



## SERVICE BULLETIN

# Replacement of fuel pumps for ROTAX® Engine Type 912 (Series)

ATA System: 73-00-00 Fuel system

**RECOMMENDED**

### Symbols used:

Please, pay attention to the following symbols throughout this document emphasizing particular information.

#### General note



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



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



Denotes an instruction which if not followed, may severely damage the engine or could lead to suspension of warranty.

### **ENVIRONMENT NOTE**

Environment note gives you tips and behaviors to environmental protection.

NOTE: Information useful for better handling.

| A revision bar outside of the page margin indicates a change to text or graphic.

d05489.fm

# SERVICE BULLETIN

## 1) Planning information

### 1.1) Applicability

All versions of the engine type:

Engine type	Serial number
912 A	S/N 4,410.728 up to S/N 4,410.905 inclusive
912 F	S/N 4,412.926 up to S/N 4,412.989 inclusive
912 S	S/N 4,923.462 up to S/N 4,924.184 inclusive

In Addition all fuel pumps part no. 892542 from S/N 06.005924 up to 06.005981 inclusive/07.000529 up to 07.008428 inclusive/08.000001 up to 08.002984 inclusive/09.000001 up to 09.002805/10.000061 up to 10.005298 inclusive/11.000121 up to 11.000840 inclusive and

fuel pumps part no. 892546

from S/N 06.005914 up to 06.005933 inclusive/07.000259 up to 07.008848 inclusive/08.000511 up to 08.002863 inclusive/09.000211 up to 09.002895 inclusive/10.000001 up to 10.005088 inclusive/11.000001 up to 11.000330 inclusive are affected, which has been installed at engine repair/ general overhaul.

NOTE: Fuel pumps with part no. 892542 and part no. 892546, with following serial numbers (S/N) are assembled in the engines/spare parts mentioned above and are affected by this replacement.

### 1.2) Concurrent ASB/SB/SI and SL

Latest SI-912-020, regarding the general notes, measurements, changes etc.

### 1.3) Reason

The field observation over the years has shown that in isolated cases poor quality of the mechanical fuel pump (part no. 892542 and 892546) can occur, which may subsequently lead to malfunctions. To prevent possible interference with the fuel system, the fuel pumps have to be replaced against the successor type part no. 893110.

### 1.4) Subject

Replacement of fuel pumps for ROTAX® engine type 912 (Series).

### 1.5) Compliance

- At the next scheduled maintenance event.
- A replacement of the fuel pumps according to the instructions in section 3 has to be carried out May 01 2014 at the latest.



**WARNING**

Non-compliance with these instructions could result in engine damages, personal injuries or even fatal injury.

### 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 time:

engine installed in the aircraft - - - labor time will depend on installation and therefore no estimate is available from the engine manufacturer.

d05489.fm

# SERVICE BULLETIN

---

## 1.8) Mass data

change of weight - - none.  
moment of inertia- - - unaffected.

## 1.9) Electrical load data

no change

## 1.10) Software accomplishment summary

no change

## 1.11) References

In addition to this technical information refer to current issue of

- Illustrated Parts Catalog (IPC)
- Heavy Maintenance Manual (HMM)

NOTE: The status of Manuals can be determined by checking the table of amendments of the Manual. The 1<sup>st</sup> column of this table is the revision status. Compare this number to that listed on the ROTAX® WebSite: [www.FLYROTAX.com](http://www.FLYROTAX.com). Updates and current revisions can be downloaded for free.

## 1.12) Other publications affected

none

## 1.13) Interchangeability of parts

- Fuel pump with insulating flange, lock washers and nuts in accordance with chap. 3.1.2 are unserviceable and must be scrapped.

## 2) Material Information

### 2.1) Material- cost and availability

Price and availability and any possible support consideration will be supplied on request by ROTAX® Authorized Distributors or their Service Center.

### 2.2) Company support information

All parts are supplied free of charge.

d05489.fm

# SERVICE BULLETIN

## 2.3) Material requirement per engine

parts requirement:

New part no.	Qty/ engine	Description	Old part no.	Application
-	1	KIT assy. consisting all following parts	881360	fuel pump kit
-	1	Fuel pump assy. (inclusive insulating flange part no. 950227)	893110	
942674	2	Hex. nut M8	-	fuel pump assy.
-	2	Lock washer A8	945752	fuel pump assy.
851453	1 <sup>2)</sup>	1-ear clamp 12.8-15.3 mm/0.50-0.60 in.	-	fuel pump assy. (inlet)
851463	1 <sup>2)</sup>	1-ear clamp 10.8-13.3 mm/0.43-0.52 in.	-	fuel pump assy. (outlet)
851663	1 <sup>2)</sup>	1-ear clamp 22.4-25.6 mm/0.88-1.01 in.	-	fuel pump assy. (inlet)
853313	1 <sup>2)</sup>	1-ear clamp 17.8-21.0 mm/0.70-0.83 in.	-	fuel pump assy. (outlet)
874336	1 <sup>1)2)</sup>	Fuel hose assy.	-	fuel pump assy. (outlet)
874345	1 <sup>1)2)</sup>	Fuel hose assy.	-	fuel pump assy. (inlet)

<sup>1)</sup> as required

<sup>2)</sup> for configuration with fire sleeve

## 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 will be supplied on request by ROTAX® Authorized Distributors or their Service Center.

Description	Part no.	Application
Clamp/Mounting pliers	n.a.	1-ear clamp

Existing ROTAX®-GENUINE-tool can be modified as follows:

- or equivalent

### NOTICE

When using the special tools, please note the information supplied by the manufacturer.

# SERVICE BULLETIN

## 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 the measure must be taken and confirmed by at least one of the following person or facilities:  
 ROTAX® - Airworthiness representative  
 ROTAX® - Distributors or their Service Center  
 Persons approved by the respective Aviation Authority

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

**Safety notice**

**WARNING** Proceed with this work only in a non-smoking area and not close to sparks or open flames. Switch off ignition and secure engine against unintentional operation. Secure aircraft against unauthorized operation. Disconnect negative terminal of aircraft battery.

**WARNING** Risk of scalds and burns! Allow engine to cool sufficiently and use appropriate safety gear while performing work.

**NOTICE** Should removal of a locking device (e.g. lock tabs, self-locking fasteners, etc.) be required when undergoing disassembly/assembly, always replace with a new one.

### 3.1) Removal

#### 3.1.1) Removal of fuel pump part no. 892542 (without crimped hose assembly), see Fig. 1

The following work steps are necessary:

Step	Procedure
1	Remove fuel hoses as per aircraft manufacturers instructions.
2	Loosen hex. nuts (13 mm/0.51 in) and remove fuel pump with lock washer A8 and insulating flange.

**Graphic**

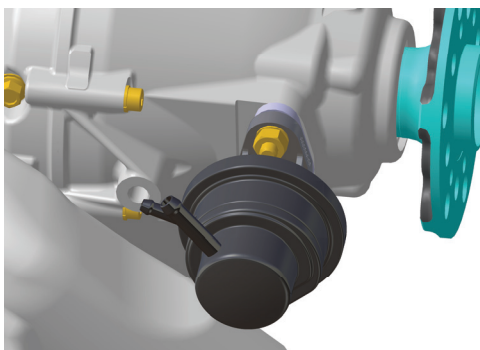


Fig. 1

09865

d05489.fm

# SERVICE BULLETIN

### 3.1.2) Removal of fuel pump part no. 892546 (with fire sleeve), see Fig. 2

Figure shows fuel pump part no. 892546 with crimped fuel hose assy. and fire sleeve Stratoflex.  
Fuel pump

Graphic

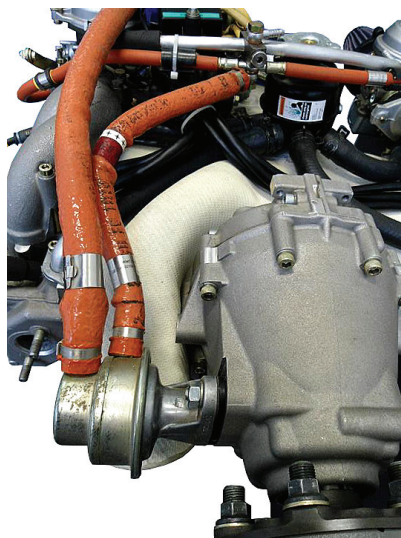


Fig. 2

09841

The following work steps are necessary (see Fig. 3):

**NOTICE** Do not use any pliers with sharp surfaces.

Step	Procedure
1	Cut off the 1-ear clamp (1) of fire sleeve (2) with cutting pliers (3).
2	Slide back the fire sleeve (2) to make fuel hose accessible for cutting.
3	Pinch off the fuel hose with hose clamp pliers (4).

**ENVIRONMENT NOTE**

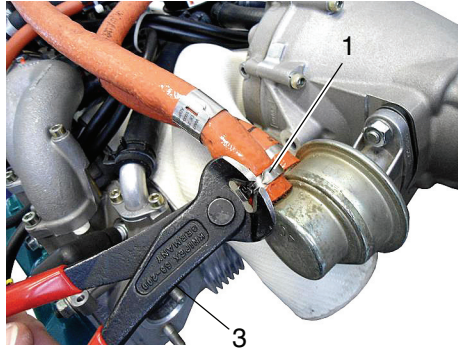
Ensure, that no fuel gets into the waste water system or the ground - risk of contaminating drinking water!

d05489.fm

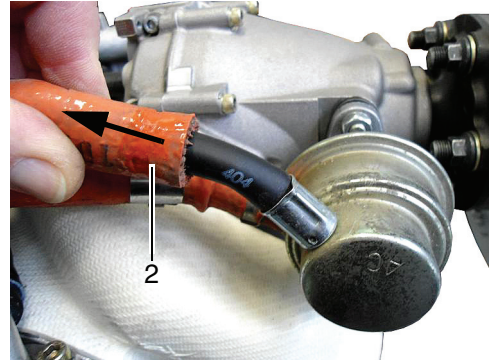
# SERVICE BULLETIN

**Graphic**

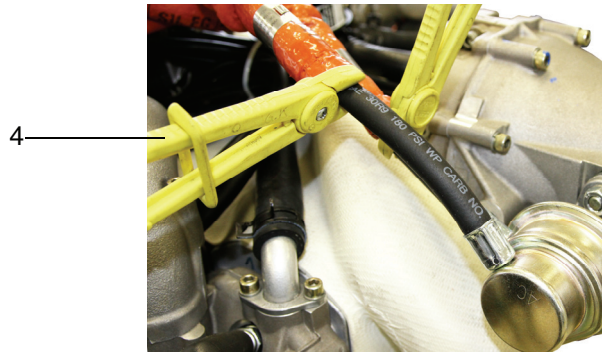
Cut the band clamp:



Slide back fire sleeve:



Pinch rubber hose to prevent fuel leakage:



Part	Function
1	Band clamp
2	Fire sleeve
3	Cutting pliers
4	Hose pinch pliers

Fig. 3

09842,09843,09854

**NOTE:** Cut off the fuel hose with a very sharp knife, so that no cutting residues are produced. See Fig. 4.

**CAUTION**

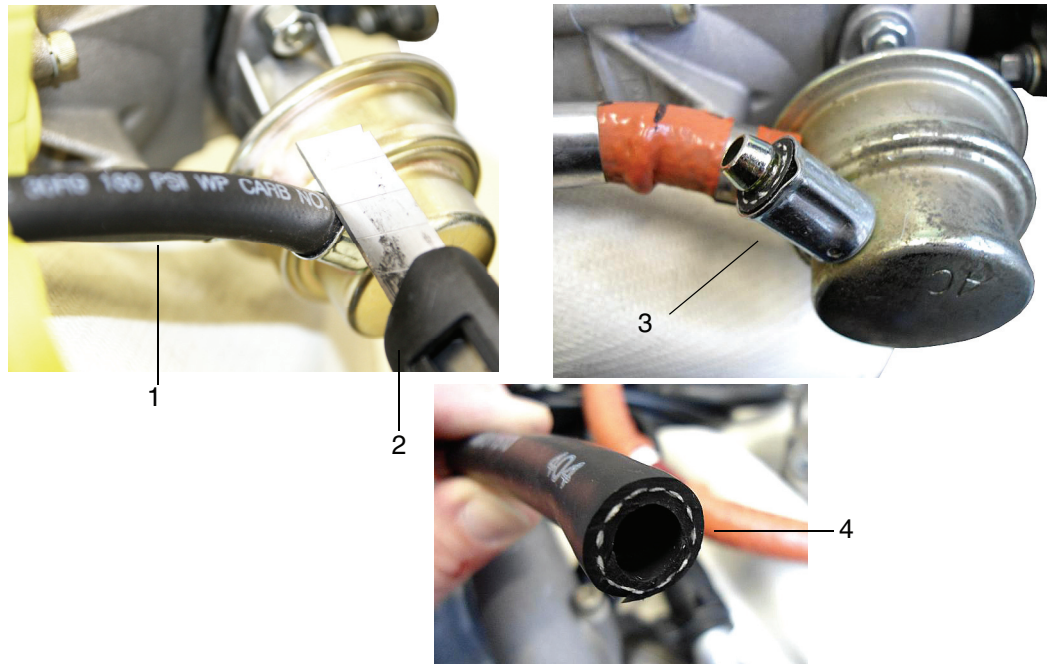
Risk of cut injuries!  
Knives are sharp and may cause injury.  
Wear protective gloves.

Step	Procedure
4	The cut should be made just after the crimped ferrel, to avoid losing any needed length. The fuel hose is reduced by approx. 20 mm (0.79 in.). <b>NOTE:</b> A clean cut surface is very important!
5	Repeat procedure at the second fuel hose assy.

d05489.fm

# SERVICE BULLETIN

**Graphic**



Part	Function
1	Fuel hose
2	Cutting knife
3	Crimped ferrule
4	Surface

Fig. 4

09844,09845,09855

Step	Procedure
6	Loosen hex. nuts (13 mm/0.51 in) and remove fuel pump with lock washer A8 and insulating flange. See Fig. 5.

**Graphic**



Fig. 5

09846

d05489.fm



# SERVICE BULLETIN

## 3.2) Assembling of fuel pump assy. part no. 893110

See Fig. 6.

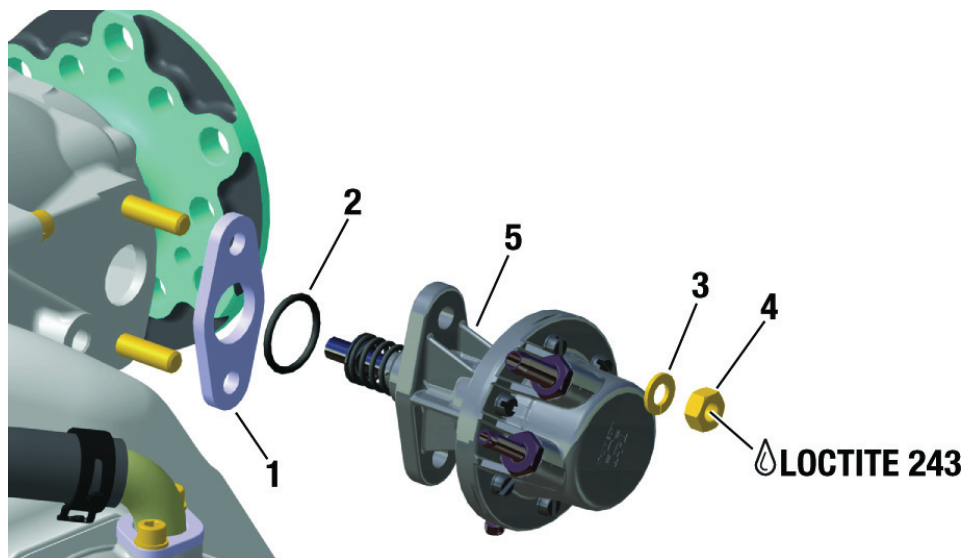
**NOTICE**

In addition to the insulating flange also replace the O-ring at reassembly or assembly of the fuel pump.  
Both parts are included in the set of fuel pump assy.

Step	Procedure
1	Install fuel pump (5) with new insulating flange (1) and O-ring (2).
2	Secure new hex. nuts M8 (4) and lock washer A8 (3) with LOCTITE 243 and tighten them evenly. Tightening torque 15 Nm (133 in.lb).

NOTE: The additional security with LOCTITE 243 is applicable to each reassembly or assembly of the fuel pump.

**Graphic**



Part	Function
1	Insulating flange
2	O-ring
3	Lock washer A8
4	Hex. nut M8
5	Fuel pump assy.

Fig. 6

09847

d05489.fm

# SERVICE BULLETIN

### 3.3) Inspection of fuel pump assy. part no. 893110

**General**

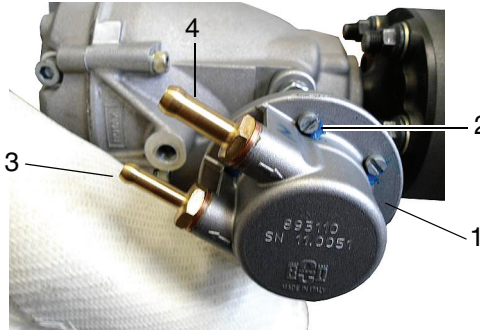
See Fig. 7.

The fuel pump cover (1) must not be opened for inspection. Check the security markings (witness paint) (2).

Check the connecting nipples (3)+(4) for tightness. If necessary secure them with LOCTITE 243. Tightening torque 10 Nm (88.5 in.lb).

**Graphic**

Fuel pump part no. 893110



Steps	Function
1	Fuel pump cover
2	Security marking (witness paint)
3	Connecting nipple - outlet (inner) D = 3.8 mm/0.15 in.
4	Connecting nipple - inlet (inner) D = 5.7 mm/0.22 in.

Fig. 7

09848

### 3.4) Assembling of the fuel hoses assy.

#### 3.4.1) Assembling of the fuel pump part no. 893110 without crimped on hose assy. supplied by BRP-Powertrain

Perform assembly according to the service manual of the aircraft manufacturer. Instruction and materials are not supplied by BRP-Powertrain.

#### 3.4.2) Assembling of the fuel hoses assy. with crimped on hose assy. supplied by BRP-Powertrain

See Fig. 8.

**ENVIRONMENT NOTE**

Ensure, that no fuel gets into the waste water system or the ground - risk of contaminating drinking water!

Step	Procedure
1	Remove hose clamp pliers from fuel hose assy.

d05489.fm

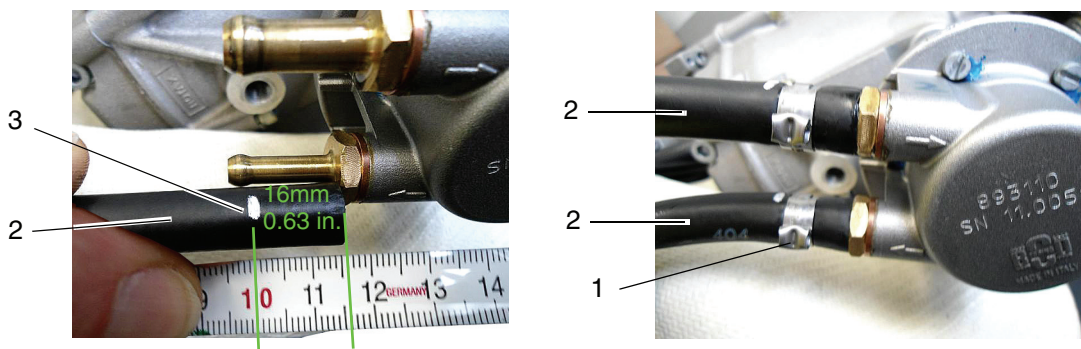
# SERVICE BULLETIN

**NOTE:** Thereby, the fuel contained in the lines flow out and flush the residual contamination from the fuel line.

**NOTICE** All lines must be laid out without kinks, avoid tight angles. Prevent the hoses from rubbing on components or against each other.

Step	Procedure
2	Before the fuel hose (2) is fitted with a 1-ear clamp (1), the two fuel hoses have to be marked (3) 16 mm (0.63 in.) from the end of the hose (2).
3	Slide all 4 1-ear clamps (1) on the fuel and fire sleeves. <b>NOTE:</b> Large clamp on fire sleeve, small clamp on fuel hose.
4	Push the fuel hoses (2) onto nipple completely up to the stop.
5	Crimp 1-ear clamp (1)- outlet side (10.8 - 13.3 mm/0.43-0.52 in.) with suitable crimp pliers . <b>NOTE:</b> The edge of the 1-ear clamp (1) must align with mark (3) from fuel hose (2) , because otherwise there is too little space for the 1-ear clamp (1) of the fire sleeve.
6	Repeat steps on inlet-side with 1-ear clamp (1) (12.8-15.3 mm/0.50-0.60 in.) for fuel hose assy. (2).

**Graphic**



Part	Function
1	1-ear clamp
2	Fuel hose assy.
3	Mark (paint or tape)

Fig. 8

09849, 09850

d05489.fm

# SERVICE BULLETIN

### 3.4.3) Leakage test

Because all fuel hose connections are visible and accessible now, inspect the whole fuel system for leaks. Therefore pressurize the system (for example by an electric fuel pump) with the operating pressure.

### 3.5) Assembling of fire sleeves with crimp clamp connection

See Fig. 9.

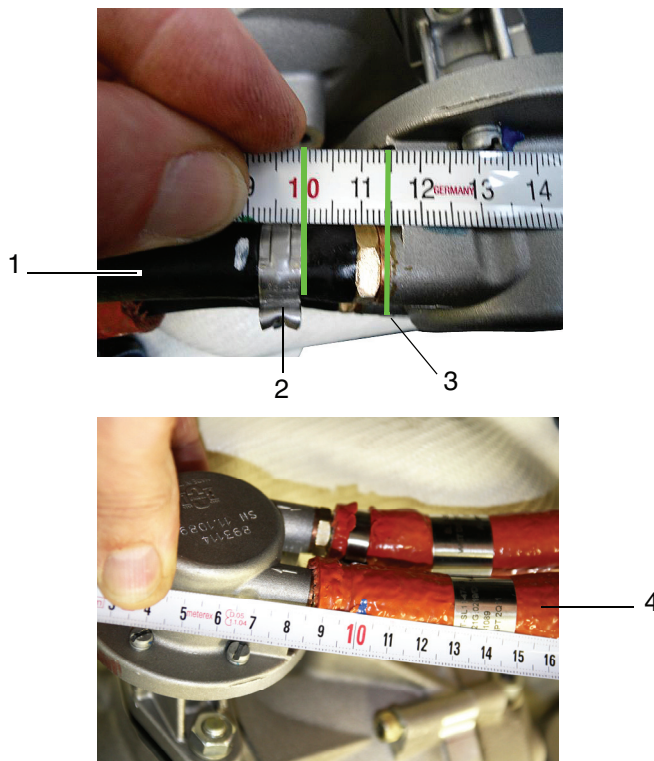
**NOTICE**

The distance from the 1-ear clamp (2) to the nipple flange (3) has to be measured, so that the outer 1-ear clamp (2) can be mounted on the fire sleeve (4) in the correct position.

Step	Procedure
1	Measure the distance at fuel hose assy. (1) from 1-ear clamp (2) to nipple flange sealing surface (3) and mark the fire sleeve (4) correspondingly.

**Graphic**

Distance measuring



Part	Function
1	Fuel hose assy.
2	1-ear clamp
3	Nipple flange
4	Fire sleeve

Fig. 9

09851,09856

d05489.fm

# SERVICE BULLETIN

See Fig. 10.

Step	Procedure
2	Push fire sleeve (fuel inlet) to stop and mount 1-ear clamp (17.8-21.0 mm/0.70-0.83 in.) with suitable crimp pliers.
3	Repeat steps for fire sleeve (fuel outlet) (22.4-25.6 mm/0.88-1.01 in.).

## ENVIRONMENT NOTE

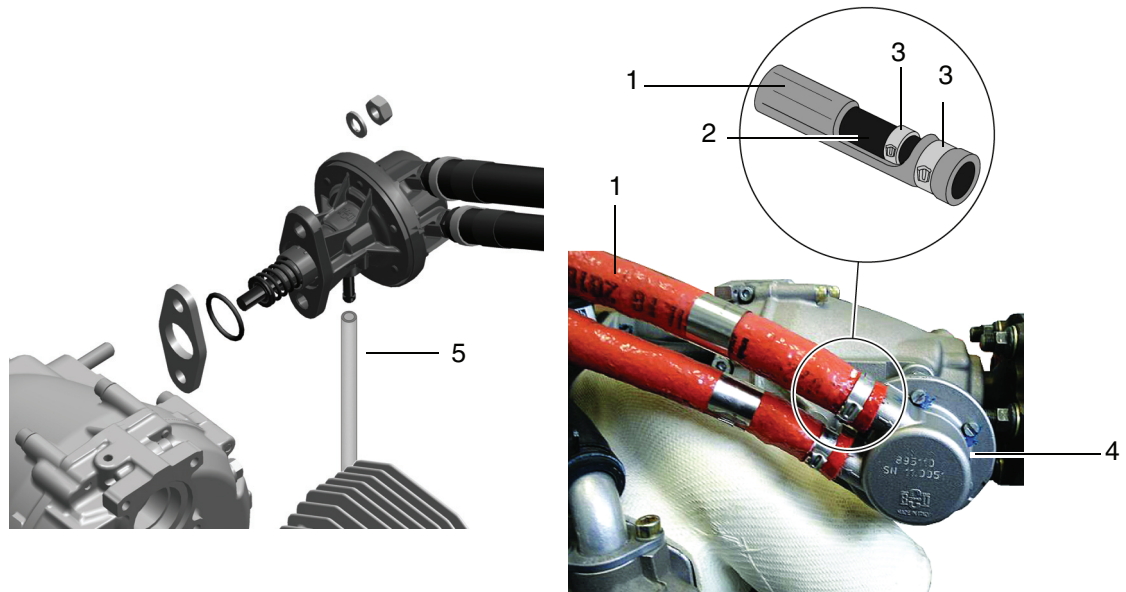
Ensure, that no fuel gets into the waste water system or the ground - risk of contaminating drinking water!

## NOTICE

A drain line must be routed so, that in the event of a internal leak the excess fuel can flow to a suitable location/position. See therefore Installation Manual of the relevant engine type and SI-912-020.

## Graphic

Modification finished.



Part	Function
1	Fire sleeve
2	Fuel hose assy.
3	1-ear clamp
4	Fuel pump assy.
5	Drain line

Fig. 10

09853

- Restore the aircraft to standard operating condition.
- Connect the negative terminal of board battery.

d05489.fm

# SERVICE BULLETIN

---

## 3.6) Test run

Conduct test run including ignition check and leakage test.

NOTE: Due to the replacement with the new fuel pump automatically note the changed operating limit. See latest Operators Manual of the 912 Series.

### 3.6.1) Check of fuel pressure

Slight, short-term pressure undershoots are allowed. But the pressure must stabilize to the operating limit within 5 seconds. If not, the cause should be determined and rectified.

### 3.6.2) Check of float chamber

Check float chamber for any debris particles that could get in until the replacement. If any debris particles should be found then they must be located. If needed remove, clean and install again the float chamber.

### 3.6.3) Check venting line

NOTE: A slight leakage on the venting line may occur. For a period of 1 minute after the engine has been stopped, no liquid must drip down.

## 3.7) Summary

These instructions (section 3) have to be conducted in accordance with compliance in section 1.5. The execution of the recommended Service Bulletin must be confirmed in the logbook.

Approval of translation to best knowledge and judgement-in any case the original text in German language and the metric units (SI-system) are authoritative.

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.

## 3.8) Enquiries

Enquiries regarding this Service Bulletin should be referred to the ROTAX® authorized distributor of your area. A list of all distributors is provided on [www.FLYROTAX.com](http://www.FLYROTAX.com).

d05489.fm