Pre-Paint>Fuselage>Firewall forward>Fit oil cooler

Objectives of this task:

In this task the oil cooler will be fitted to the base of the sump, the oil filter adapter will be fitted under the oil filter and the whole assembly plumbed up and the oil overflow bottle will be fitted to the firewall. There are 2 types of oil overflow bottles, fibreglass moulding or a plastic moulding. Fireproof sleeving will be used to protect the oil lines.

Materials required:

Card # J24 '*Oil Cooler Kit*'

Pipe sealing compound (rated working pressure of 2.6 Mpa, "*Holdtite*" brand or similar)

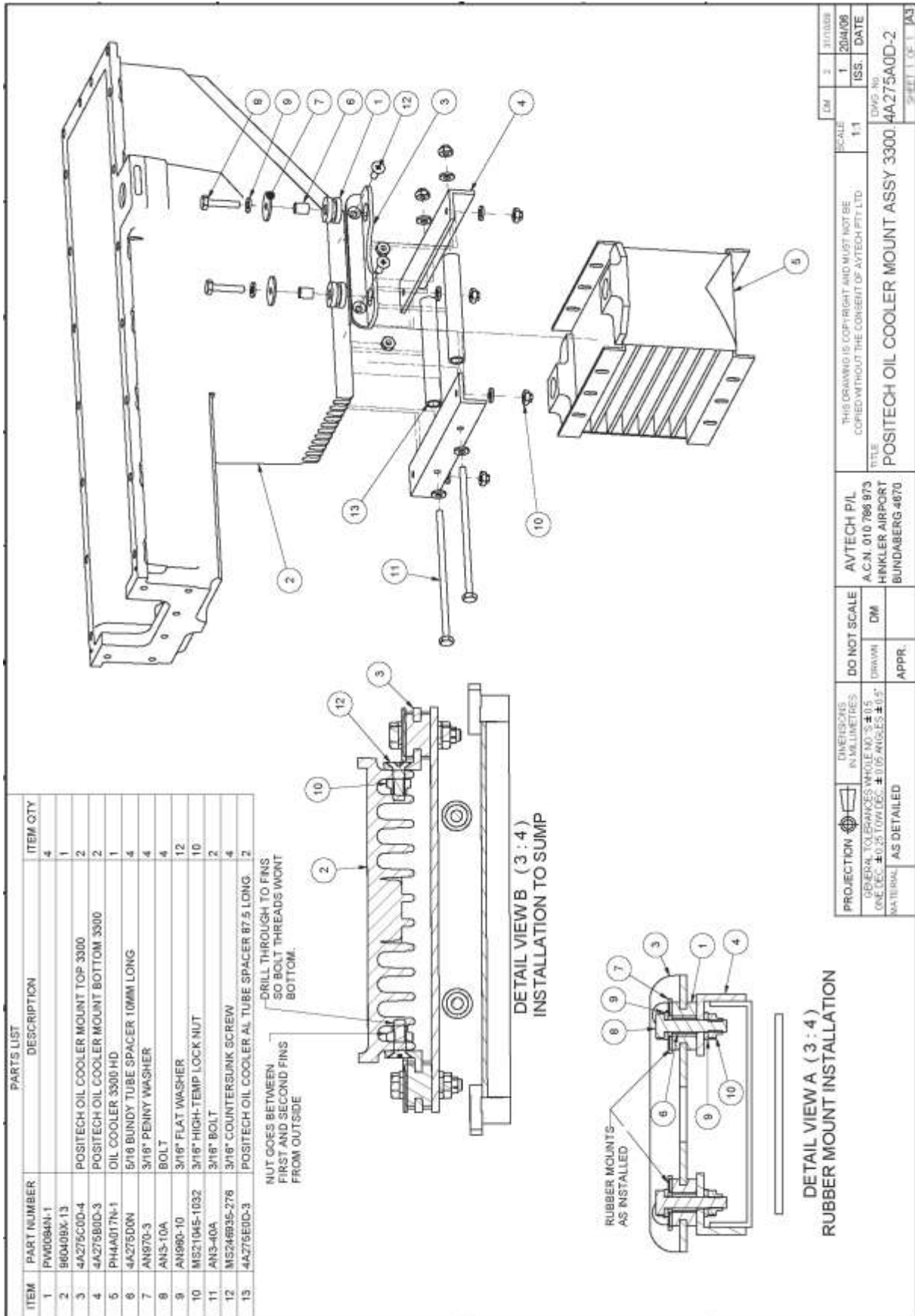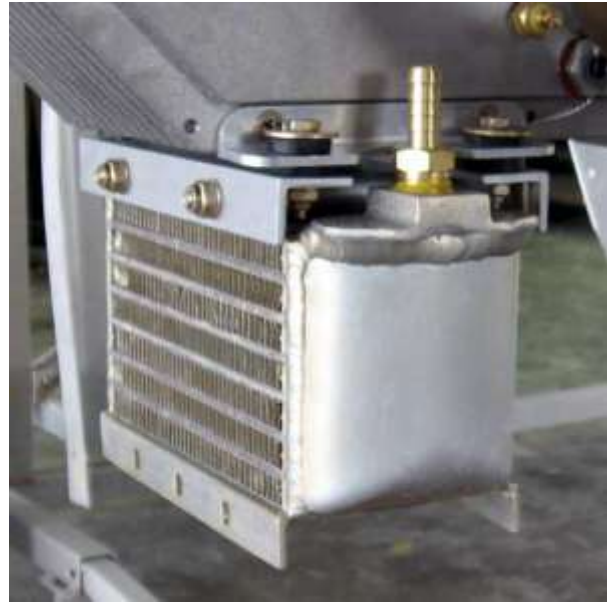### Mount the cooler

Hold the sump rails against the sides of the fin under the sump as shown above left and drill 2 x 3/16" holes through the rail and through 2 fins – note that the second fin hole is to accommodate the free length of the screw. Fit a rubber grommet to each of the 4 large holes in each sump rail and fit each sump rail into place – feed each countersunk screw though until the nut can be fitted between the first and second fins then hold the nut and tighten firmly.

Fit the aluminium spacer tubes to the top of the oil cooler as shown arrowed above right, aligning the tubes with the ¼" holes in the cooler and making sure that the AN4-42A bolts can pass through freely. The tubes will be a firm fit in between the mounting lugs on the cooler and they will be held in place by the AN4-42A mounting bolts.

Fit the lateral rails loosely to the sump rails with AN3-10A bolts, washers and Nyloc nuts, then fit the cooler up to the lateral rails and fit the AN4-42A bolts through from the rear and secure with Nyloc nuts. Tighten the ¼" bolts first and then tighten the bolts that pass through the rubber mounts. At this point the cooler should be mounted firmly to the sump while being protected from vibration by the rubber mounts. Re-check all nuts for tightness. Refer to the drawing on the next page for detail.

PARTS LIST

ITEM	PART NUMBER	DESCRIPTION	ITEM QTY
1	PVV0084N-1	POSITECH OIL COOLER MOUNT TOP 3300	4
2	960409X-13		1
3	4A275C0D-4	POSITECH OIL COOLER MOUNT BOTTOM 3300	2
4	4A275B0D-3	OIL COOLER 3300 HD	2
5	PH4A017N-1	OIL COOLER 3300 HD	1
6	4A275D0N	5/16 BUNDY TUBE SPACER 10MM LONG	4
7	AN970-3	3/16" PENNY WASHER	4
8	AN3-10A	BOLT	4
9	AN960-10	3/16" FLAT WASHER	12
10	MS21045-1032	3/16" HIGH-TEMP LOCK NUT	10
11	AN3-40A	3/16" BOLT	2
12	MS24693S-276	3/16" COUNTERSUNK SCREW	4
13	4A275E0D-3	POSITECH OIL COOLER AL TUBE SPACER 87.5 LONG	2

DRILL THROUGH TO FINS
SO BOLT THREADS WONT
BOTTOM.

NUT GOES BETWEEN
FIRST AND SECOND FINS
FROM OUTSIDE

DETAIL VIEW B (3 : 4)
INSTALLATION TO SUMP

DETAIL VIEW A (3 : 4)
RUBBER MOUNT INSTALLATION

RUBBER MOUNTS
AS INSTALLED

POSITECH OIL COOLER MOUNT ASSY 3300 4A275A0D-2

AVTECH P/L
A.C.N. 010 786 973
HINKLER AIRPORT
BUNDABERG 4670

Fit the oil lines

Fit the 2 brass male fittings to the inlet and outlet of the cooler as shown above– apply a smear of pipe sealing compound to the threads and tighten firmly into the cooler. Do **not** over tighten, as the brass threads can strip if excess pressure is applied.

Remove the spin-on oil filter and fit the adaptor (circled above left) under it with the O-ring side towards the engine block. Apply a smear of clean engine oil to the O-rings on the adaptor and the oil filter, refit the oil filter and tighten gently until resistance is felt as the seal first contacts the housing and then tighten exactly one full turn from that point.

Absolute cleanliness is required here: there must be no dirt or contaminants anywhere near the oil filter or adaptor fitting area.
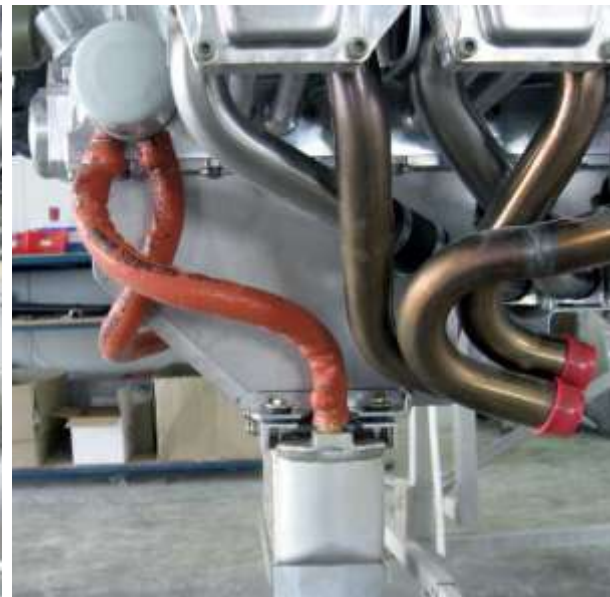
Size the blue oil line by holding one end beside the fitting on the right-hand side of the oil cooler and cutting to length to fit the rear adaptor fitting as shown above right.

Repeat the process for the other side of the oil cooler to the front adaptor fitting and then cut 2 lengths of fireproof sleeve to the same length as the oil lines and fit them over the oil lines.

The fireproof sleeve can be difficult to fit, but blowing compressed air into the gap between the oil line and the sleeve while pulling the sleeve over the oil line works rather well.

Roll the last inch or so of the fireproof sleeve back on each end and fit each oil line into place, securing with the supplied hose clamp and cutting off the excess hose clamp screw. Now roll the fireproof sleeve over the hose clamp and lock wire into place as shown top right, using a double loop and twisting off. This provides fireproofing to the full length of the oil lines.

Completed oil line arrangement between the adaptor and the oil cooler

The completed oil line arrangement is shown above.

Fit the oil cooler duct to the front of the oil cooler as shown at right, using 2 x self-tapping screws at the top and 2 x 4mm screws and Nyloc nuts at the bottom.

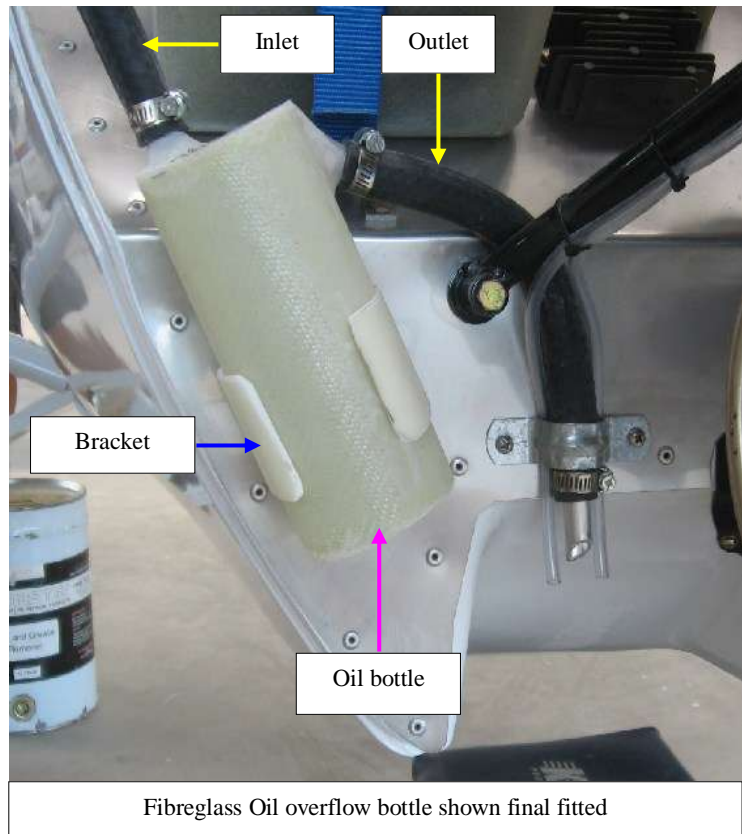Take care to place the flap section of the duct (arrowed) at the top.

Oil overflow bottle

Fibreglass moulded oil bottle mounting.

The oil overflow bottle, as shown in the photo on the right, fits into a fibreglass bracket that is mounted on the lower right side of the firewall.

Position the oil bottle with the bracket fitted so that the inlet line from the engine oil filler will curve smoothly down to the top fitting in the oil bottle without rubbing against the inside of the cowl, and so that the outlet from the oil bottle can be routed over the lower engine mount as shown in the photo at right.

Mark the position of the bracket, then remove the oil bottle from the bracket and drill 2 x 5/32" holes in the flat back part of the bracket.

Place the bracket on the marks and drill through the firewall and fit the bracket with 2 x 5/32" rivets with plain washers behind.

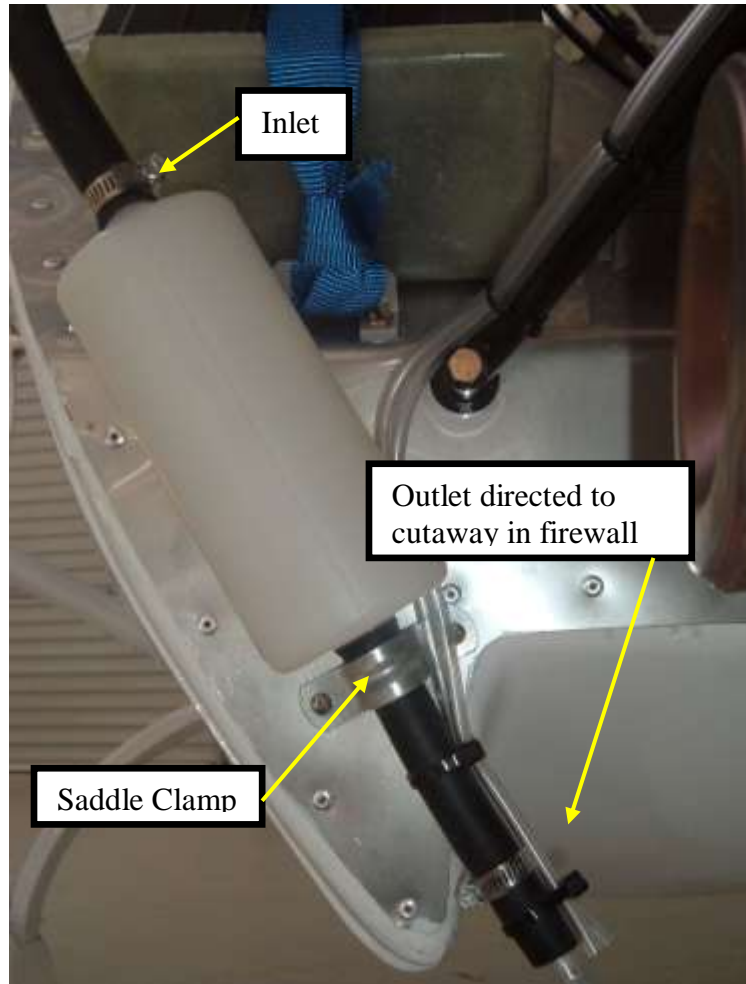Fibreglass Oil overflow bottle shown final fitted

Remove the oil bottle and set aside for later fitting in the *Post-Paint>Fuselage>Firewall forward>Final assembly* task.

Plastic moulded oil bottle mounting.

The oil overflow bottle, plastic moulded type, as shown in the photo on the right, is mounted to the firewall with a saddle clamp on the lower outlet, on the lower right side of the firewall. The outlet is identified by an aluminium tube inserted in the connection stub, and is the larger diameter of the 2 connecting stubs.

Position the oil bottle so that the inlet line from the engine oil filler will curve smoothly down to the top fitting in the oil bottle without rubbing against the inside of the cowl, and so that the outlet at the bottom can be routed into the cutaway in the firewall as shown in the photo at right.

Place the saddle over the lower oil bottle outlet and mark the position to drill through the firewall to fit the saddle clamp with 2 self tapping screws 6G x 1/2" long.

Plastic moulded oil bottle

Remove the oil bottle and set aside for later fitting in the *Post-Paint>Fuselage>Firewall forward>Final assembly* task.

This completes the *Pre-Paint>Fuselage>Firewall forward>Fit oil cooler* task.