

SERVICE INSTRUCTION

Introduction of new exhaust system components and assemblies for ROTAX® 912 (Series) and 912 i (Series) Aircraft Engines

ATA System: 78-10-00 Exhaust System

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 certified ROTAX® engine types:

Engine type	Serial number
912 A	All
912 F	All
912 S	All
912 iSc Sport	All

All versions of ASTM compliant ROTAX® engine types:

Engine type	Serial number
912 UL	All
912 ULS	All
912 iS Sport	All

if they are equipped with the genuine ROTAX® exhaust system components or assemblies as specified in section 3.1. In case of doubt, contact your aircraft manufacturer.

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

Installation and maintenance information for genuine ROTAX® exhaust system components and assemblies. See section 3.1 for applicable part numbers.

1.3.1) Reason for revision

The revision of this Service Instruction is issued to inform about the acoustic performance of newly exhaust system components for ROTAX® 912 (Series) and 912 i (Series) engines. For the details, see Section 4.

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1.4) Subject

Introduction of new exhaust system components and assemblies for ROTAX® 912 (Series) and 912 i (Series) Aircraft Engines

1.5) Compliance

NONE - For Information Only

1.6) Approval

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

For ASTM compliant engines the technical content of this document is approved under the relevant processes of the effective BRP-Rotax quality management system.

Content concerning certified engine types also applies to ASTM compliant engine types.

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:

Part no.	Status	Description	Weight
978064	N	MUFFLER ASSY. STAINLESS	2.28 Kg / 5.03 lb
978063	s.v.	MUFFLER ASSY. STAINLESS	2.53 Kg / 5.58 lb
973388	N	MUFFLER ASSY. STAINLESS	2.33 Kg / 5.14 lb
973385	s.v.	MUFFLER ASSY. STAINLESS	2.58 Kg / 5.69 lb
973013	N	EXHAUST PIPE ASSY. CYL. 1	0.38 Kg / 0.84 lb
973010	s.v.	EXHAUST PIPE ASSY. CYL. 1	0.43 Kg / 0.95 lb
973023	N	EXHAUST PIPE ASSY. CYL. 2	0.36 Kg / 0.79 lb
973020	s.v.	EXHAUST PIPE ASSY. CYL. 2	0.41 Kg / 0.90 lb
973033	N	EXHAUST PIPE ASSY. CYL. 3	0.26 Kg / 0.57 lb
973030	s.v.	EXHAUST PIPE ASSY. CYL. 3	0.28 Kg / 0.62 lb
973043	N	EXHAUST PIPE ASSY. CYL. 4	0.26 Kg / 0.57 lb
973040	s.v.	EXHAUST PIPE ASSY. CYL. 4	0.29 Kg / 0.64 lb
973389	N	EXHAUST ELBOW. STAINLESS	0.33 Kg / 0.73 lb
973390	s.v.	EXHAUST ELBOW. STAINLESS	0.51 Kg / 0.12 lb
973673	N	MUFFLER ASSY.	2.22 Kg / 4.89 lb
978605	s.v.	EXHAUST ELBOW. STAINLESS	0.35 Kg / 0.77 lb

Moment of inertia - - - Will depend on airframe installation and therefore no estimate is available from the engine manufacturer.

1.9) Electrical load data

No change.

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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 78-10-00
- in general Operators Manual (OM)
- in general Installation Manual (IM) and in particular:
Chapter 78-10-00
- in general Maintenance Manual Line (MML) and in particular:
Chapter 05-20-00 and 12-20-00
- in general Maintenance Manual Heavy (MMH) and in particular:
Chapter 78-10-00

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

- New muffler part no. 973388 has an exhaust outlet diameter of 42 mm (1.65 in) and must be paired with exhaust elbow part no. 973389. This elbow is attached using clamp assy. 42 mm part no. 951552. A stainless-steel hook part no. 853356 is also provided for a lockwire attachment point.
- Old muffler part no. 973385 has an exhaust outlet diameter of 40 mm (1.57 in) and must be paired with exhaust elbow part no. 973390 which is welded in place.
- All other parts such as exhaust pipe assemblies 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

See section 3.1.

2.4) Material requirement per spare part

None.

2.5) Rework of parts

None.

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

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

See [Fig. 1](#).

Description	Qty/ engine	Part no.	Application
LOCTITE ANTI SEIZE 8151	(AR)	297438	Exhaust sockets / ball joints
Exhaust spring tool	(AR)	-	Removal / installation of exhaust springs

NOTICE

If using these special tools observe the manufacturers specifications.

1 Exhaust spring tool
2 ANTI SEIZE 8151

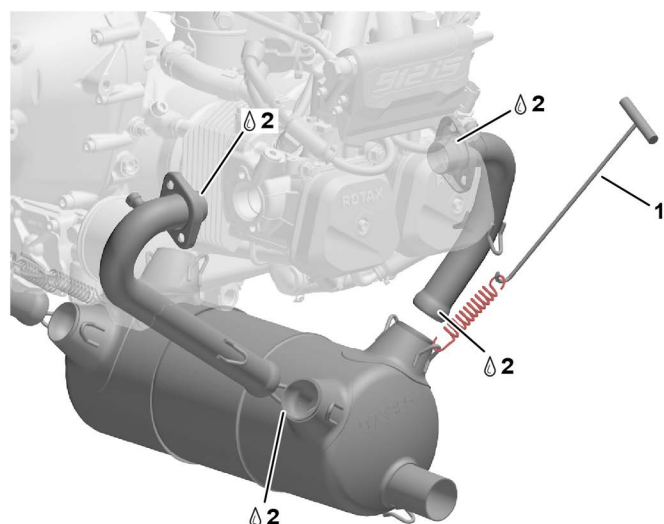


Fig. 1

Tooling / lubricant

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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.

Procedure

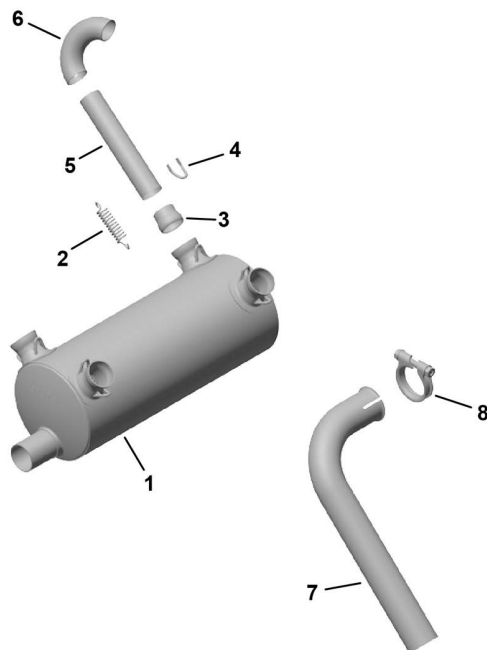
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3.1) Illustrated Parts Catalog - related information

3.1.1) 912 UL (Series) 80 HP engines

See [Fig. 2](#) & [Fig. 7](#)

Fig.no.	New part no.	Qty/ engine	Description	Old part no.
2	978489	(1)	EXHAUST ASSORTMENT STAINLESS STEEL	978488
Consists of:				
2-1	978064	1	MUFFLER ASSY. STAINLESS	978063
2-2	938796	8	SPRING 66 MM STAINLESS	
2-3	978521	4	BALL JOINT MALE STAINLESS	
2-4	853356	8	HOOK STAINLESS	
2-5	978998	2	EXHAUST TUBE 800 MM STAINLESS	
2-6	978500	2	EXHAUST ELBOW ASSY. 360 DEGR. STAINLESS	
2-7	978605	1	EXHAUST ELBOW STAINLESS (TAILPIPE)	



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Fig. 2

912 UL (Series)

NOTICE

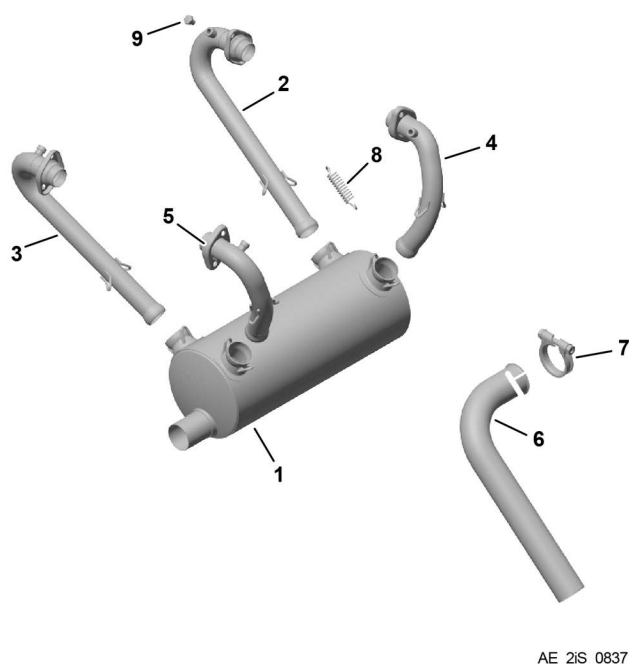
Muffler assy. 978064/978063 (0° bend angle) is for use with 80 HP engine only! Do not use on 100 HP engine.

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3.1.2) 912 UL, ULS, iS (Series) 80 HP and 100 HP engines

See [Fig. 3](#), [Fig. 5](#) & [Fig. 8](#).

Fig.no.	New part no.	Qty/ engine	Description	Old part no.
3	973383	(1)	EXHAUST ASSORTMENT STAINLESS STEEL	973380
Consists of:				
3-1	973388	1	MUFFLER ASSY.	973385
3-2	973013	1	EXHAUST PIPE ASSY. CYL. 1	973010
3-3	973023	1	EXHAUST PIPE ASSY. CYL. 2	973020
3-4	973033	1	EXHAUST PIPE ASSY. CYL. 3	973030
3-5	973043	1	EXHAUST PIPE ASSY. CYL. 4	973040
3-6	973389	1	EXHAUST ELBOW STAINLESS (TAILPIPE)	973390
3-7	951552	1	EXHAUST PIPE CLAMP ASSY. 42 MM	951550
3-8	938796	9	SPRING 66 MM STAINLESS	
3-9	841115	4	HEX. SCREW M8X1X10	



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Fig. 3 912 UL, ULS, iS (Series)

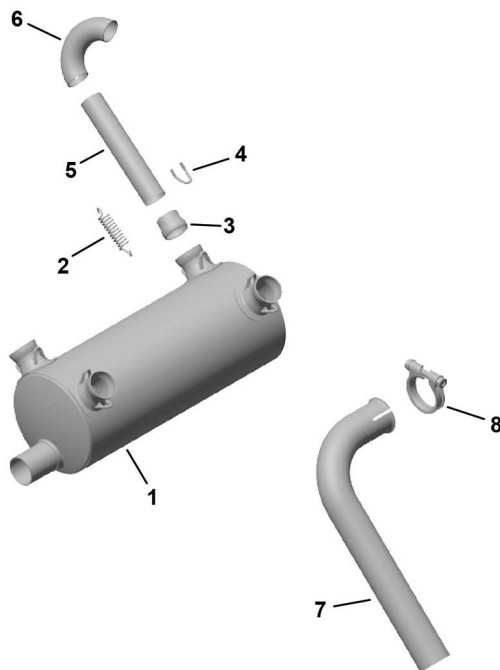
NOTICE

Muffler assy. 973388 has a tailpipe diameter of 42 mm and a bend angle of 0°, use with 973389 elbow (90° bend angle). Muffler assy. 973385 has a tailpipe diameter 40 mm and a bend angle of 3°, use with 973390 elbow (93° bend angle).

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See [Fig. 4](#), [Fig. 6](#) & [Fig. 8](#).

Fig.no.	New part no.	Qty/ engine	Description	Old part no.
4	973677	(1)	EXHAUST ASSORTMENT STAINLESS STEEL	973676
Consists of:				
4-1	973673	1	MUFFLER ASSY. STAINLESS	973674
4-2	938796	8	SPRING 66 MM STAINLESS	
4-3	978521	4	BALL JOINT MALE STAINLESS	
4-4	853356	9	HOOK STAINLESS	
4-5	978998	2	EXHAUST TUBE 800 MM STAINLESS	
4-6	978500	2	EXH.ELBOW ASSY. 360 DEGR. STAINLESS	
4-7	973389	1	EXHAUST ELBOW STAINLESS (TAILPIPE)	978605
4-8	951552	1	EXHAUST PIPE CLAMP ASSY. 42 MM	951550



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Fig. 4

912 UL, S, iS (Series)

NOTICE

Muffler assy. 973673 has a tailpipe diameter of 42 mm and a bend angle of 0°, use with 973389 elbow (90° bend angle).

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3.2) Installation - related information



See current Installation Manual (IM) for the respective engine type, Chapter 78-00-00.

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).

3.4) Maintenance (Line) - related information



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

3.5) Maintenance (Heavy) - related information



See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 78-10-00.

3.6) Test run

Conduct test run and perform a leakage check of the entire exhaust system.

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, Chapters 12-20-00.

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3.7) Summary

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

| 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 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>.

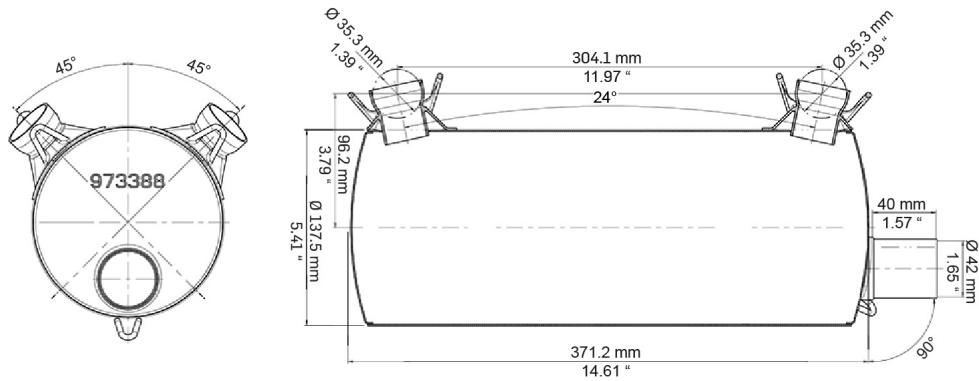
4) Acoustic Performance and Measurement Details

Comparative testing with the new exhaust system on test aircrafts carried out under the conditions of NfL II 70/04, 349-17 & 480-19 have shown a noise reduction of up to 5 db (A), depending on aircraft type and MTOW.

NOTE: The relevant / final measurement has to be carried out on aircraft level specifically.

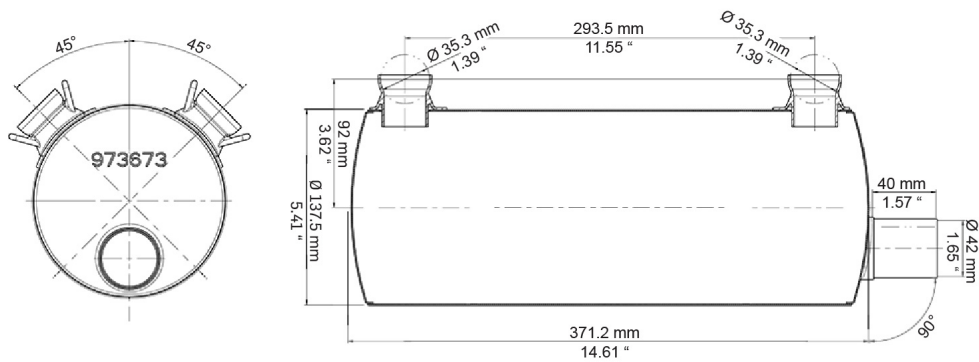
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5) Appendix



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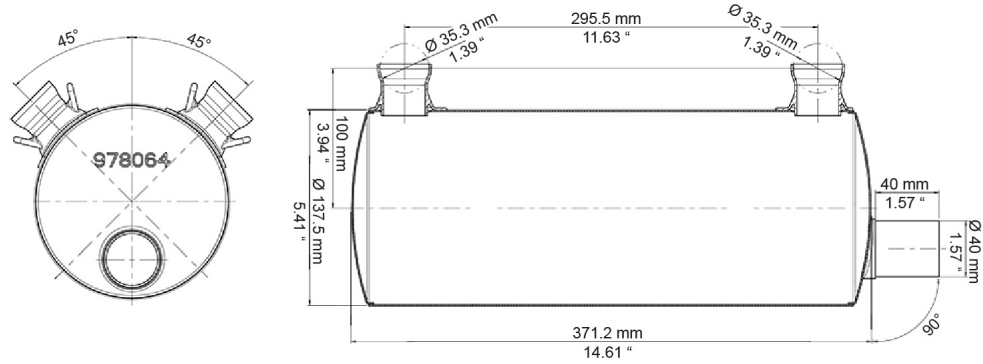
Fig. 5 912 UL, ULS, iS (Series)



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Fig. 6 912 UL, ULS, iS (Series)

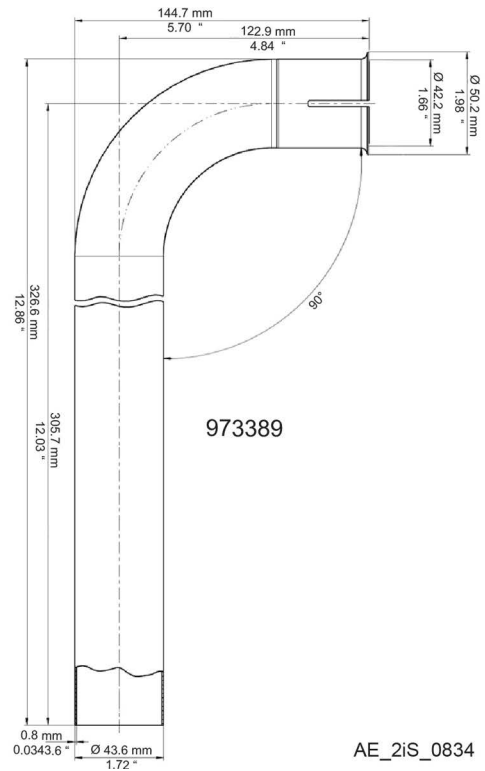
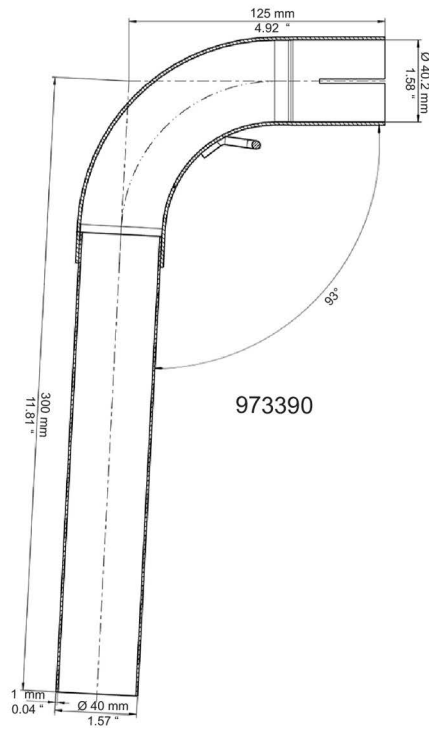
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Fig. 7

912 UL (Series) ONLY



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Fig. 8

912 UL, ULS, iS (Series)