

21M. Landing gear mounting frame - mono

The landing 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 3/16" bolts. At the rear of the frame is a pivot for the landing gear retraction mechanism's operating arms 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 landing gear mounting frame to fit the cockpit module's wheel well. See figure 1.

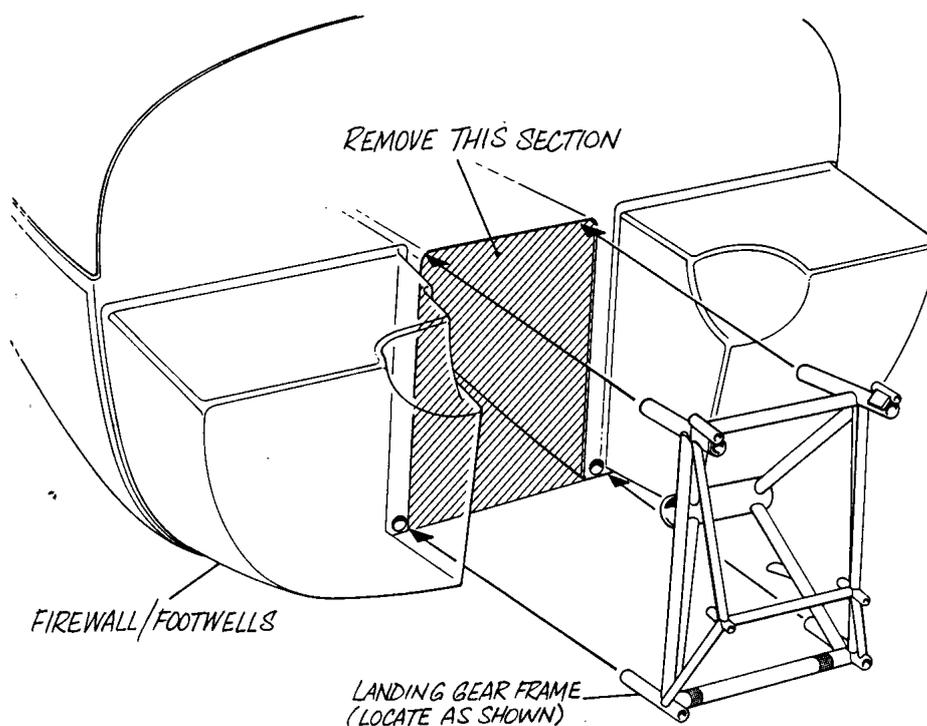


Fig 1. Landing gear mounting frame and firewall.

Cut the firewall between the foot-wells to reveal the wheel well and trim the edges back to finish flush with the wheel well. 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 wheel well opening. Cut also the floor of the fuselage away for the landing gear, the width being as wide as the sides of the cockpit module's wheel well and the length being 79 cm (31") back from the front of the firewall. Trim the floor back flush with the thigh support ribs which are set outboard slightly.



Drill and file holes through the firewall to allow the lower two landing gear mount attachment tubes through into the cockpit. The upper two tubes slide inside the wheel well's 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 un moulded 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. Ensure that there is a gap between the top tube and the fuselage structure of at least 5mm (3/16") for the rubber bungee, which assists landing gear retraction, to squeeze through.

To ensure that the frame is in the correct position it may be advisable to temporarily attach the landing gear swinging arm (LG02 with LG03 bearings), push it up to be parallel to the fuselage underside and check that it is parallel with the wheel well sides. Refer to Chapter 29M.

Step 2

With the frame removed, scuff sand the bonding areas and, filling any gaps with flox first, layup 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 wheel well 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.

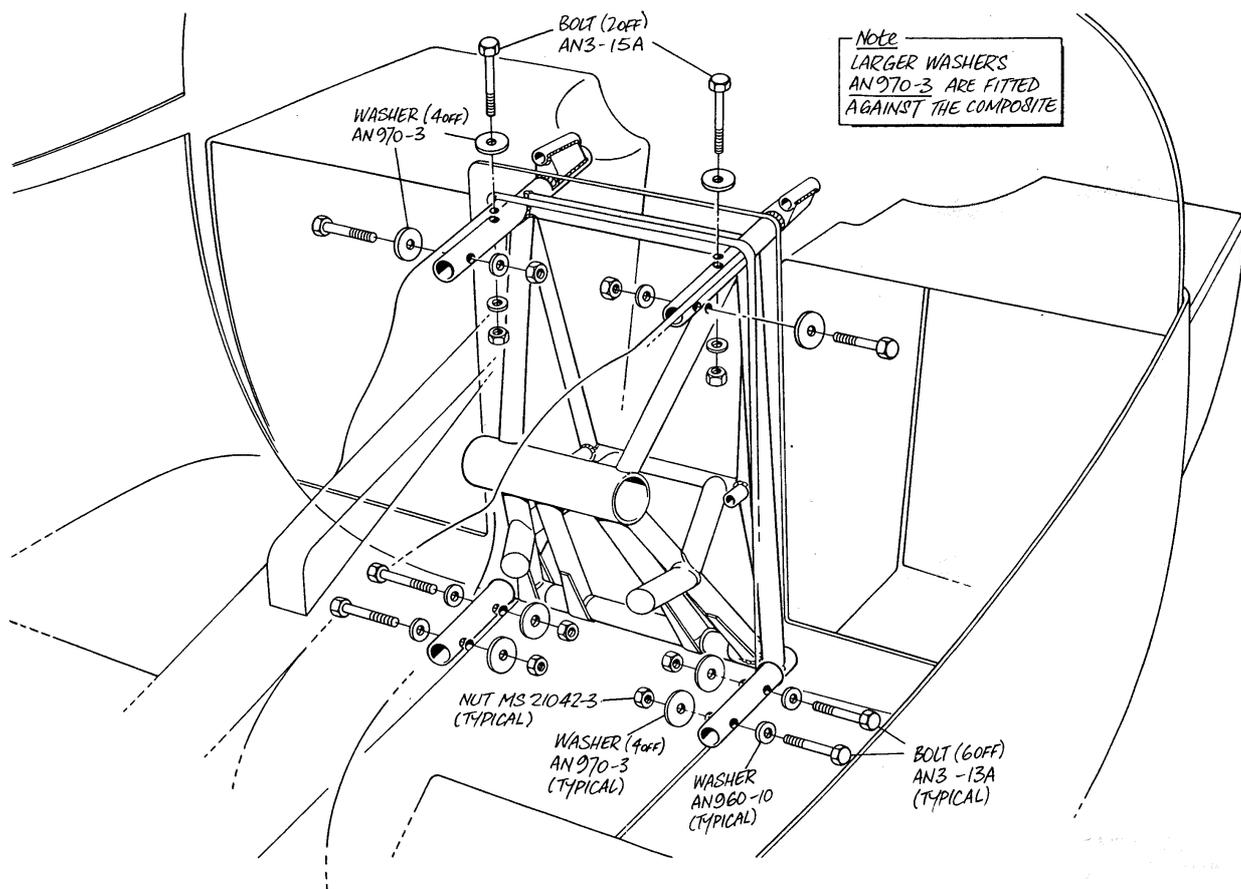
Installation

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.

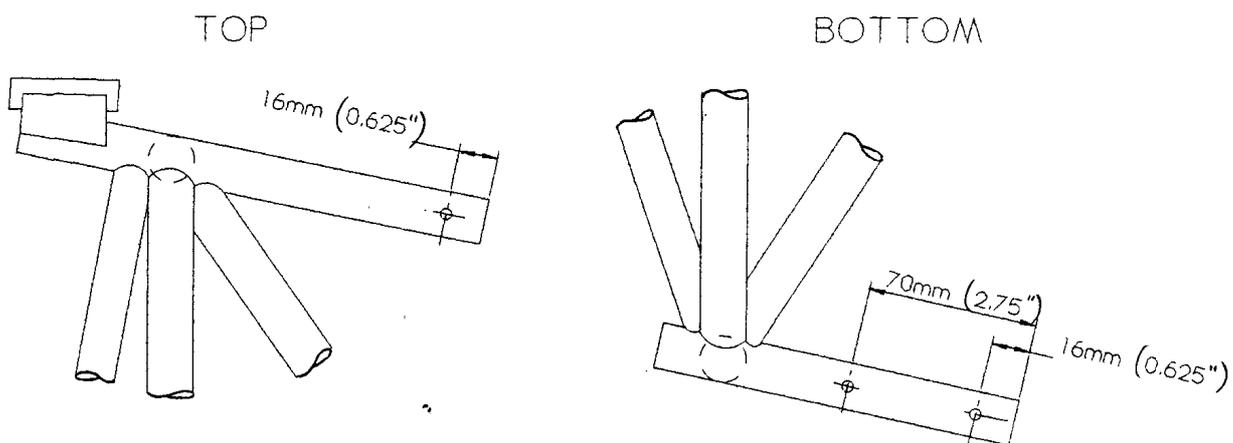
Step 3

Drilling attachment bolt holes

Refer to figure 2 and note the orientations of the bolts.



Mark out, centre punch and drill the attachment tubes according to figure 3 with a 4.8 mm drill.





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 wheel well 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 landing gear 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 wheel well 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 landing gear mounting frame is now ready for final installation, however, before bolting it in place, bushes LG 01A are to be installed for the shaft LG09, onto which are pinned the landing gear retraction arms LG08.

Step 4

Retraction shaft bush installation

Remove the frame and clean away any swarf caused by drilling. Clean both bushes LG01A and the bore of the large diameter tube on the frame with solvent. Slide the shaft LG09 into the frame's large diameter tube and put a bush LG01A onto each end.

Coating the bushes with Loctite 638 first, slide the bushes into the frame's tube until they are flush with the ends. Make sure the shaft is still free to rotate and add grease liberally.

Step 5

Retraction arm installation

The lugs of LG08s' fork end require the installation of bushes. Cut the 32 mm (1-1/4") long AIC 060820 bush into four pieces 6 mm (1/4") long and insert them into the forks with Loctite 638.

Slide the LG08 retraction arms onto the shaft LG09, oriented with the offset tongue outboard and the scallop in the web clearing the frame when the arm is against its stop. Allowing a slight clearance between the LG08 arms and the frame's tube, make sure that the shaft is central. See figure 4.

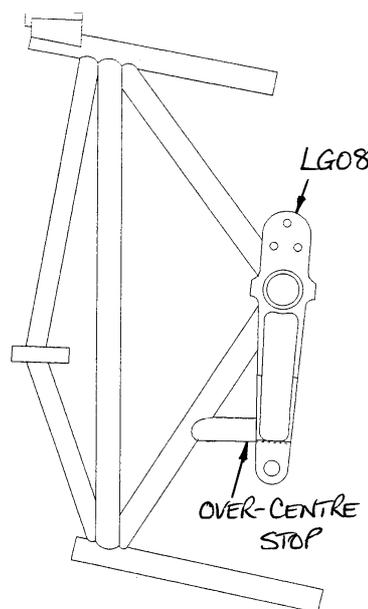


Fig 4. LG08 in position on landing gear mounting frame.



Holding everything in this position, drill through the 4.8 mm pilot hole in the *starboard LG08* and one side of the shaft with a 4.8 mm drill. Install an AN3 bolt to maintain alignment and then drill through the other side. Next drill right through with a 6 mm drill then install the 6 mm diameter roll pin.

Do a similar process with the port LG08 making sure that both arms contact the over-centre stops of the frame simultaneously, but this time fit a temporary 6 mm bolt (M6 X 60 with M6 nut) in place of the roll pin. This enables the removal of the port side LG08 making the installation of the landing gear retraction lever easy.

Step 6

Final Installation

Reinstall the landing gear frame into the fuselage with its fastening bolts loosely in place, then trowel a 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.



INTENTIONALLY BLANK