlet

* This is a raw part that needs to be machined/adapted in the diameter to the relevant requirements by the aircraft manufacturer!



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Fig. 1
1. Airbox assy. 2. Preheated air inlet 3. Restrictor

2.4) Material requirement per spare part

None.

2.5) Rework of parts

None.

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

None.

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3) Accomplishment/Instructions

**Accomplish-
ment**

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.

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 73-10-00.

See Fig. 2.

Step	Procedure
1	Apply a thin layer of LOCTITE 243 to the outer flat surface of the restrictor. NOTE: Apply to the complete circumference of the restrictor.
2	Install the air restrictor into the “Preheated Air” inlet and press in until the restrictor is flush with air inlet. Its friction fit design will hold it in position. NOTE: Carburetor jetting adjustment is not necessary.
3	Check the actuation of the air flap. If SCAT or SKEET hosing is used, ensure clamp does not interfere with air flap actuation.

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1 LOCTITE 243

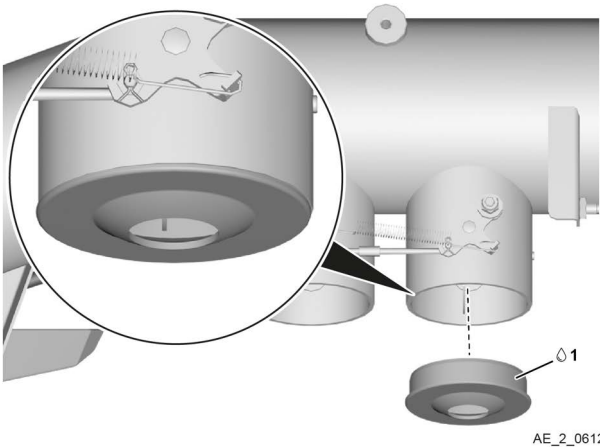


Fig. 2
Restrictor installation



WARNING

The air restrictor must be installed on the “Preheated Air” side. If incorrectly installed on the “Fresh Air” inlet, engine damage may occur.

3.2) Installation - related information

The value for the proper diameter in the restrictor must be measured and gained as follows:

Step	Procedure
1	Perform a pre-measurement with provided restrictor. Measurement point is the connection where the OEM measures the manifold pressure (see specification in the current Installation Manual (IM) for manifold pressure measurement). NOTE: Use a calibrated instrument.
2	Perform a ground run and in small steps (mm by mm) obtain the correct diameter for the relevant aircraft type. NOTE: If a non-genuine airbox is used by the aircraft manufacturer the same routine applies! When carburetor heat is applied it must be assured not to exceed the plenum pressure.

To be measured at pre-defined engine power setting and ambient condition:

ambient pressure:	>950 mbar (28.05 inHg)
engine rpm (adjustable pitch propeller):	4750 +/- 100 rpm (WOT)
engine rpm (fixed pitch propeller):	>4750 rpm (WOT)

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See current Installation Manual (IM) for the respective engine type. Chapter 72-60-00.

3.3) Operation - related information



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



See current SB-912-079 Essential information regarding engine installation, operation, and maintenance for ROTAX® 912 (Series) Aircraft Engines.

3.4) Maintenance (Line) - related information



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

3.5) Maintenance (Heavy) - related information



See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 73-00-00.

3.6) Test run

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



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

3.7) Summary

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

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NOTE: Work on EASA certified parts might affect the EASA Form 1 and does require appropriate documentation by authorized persons. Repairs must be entered into the engine logbook and also do apply for the EASA Form 1.

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.

3.8) Inquiries

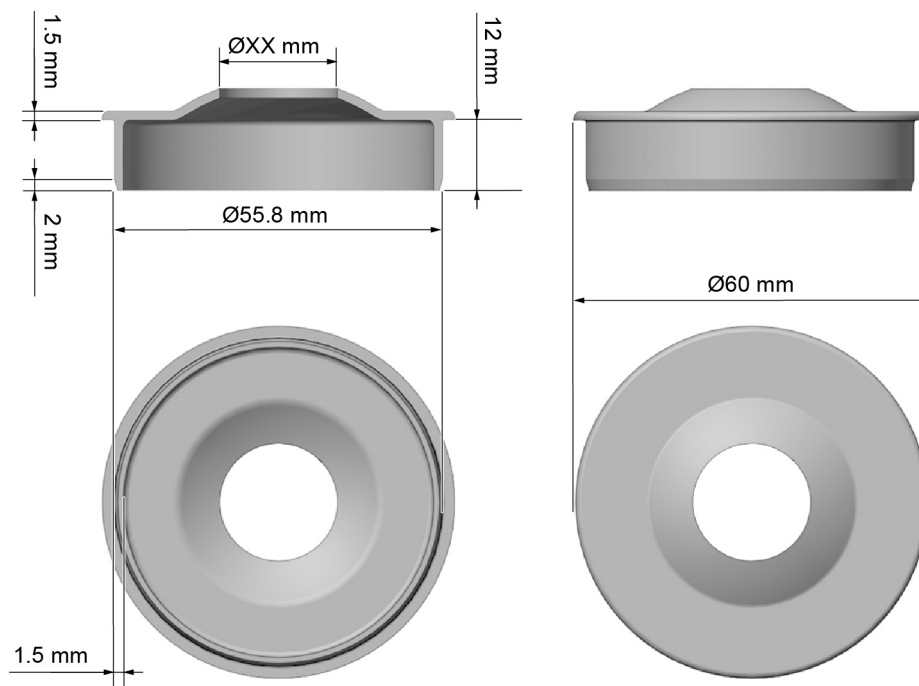
Inquiries regarding this Service Instruction PAC should be sent to the ROTAX® Authorized Distributor of your area.

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

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4) Appendix

The following drawings/schematics/tables should convey additional information:



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Fig. 3
Air restrictor part no. 667920

NOTE: Changes to the raw part inner diameter of the restrictor are subject to the aircraft manufacturer's measurements and specifications.

NOTE: In order to obtain maximum engine performance with preheated air adjust the diameter of the restrictor to a maximum of 25.3 inch Hg (see Fig.1 in - SB-912-079 Essential information regarding engine installation, operation, and maintenance for ROTAX® 912 (Series) Aircraft Engines, current revision). RON 95 and RON 98 lines are valid for manifold air temperature up to max. 50 °C / 122 °F.

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.