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SERVICE ALERT

#0012

(Sling Aircraft (Pty) Ltd. considers compliance with all Service Alerts mandatory)

RELEASE DATE: 02/07/2024

EFFECTIVE DATE: 02/07/2024

SUBJECT: Sub-standard high pressure rubber fuel hose rupturing between high pressure pumps and engine fuel rail.

MODELS AFFECTED: All Rotax 912 iS, 915 iS and 916 iS fitted Sling ready to fly aircraft and kits ex-factory after 1 January 2023.

COMPLIANCE TIME:

1. Aircraft flown less than 25 hours grounded and inspected and rectified before next flight,
2. More than 25 hours flown but less than 100 hours, aircraft inspected and rectified at 100 hour MPI,
3. More than 100 hours flown, aircraft inspected and rectified at next MPI.

LABOUR TIME:

- 1 hour inspection
- 2.5 hours replacement

1. DESCRIPTION AND PURPOSE:

This Service Alert serves to inform customers of potential sub-standard high pressure fuel hose failures, causing fuel to leak out of the rubber hose installation between the high-pressure pumps and the fuel rail on the Rotax © engine, causing a fire hazard and potential engine failure.

It has recently come to the attention of Sling Aircraft that there may be a sub-standard, off-brand batch of rubber fuel hoses supplied to you or installed in your aircraft by the Sling factory in South Africa. Sling has become aware of the defective hose as a consequence of the failure, by rupturing, of such hoses in the initial test flight phases of three of its aircraft, in each case within one hour of first running the engine. These failures have all occurred in hose lengths fitted between the high-pressure fuel pump and the fuel rail inlet on the Rotax engine (in each case the Rotax 912 iS).

The failed hoses have all been 3/8" (9.5mm) inner diameter, although the 5/16" (7.9mm) fuel hose could possibly also be affected. It would seem that a supplier of these hoses has supplied Sling Aircraft with a sub-quality, 'off-brand' batch of hoses in which at least a certain section of the hose has a weakened inner lining, causing the pressurized fuel to push through the inner liner and rupture the outer sheath.

The fuel hose that is supposed to have been supplied is a Continental SAE J30R9 CARB (Q-10-004) hose. While the hose that was supplied to Sling was appropriately packaged as such hose, we suspect that in reality lower quality, cheaply available 'off-brand' hose was supplied.

The working pressure of the SAE J30R9 rated fuel hose is specified at 6.9 Bar (100 psi) at a maximum of 135°C, with a burst pressure of 62 Bar (900 psi). The failures of the off-brand fuel hose we have experienced well below such limits. We are accordingly concerned that aircraft which have been produced recently may have defective fuel hose installed which could still rupture, although we are not currently aware of any failures that have occurred past the 1 hour mark.

At the moment it would appear that, provided a failure has not taken place within in the first hour or so of operation, the prospect of it occurring may be small. Unfortunately, due to the limited data we have on this issue at this stage, we are unable to determine the full extent of the issue at this time. In order for Sling Aircraft to reasonably cover all instances of sub-standard fuel hose supplied to customers, whether installed in flying aircraft, to kit builders or for purposes of maintenance, the following is advised with immediate effect in relation to Sling ready to fly and kit aircraft delivered ex-factory after 1 January 2023:

1. Any aircraft which has flown less than 25 hours should be grounded before the next flight, the fuel hose checked and, if identified as of the defective type (as per the explanation in Section 2), all defective fuel hose on the high pressure side of the fuel system should be replaced with hose of the correct quality prior to the next flight.
2. In the case of any aircraft which has flown more than 25 hours, but less than 100 hours, the fuel hose should be inspected at the 100 hour MPI and replaced if it is of the defective type.
3. In the case of an aircraft which has flown more than 100 hours, the fuel hose should be inspected at the next scheduled maintenance or inspection and replaced if of the defective type.

Any Sling aircraft which has not yet flown should be inspected for the defective hose type prior to flight and any defective hose should be replaced prior to first flight.

1.1. MASS DATA:

N/A

1.2. ELECTRICAL LOAD DATA:

N/A

1.3. SOFTWARE MODIFICATIONS:

N/A

1.4. REFERENCES:

- a) DC-MAM-002-X-B – Sling 2 and Sling LSA Maintenance Manual
- b) DC-MAM-001-X-F – Sling 4 TSi Maintenance Manual
- c) DC-MAM-001-X-G – Sling 4 High Wing Maintenance Manual

1.5. PUBLICATIONS AFFECTED:

N/A

2. MATERIAL INFORMATION:

The fuel hose that is affected (ie – is of the defective type) can be identified by the white lettering printed on the hose that looks like the below. Note the stamped lettering with sharp white edges, not a uniform colour, and the absence of the word “Continental”:



Figure 1: **Sub-standard** fuel hose - stamped lettering

The correct fuel hose branding is printed in a uniform manner and looks like the below. Note the even coloured lettering that is printed on and includes the trademarked “Continental” branding:

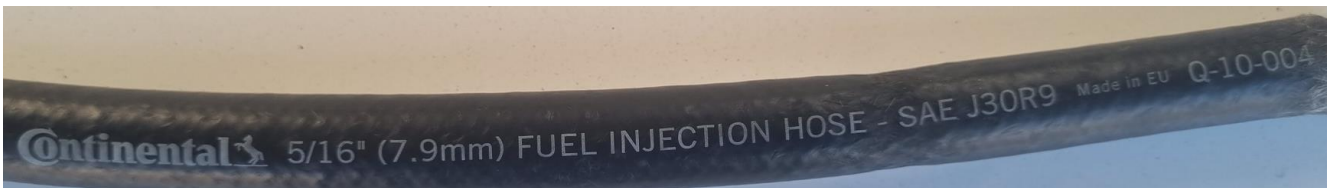


Figure 2: **Correct** fuel hose - printed and branded lettering

2.1. PARTS AND CONSUMABLES LIST:

912 iS Engine

- a) 3/8" OET Ear clamps x 12¹
- b) 5/16" OET ear clamps x 8¹
- c) 5/16" OET ear clamps x 20²
- d) 3/8" Continental fuel hose (SAE J30R9) x 4.3m
- e) 5/16" Continental fuel hose (SAE J30R9) x 1.7m
- f) Cable ties (as needed, for standoffs)
- g) Locking wire or metal cables ties

915 iS Engine

- a) 3/8" OET Ear clamps x 14
- b) 5/16" OET ear clamps x 8
- c) 3/8" Continental fuel hose (SAE J30R9) x 4.3m
- d) 5/16" Continental fuel hose (SAE J30R9) x 1.7m
- e) Cable ties (as needed, for standoffs)
- f) Locking wire or metal cables ties

916 iS Engine

- a) 3/8" OET Ear clamps x 6
- b) 5/16" OET ear clamps x 4
- c) 3/8" Continental fuel hose (SAE J30R9) x 4.3m
- d) 5/16" Continental fuel hose (SAE J30R9) x 1.7m

¹ Only required if you have the fuel system layout that corresponds to Figure 4.

² Only required if you have the fuel system layout that corresponds to Figure 3.

- e) Cable ties (as needed, for standoffs)
- f) Locking wire or metal cables ties

2.2. TOOLS REQUIRED:

- a) Oetiker clamp pliers
- b) Side cutters
- c) Locking wire pliers
- d) Craft knife or blade
- e) Hose cutters
- f) Flat screwdriver
- g) 5/16 spanner
- h) 3mm Allen key / hex drive

2.3. MATERIAL RESPONSIBILITY:

Sling Aircraft (Pty) Ltd will provide the required hardware listed in Section 2.1 for all aircraft subject to the Service Alert. Alternatively, fuel hose meeting the SAE J30R9 specification can be procured locally and installed. At the time of writing the only hose that is approved is the Continental hose, shown in Figure 2, but this list will be amended through revisions of this Service Alert. Customers are requested to email Technical@Slingaircraft.com with proposed alternatives that can be locally sourced for approval on a case-by-case basis.

2.4. LABOUR RESPONSIBILITY:

Sling Aircraft AMO 1264 (Johannesburg, South Africa) is available to perform the required work on all aircraft delivered to its premises. The aircraft may be flown to an aircraft maintenance organisation for the work to be carried out, if it has flown more than 25 hours. Person(s) implementing the work are required to follow instructions set out below and refer to the supplementary documentation listed in Section 1.4 as needed. Sling Aircraft cannot accept any responsibility for the quality of work performed in implementing this Service Alert, if the work is not performed by Sling Aircraft AMO 1264 (Johannesburg, South Africa).

All work carried out on the aircraft with respect to this Service Alert (Service Alert 12) may be performed by the kit builder. Refer to the legal requirements of the governing aviation authority of the country where the actions, as detailed by this Service Alert, are to be carried out. Sling Aircraft will cover the installation costs of aircraft under warranty. Sling Aircraft is not responsible for costs related to shipping, downtime, loss of income, etc.

2.5. COMPANY SUPPORT INFORMATION:

To request Service Alert kits, please use the following contact details:
sales@slingaircraft.com.

Make use of the following contact details for any related technical queries:
airworthiness@slingaircraft.com or technical@slingaircraft.com

3. INSTRUCTIONS:

This section details which of the fuel hoses need to be inspected and replaced, should they be of the sub-standard fuel hose type.

3.1. 912 iS ENGINE FUEL HOSE

There are two fuel system configurations applicable to the Sling 2 and Sling LSA. These can be seen in Figure 3 and Figure 4.

With reference to Figure 3 and Figure 4, all the fuel lines bounded within the dashed line “----” must be inspected and replaced should they be of the sub-standard type of fuel hose. It must be replaced with the correct fuel hose as described in Section 2.

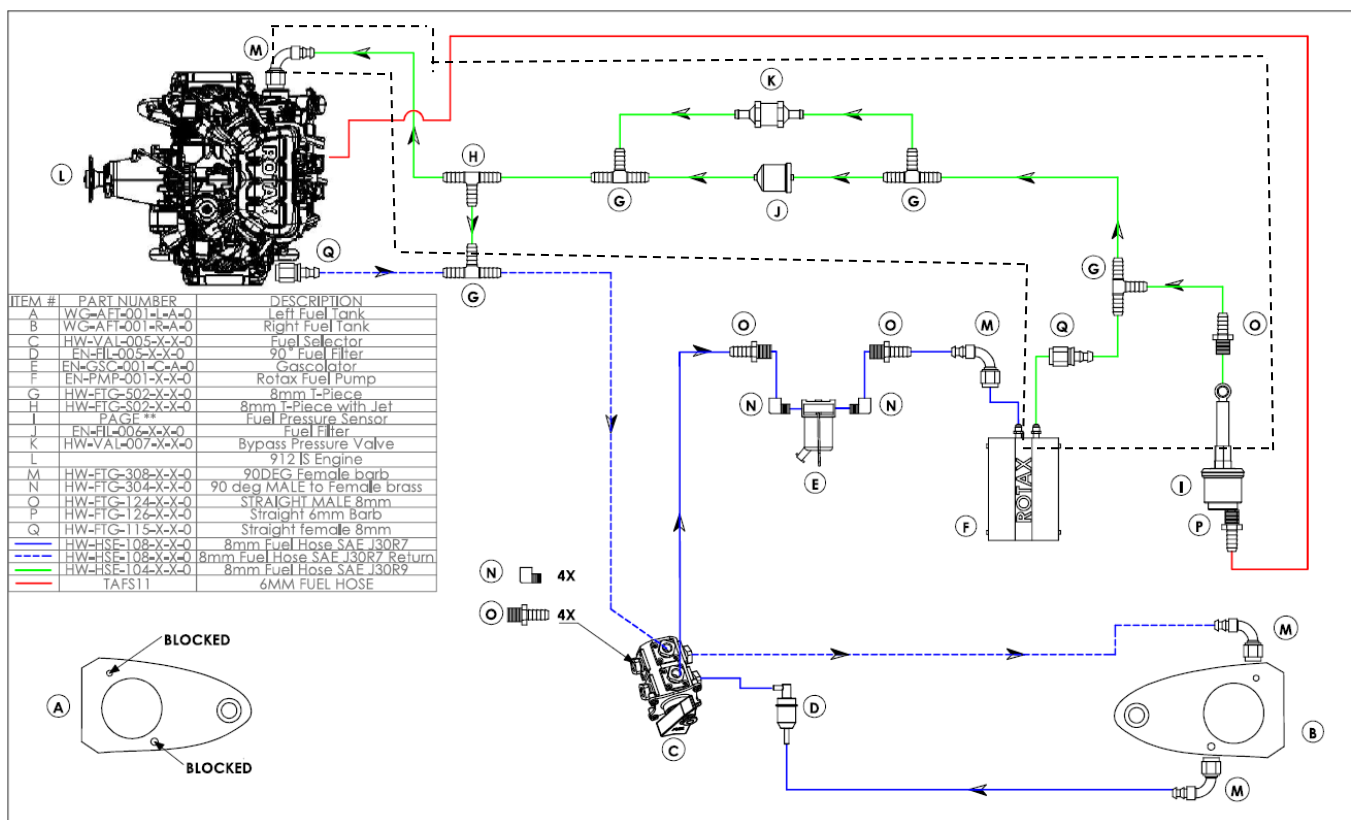


Figure 3: 912 iS Fuel System Diagram

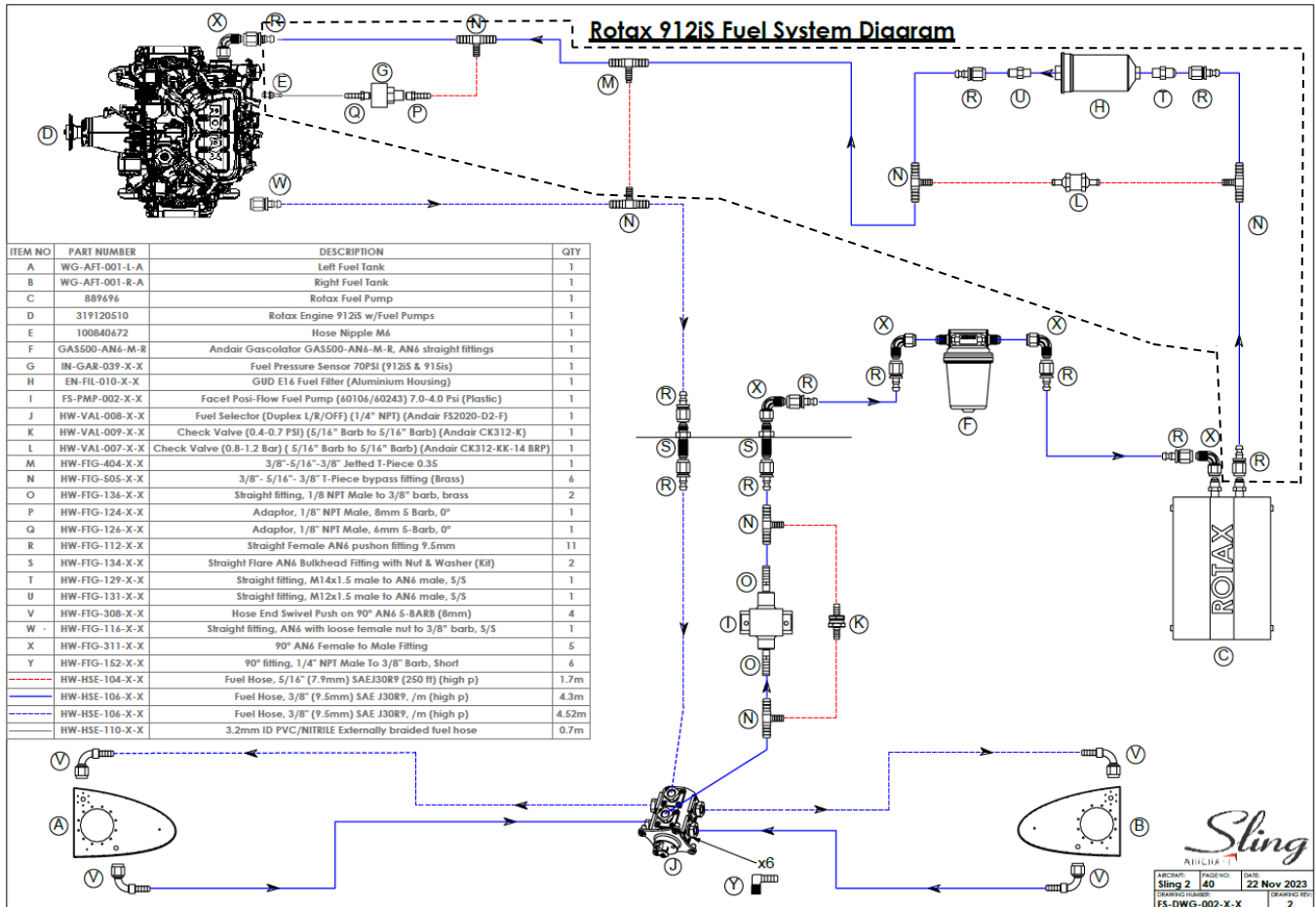


Figure 4: 912 iS Fuel System Diagram

- Step 1: In order to inspect the fuel lines shown in the diagrams above, remove the cowling. Refer to Section 5.1.1 of the Sling 2 & LSA Maintenance Manual for the instructions to remove the cowling.
- Step 2: The heat sleeve around the fuel hose will be fixed in place using either locking wire or metal cable ties. Once the cowling has been removed, used the side cutters to remove these so that the heat sleeve can be moved to inspect the hose underneath. Refer to Figure 5 for an example of how the heat sleeve is attached using the cable ties. Please note, Figure 5 is just for reference purposes, all the fuel lines (as shown in Figure 3 and Figure 4.) must be checked.



Figure 5: Example of cable ties to be removed.

- Step 3: If it is found that the hose is of the sub-standard fuel hose type, it must be replaced with the correct fuel hose. Using the Oetiker clamp pliers, remove the Oetiker ear clamps (OET ear clamps) retaining the hose onto the hose end fittings.
- Step 4: In order to replace the fuel hose, cut the fuel hose to the correct length. Place the heat sleeve over the hose. Place the OET ear clamps onto the hose ends. Fit the hose ends to the respective fittings and then crimp the OET ear clamps.
- Step 5: Use locking wire or metal cable ties to secure the heat sleeve in place.
- Step 6: Add standoffs as needed.
- Step 7: If more detail is required on how to install the fuel lines and heat sleeve, refer to the firewall forward KAI for the Sling 2 and Sling LSA.

3.2. 915 iS ENGINE FUEL HOSE

With reference to Figure 6, all the fuel lines bounded within the dashed line “----” must be inspected and replaced should they be of the sub-standard type of fuel hose. It must be replaced with the correct fuel hose as described in Section 2.

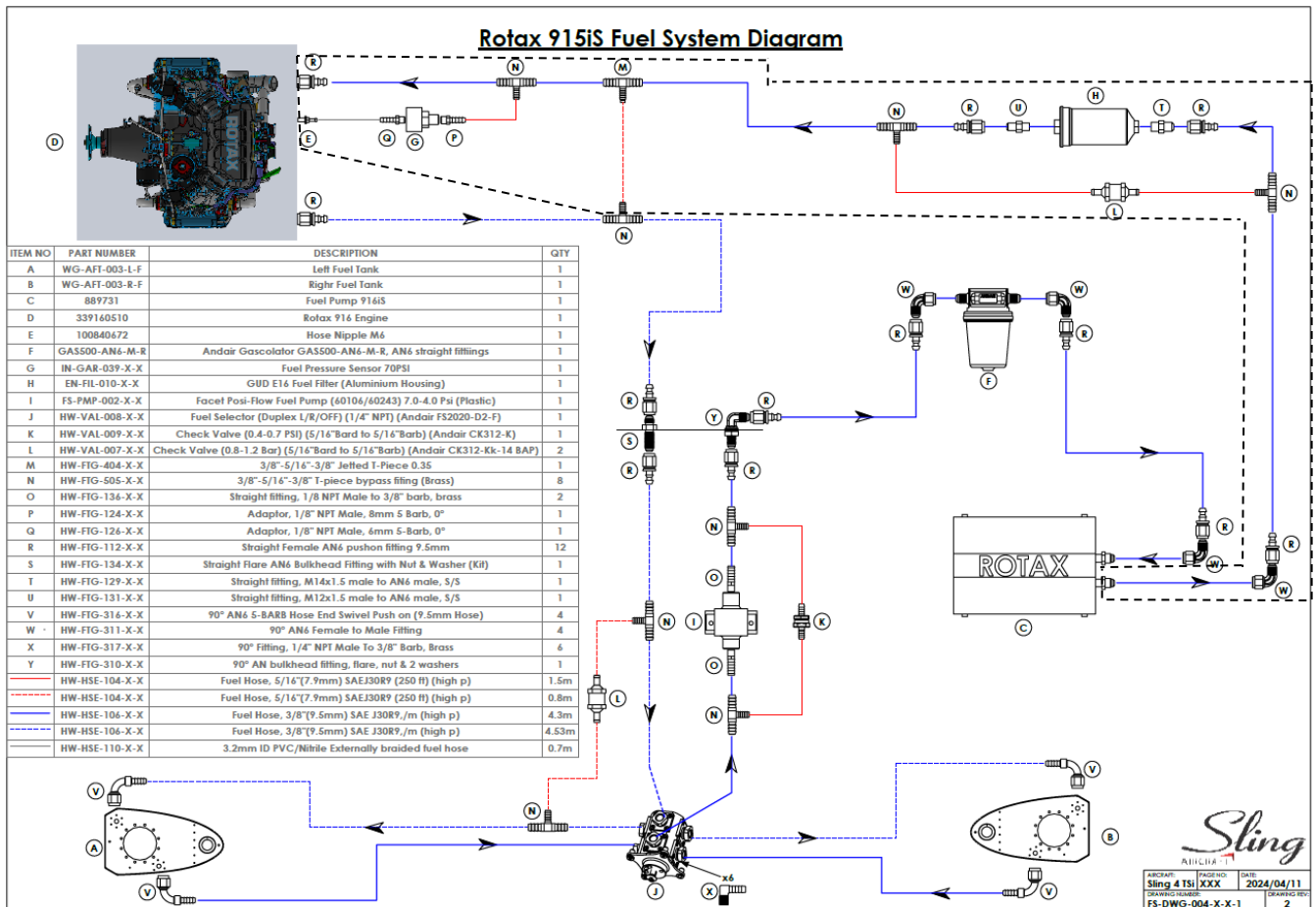


Figure 6: 915 iS Fuel System Diagram

- Step 1:** In order to inspect the fuel lines shown in the diagram above, remove the cowling. Refer to Section 5.1.1 of the Sling 4 TSi Maintenance Manual for the instructions to remove the cowling.
- Step 2:** The heat sleeve around the fuel hose will be secured in place using either locking wire or metal cable ties. Once the cowling has been removed, use the side cutters to remove these so that the heat sleeve can be moved to inspect the hose underneath. Refer to Figure 7 for an example of how the heat sleeve is attached using the cable ties. Please note, Figure 7 is just for reference purposes, all the fuel lines (as shown in Figure 6) must be checked.

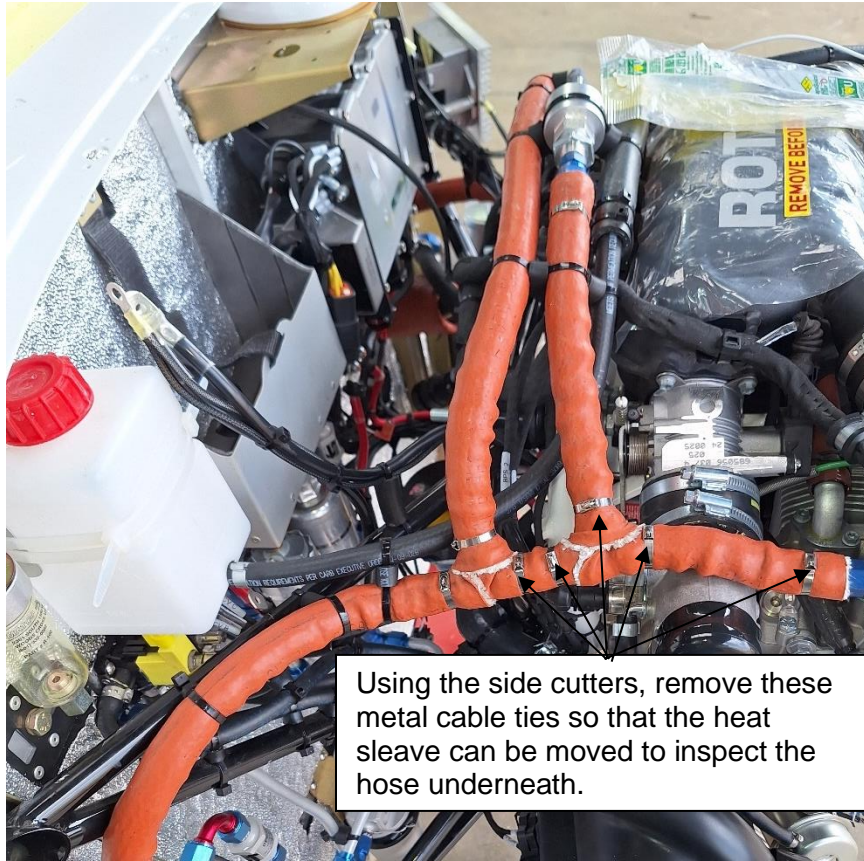


Figure 7: Example of cable ties to be removed.

- Step 3: If it is found that the hose is of the sub-standard fuel hose type, it must be replaced with the correct fuel hose. Using the Oetiker clamp pliers, remove the Oetiker ear clamps (OET ear clamps) retaining the hose onto the hose end fittings.
- Step 4: In order to replace the fuel hose, cut the fuel hose to the correct length. Place the heat sleeve over the hose. Place the OET ear clamps onto the hose ends. Fit the hose ends to the respective fittings and then crimp the OET ear clamps.
- Step 5: Use locking wire or metal cable ties to secure the heat sleeve in place.
- Step 6: Add standoffs as needed.
- Step 7: If more detail is required on how to install the fuel lines and heat sleeve, refer to the firewall forward KAI for the Sling 4 TSi

3.3. 916 iS ENGINE FUEL HOSE

With reference to Figure 6, all the fuel lines bounded within the dashed line “----” must be inspected and replaced should they be of the sub-standard type of fuel hose. It must be replaced with the correct fuel hose as described in Section 2.

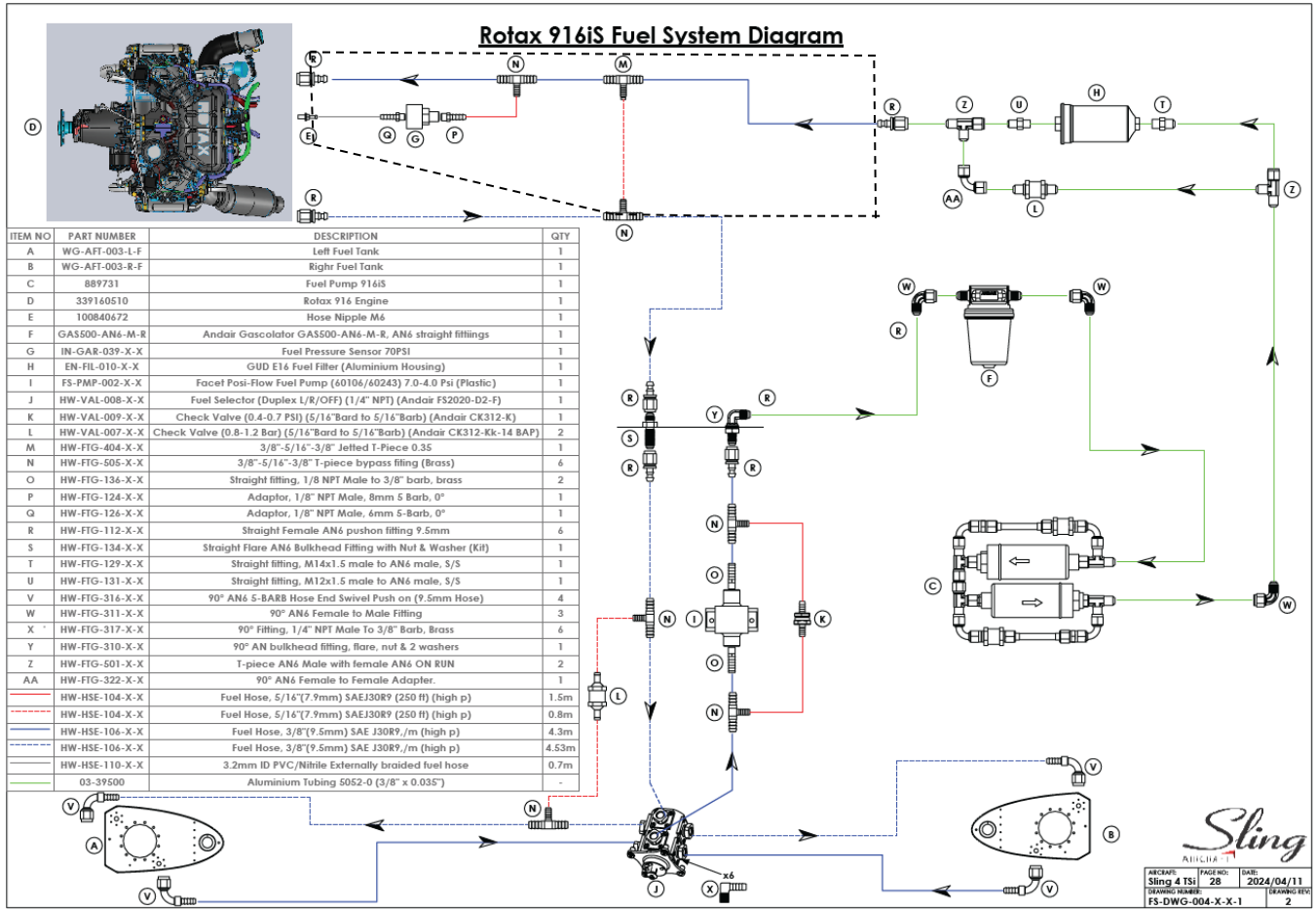


Figure 8: 916 iS Fuel System Diagram

- Step 1:
- In order to inspect the fuel lines shown in the diagram above, remove the cowling. Refer to Section 5.1.1 of the Sling 4 TSi Maintenance Manual or the Sling 4 High Wing Maintenance Manual (where applicable) for the instructions to remove the cowling.
- Step 2:
- The heat sleeve around the fuel hose will be secured in place using either locking wire or metal cable ties. Once the cowling has been removed, used the side cutters to remove these so that the heat sleeve can be moved to inspect the hose underneath. Refer to Figure 7 for an example of how the heat sleeve is attached using the cable ties.

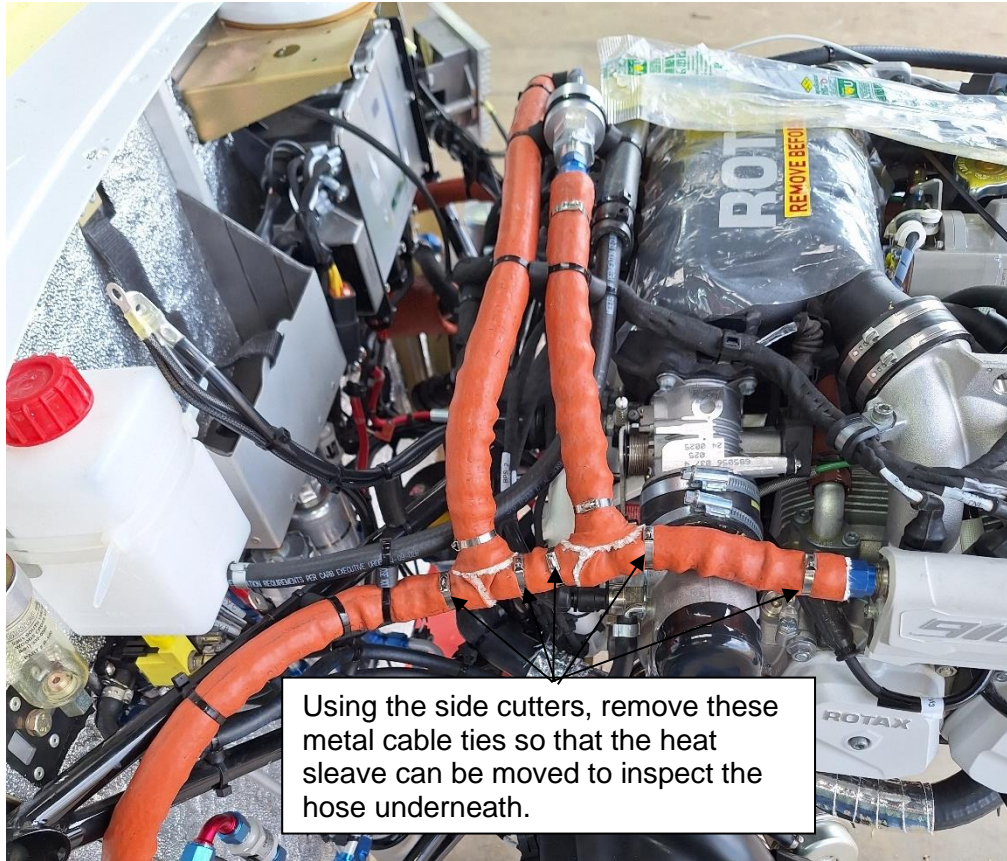


Figure 9: Example of cable ties to be removed.

- Step 3: If it is found that the hose is of the sub-standard fuel hose type, it must be replaced with the correct fuel hose. Using the Oetiker clamp pliers, remove the Oetiker ear clamps (OET ear clamps) retaining the hose onto the hose end fittings.
- Step 4: In order to replace the fuel hose, cut the fuel hose to the correct length. Place the heat sleeve over the hose. Place the OET ear clamps onto the hose ends. Fit the hose ends to the respective fittings and then crimp the OET ear clamps.
- Step 5: Use locking wire or metal cable ties to secure the heat sleeve in place.
- Step 6: Add standoffs as needed.
- Step 7: If more detail is required on how to install the fuel lines and heat sleeve, refer to the firewall forward KAI for the Sling 4 TSi or the Sling 4 High Wing, where applicable.

Signed on this the 2nd day of July 2024

JAL Pitman

**ACCOUNTABLE MANAGER
MR JAMES PITMAN**