

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.

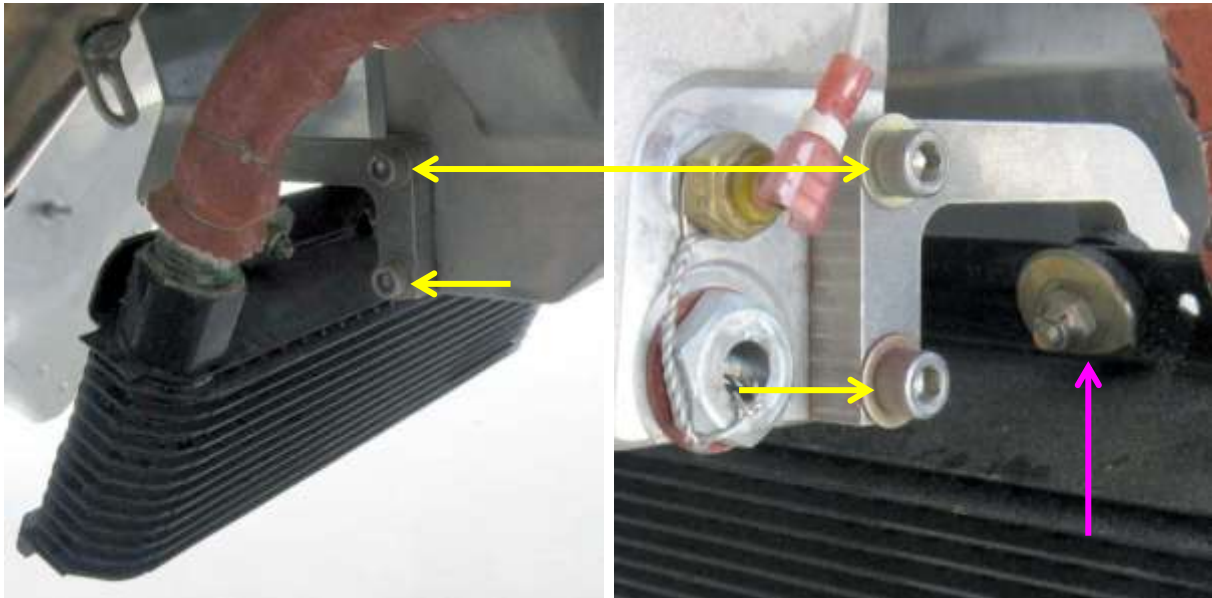
Fireproof sleeving will be used to protect the oil lines.

Materials required:

Card # J24 'Oil Cooler Kit'

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

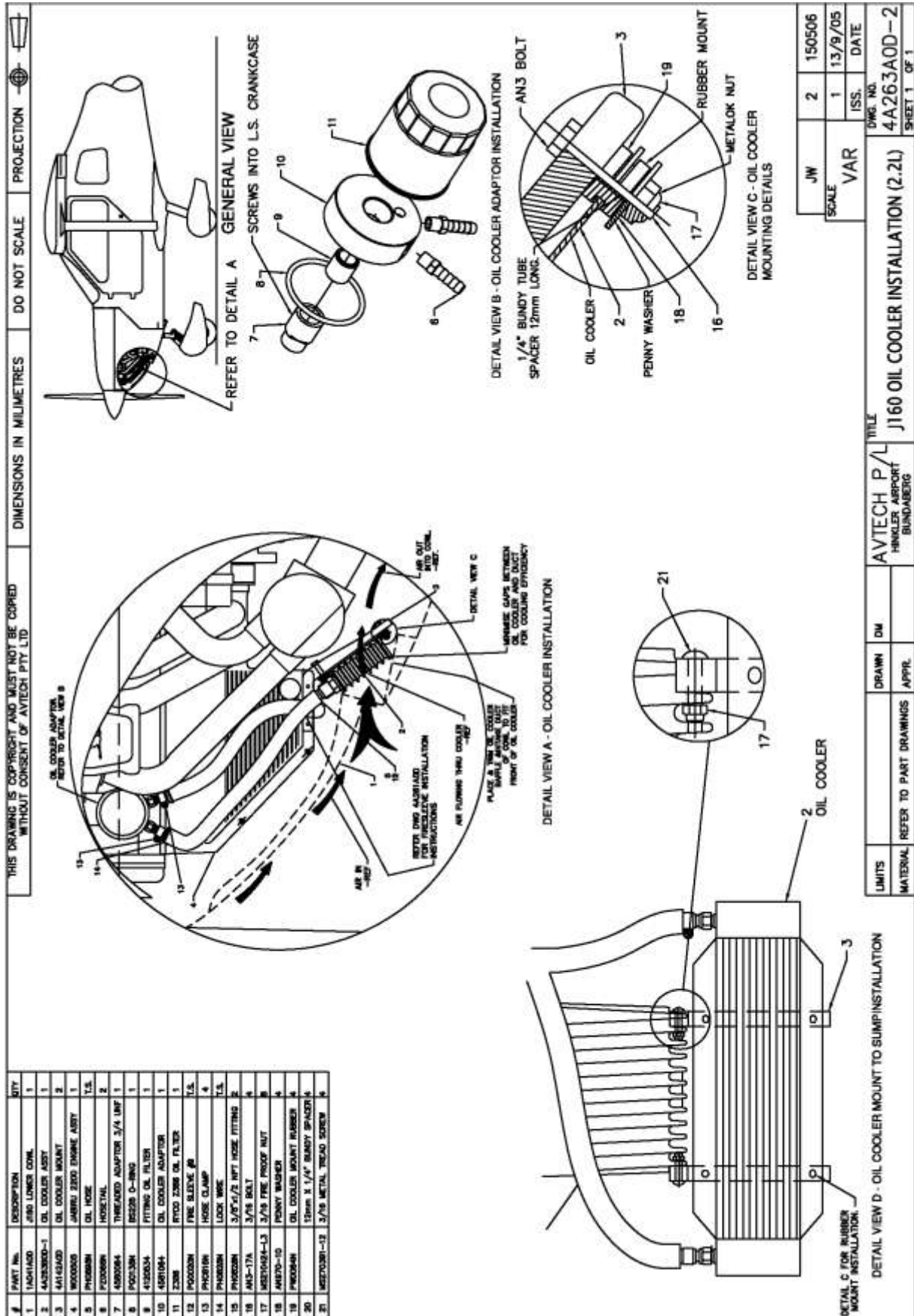
Mount the oil cooler



Mount the rails to the sump: fit the 3/16" **cap screws** through a flat washer and the rail and into the threaded holes in the sump and tighten. Drill each of the 4 large holes in the cooler out to 9/16" and fit a rubber grommet, then fit a Bundy tube in the bolt hole and mount the cooler to the rails using AN3 bolts fitted from the rear and steel lock nuts with a penny washer under each lock nut as shown above. Note that the penny washer will need one side **cut away**.



Refer to the drawing on the next page for detail.



Fit the oil lines

Fit the 2 brass male barb fittings to the inlet and outlet of the cooler - apply a smear of pipe sealing compound to the threads and tighten each fitting firmly into the cooler. Take care **not** to over tighten these fittings, as the brass threads will strip if excess pressure is applied.

Remove the spin-on oil filter and fit the adaptor (circled at right) 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 lines 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. Allow for a smooth routing.

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 as shown above left and fit each oil line into place, securing each end with the supplied hose clamp and cutting off the excess length of the hose clamp screw.

Now roll the fireproof sleeve over the hose clamp and lock wire into place as shown in the photo above right, using a double loop and twisting off.

This provides fireproofing to the full length of each oil line.

The completed oil line arrangement is shown on the next page.



Completed oil line arrangement between the adaptor and the oil cooler

Oil overflow bottle

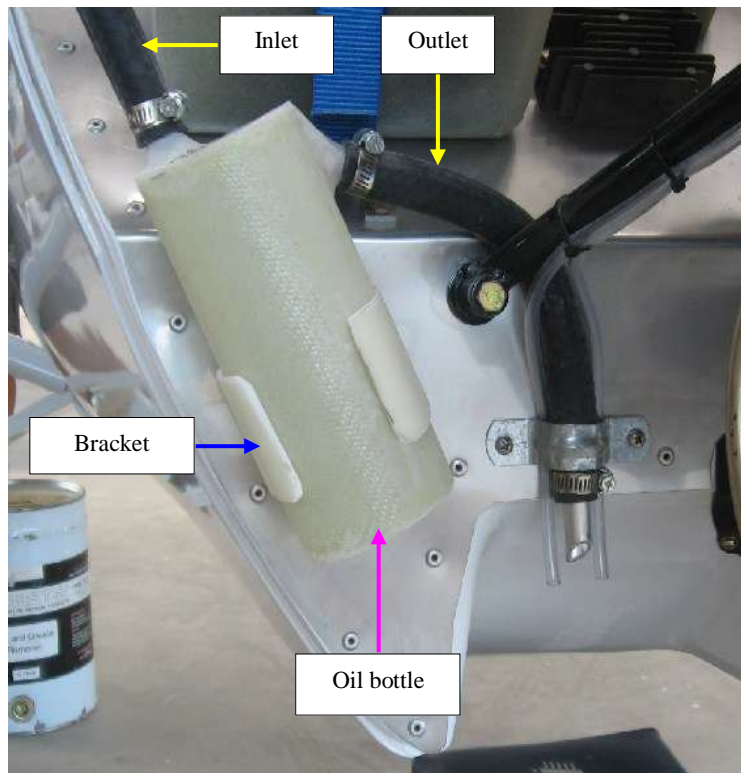
Fibreglass moulded oil bottle mounting.

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

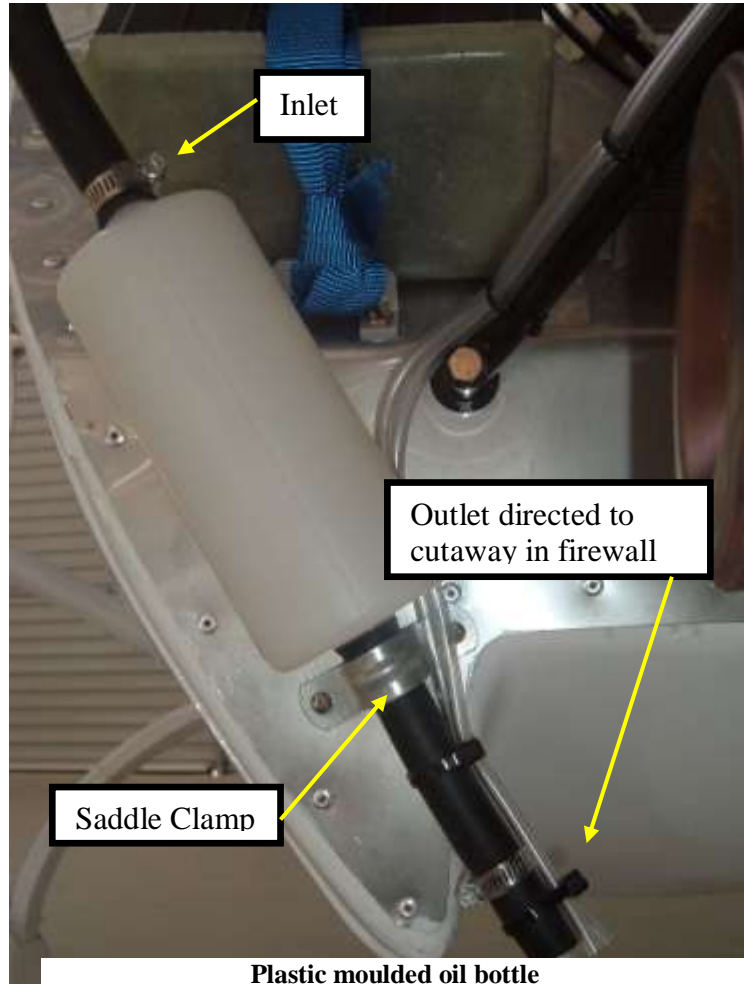
Remove the oil bottle and set aside for later fitting in the *Post-Paint>Fuselage>Firewall forward>Final assembly* task.

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.



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.