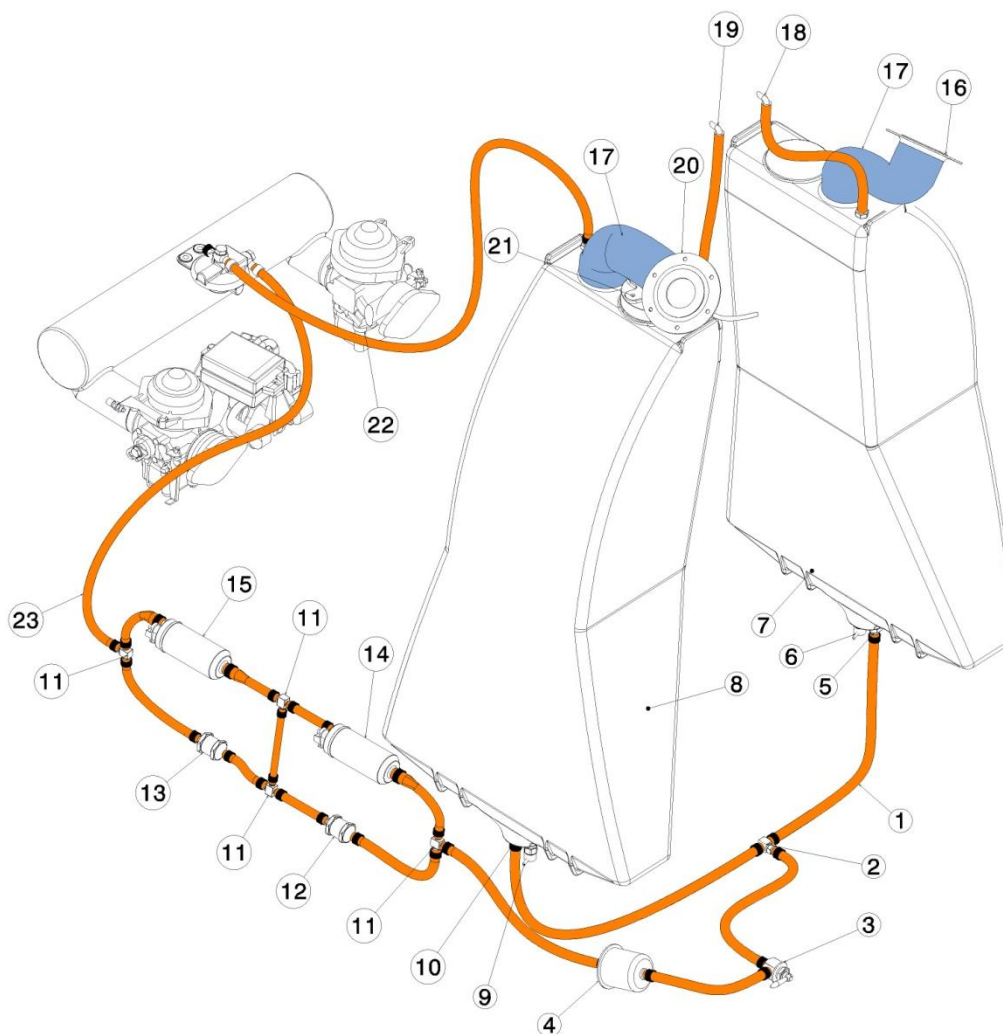


Phase 10: Fuel System installation

Some of the necessary parts required to assemble the Fuel System and its installation to the airframe are easily identified when unpacking from the shipping crate. Small parts are in cardboard box 12, 13, 15 and the bolts, nuts and washers are shrink wrapped in box 18.





Note: read the construction phase carefully as some parts may already be assembled to assist shipping.

Fuel System CAD image






Phase 10: Fuel System installation

Parts and other components

PARTS	DESCRIPTION	CODE	QTY.	PACK
	Facet Electric Fuel Pump	4CFA40106	1	12
	Fuel Filler Assembly	4C0501061	2	15
	Fuel Shutoff Valve	4C051043	1	13
	Fuel Filter	4C0533001	1	13
	Fuel Level Sender	4C1001262	1	17
	T Union	4CT008006	1	13
	Fuel Tank Fitting	4CRACOR08	2	13
	Fuel Vent Fitting	4CRACOR06	2	13
	Drain Valve	4CAV160H4	2	13
	Fuel Tank	CH6B_14.000.0.0	2	17
	Fuel Tank Steel Band	CH6B_14.002.0.0	2	17

Phase 10: Fuel System installation

	Fuel Tank Steel Band Rubber Protection	CH6B_14.005.0.0	2	12
	Check Valve	CK250-H	1	13
	Fuel Tank Inlet Hose	4CYA01151	2	15

TOTAL PHASE 10 PARTS: 22

Necessary tools

- Wrench 3/8"
- Phillips Screwdriver
- Wrench 7/16"
- Wrench M8
- Scissors or utility knife

Other necessary elements

- Clamps
- Hose adapters

Assembly order

Step 1- Mechanical Fuel Pump Extension installation

It was installed in the engine in Phase 5.

Phase 10: Fuel System installation

Step 2- Fabrication of the Fuel Cap template

CICARÉ provides the necessary schematic for the fabrication of the template to cut and fit the cap for the two fuel caps. In the CD attached to this manual there's a PDF 1:1 size drawing.

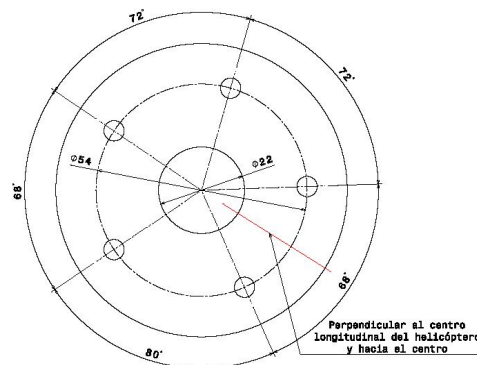


Fig. 1

Step 3- Preparation of Fuel Tanks

The fuel tanks will need to be drilled to fit the fuel sender and the brass fittings for the fuel vents. All drilling must be done according to the schematics that CICARÉ provides and then threaded to fix the bolts.

Step 4- Installation of Fuel Level Sender in right Fuel Tank

This process is done with the tank outside the Airframe. Use the instructions provided in the fuel sender box by the vendor. Be careful to bend the fuel sender only in the position the vendor states otherwise the sender will be unserviceable. When installing the sender ensure that the electrical lead is orientated inwards and that a fuel proof sealant such as Proseal is used on both sides of the gasket.

CAUTION

Before fitting the Fuel Level Sender permanently in place, it's recommended to calibrate it according to the WESTACH installation manual.

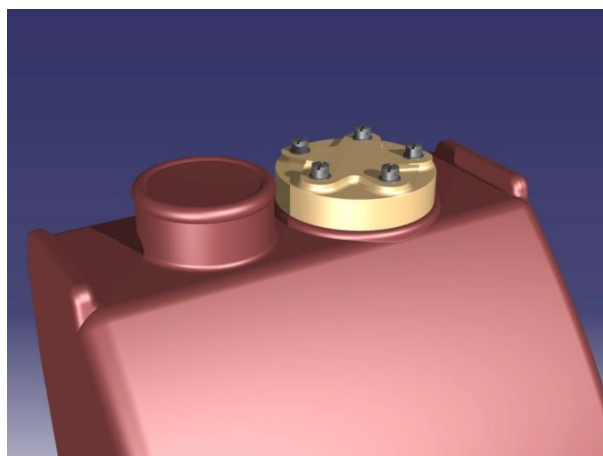


Fig. 2

Phase 10: Fuel System installation

Step 5- Fabricating the fuel tank retainer bands

If required, CICARÉ provides the necessary material and the drawings to fabricate the Fuel Tank Bands that hold the Fuel Tanks in the Airframe. They must be cut as indicated in the drawings; below it is the schematic of the strap elements.

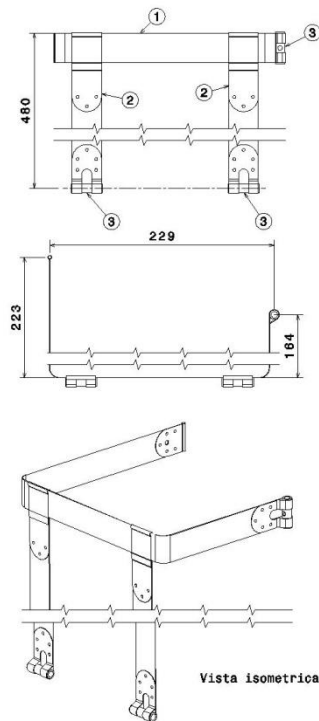


Fig. 3

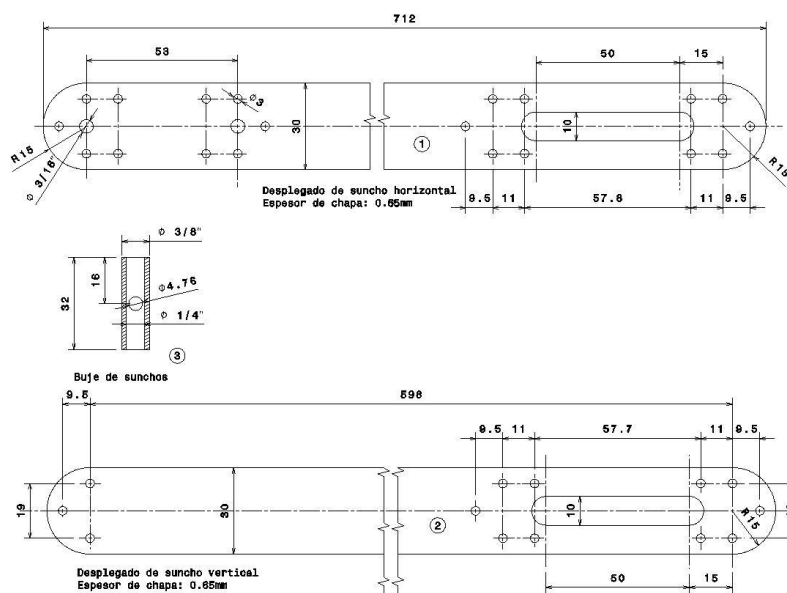


Fig. 4

Phase 10: Fuel System installation

Step 6- Fabrication and installation of the Fuel Tank Band Rubber Protection

CICARE provides the material for the fabrication of Fuel Tank Band Rubber Protection. Glue Rubber Protection to Bands with a contact adhesive minimizes the friction between the tanks and the steel bands.

The rubber protecting the trailing edge of the MR Blades can be used to provide extra protection to stop airframe tubing chaffing on the tanks. Cut and glue the rubber as required.

Step 7- Fuel Tank installation

CAUTION

Before fitting the Fuel Tanks permanently in place, its recommended to continue with the remaining phases.

The Fuel Tanks are installed to the Airframe using the Bands fabricated previously. In the image it can be observed the RH front fixing point of a Band to the Airframe.

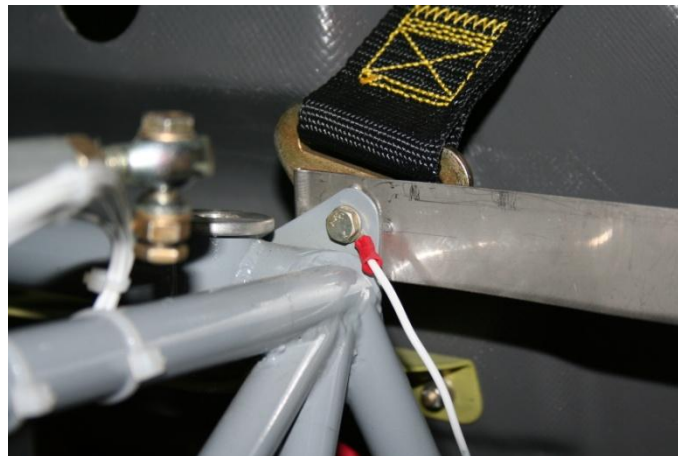


Fig. 5

Remember that they have to be fixed in the same Airframe attach lugs as the Seat Belts.

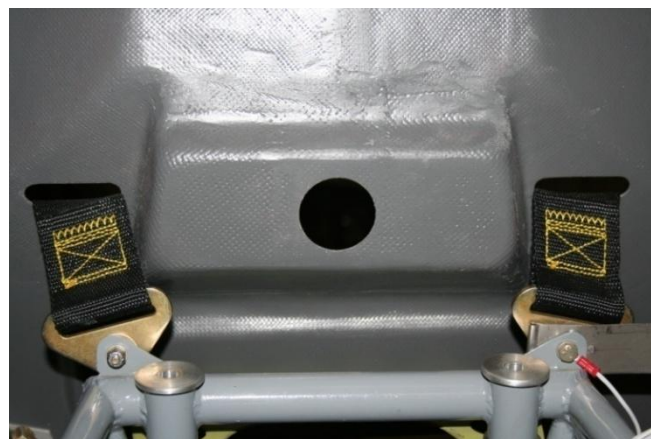


Fig. 6

Phase 10: Fuel System installation

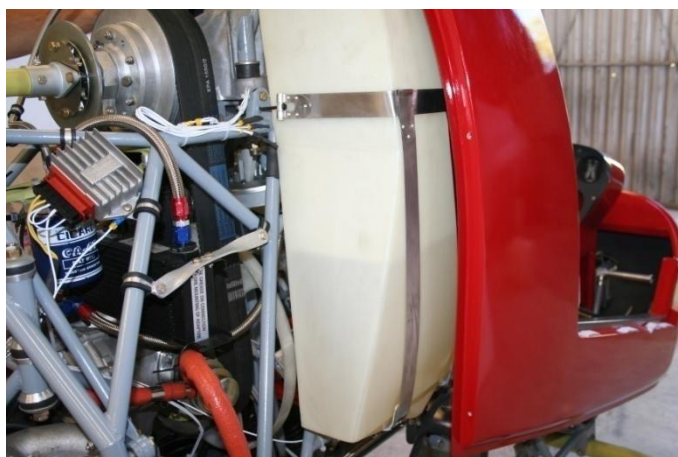


Fig. 7

CAUTION

Before filling the Tanks with fuel, they must be washed with fuel and properly cleaned. Any type of residue in the system can cause serious problems.

Step 8- Installation of the fuel shutoff valve, drain and fuel vent.

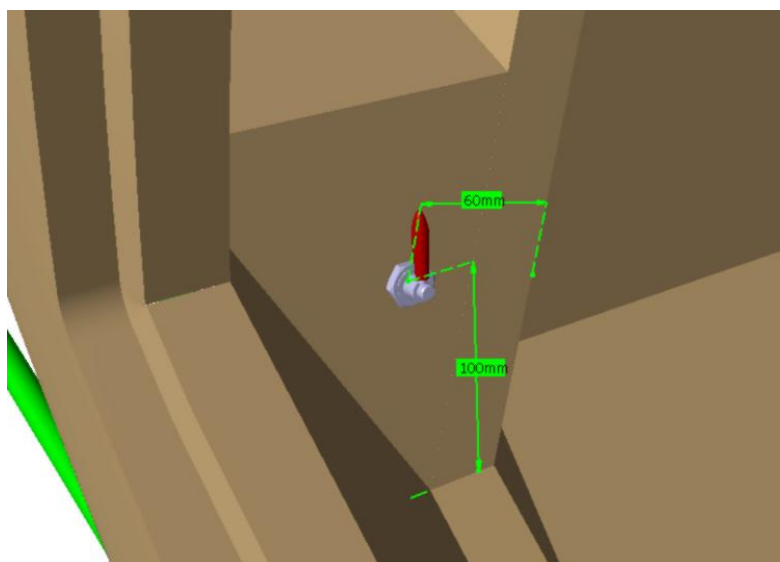


Fig. 8

The fuel Shutoff Valve is installed in the cabin on the RH side of the firewall about level with the door handle and linked, by a hose and a brass T junction to the output of each Fuel Tank.

Phase 10: Fuel System installation

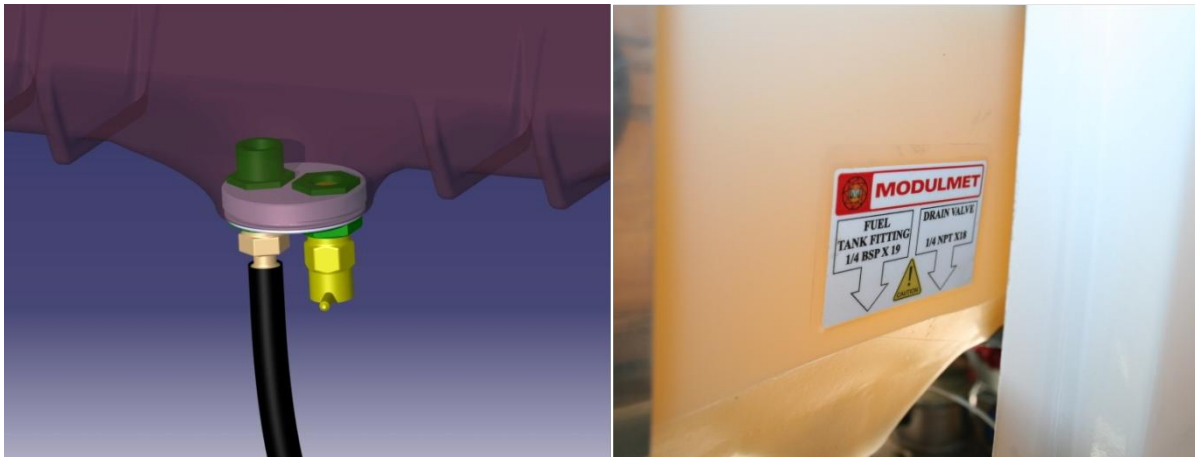


Fig. 9

Drain Valves, provided by CICARÉ, are mounted in the tanks according to the schematic drawings. These have to be installed by threading into the tanks and using a suitable fuel resistant/proof sealer.

CAUTION

Install the drain valves in the correct outlet of each fuel tank. The drain valve outlet is lower than the engine fuel outlet so that any residual condensation (water) and any other foreign trash can be drained after it settles to the bottom of the tank.

Fuel Vent Fittings are installed in the top front part of the tanks. A hole needs to be drilled and brass fittings screwed into them using a suitable fuel proof sealer.

Using some of your spare fuel hose, cut two lengths about 30 cm long and fit one to each brass fuel vent outlet using a clamp.

Then make a small U shape fitting from Aluminium or similar tube and fit and clamp them to the other end of the vent tube.

Drill a 0.032 hole very near the open end of the U tube and feed and twist a piece of lock wire through the hole to act as a barrier to insects.

Later, when the cab is installed, feed the vent hoses up the front inside and secure them to the cab each with a DG clamp and AN3-4A bolt.

Check that no part of the installed fuel tank vent system is able to come in contact with the main rotor mast.

Phase 10: Fuel System installation

Circuit with Check Valve

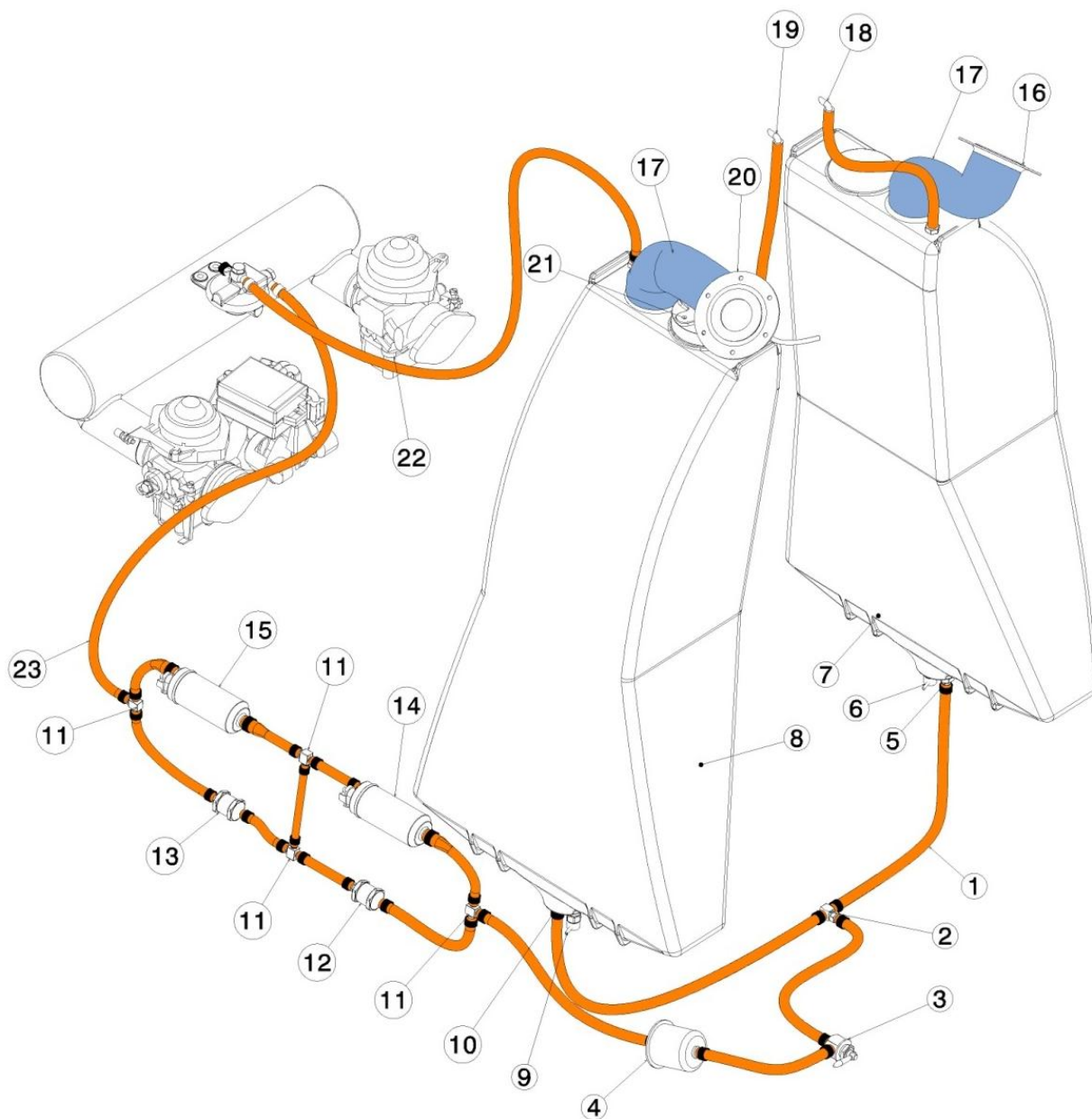


Fig. 10

Phase 10: Fuel System installation

Fuel circuit	
1	Hose
2	T Union
3	Fuel Shutoff Valve
4	Fuel Filter
5	Fuel Tank Fitting
6	Drain Valve
7	Left Fuel Tank
8	Right Fuel Tank
9	Drain Valve
10	Fuel Tank Fitting
11	T Union
12	Check Valve
13	Check Valve
14	ROTAX Electric Fuel Pump
15	ROTAX Electric Fuel Pump
16	Left Fuel Tank Cap
17	Fuel Tank Inlet Hose
18	Left Fuel Tank Vent
19	Right Fuel Tank Vent
20	Right Fuel Tank Cap
21	Fuel Lever Sender
22	Return Line
23	To Carburetors

In the fuel circuit, hose clamps 4C0003504 or equivalent must be used and ZE539-60-80 clamps must be used for the top fuel filler hoses.

Step 9- Preparation of the Fuel Filler/Cap Assembly

Using the drawings provided by CICARÉ in the CD attached to this manual, drill carefully the fixing rings of the caps.

It's recommended to taper the attach hole for the bolt heads on the outside of the Fuel filler as observed in the image in Step 12.

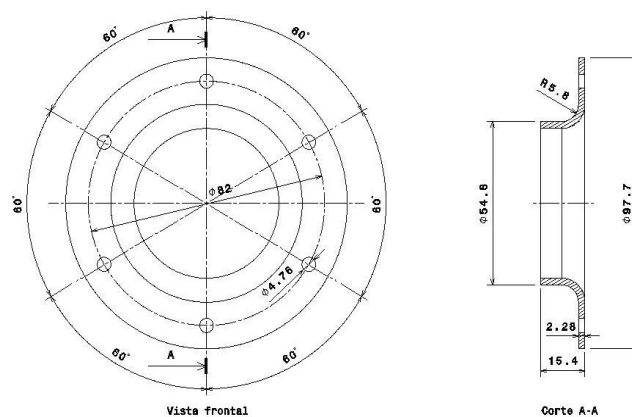


Fig. 11

Phase 10: Fuel System installation

Once the fuel fillers have been drilled, place them in their position on Cabin Main Body. Notice that they will not be correctly positioned because of the curvature of Cabin. That is why it is recommended to curve them slightly to copy the cab curvature.

Step 10- Installation of Fuel Filler Assembly to Cabin Main Body

To this stage the Cabin Main Body is already assembly and drilled, so place the Fuel Filler Assembly in the cabin housing and fix them with Philips type crews NAS 517-2-4 (8-32) as shown in the following image:

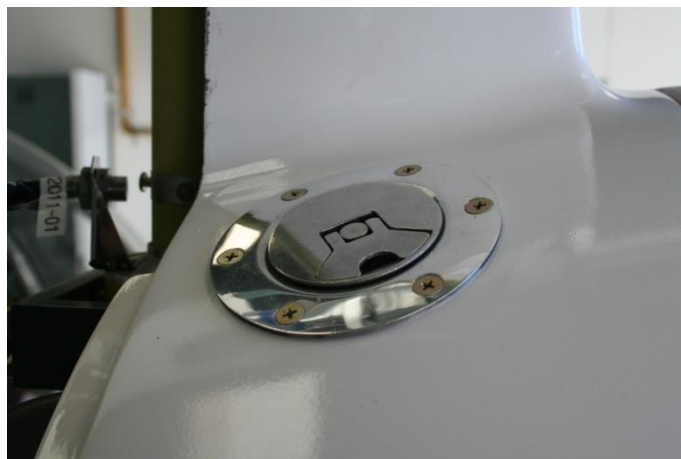


Fig. 12

At this stage, it is also recommended to make an anti-static line from light electrical cable to reduce the possibility of fire when refuelling in dry conditions conducive to static electricity. Attach the line underneath the one of the underside nuts used to attach the fuel filler. Carefully feed the wire down to the top seat belt harness attach lug on each side and secure it under a washer on the seat belt attach bolt. Check that a good earth is available at the attach lug. Check that the anti-static wire is secured and cannot come into contact with the MR mast.

Step 11- Fabrication of the hoses for between the fuel tanks and fuel fillers.

CICARÉ provides the hoses for between the fuel fillers and tanks. These are hoses that can be carefully cut to be installed.

The best option for fitting these hoses is to fit the fuel tanks, and then temporally fit the Cab so that the cab can be moved up or down while the hoses are measured, cut and trial fitted until a final fit is obtained. Patience is required with this task and the hoses must not contact the MR gearbox.

NOTE

For the cutting of the hoses observe that one of their ends has a bigger diameter than the connection tube of the fixing ring. Do not use this end.

Phase 10: Fuel System installation

Step 12- fuel loading hoses installation

The fabricated hoses must be fixed to the fuel tanks and to the fuel fillers using clamps. Tighten them without securely, avoiding excessive force to prevent damage to the tanks. In the image can be seen the installation of a refueling hoses.



Fig. 13

CAUTION

Clean carefully the inside of the hoses before final fitment.

Step 13- Fabrication of hoses and installation of the fuel system

The fuel system between the tanks and engine fuel inlets includes elements such as hoses and valves, fuel filters, a check valve and electric pump.

You need to purchase, fabricate and fit fuel hose to the specification of your country's Civil Aviation Requirements.

It is highly recommended (mandatory in some countries) to fit fire sleeves over the fuel hoses. Not only does fire sleeve assist in case of a safety issue but it also helps keep the fuel hoses and fuel cooler in normal operations.

Hoses should be attached to the elements of the fuel system using clamps (without excessive force), starting from the tanks, valve, fuel filter, electric pump and non return valve.

Before fitting any hose, ensure that it is clean and unobstructed, preferably using compressed air.

If replacing any fuel system element prior to the inlet of the Rotax mechanical pump, ensure that the Inside Diameter is at least the same as the Rotax inlet pipe on the pump.

Phase 10: Fuel System installation

Fuel system elements (hoses and others) are to be linked to the airframe using fittings as required minimizing relative movement and chaffing between parts.

Where you consider necessary, place rubber or other cushioning material between the airframe and hoses.