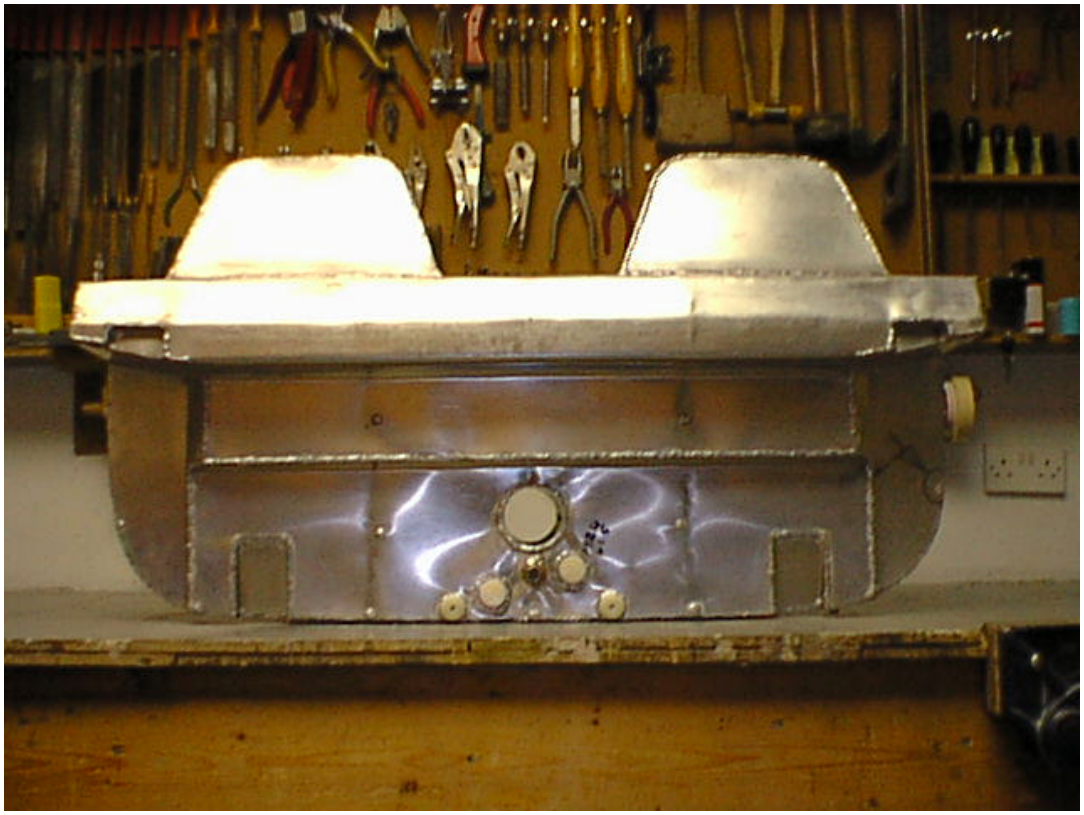
MAGNESIUM ALLOY FUEL TANK MODIFICATION

Europa 147 PFA 247-12775



Weight: 7.850 Kg Dry, including all fittings.
Volume: 110 Litres
Fuel Weight (Full): 79.6 Kg

This is to certify that this fuel tank has been tested to demonstrate the following:

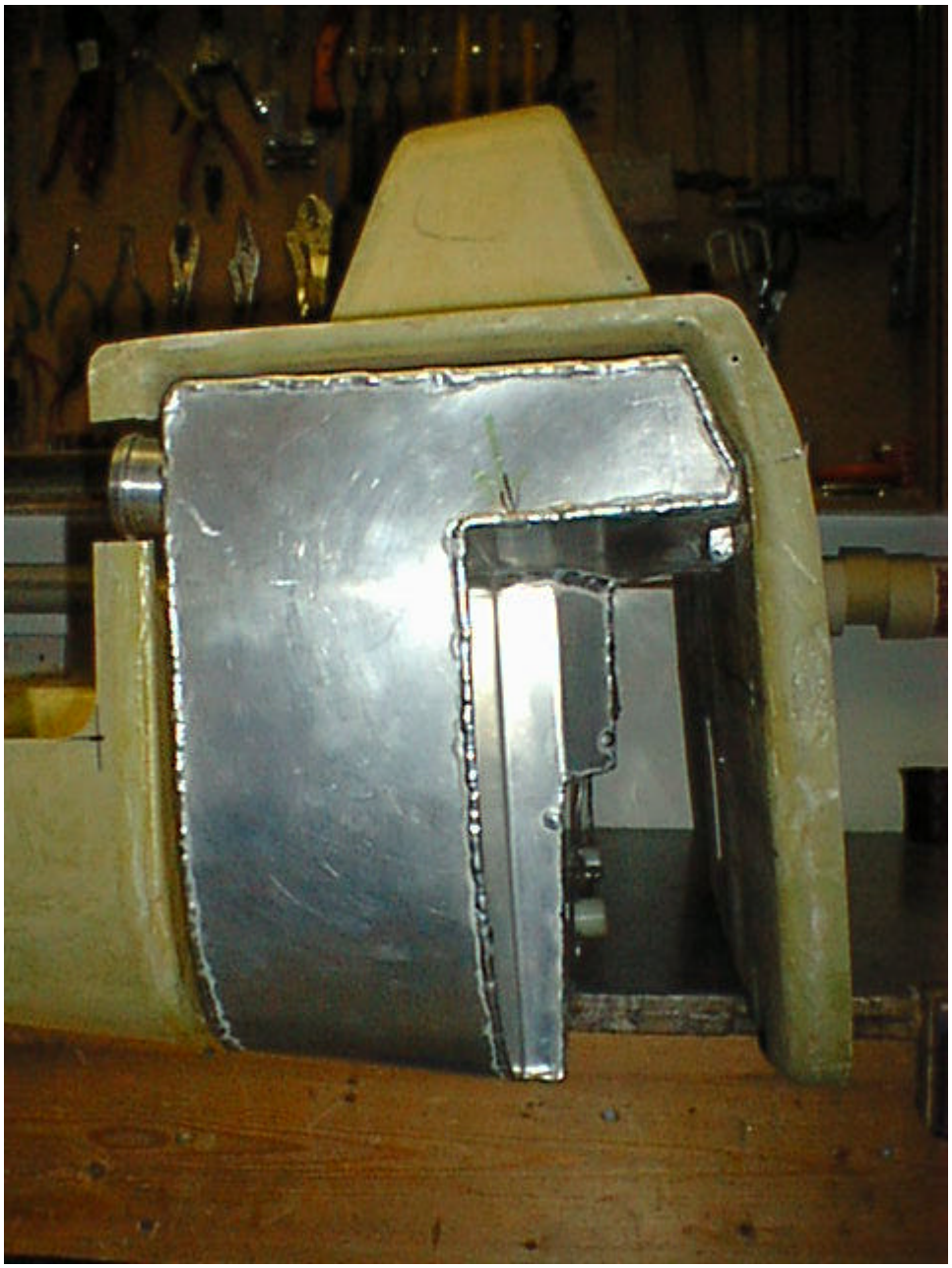
1) Pressure tested to hold and maintain 24 kPa for 24 hours.
2) Breathers tested to demonstrate adequate ventilation during filling and emptying of tank at typical flow rates.
3) Tank deliberately overfilled to demonstrate fuel dumping via breathers.
4) Breathers tested to demonstrate ability to prevent syphoning under conditions of over fuelling and tank (aircraft) inverted.

Note: water used for all tests.

This tank has been constructed to meet or exceed the following standards:

JAR-VLA 965 a
JAR-VLA 967 a(6), b,c,e
JAR-VLA 969
JAR-VLA 971 a(1)-(2), b
JAR-VLA 975 a(1)
JAR-VLA 977 a(1)-(2) b(1)-(2)-(3)-(4)

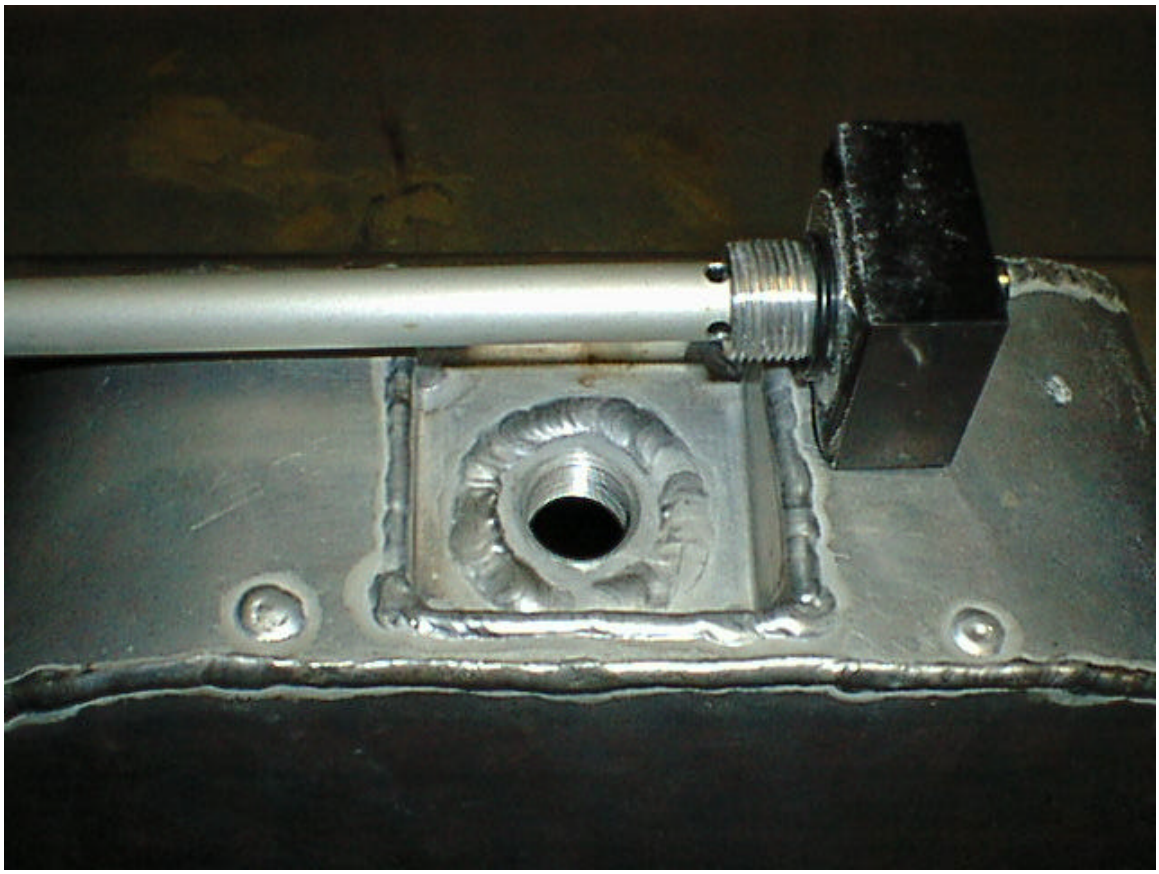
INSTALLATION
Installation to comply with:
JAR-VLA 967 a(1)(2), c, e(1)(2-i, ii)
Installation, mounting and stress paths to be identical to Europa factory instructions.
The tank has been designed to be a direct replacement for standard item.



MATERIALS
Constructed from 1.2mm 5251 quarter hard magnesium alloy sheet.
All tubing used: AMS4082M seamless
0.049inch wall thickness
Welding rod used: 4043 Certificate number: 40039

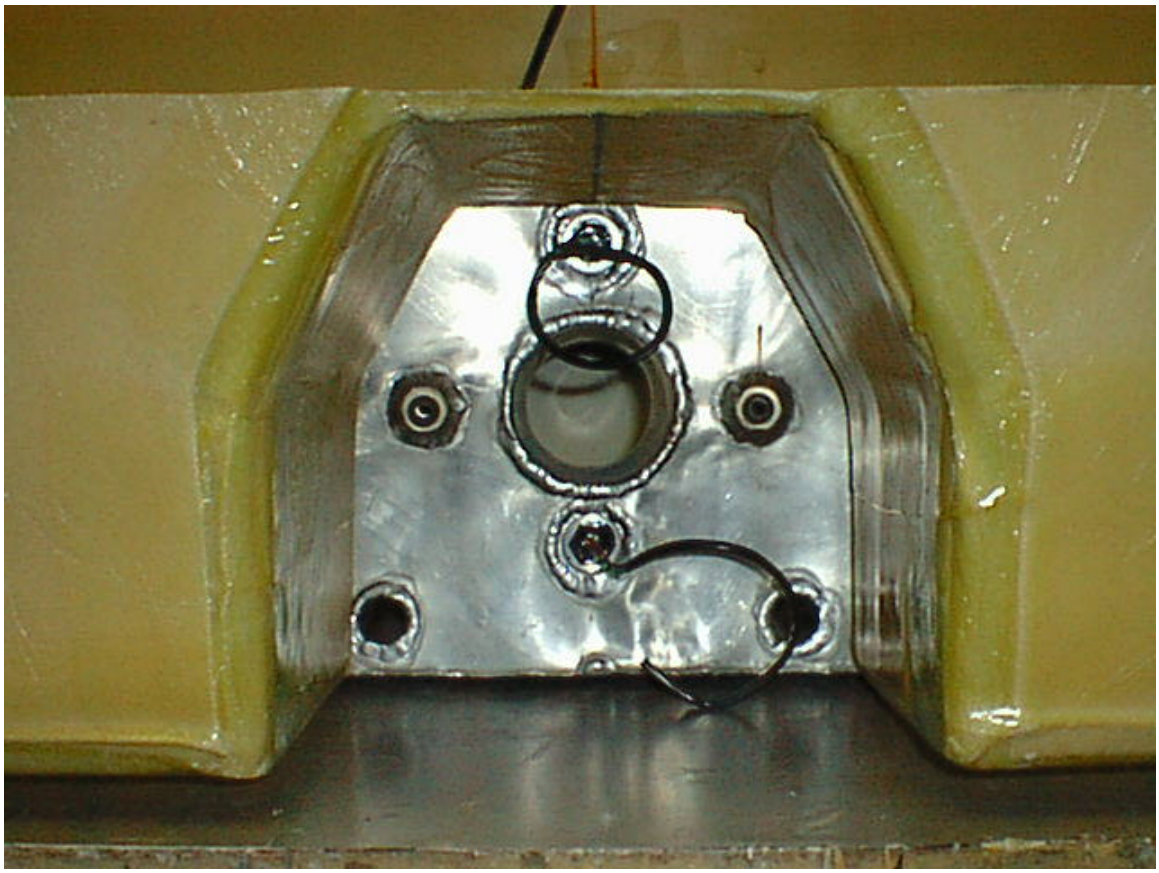
Sheet metalwork carried out by Nigel Graham
Welded by Paul Grellier CAA Approval W2082

FUEL LEVEL SENSING
Dual redundant.
“Avelec” full length vertical capacitance probe displaying via LCD bar graph instrument.
Attachment: Threaded body screwing into a tapped welded-in fitting in “Head Rest”.
In addition, four solid-state liquid level sensors positioned to indicate: Useable main Empty (Point at which to select “Reserve”), 1/3 full, 2/3 full and Maximum
Displaying via four dual-coloured (red/green) LEDs adjacent to fuel gauge.
Body Material: Polysulphone
Gasket Material: Fluoro-silicone
See datasheet attached.
Note: There are no appropriate JAR_VLA standards relating to fuel level monitoring.



FAIRLEADS

Where rudder control cables pass through the tank, the cables will be sheathed in nylon tubing, this in turn will be run through turned hard nylon fairleads. This to offer a significant degree of abrasion protection. The rudder cables will pass over pulleys in front of and behind the tank to guarantee cable alignment though the tank, irrespective of relative movement, in accordance with JAR_VLA 689 (c).



View on rear of tank in position showing:
1. Rudder Cable tubes. (Bottom left and right) shown with fairleads removed.
2. Pitch control tube (Centre)
3. Breather vent AN fittings (Centre left and right)
4. Two of the four solid state fuel level sensors (with wiring)

FUEL STRAINER
Brass mesh fuel strainers mounted in the MAIN and RESERVE positions These are screw-in fittings with AN threaded connector to accept 3/8" alloy fuel pipe.

This complies with JAR_VLA 977 a (1) (2), b (1), (2), (3), (4)

Note that this is just an in-tank strainer. Full filtration will be provided by an ANDAIR gascolator and will be covered by a separate mod application.

BREATHER VENTS
The dual breather vents terminate in AN fittings. Twin external 3/8" alloy pipe will vent into a single catch-tank (to equalise pressure) an hence to a vent on the underside of the aircraft.

NOTE if the pipes were routed to vent at the top of the fuselage, as on the standard aircraft, there would be a possibility of a vapour lock should fuel escape into the breather pipe, preventing satisfactory tank breathing. (Established by experimentation).
This is also intended to dump full-tank fuel expansion underneath the A/C and not over the top of the fuselage as happens with the standard installation.

These comply fully with JAR_VLA 975 a (1), (2), (3), (4), (5), (6), (7), b .

FUEL FILLER
This will be re-positioned to a position no higher than the highest point of the tank on the starboard side behind the door. This to ensure that when the tank is filled to capacity, and with the aircraft at any attitude, any fuel remaining in the filler hose cannot discharge via the breather pipes. This would happen If the filler cap were to be mounted any higher than the top of the breathers inside the tank.

This will comply with JAR_VLA 973 a, b.