

21T. Nose gear mounting frame - trigear

The nose gear mounting frame is of welded tubular steel construction and is bolted to the cockpit module, which has reinforcement plates moulded into it, with eight AN3 bolts. At the rear of the frame is a large tube around which the nose gear suspension bungee and safety strap go, and at the front are four short tubes with which to attach the engine mounting. You will notice that the four engine mounting attachment tubes are not square with the rest of the frame. This is intentional.

Step 1

Preparation for attachment

A portion of the firewall has to be removed to allow the nose gear mounting frame to fit the cockpit module's central tunnel. See figure 1.

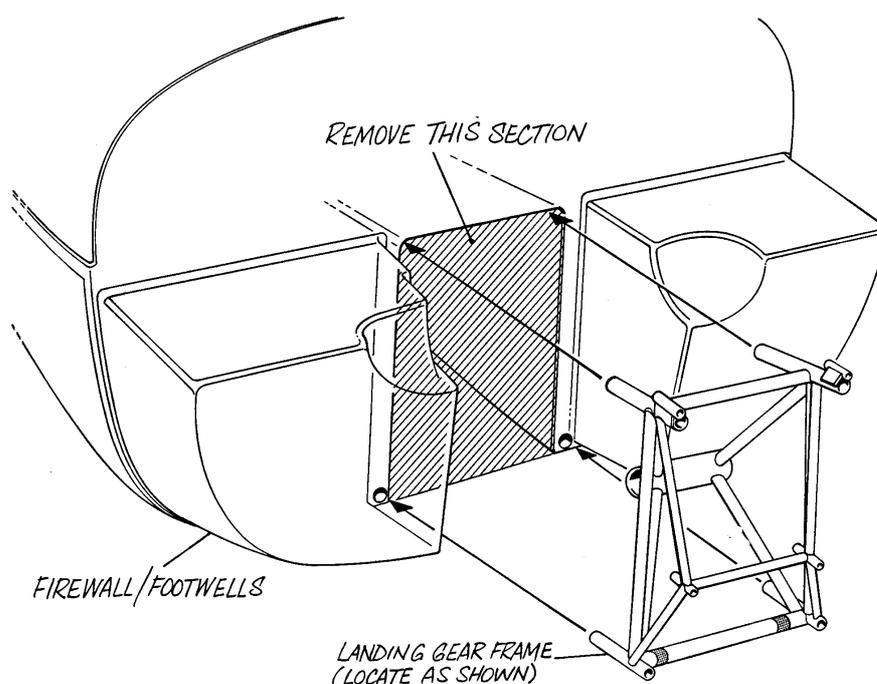


Fig 1. Nose gear mounting frame and firewall.

Cut the firewall between the foot-wells to reveal the wheel well and trim the edges back to finish flush with the central tunnel. Sand a radius of at least 7 mm (1/4") on the cut edges of the firewall for glassfibre tapes to go round easily. Be careful to start cutting smaller than the central tunnel opening. You will need to cut a slot into the fuselage floor to allow the nose gear clearance. See figure 2 for dimensions.

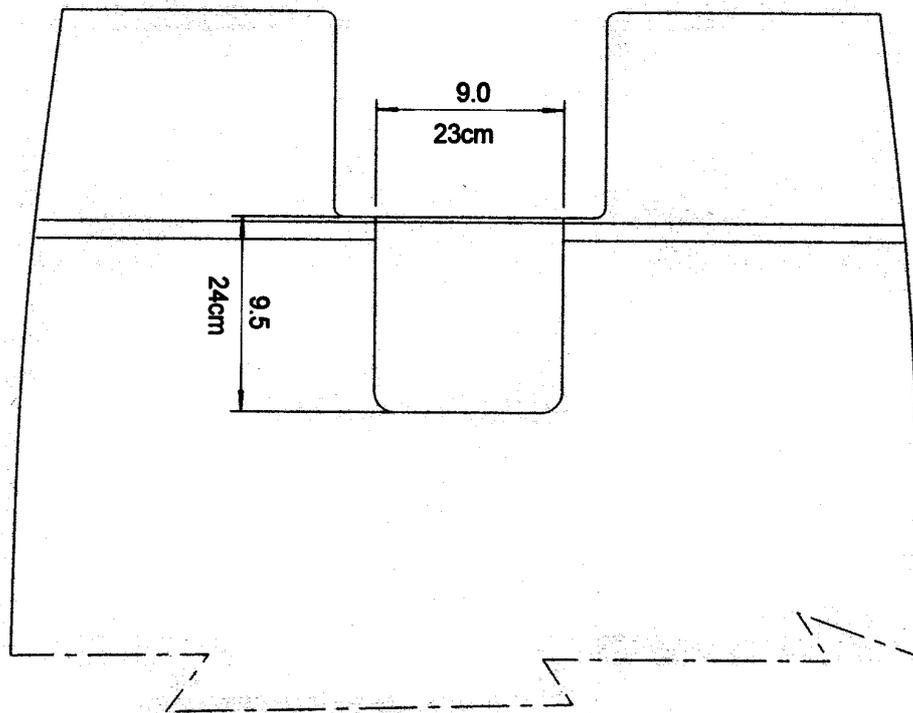


Fig 2. Lower fuselage cutout.

Drill and file holes through the firewall to allow the lower two nose gear mount attachment tubes through into the cockpit. The upper two tubes slide inside the central tunnel and should fit snugly in the inside radii. If difficulty is experienced in obtaining a good fit with the upper tubes, due to excess resin on this unmoulded side, remove material as required from the inner radii. All four tubes should be able to be pushed into place and be fairly snug in their respective radii.

The correct location for the frame is when the top and side tubes which are in the vertical plane are within 1.5 to 3 mm (1/16" - 1/8") of the firewall vertical plane.

Step 2

With the frame removed, scuff sand the bonding areas and, filling any gaps with floc first, lay-up 75 mm (3") wide tapes of 3 plies of 'bid' at +/- 45° around from the firewall and the fuselage underside onto the inside of the central tunnel of the cockpit module. However, remain clear of the upper corners where the landing gear mounting frame will go. Peel ply the edges and allow to cure.

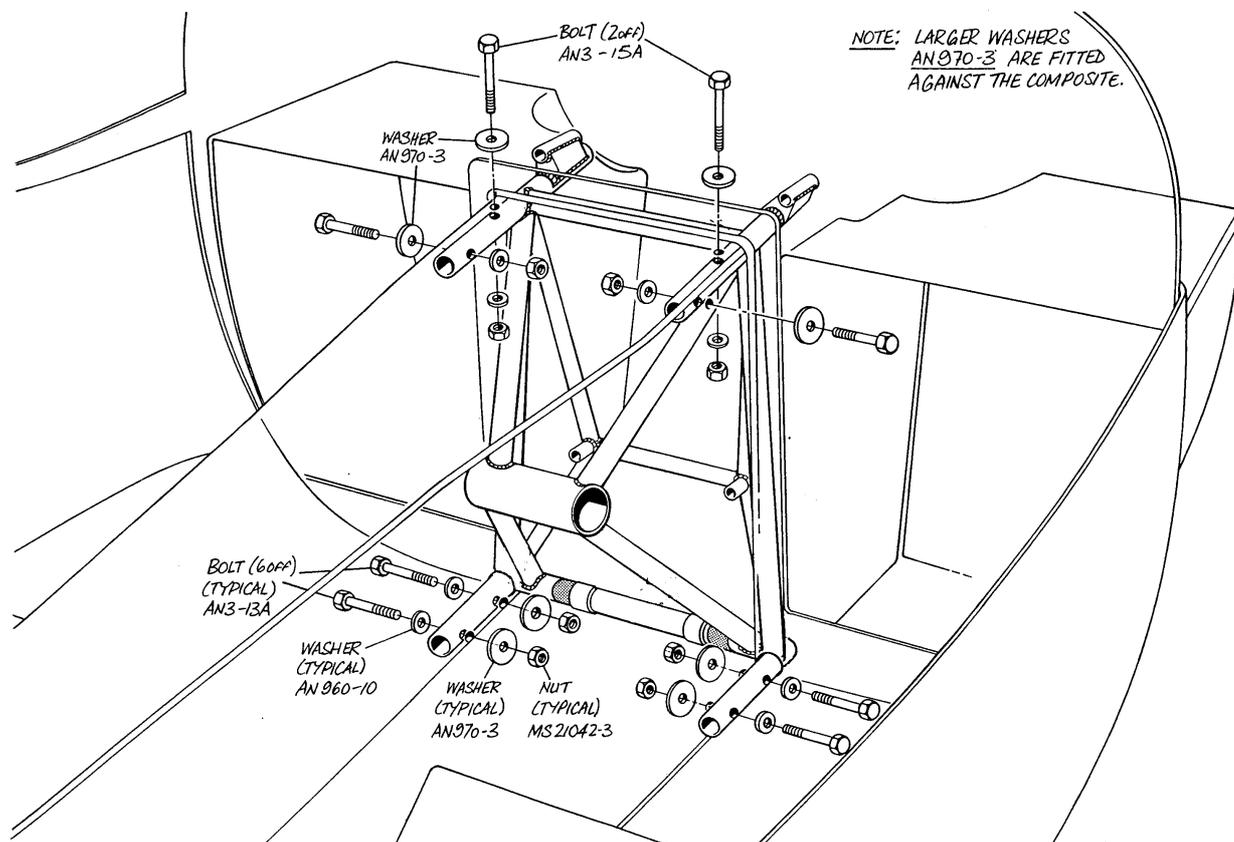
Installation

The mounting frame will more than likely jam in position and require tapping to remove it. This will be useful when drilling the attachment holes through the cockpit module but check regularly that nothing moves whilst doing the following work.

Step 3

Drilling attachment bolt holes

Refer to figure 3 and note the orientations of the bolts.



Mark out, centre punch and drill the attachment tubes according to figure 4 with a 4.8 mm drill.

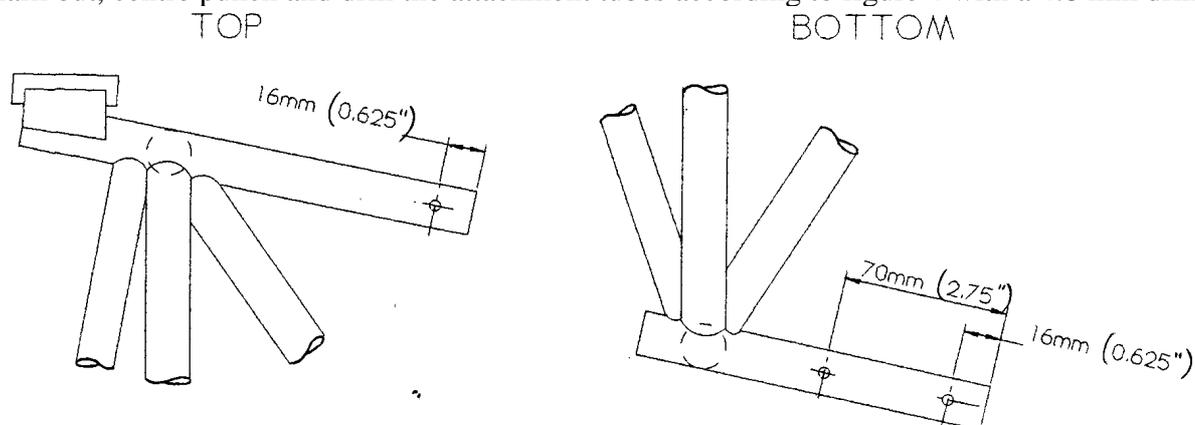


Fig 4. Horizontal hole positions in nose gear frame.



Push the mounting frame almost into place, but leave enough of the top attachment tubes visible when viewed from above to sight along them. Mark the tubes' centre lines onto the top of the central tunnel as accurately as you can. Measure back 25 mm from the cockpit module's forward flange and mark a line parallel to the firewall crossing your centre line.

Push the mounting frame back in position and check that it won't move; then using an angle drill, drill through the horizontal holes in the top attachment tubes into the cockpit module, placing an AN3-13A bolt through each hole before drilling the next hole.

Next drill the four horizontal holes in the bottom attachment tubes before finally drilling through the top of the central tunnel and through into the frame's upper tubes for the two vertical bolts. An extra pair of eyes sighting the drill from the side is desirable.

The nose gear mounting frame is now ready for final installation, however, before bolting it in place, remove it first and clean away any swarf caused by drilling.

Step 4

Final installation

Reinstall the nose gear frame into the fuselage with its fastening bolts loosely in place, then trowel an Araldite 420/flox mixture between the attachment tubes and the cockpit module to provide a pad to prevent distortion upon tightening the bolts. It is not intended that the frame should be bonded in place.

Allow the Araldite 420 to *cure fully* then tighten the bolts

Lastly, block off the ends of the lower fixing tubes with silicon or other suitable material to prevent gases passing through into the cockpit.