

Pre-Paint>Fuselage>Firewall>Firewall fittings

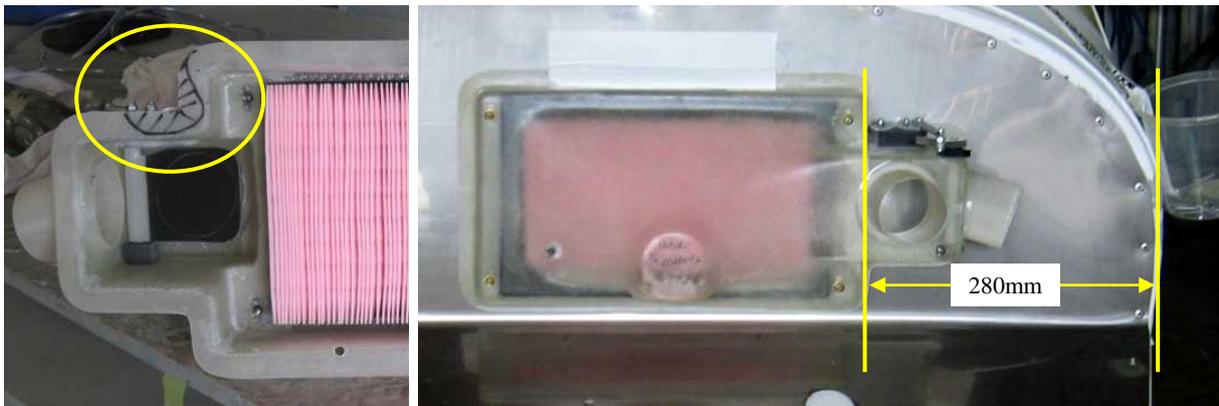
General:

This task requires the drilling of several holes through the stainless steel firewall. Stainless steel is hard, and the best way to drill it is to use very sharp drill bits and drill very slowly: drill too fast and your drill bit will very quickly become blunt and the stainless will work-harden as well. For the larger holes you will need a hole saw and a few drops of cutting oil on the teeth will make the cutting easier, once again using a slow speed.

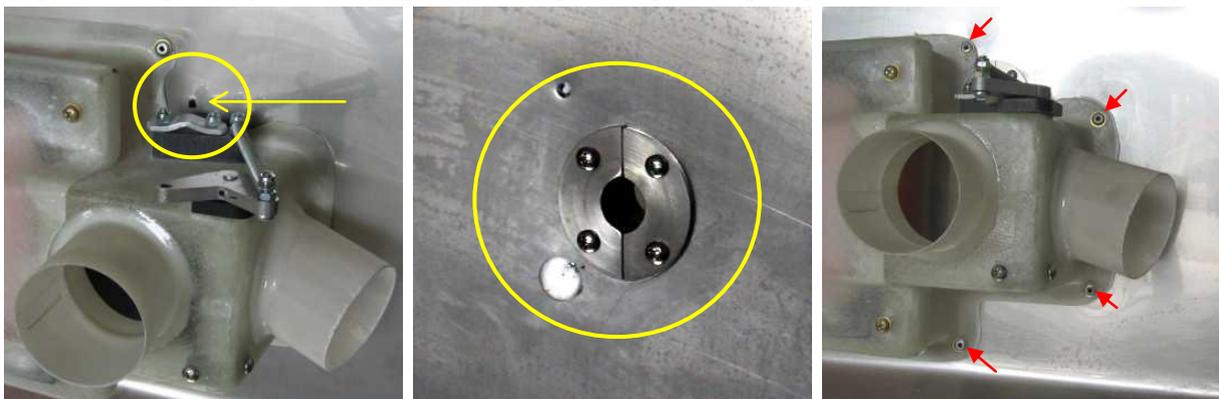
Materials required:

Card #'s 10J 'Firewall', 11J 'Fuel components', 25JT 'Cabin heater', Dow Corning sealant

Air box and cable collars

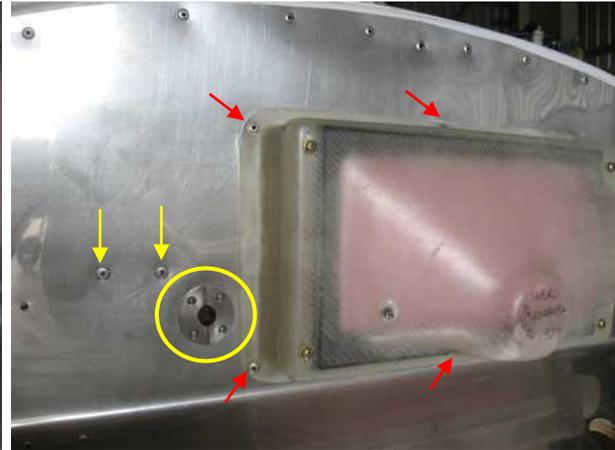
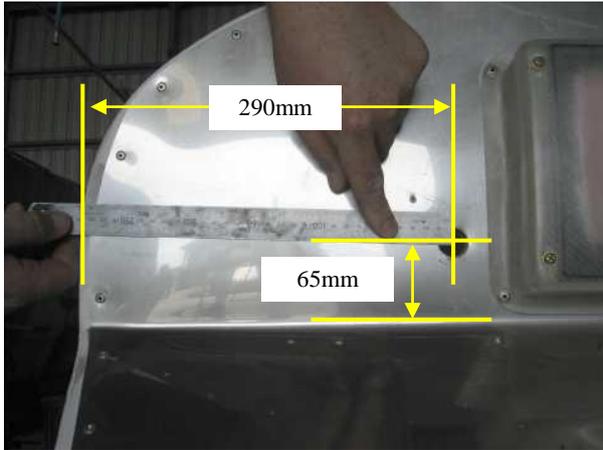


The air box needs to have a small amount ground out to allow for the cable collar: mark and remove the area indicated in the photo above left. Position the air box so that it sits flat on the firewall just above the upper bend, then measure in 280mm from the left hand edge of the firewall to the main left hand side of the air box. Check that the air box is level and then fix it in place temporarily with a strip of cloth tape along the top edge.



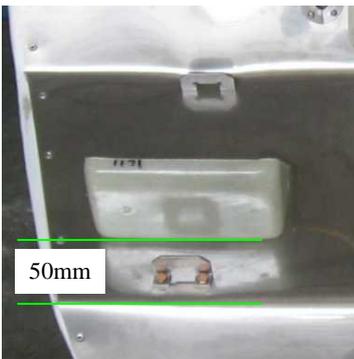
With the air box held in place, make a mark directly behind the cable clamp as shown. Remove the air box and drill a 22mm hole through the firewall for the cable collar then fit the cable collar with 6G stainless steel screws (drill 1/8" holes through the firewall plate only for these screws, they will self-tap into the plywood firewall).

Apply a bead of the Dow Corning sealant around the mounting surface of the air box and fix it in place with 8 x 5/32 pop rivets, 1 on each corner and 1 at top and bottom centre, with a washer on each side of each rivet (rivets arrowed in red: left hand side shown above, right hand side shown on the next page). Apply extra sealant around the cable collar so that there is a good seal with no possibility of air leaks. Wipe away any excess sealant with a clean cloth.



Fit the right hand cable collar: measure in 290mm from the right hand side of the firewall and up 65mm from the upper bend and drill a 22mm hole through the firewall then fit the cable collar with 6G stainless steel screws (drill 1/8" holes through the firewall plate only for these screws, they will self-tap into the plywood firewall). Drill and blank the 2 holes arrowed in yellow above right with a rivet. The air box right hand side rivets are arrowed in red above.

Battery box and battery



Run a 3/16" drill through the 2 pairs of holes on the right hand mid section of the firewall and bolt the tie down brackets into place with AN3-6A bolts as shown. Position the battery box 50mm up from the lower bend and fix in place with 4 x 5/32 pop rivets, with a washer on each side of each rivet.



Put the battery in the battery box with the terminals to the top and secure it with a tie down strap: loop the strap through the brackets and through the locking buckle with the free end of the strap pointing down at the front, then loop that free end back through the bottom bracket and tie it off around the strap and cut to length as shown. Use a flame to melt the cut end.

Cabin heater

Measure up 180mm from the lower bend and in 340mm from the left hand side of the firewall step and drill a pilot hole, then drill a 1 5/8" (41mm) hole for the cabin heater firewall fitting.

The fitting is in several parts: press the machined end of the short section of tube into the hole on the side of the main body. Assemble the shaft, flap and actuating arm and then push the threaded end of the main body through the firewall.



Turn the main body so that the pressed-in tube faces the left of the aircraft and fit a small screw into the notch in the flange to prevent the main body from turning (circled above).



Drill a 1/8" hole in the firewall above the main body and directly below the shaft: pop rivet the right-angled spring bracket into this hole and connect the spring to it. Drill a 5/16" hole for the cable directly in line with the end of the actuating arm. Fit the retaining nut to the threaded end of the main body on the inside of the firewall and tighten firmly.

Fuel fitting

Assemble the firewall fuel line fitting: Press the flat plate of the brass bulkhead fuel fitting into the top of the aluminium sleeve (this sleeve connects to the plastic fuel sheath on the inside of the firewall), and bond it into place with 5-minute Araldite.

Parts List			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	4A295B0D-1	FIREWALL FUEL LINE FITTING BODY	1
2	4A281C0D-1	FUEL SLEEVE FERRULE - BULKHEAD FITTING	1
3	MS21045-624	3/8" HIGH-TEMP LOCK NUT	1
4	AN960-616	3/8" FLAT WASHER	1
5	PV0029N	HOSE PVC 1/4 ID	2
6	PV0019N-1	HOSE CLAMP S/STEEL 1/4 DIA.	2

FIREWALL ASSY -REF

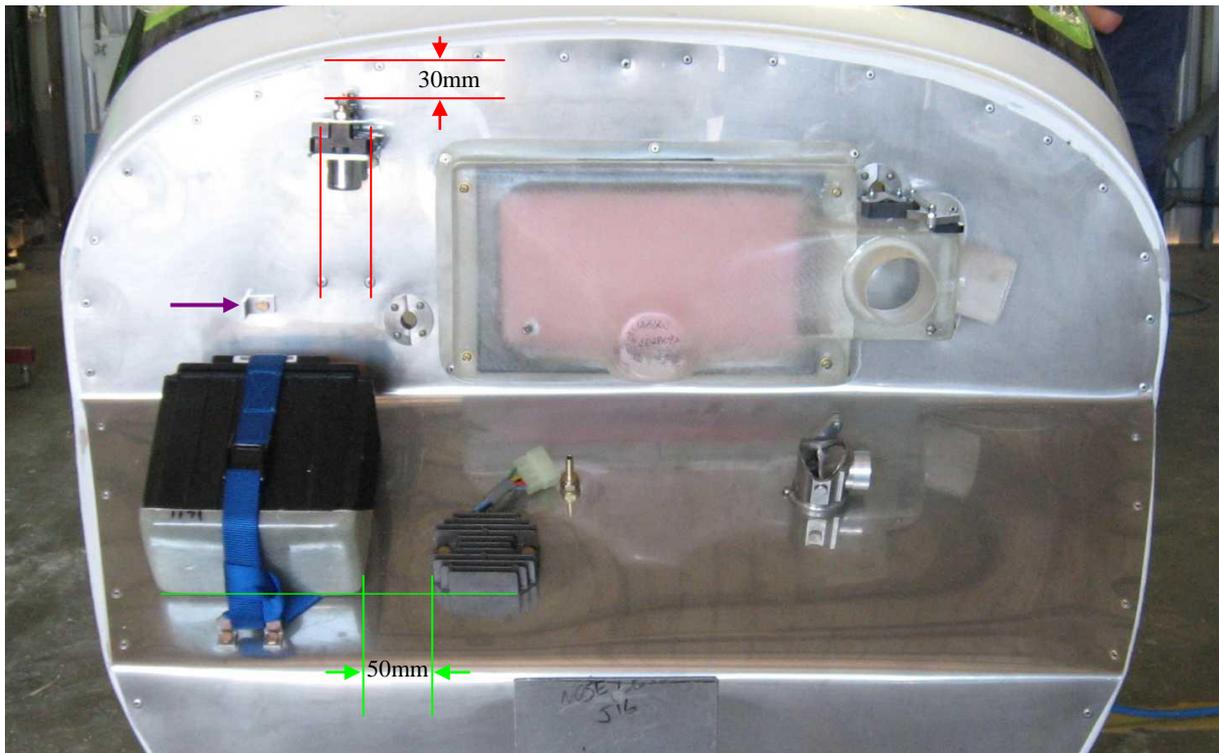
BOND SHEATH SPIGOT IN PLACE USING 5 MINUTE ARALDITE

PROJECTION	DIMENSIONS IN MILLIMETRES	DO NOT SCALE	AVTECH P/L A.C.N. 010 786 973 HINKLER AIRPORT BUNDABERG 4670	THIS DRAWING IS COPYRIGHT AND MUST NOT BE COPIED WITHOUT THE CONSENT OF AVTECH PTY LTD	SCALE 1:1	1/7/06
GENERAL TOLERANCES WHOLE NO.'S ± 0.5 ONE DEC. ± 0.25 TWO DEC. ± 0.05 ANGLES $\pm 0.5^\circ$ REFER TO PART DRAWINGS	DRAWN	DS	TITLE FIREWALL FUEL LINE FITTING ASSY	DWG. No. 4A295A0D-1	ISS.	DATE
MATERIAL	APPR.				SHEET 1 OF 1	A4

Drill through the pre-drilled hole in the firewall and fit the assembly, fit the washer and Nyloc nut and tighten.



Electrical components



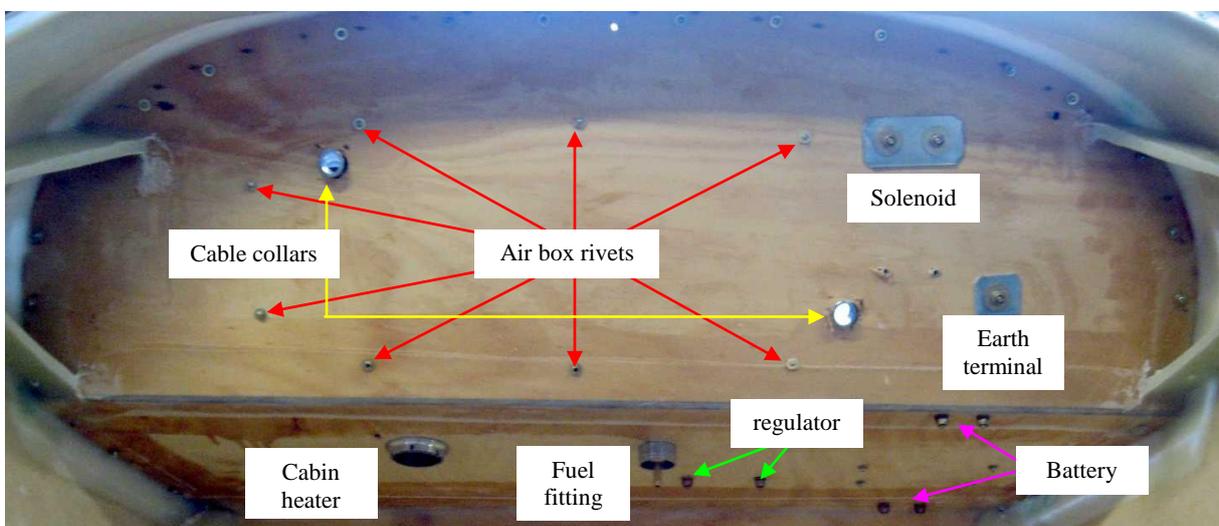
Use some 3mm aluminium to make backing plates for the solenoid and the earth terminal as shown below – these are to spread the load and minimise crushing of the plywood firewall.

Draw a line up from each of the 2 blanked off holes (red lines above) and place the starter solenoid with the mounting holes over the lines and the top of the terminals 30mm below the top of the firewall. Fix the solenoid into place with 2 AN3-7A bolts, washers and Nyloc nuts.

Fit the main electrical earth terminal (maroon arrow above) by drilling through the pre-drilled hole in the firewall and fix into place with an AN3-7A bolt, washer and Nyloc nut.

Place the regulator module 50mm in from the side and in line with the bottom of the battery box (green lines above). Fix in place with AN3-12A bolts, washers and Nyloc nuts.

Inside view



This is how the finished job will look from the inside.

Air box outlet tube



Remove the cover from the air box: it is held in place by 4 screws, one at each corner.

Cut a hole in the bottom of the angled lower front part of the cover and fit the supplied short length of fibreglass tube and fit in place so that when the cover is laying on the workbench as shown at above left the tube angles upwards at an angle of 15°.

Fix the tube in place with a mixture of 5 minute Araldite and flock, filling the area around the inside and outside of the join.

Use enough of the Araldite/flock mixture to completely fill the area surrounding the tube on the inside of the cover as shown above right. You may need a second mix to complete this.



When the Araldite/flock mix has cured, grind the protruding lip on the inside of the cover down until it forms a wide radius into the tube so that the air has a smooth flow from the air box and into the tube – any sharp edges at this transition can have the effect of restricting airflow to the carburettor so take your time and get the curve just right.

Fit the cover back onto the air box.

This completes the *Pre-Paint>Fuselage>Firewall>Firewall fittings* task.