This SI revises SI-912 i-015 Initial Issue dated 09 June 2017

SERVICE INSTRUCTION

Fuel pump service kit for ROTAX® Engine Type 912 i (Series)

ATA System: 73-00-00 Fuel 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 ROTAX® engines types:

Engine type	Serial number
912 iSc Sport	all
912 iS	all
912 iS Sport	all

which are equipped with the genuine fuel pump ROTAX® part no. 889696 or 889698. In case of doubt, contact your aircraft manufacturer.

1.2) Concurrent ASB/SB/SI and SL

None.

1.3) Reason

In order to comply with 5 year rubber parts replacement requirements, ROTAX® has released a fuel pump service kit part no. 889537.

1.4) Subject

Fuel pump service kit for ROTAX® Engine Type 912 i (Series).

1.5) Compliance

NONE - For Information Only.

WARNING Non-compliance with these instructions could result in engine damages, personal injuries or death.
The general safety information must be observed for all work on the aircraft engine and its surrounding components.

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.

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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

- Illustrated Parts Catalog (IPC)
- Installation Manual (IM)
- Maintenance Manual Line (MML)
- Maintenance Manual Heavy (MMH)

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 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 parts are interchangeable

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

None.

2.3) Material requirement per engine

parts requirement:

Fig.no.	New p/n	Qty/ engine	Description	Old p/n	Application
	889537	1	Fuel pump service kit	-	Fuel system

2.4) Material requirement per spare part

None.

2.5) Rework of parts

None.

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

Part no.	Description	Application
-	CRC Leak Detector (14503). Non-flammable water based formula – no oils, silicones or harmful solvents	Crimp connection leak detection
-	BERNER Leckfinder (148383). Water based formula, non-corrosive, silicone free.	Crimp connection leak detection

NOTE: There are many third party commercial leak detection products available. Ensure that the leak detection solution used is non-corrosive and does not contain harmful solvents.

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3) Accomplishment/Instructions

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® - 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.

NOTE: All work has to be performed in accordance with the relevant Maintenance Manual.

Safety notice

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

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

NOTICE **Identifies an instruction which, if not followed, may severely damage the engine or could void any warranty.**

ENVIRONMENTAL NOTE

Environmental notes give you tips on environmental protection.

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

3.1) Instruction - related information

NOTE: Ensure that check valves and fuel pumps remain in their original orientation. See Fig. 2 and see also latest Installation Manual of 912 i Series, chapter 73-00-00.

ENVIRONMENTAL NOTE

Work with the utmost care to ensure that no water pollutants can penetrate into the soil, water or the sewerage system.
Dispose of fuel at the respective collecting point or hand it over to an approved disposal company.

3.2) Maintenance (Line) - related information

See relevant Maintenance Manual (Line) for the respective engine type and its periodical maintenance information.

3.3) Maintenance (Heavy) - related information

See relevant Maintenance Manual (Heavy) for the respective engine type.
See chapter 73-10-00 “Fuel pump and distribution”.

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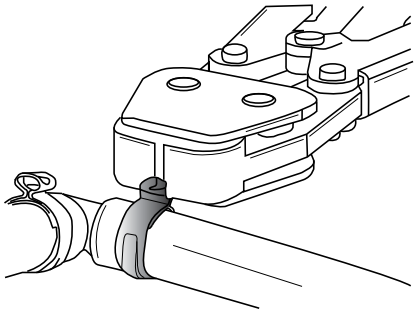
3.4) Disassembly

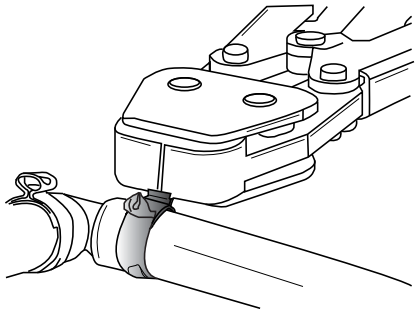
See Fig. 3.

Step	Procedure
1	If still installed: Disconnect the fuel lines from aircraft fuel system.
2	Remove fuel pump cover (4) by disassembly of the 4 Allen screws M5x12 (7).
3	Disconnect electrical connectors from MAIN and AUX fuel pump (8).
4	Disassemble the wiring and rubber grommet (6) from fuel pump housing (1).
5	Remove hex. nuts M6 (3).
6	Remove complete fuel pump module assy. (pump bracket assy. (2) with fuel pumps (8) etc. from fuel pump housing.
7	Remove 1-ear clamps (9) (11) (13). NOTE: Use e.g. ear clamp pliers KNIPEX 1099. Position jaws of the pliers on the edge of ear and cut through the ear of each clamp. Then use pliers to spread and remove the clamp. See Fig. 1.

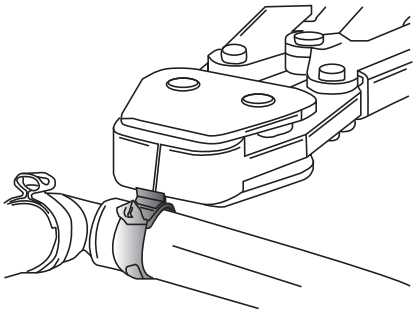
CAUTION Do not damage fuel pump and check valve connectors during disassembly process.



1. Place jaw tips on each side of clamp ear or single leg



2. *Squeeze handles*



3. Cut through and remove clamp

Fig. 1

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Step	Procedure
8	Remove pump bracket assy. (2).
9	Disassemble the fuel hose suction line, pressure line, connecting line, check valve, fuel pumps assy. NOTE: Do not use a knife or sharp object as this may cut, scratch or otherwise damage the fitting.

3.5) Checks

Step	Procedure
1	Check the fuel pump connectors for deformation, cuts or scratch marks. NOTE: Longitudinal cuts or scratches are not allowed. If such marks are found the fuel pump must be replaced.
2	Check the suction line, pressure line, connecting line and check valve for deformation or scratch marks. NOTE: Longitudinal cuts or scratches are not allowed. If such marks are found the check valve or connecting line must be replaced.
3	Check the entire system for deposits and/or contamination in the lines, fuel pumps etc.
4	Visual check of all fuel pump module components (cover, brackets, housing, heat protection mat etc.)

3.6) Assembly

NOTICE Only use ROTAX genuine parts for part replacement!

NOTE: Always use new hoses for assembly.

NOTE: For easier hose assembly, fuel or brake cleaner can be used to lubricate the inside of the hose. Do not use oil, silicone or any type of grease!

NOTE: Make sure that all 1-ear- clamps are crimped with 1.5 mm (0.06 in.) distance from hose end and are not positioned directly over the connector barb (see Fig. 4).

NOTE: Always use full slip on length of the hoses (see Fig. 4).

See Fig. 3.

Step	Procedure
1	Position new hoses (12) (10) on connection line (15).
2	Slip on new 1-ear-clamps (13) (11).
3	Install the check valves (14) and the fuel pumps (8).
4	Position new hoses (12) (10) on check valves (14) and the fuel pumps (8).

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Step	Procedure
5	Install new 1-ear-clamps (9) on the pump bracket assy. (2).
6	Slide in the check valves and fuel pumps accordingly.
7	Slip on new 1-ear-clamps (13) (11).
8	Install suction line (17).
9	Install pressure line (16).
10	Temporarily position complete fuel pump module assy. (pump bracket assy. (2) with fuel pumps (8) etc.) in the fuel pump housing (1).
11	Arrange the position of the fuel pumps, check valves, hoses etc. accordingly to fit within the fuel pump housing.
12	Mount and crimp the two fuel pump 1-ear-clamps (9). NOTE: Use e.g. ear clamp pliers KNIPEX 1099.
13	For easier work on the consequent job tasks, remove the complete fuel pump module assy. from the fuel pump housing without relocating hoses, check valves, fuel pumps etc.
14	Mount and crimp 1-ear-clamps (11) (13). NOTE: Use e.g. ear clamp pliers KNIPEX 1099.
15	Place complete fuel pump module assy. (pump bracket assy. (2) with fuel pumps (8) etc.) in the fuel pump housing.
16	Install hex. nuts M6 (3). Tightening torque 10 Nm (90 in. lb.).
17	Before installing the fuel pump cover, perform a leakage check (see section 3.7)
18	Install the wiring and rubber grommets (6) into fuel pump housing (1).
19	Connect electrical connectors to MAIN and AUX fuel pump (8).
20	Install fuel pump cover (4) using 4 Allen screw M5x12 (7). Tightening torque 6 Nm (55 in. lb.).
21	If still installed in aircraft: Connect the fuel lines from aircraft fuel system.

3.7) Leakage check

See Fig. 5.

Once all rubber hoses have been replaced with new and all clamps are properly crimped, the fuel pump assembly must be tested for the security of connections.

NOTICE Make sure not to mix up IN (-LET) and OUT(-LET) of fuel pump assembly in the following tasks.

NOTICE For this leakage check have disconnected electrical connectors to MAIN and AUX fuel pump.

Step	Procedure
1	Block the OUTLET of the fuel pump assembly with suitable threaded pressure cap (e.g. AN929-6).
2	Connect the INLET of the fuel pump assembly to a differential pressure gauge.
3	Apply 6 bar (87psi) to the fuel pump assembly (see Fig. 5).
4	NO pressure loss is allowed on the differential pressure gauge.
5	With the fuel system temporarily pressurized with air, use an appropriate leak detector solution at each hose and clamp connection to verify proper sealing. **NOTICE** Follow leak detector solution manufacturer's instructions for its use, clean up and safety information.
6	If any air bubbles are present at rubber hose connections, replace the clamp and ensure proper crimp. An extra clamp of each size is provided in the service kit.

NOTE: Assemble with clean parts only in a clean environment!

NOTE: Ensure that check valves and fuel pumps remain in their original orientation. See Fig. 2.

NOTICE The fuel pumps and check valves must not be dismantled. Replace at maintenance interval or when contaminated.

3.8) Test run

Conduct test run. See chapter 12-20-00 of the latest Maintenance Manual Line for the respective engine type.

3.9) 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.

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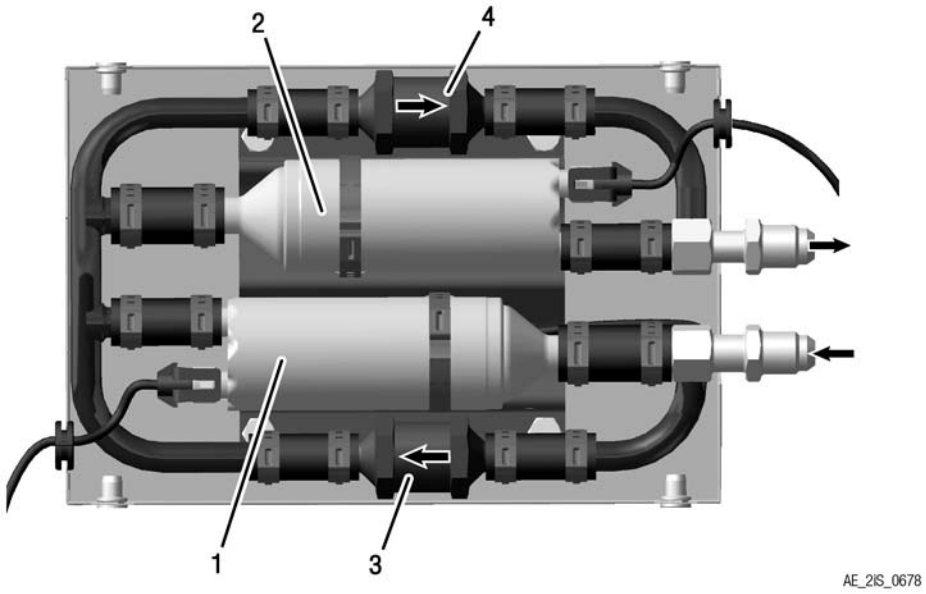
3.10) Enquiries

Enquiries 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 www.FLYROTAX.com.

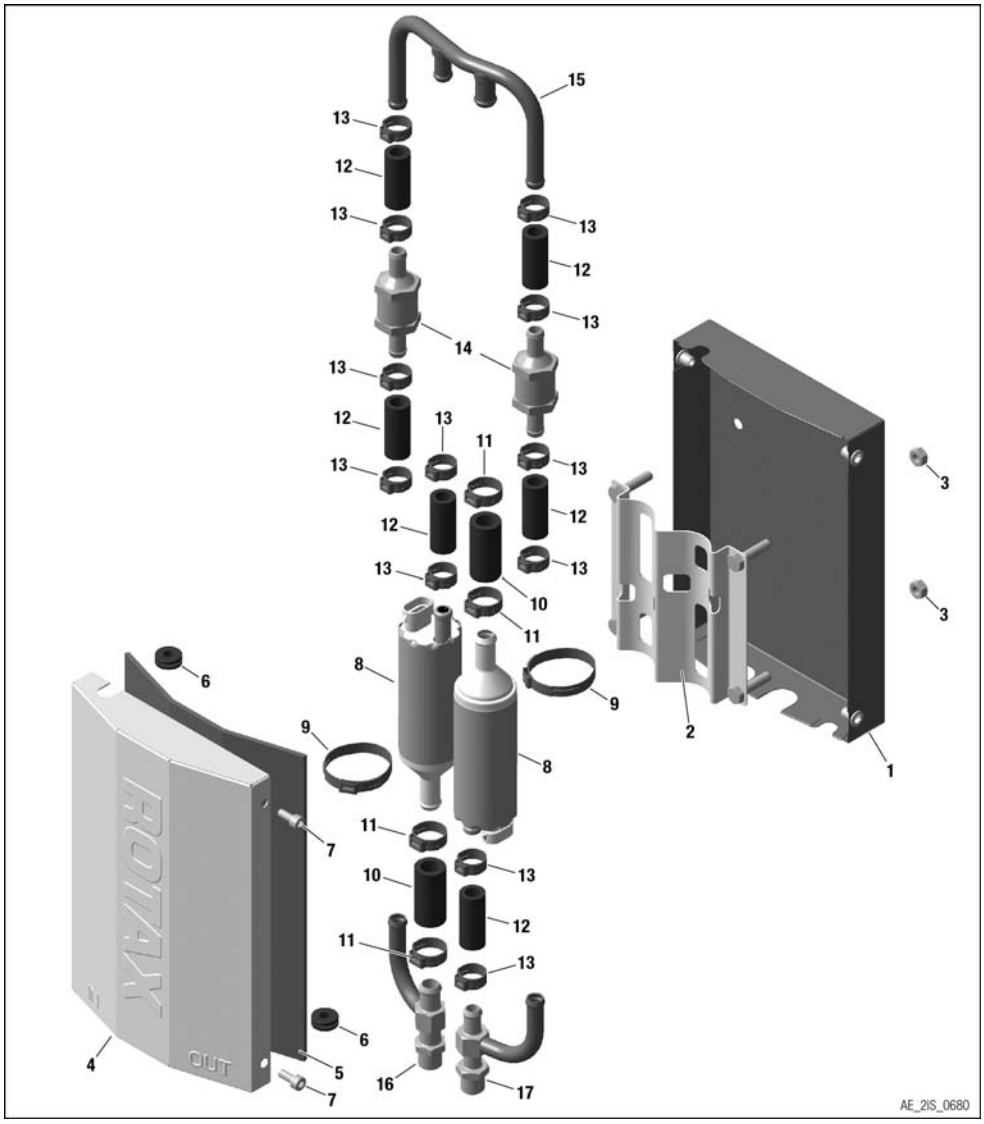
4) Appendix

The following figures should provide additional information:



1 Main pump (main)
2 Auxiliary pump (AUX)
3 Check valve
4 Check valve

Fig. 2
Fuel pump assy. - 889696 shown



1	Fuel pump housing	10	Hoses
2	Fuel pump bracket assy.	11	1-ear-clamp
3	Hex. nut M6	12	Hoses
4	Fuel pump cover	13	1-ear-clamp
5	Heat protection mat	14	Check valves
6	Rubber grommet	15	Connection line
7	Allen screw M5x12	16	Pressure line
8	Main and Aux fuel pump	17	Suction line
9	1-ear-clamp		

Fig. 3
Fuel pump assy. - single parts

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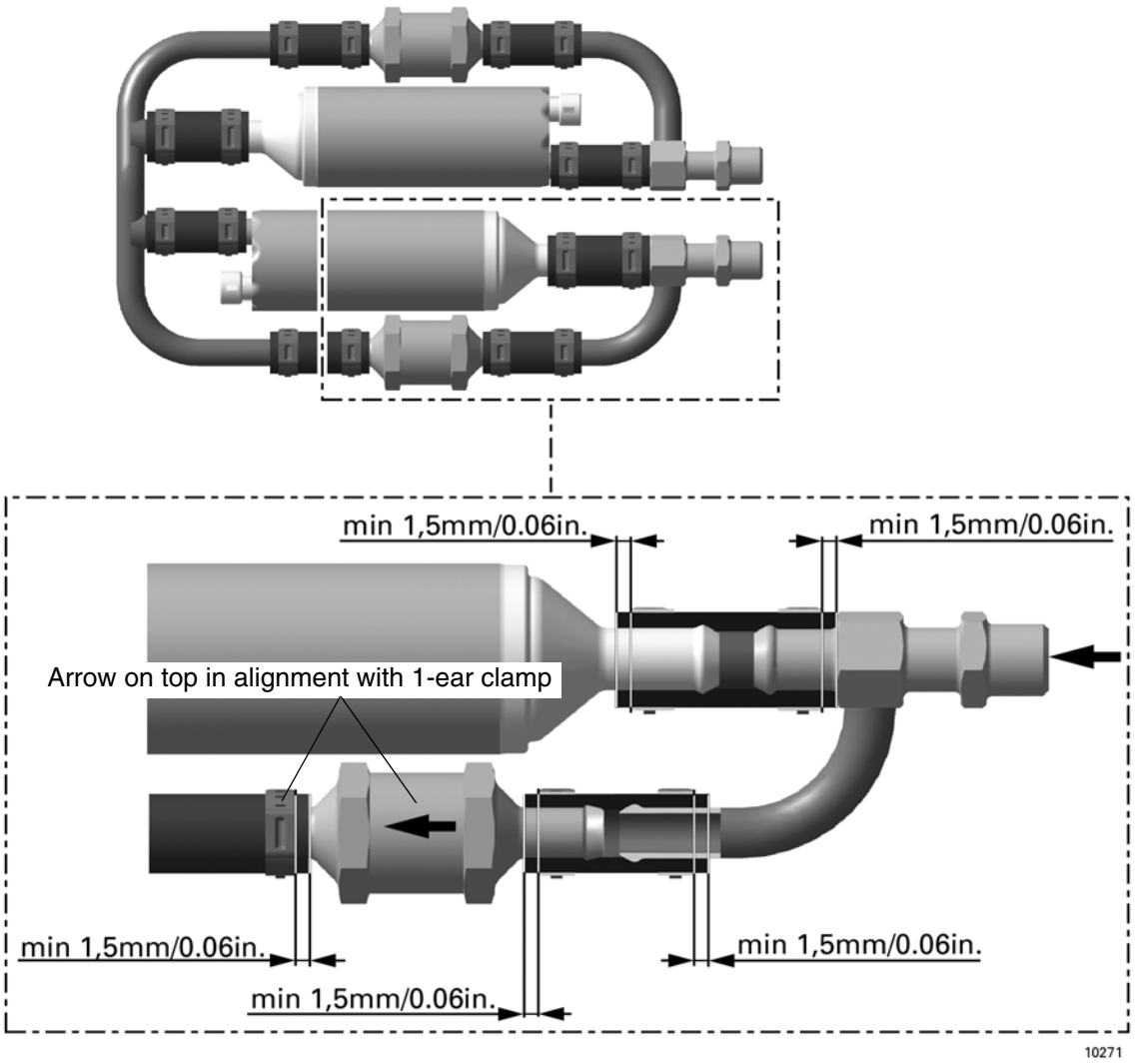
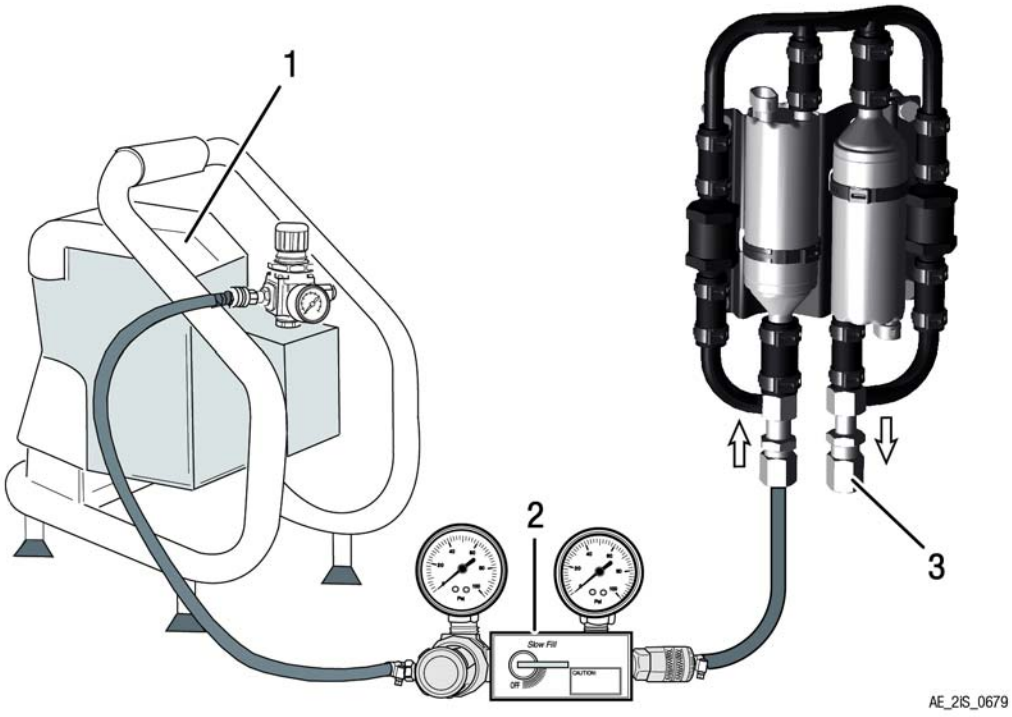


Fig. 4
Slip on length



1 Air compressor
2 Differential pressure tester
3 Cap on “outlet”

Fig. 5
Fuel pump leakage test

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.

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