

**PROCEDURE 4.050**  
**FABRICATE AND INSTALL LOWER ENGINE MOUNT GUSSETS**

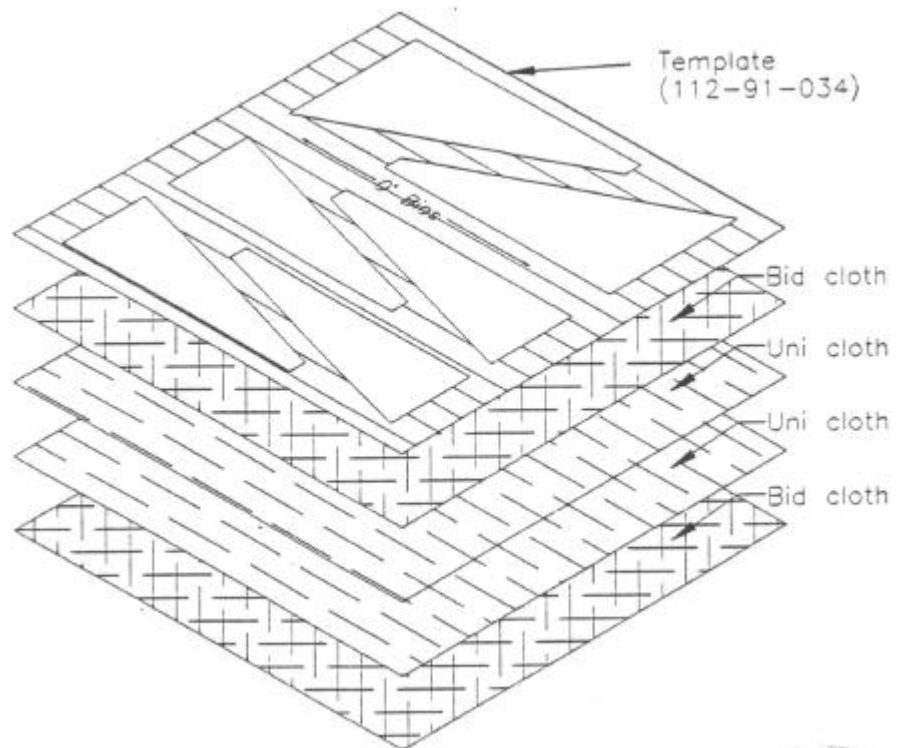
**In this procedure...**

The lower engine mount gussets will be fabricated and installed in the lower fuselage.

<u>Part No.</u>	<u>Qty</u>	<u>Description</u>
112-91-034	1	Template, Engine Mount Gusset

**Step 1 Sandwich BID and UNI cloth to make gussets.**

The Engine Mount Gussets Template (112-91-034) is included to establish the UNI cloth's proper alignment of 0° bias. Lay the UNI cloth on a flat cutting surface. Put the template over the UNI cloth. Cut out the UNI cloth "wings". The large "wings" go between the Center Engine Mount and the 4" tall gussets. The smaller "wings" go between the paired gussets, which are placed into the lower and upper fuselage corners. Cut the 12" x 24" UNI cloth material into two 12" squares.



On a 3-mil plastic sheet, lay up a 12" square sandwich consisting of the following:

- 1 - 12" x 12" bid cloth at 45°
- 2 - 12" x 12" UNI cloth (note that both align 0°)
- 1 - 12" x 12" bid cloth at 45°.

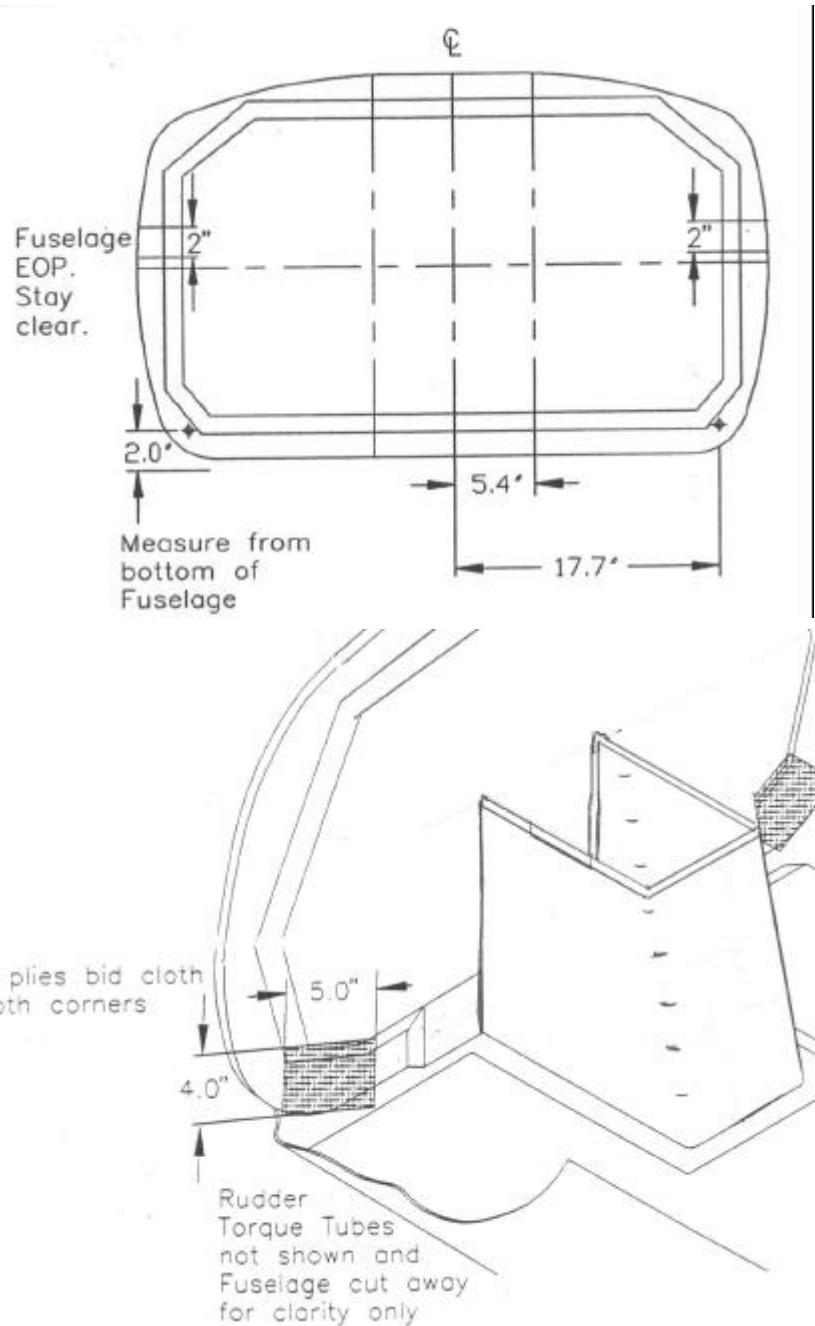
After the lamination has cured, using the spray adhesive, , glue the 12" x 12" section of the template to the sandwich lining up the 0° bias reference marks of each. Cut out the parts with a saw then peel off the template.

### Step 2. Install gussets pads.

Drill 1/8" pilots holes for the lower engine mount bolts, per the diagram to the right. Hold the engine mount up to the forward face of the firewall and mark the location of the 4 AN5 bolts in the center lower mount pads.

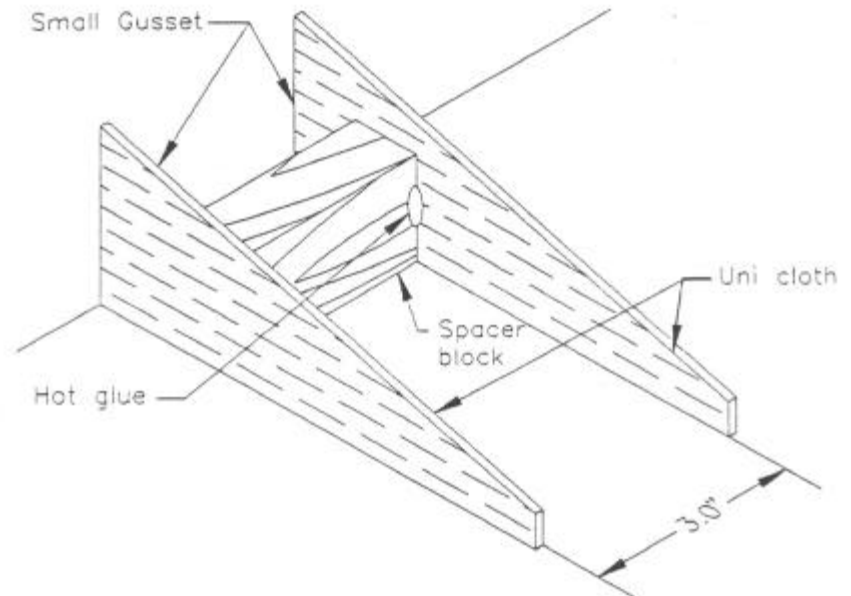
Make sure the large gussets are positioned so as to allow the installation of these bolts with large area washers installed.

Lay up eight plies of 4" x 5" pieces of bid cloth at a 45° bias in both lower corners, centered over the pilot hole, and following the curve of the firewall and fuselage.

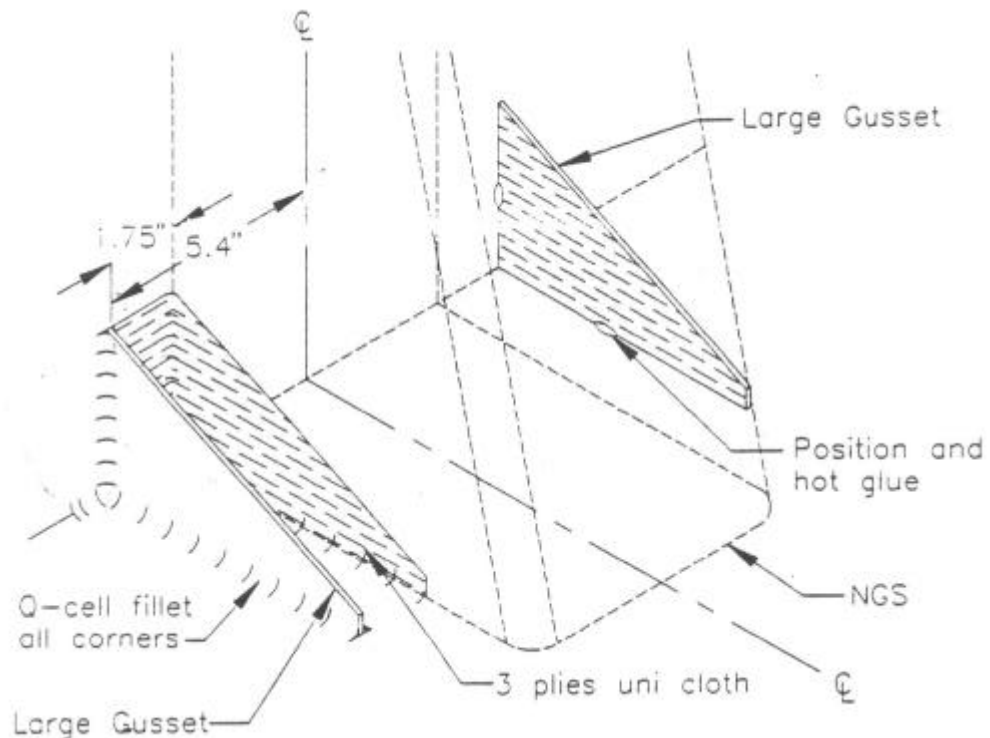


**Step 3. Install gusset sides**

To maintain proper alignment of the gussets when bonding in place, tack glue a three-inch long spacer with parallel ends between two pairs of small gussets. Center these engine mount gusset pairs over the 1/8" pilot holes, sanding the gussets as necessary to get the best fit, and to **AVOID INSTALLATION OVER ANY FOAM CORE**. Hot glue the gussets in place. Q-cell fillet the joints.

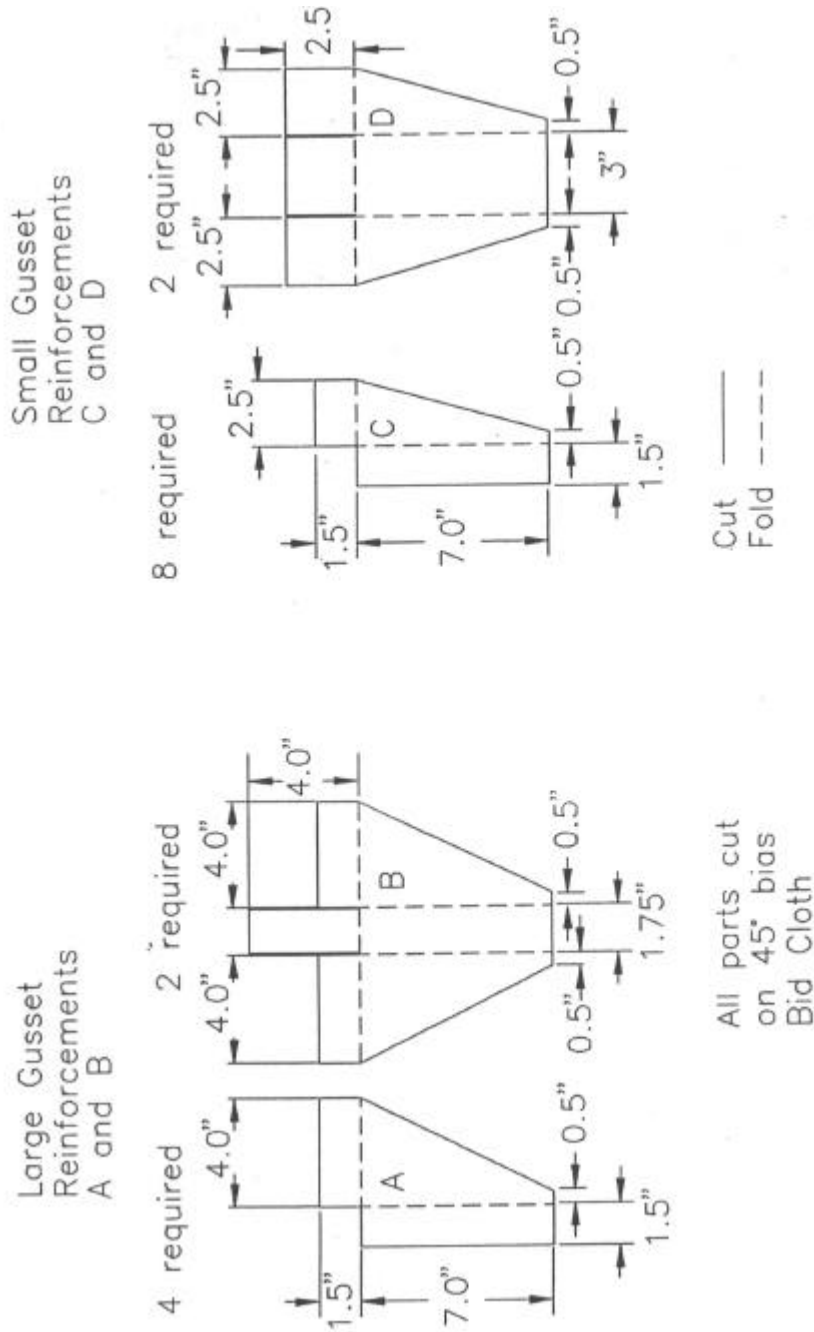
**Step 3 Position large gussets.**

Position each of the large gussets as shown below. Hot glue them in place. Q-cell the joints.



**Step 4. Cut cloth.**

Cut bid cloth according to diagram below.



Arrange the bid cloth cover material and the UNI wings in the following configurations:

Left Small Gusset - 2 ea. BID cloth (A style)  
 1 ea. BID cloth (B style)  
 3 ea. UNI cloth "wings" (Large Gusset Style)

Repeat for the Right Small Gusset.

Left Outboard Engine Mount Gusset - 4 ea. BID cloth (C style)  
 1 ea. BID cloth (D style)  
 3 ea. UNI cloth "wings" (Small Gusset Style).

Repeat for the Right Outboard Engine Mount gusset.

### Step 5 Laminate gussets.

Lay up the outboard side of the large gussets with two plies of bid per side. Lap 1.5" onto the fuselage. No additional bid is applied to the Center Firewall Support.

Lay up the outsides of the small gussets with 2 plies of bid per side. Lap 1.5" onto the fuselage.

The lay up procedure for the inboard sides of the gussets is the same for all gussets. Wet out on the bench all the BID and UNI cloth for a single gusset installation. Lay the three UNI cloth pieces inside the gusset walls. Cover with one ply of the BID as shown to the right.

