

Fuel pump and fuel pump part kits for ROTAX® Aircraft Engine Types 912 i, 915 i and 916 i (Series)

ATA System: 73-00-00 Fuel system

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

NOTICE

The fuel pumps are part of the 912 i Engine Type Design and will be provided certified for this engine type.

NOTE: The fuel pumps are not part of the 915 i and 916 i Engine Type Design and then provided not certified.

The fuel pump parts kits are not a part of the Engine Type Design and will be provided not certified.

The correct function in conjunction with the entire fuel system and the certification of the fuel pump(s) 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 documents must be observed with:

- In general, all relevant Alert Service Bulletins (ASB), Service Bulletins (SB), Service Instructions (SI), Service Letters (SL), Service Instruction - Parts and Accessories (SI-PAC).
- SI-912 i-032 Fuel pump and fuel pump part kits for ROTAX® engine type 912 i (Series).

1.3) Reason

Introduction of new GENUINE ROTAX® fuel pump and fuel pump parts kit including installation and maintenance information.

1.4) Subject

Fuel pump and fuel pump parts kits for ROTAX® Aircraft Engine Type 912 i, 915 i and 916 i A (Series).

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SERVICE INSTRUCTION - PAC

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

Change of weight - - - depends on the aircraft installation and installation situation (parts chosen by the maintenance technician are not considered).

Moment of inertia - - - depends on the aircraft installation and installation situation (additional parts chosen by the OEM and maintenance technician are not considered).

1.9) Electrical load data

See section 3.2.

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:
Chapters 73-10-00 and 76-10-00
- In general, Installation Manual (IM) and in particular:
Chapters 73-10-00 and 76-00-00
- In general, Maintenance Manual Line (MML) and in particular: Chapter 05-20-00
- In general, Maintenance Manual Heavy (MMH) and in particular:
Chapters 73-10-00 and 76-00-00
- In general, Operators Manual (OM) and in particular:
Chapters 2.3 and 3
- In general, Aircraft's Pilot Operating Handbook (POH)

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

Parts are not one to one interchangeable.

NOTE: See relevant changes in Chapter 3.

SERVICE INSTRUCTION - PAC

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 requirements:

See [Fig.1](#)

Fig. no.	Part no.	Qty / engine	Description	Application
1	889732*	1	Fuel pump - packaged	915 i / 916 i / 912 i
Consists of:				
	889731	1	Fuel pump	915 i / 916 i / 912 i

*NOTE: In engine are installed two units of 889732.

- 1) Fuel pump part no. 889731
- 2) Part number location
- 3) Serial number location

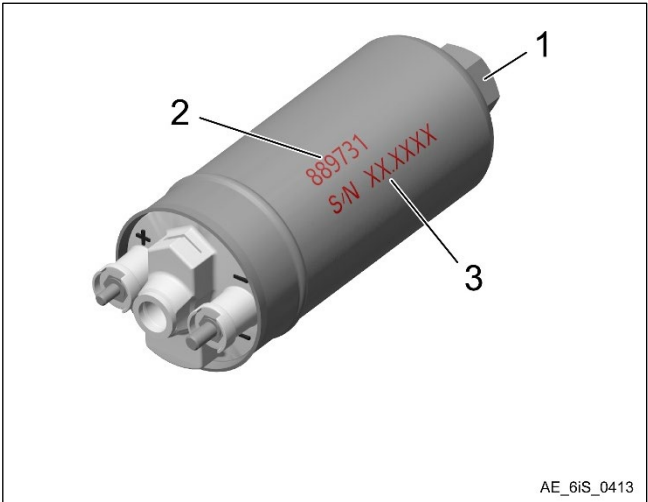


Fig. 1
Fuel pump part no. 889731

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See [Fig. 2](#)

Fig. no.	Part no.	Qty / engine	Description	Application
2	481481*	1	Fuel pump parts kit UNF	912 i / 915 i / 916 i UNF
Consists of:				
	875018	1	Check valve AN6	UNF
	875017	1	Adapter AN6 / M14x1,5	UNF Inlet
	250735	1	Gasket ring A14x20	
	875016	1	Connection AN6/M10x1	UNF Outlet
	250425	1	Gasket ring 10.2/15/1.5	
	881305	1	Connector set fuel pump	Wiring harness connection
	951590	2	Clamp MS21919WDG32-2	Fuel pump
	481471*	1	Connector set fuel pump	Fuel pump electrical terminals

*NOTE: For an engine are needed two units of 481481.

Fig. no.	Part no.	Qty / engine	Description	Application
2	481483*	1	Fuel pump parts kit UNF C24	915 i / 916 i UNF C24
Consists of:				
	875018	1	Check valve AN6	UNF
	875017	1	Adapter AN6 / M14x1,5	UNF Inlet
	250735	1	Gasket ring A14x20	
	875016	1	Connection AN6/M10x1	UNF Outlet
	250425	1	Gasket ring 10.2/15/1.5	
	881307	1	Connector set fuel pump	Connection C24
	951590	2	Clamp MS21919WDG32-2	Fuel pump
	481471	1	Connector set fuel pump	Fuel pump electrical terminals

*NOTE: For an engine are needed two units of 481483.

SERVICE INSTRUCTION - PAC

See [Fig. 2](#)

Fig. no.-part	Part no.	Qty / engine	Description	Application
2-6	481471*	1	Terminals connector set fuel pump	912 i/ 915 i / 916 i
Consists of:				
	XXXXXX	2	Protective cap	
	XXXXXX	1	Lock nut M4	
	XXXXXX	1	Lock nut M5	
	XXXXXX	1	Washer 4.3	
	XXXXXX	1	Washer 5.3	
	XXXXXX	1	Ring terminal M4	
	XXXXXX	1	Ring terminal M5	

*NOTE: For an engine are needed two units of 481471.

Fig. no.-part	Part no.	Qty / engine	Description	Application
2-7	881305*	1	Connector set fuel pump	912 i/ 915 i / 916 i
Consists of:				
	XXXXXX	1	Connector housing	
	XXXXXX	3	Flat pin terminal	
	XXXXXX	3	Cable grommet	

*NOTE: For an engine are needed two units of 881305.

Fig. no.-part	Part no.	Qty / engine	Description	Application
2-8	881307*	1	Connector set MAIN fuel Pump C24	915 i / 916 i
Consists of:				
	XXXXXX	1	Connector housing	
	XXXXXX	3	Flat pin terminal	
	XXXXXX	1	Wedge lock	

*NOTE: For an engine are needed two units of 881307.

SERVICE INSTRUCTION - PAC

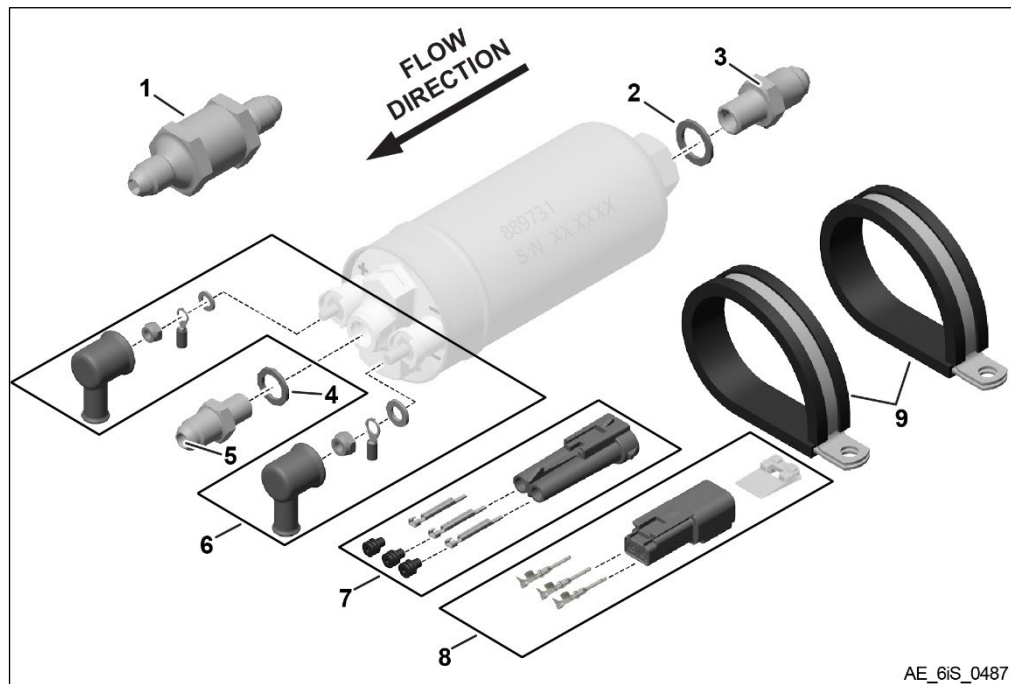


Fig. 2

- | | | |
|--|--|--|
| 1) Check valve AN6
part no. 875018 | 2) Gasket ring A14x20
part no. 250735 | 3) Adapter Metric AN6 / M14x1.5
part no. 875017 |
| 4) Gasket ring 10.2/15/1.5
part no 250425 | 5) Adapter AN6/M10x1
part no 875016 | 6) Connector set
part no. 481471 |
| 7) Connector set
part no. 881305 | 8) Connector set C24
part no. 881307 | 9) Cable clamp
part no. 951590 |

SERVICE INSTRUCTION - PAC

2.4) Material requirement per spare part

None.

2.5) Rework of parts

None.

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

Description	Qty / engine	Part no.	Application
CRC® Leak Detector (14503)* Non-flammable water-based formula. No oils, silicones or harmful solvents	-	n.a	Fuel pump service. Connection leak detection
BERNER® Leak Finder (148383)* Water based formula, non-corrosive, silicone free.	-	n.a	Fuel pump service. Connection leak detection
APTIV® 12155975 Crimp tool*	-	n.a	Fuel pump power connectors (12V)
DEUTSCH® DTT-16-00 Crimp tool*	-	n.a	Fuel pump power connectors (C24)

* or equivalent

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.

NOTICE

If using these special tools observe the manufacturers specifications.

SERVICE INSTRUCTION - PAC

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 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



All work must 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 (IPC) – related information



See current Illustrated Parts Catalog (IPC) for the respective engine type, Chapters 73-10-00 and 76-10-00.

3.2) Installation – related information



Refer to current Installation Manual (IM) for the respective engine type for detailed fuel system requirements, Chapter 73-00-00 Engine – Fuel and control.

The electrical fuel pumps must be installed in a well-ventilated area, near the fuel tank and away from potential sources of heat to ensure a safe fuel supply and minimize the risk of vapor lock. Ambient temperature of fuel pumps must not exceed 80 °C (176 °F).

NOTE: The GENUINE-ROTAX® fuel pumps have been tested and approved according to CS-E-130. Thus, the fuel pump can be installed on the firewall without additional fire protection. A fuel pump housing is not available for the fuel pumps.

NOTICE

Do not connect additional load (additional fuel pumps, lamps, LED, etc.) to the power supply of the fuel pumps. The wiring is manufactured for GENUINE-ROTAX® fuel pumps only.

SERVICE INSTRUCTION - PAC

Fuel pump technical information	
Nominal Voltage (V)	13.8 V
Current consumption (A) Single pump	5.8 A
Current consumption (A) Both pumps	7.8 A
Fuel flow (up to dual operation)	255 l/h (67.4 gal/h)
Weight (single pump)	709 g (25.0 oz)
Fuel quality	See current Service Instruction -Selection of suitable operating fluids for the respective engine type
Fuel pressure (sensor position at fuel pressure regulator)	- 3.2 bar to 2.9 bar (46 psi - 42 psi relative to manifold pressure) at 915 i and 916 i Series - 3.2 bar to 2.8 bar (46 psi - 40 psi relative to manifold pressure) at 912 i Series

NOTICE

The fuel pressure may increase up to 3.5 bar (51 psi) for max. 3 sec. This presents no technical issue.



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

WARNING

Non-compliance can result in serious injuries or death! Independent from the ambient conditions (e.g. fuel pressure and temperature) and independent from the fuel used the design of the fuel system must prevent vapor lock conditions. Vapor lock may result in engine stoppage.

NOTICE

Ambient temperature of fuel pumps must not exceed 80 °C (176 °F).

3.2.1) Difference between pump manufacturers

The pumps are not interchangeable between different manufacturers.

NOTE: It is the responsibility of the OEMs to check suitability and installation.

3.2.2) Installation - fuel pump power connection

Fuel pumps require the attachment of power connector sets part no. 881305 and part no. 481471 in order to interface with the engine wiring harness. The length of wire can be extended to reach the installation position of the fuel pumps.



See current Installation Manual (IM) for the respective engine type, Chapter 24-00-00 Interface description for wiring location and requirements.

SERVICE INSTRUCTION - PAC

	Tightening torque
M4 terminal	0.9 Nm (8 in. lb)
M5 terminal	1.6 Nm (14 in. lb)

- NOTE: Wire gauge must be min. 2.1 mm² (14 AWG).
- NOTE: Place wire through protective cap before crimping ring terminals.
- NOTE: Use only an aircraft grade crimping tool. See section 2.6) Special tooling.

- 1) Connector set
part no. 881305
- 2-8) Connector set
part no. 481471
- 2) Ring terminal M4
- 3) Washer 4.3
- 4) Lock nut M4
- 5) Protective cap
- 6) Lock nut M5
- 7) Washer 5.3
- 8) Ring terminal M5

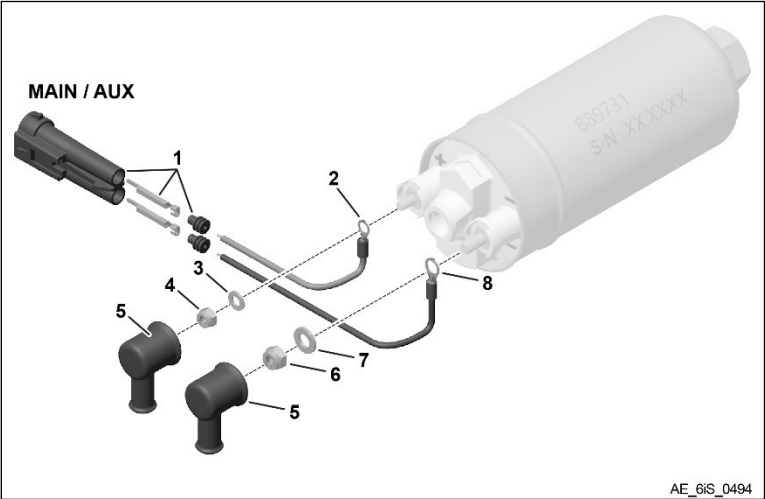


Fig. 3
Fuel pump power connector (12V)

- 1) Connector set C24
part no. 881307
- 2-8) Connector set
part no. 481471
- 2) Ring terminal M4
- 3) Washer 4.3
- 4) Lock nut M4
- 5) Protective cap
- 6) Lock nut M5
- 7) Washer 5.3
- 8) Ring terminal M5
- 9) X4 connector

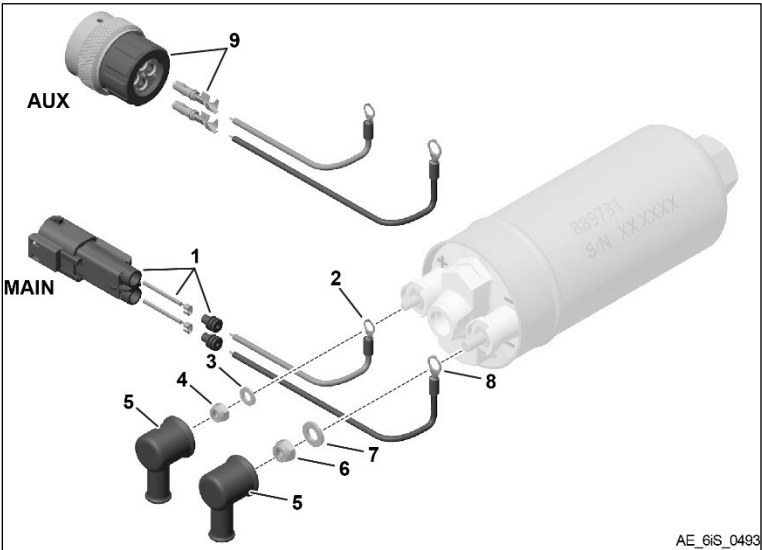


Fig. 4
Fuel pump power connector (C24)

SERVICE INSTRUCTION - PAC

3.2.3) Installation - fuel pump assy.

Fuel pump part kits part no. 481481 and 481483 contain an AN6 check valve and AN6 fuel pump adaptor. This allows flexible connection of fuel pumps and check valves in series configuration using readily available AN fittings. It is highly recommended to use the check valve provided within the fuel pump kit to ensure functionality of the pumps.

Step	Procedure
1	Connect both fuel pumps with check valves in series configuration.



See current Installation Manual (IM) for the respective engine type, Chapter 73-00-00 Engine - Fuel and Control for fuel system diagram.

	Tightening torque
Adaptor AN6 / M14x1.5	30 Nm (22 ft. lb)
Adaptor AN6 /M10x1	15 Nm (133 in. lb)

NOTICE

These are the maximum torques that the threads in the pump body can hold.

Step	Procedure
2	Before attaching fuel pump assy. to the aircraft, perform a leak check. See section 3.2.3).

SERVICE INSTRUCTION - PAC

The figures 5 - 7 show sample installations using parts kit part no. 481481 or 481483 and AN6 fittings.

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

NOTE: See AN fitting manufacturer for suggested tightening torque values.

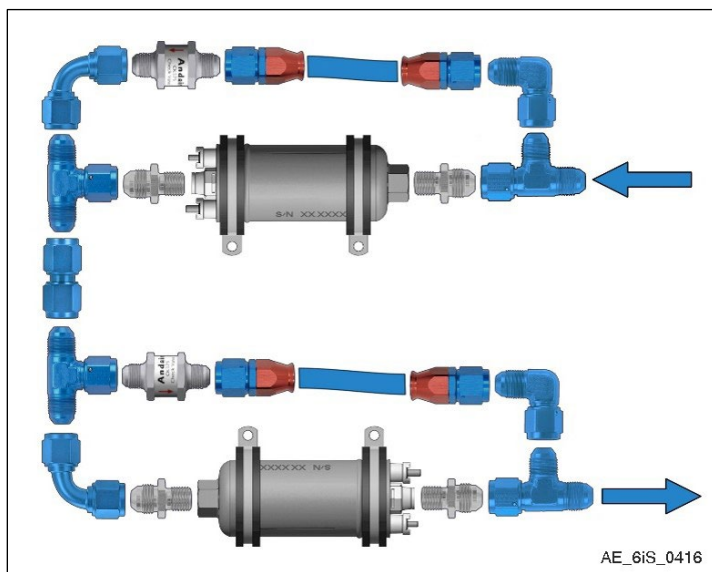


Fig. 5
Sample installation

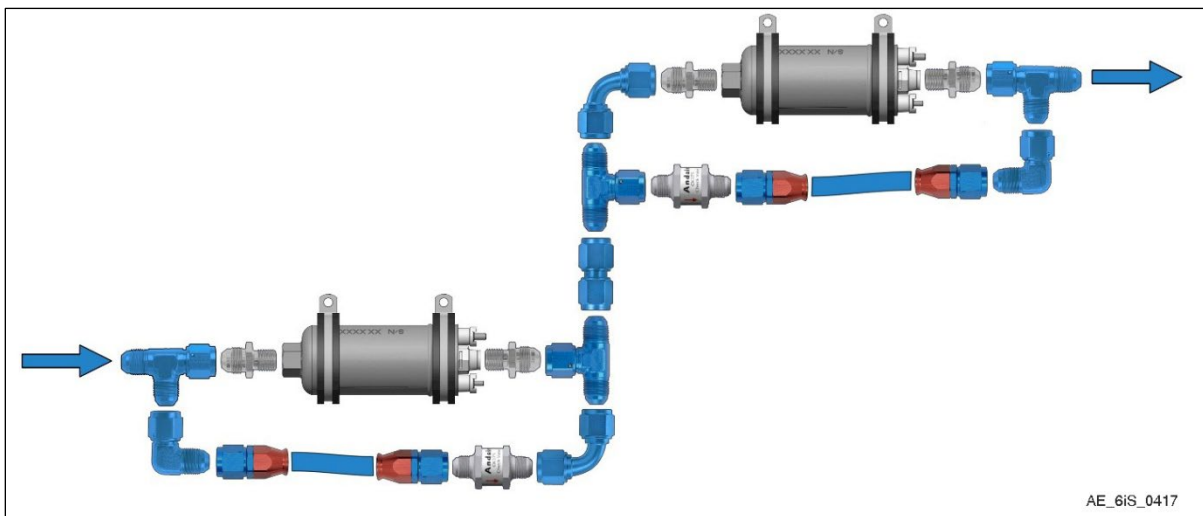


Fig. 6
Sample installation

SERVICE INSTRUCTION - PAC

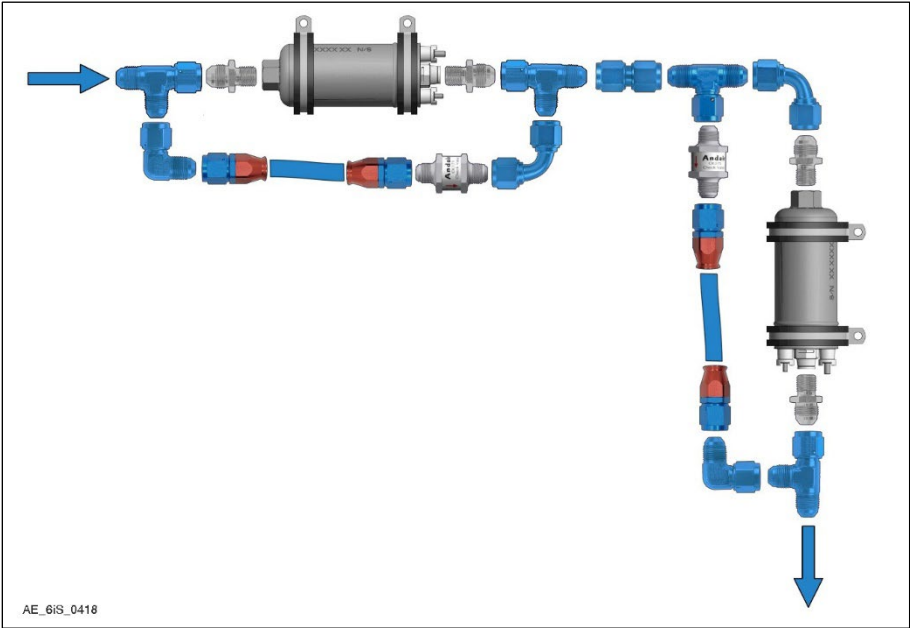


Fig. 7
Sample installation

Step	Procedure
3	Attach the fuel pumps securely to an appropriate mounting surface using cable clamps.
4	Connect fuel pump power connectors (MAIN/AUX) into appropriate wiring harness connector(s). NOTE: For C24 engines, connect AUX fuel pump power connector to AC-DC converter connector X4



See current Installation Manual (IM) for the respective engine type, Chapter 73-00-00 Engine - Fuel and Control for further fuel system requirements, such as:

- Inlet and return fuel lines
- Bypass line
- Coarse and fine fuel filters
- Water trap / gascolator
- Fuel pressure sensor
- Fuel tank
- Fuel shut off valve

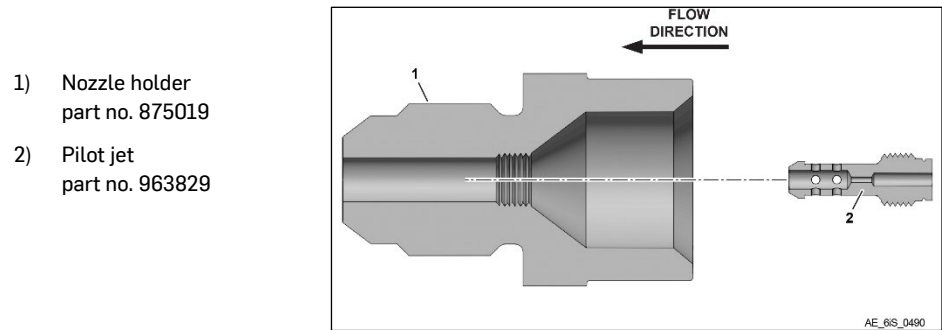
NOTE: The hydraulic diagram shown in the current Installation Manual (IM) for the respective engine type must be complied with.

SERVICE INSTRUCTION - PAC

NOTE: A Bypass line must be installed according to the current Installation Manual (IM) for the respective engine type with a restriction jet part no. 963829 or similar.

Requirement	25 l (6.6 gal) ±5 l/h (1.32 gal/hour) at 3 bar (43.5 psi) pressure
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Description	Qty. / engine	Part no.	Application
PILOT JET 35	1	963829	Bypass line
NOZZLE HOLDER	1	875019	Bypass line



3.2.4) Fuel pump assembly - Leakage check

After assembly of modular fuel pump assembly, it must be checked for leaks at each connection point before installation in the aircraft.

NOTICE

For this leakage check disconnect electrical connectors to MAIN and AUX fuel pump.

Step	Procedure
1	Block the OUTLET of the fuel pump assembly with suitable pressure cap (e.g. AN929-6).
2	Connect the INLET of the fuel pump assembly to a differential pressure gauge.
3	Apply operating fuel pressure to the fuel pump assy.
4	NO pressure loss is allowed on the differential pressure gauge.
5	With the fuel pump assy. temporarily pressurized with air, use an appropriate leak detector solution at each fitting connection to verify proper sealing.
6	If any air bubbles are present at connections, re-seat or replace connector.

SERVICE INSTRUCTION - PAC

NOTICE

Do not switch on either of the pumps during the leakage check.
This could lead to destruction of one of the pump bodies.

NOTICE

Follow leak detector solution manufacturer's instructions for its use, clean up and safety information.

NOTICE

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

- 1) Compressor
- 2) Manometer/Test gauge set
- 3) Cap on "Outlet"

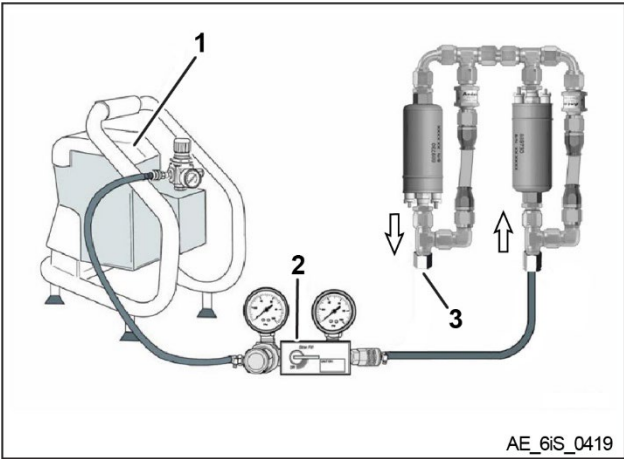


Fig. 9
Leakage test

Step	Procedure
7	Clean up leak detection fluid and dispose of in an environmentally friendly way.

3.3) Operation – related information



See current Operators Manual (OM) for the respective engine type.

3.4) Maintenance (Line) – related information

Points of inspection	Interval Operating Hours		Chapter Reference
	100 h	200 h	
Inspect the fuel pumps. - Visual inspection of lines and connections - Check for leaks - Check for corrosion		X	See current Maintenance Manual Line (MML) for the respective engine type and its periodical maintenance information.

SERVICE INSTRUCTION - PAC

NOTICE

Avoid over-tightening the fastening elements. Use a suitable torque wrench for all work.



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

3.4.1) Storage period

The maximum storage period for the fuel pump part no. 889731 is limited to 4 years from the date of production in following storage environment:

- 30°C / + 60°C, humidity < 60%, protected from atmospheric influence.

3.4.2) Time limit

Fuel pump part no. 889731 must be replaced every 5000 hours of operation or 15 years from the date of production, whichever comes first.

3.5) Maintenance (Heavy) – related information

3.5.1) Fuel pump assy. – removal

It is recommended to perform any fuel pump assy. maintenance on an assy. that has been removed from the aircraft.



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

Step	Procedure
1	Remove the negative terminal of the battery.
2	Disconnect the fuel inlet and outlet hoses.
3	Disconnect the fuel pump power connectors from the wiring harness connectors. (MAIN / AUX): - Lift the latches (1) - Pull the connectors apart (2) (AUX C24): - Push in the tab (3) - Pull the connectors apart (4)
4	Remove the fuel pump assy. from the aircraft according to the aircraft manufacturer's instructions.

SERVICE INSTRUCTION - PAC

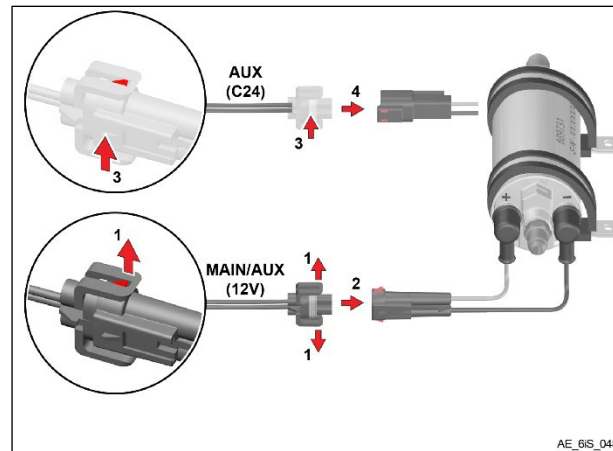


Fig. 10

Fuel pump power connectors

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 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.

3.8) Summary

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.

3.9) 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 and their independent Service Centers is provided on <https://dealerlocator.flyrotax.com>.

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.