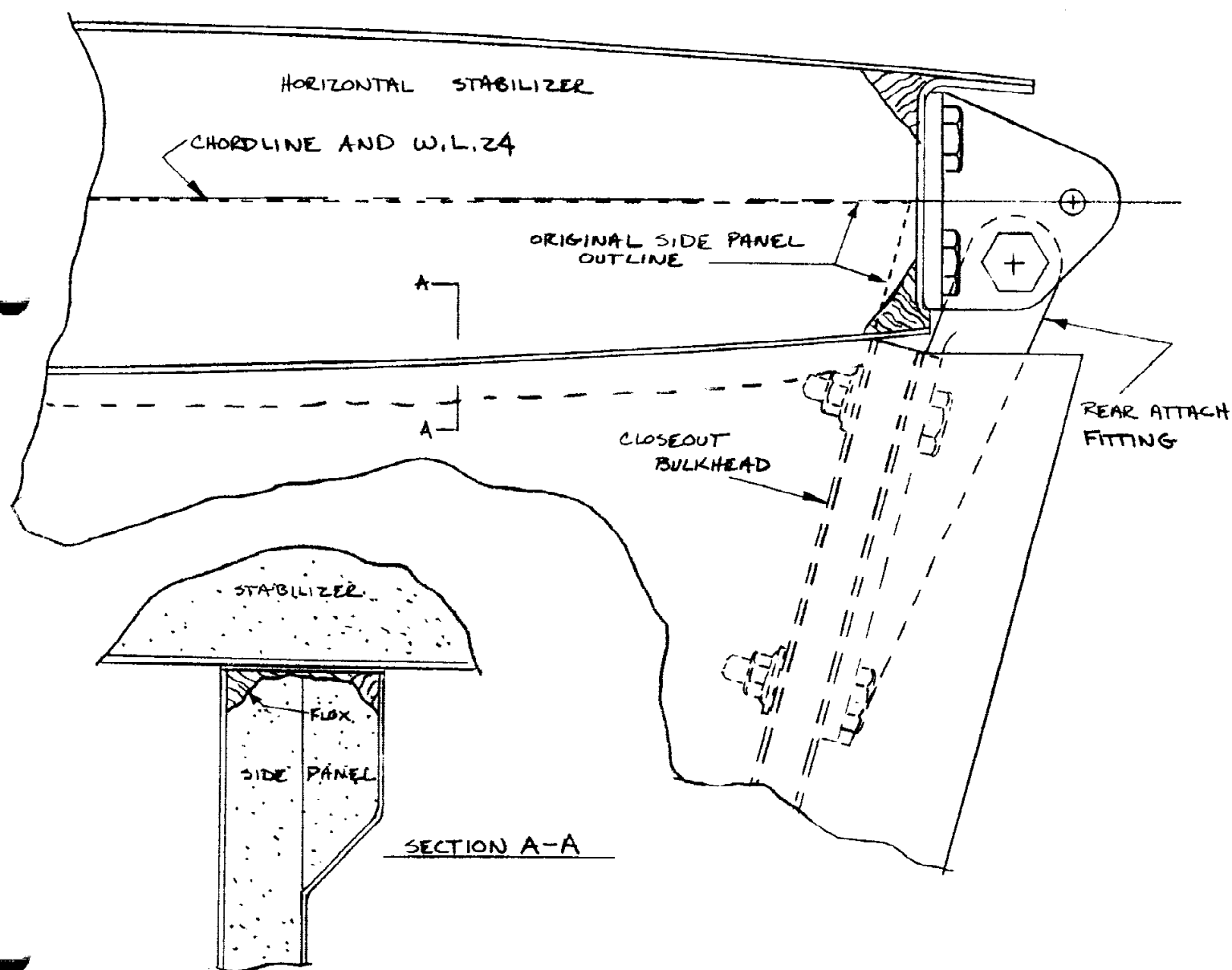
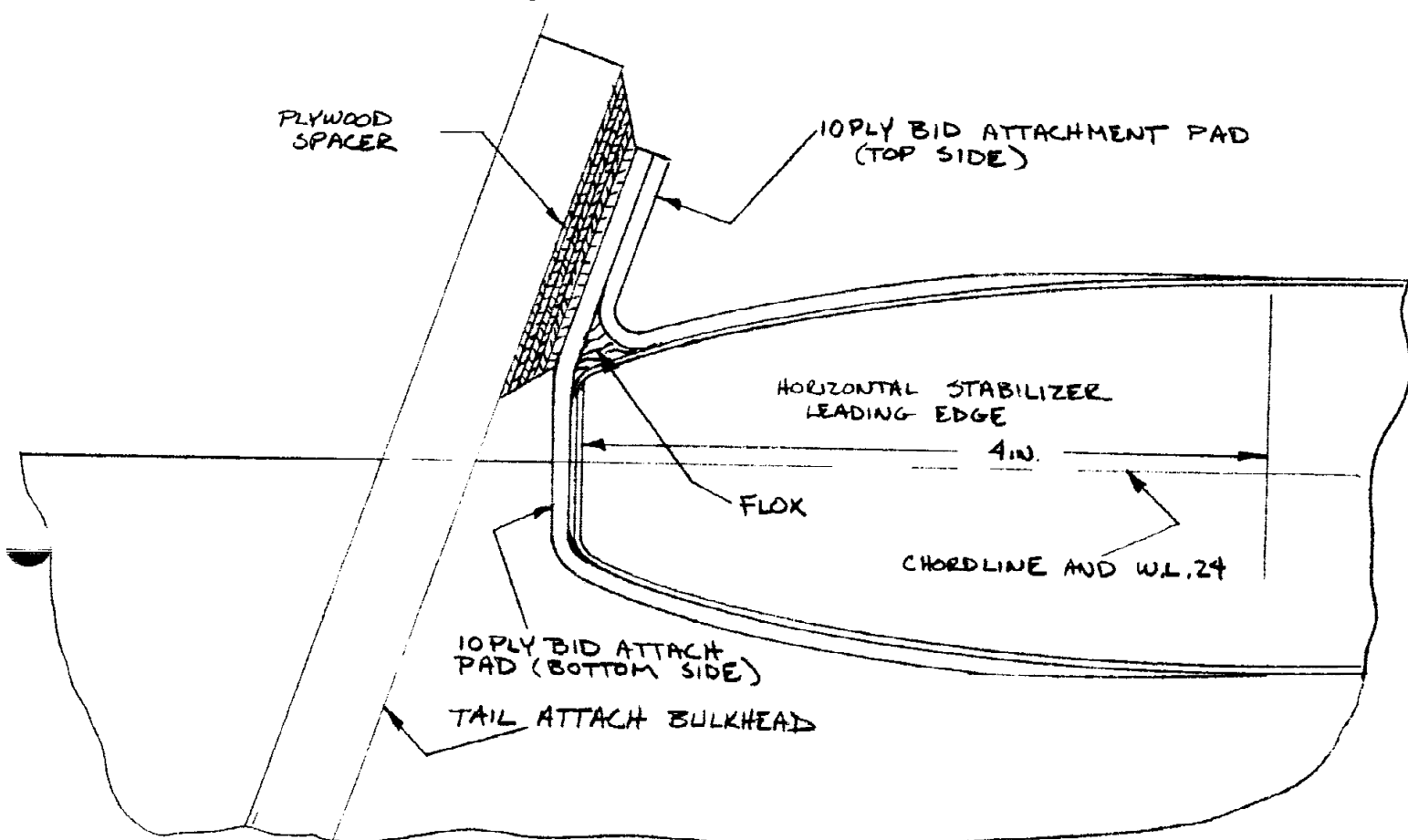


### Horizontal and Vertical Tail Attachment

Position your horizontal stabilizer on the top edges of the side panels aft of the tail attach bulkhead. Shim the fuselage so that the top edges (W.L. 24) are level in pitch and roll axes. Center the stabilizer up on the fuselage centerline (B.L.O.) and locate it forward and aft so that the aft edge of the bulkhead is directly below the rear spar trim on the stabilizer (see sketch) with the stabilizer chordline leveled. Use a trammel (or your scale) to transfer the stabilizer contour to the fuselage side. You should end up with the stabilizer chordline and the top fuselage edge (W.L. 24) over-laying each other. Cut the side panel away to fit the stabilizer. Handwork the edges as required for a good fit.

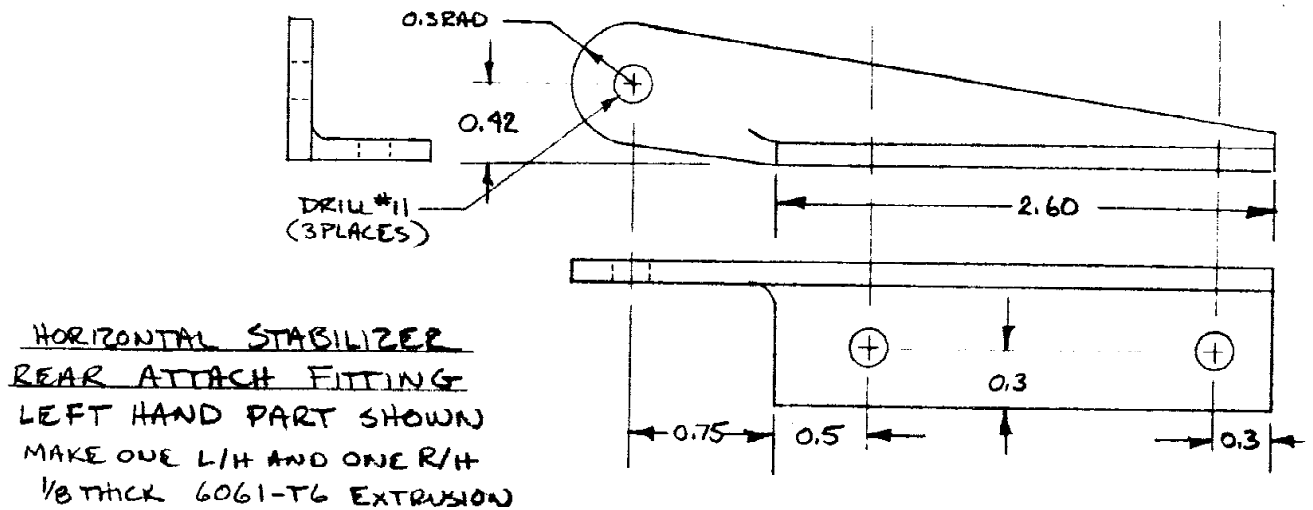


Once you have the horizontal stabilizer seated properly, trial fit the vertical stabilizer to the fuselage and horizontal. You may have to trim the base of the vertical (root rib) to clear the upper contour at the rear of the horizontal stab. You may also find it necessary to carve the top flange on the horizontal's rear spar down slightly to clear the forward face of the vertical stab's rear spar. Remove the vertical stabilizer and we'll focus on the leading edge of the horizontal stab.



While you have the horizontal stabilizer in position on the fuselage, fit a foam spacer between the tail attach bulkhead and the nose of the stabilizer. This foam block will need to be about  $2\frac{1}{2} \times 3\frac{1}{2}$  and about  $\frac{3}{8}$  thick. Remove the peel ply from the center of the stabilizer leading edge (top side and nose). 5 min/micro the foam block to the back of the center of the tail attach bulkhead so it doesn't shift around. Cut a four inch long x 1 inch wide piece of peel ply and the following glass cloth. 45° BID: 2 each 3 x 4, 2 each 4 x 4, and 1 each 5 x 4. 0-90° BID: 2 each 3 x 4, 2 each 3 1/2 x 4, and 1 each 4 1/2 x 4. Mix some epoxy, wipe a floc radius into the corner formed by the foam and stabilizer. Lay up the peel ply strip over the foam above the floc. Then starting with the longest first, lay up the 10 ply BID attachment pad. Don't bother knife trimming, the lay up is too thick. Cure, then remove the stabilizer from the fuselage. Trim the pad to a uniform 3 1/2 inch width. Remove the foam from the bulkhead and attach pad. Remove the peel ply from the pad and lower surface of the stabilizer. Sand the floc edge (below the peel ply) for bonding. Cut more glass material. 45° BID: 2 each 4 x 4, 4 each 5 x 4, and 4 each 6 x 4. Lay up the bottom attach pad similar to the top and cure.

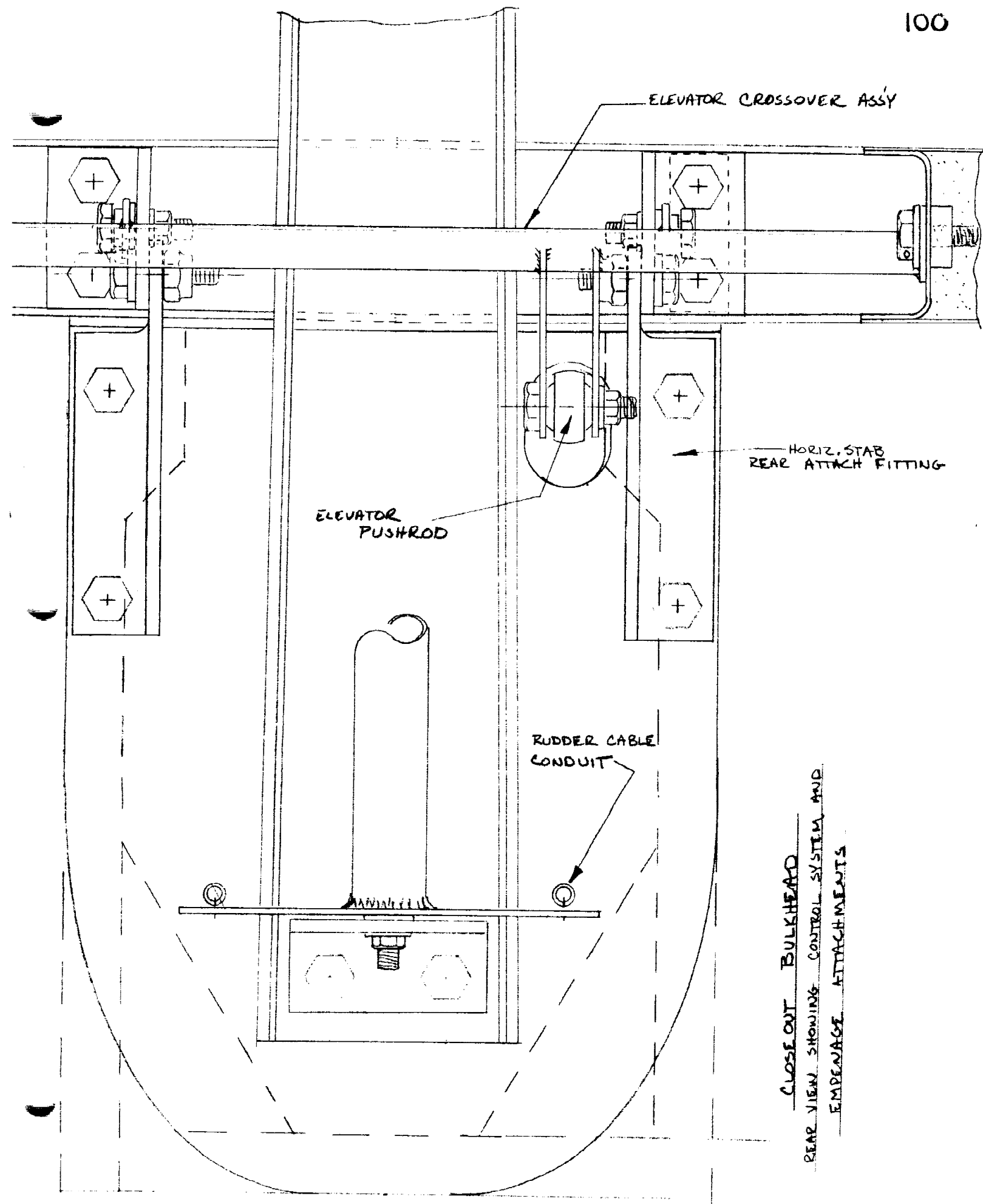
Make the two rear attach fittings shown below.



Prepare for twin floc corners along the length of the side panels aft of the tail attach bulkhead (see Section A-A back a page or so). Tape saran wrap over the horizontal stab's bottom surface where it mates to the fuselage sides. Trowel the floc corners full and fill any depressions in the side panel's top edge. Lay up a two ply 45° BID tape along the top edges. Seat the protected stabilizer on the fuselage, check fit the rear attach fittings, and allow the edges to cure.

Next, drill the four rear attach fitting mount holes through the closeout bulkhead. These holes end up coming out inside the side panel foam core. Use your rotary file (1/4 inch ball) to open two holes roughly 1/2 inch diameter in the outside skin adjoining the bulkhead which will allow access to install MS 21042-3 nuts and AN960-10 washers on each AN3-7A mounting bolt. On final assembly use an elcheapo ignition wrench (79¢ for a set of 10) to tighten the nuts, this will generally keep the hole required to a minimum size. Remove the attach fittings, brighten them, sand the bulkhead dull where they sit, and install them with floc on the mating surfaces. Install the attach mounting bolts and nuts, then fill the holes with floc. You may have to make a tape patch to cover the hole and keep the floc from drooling out and down the side of the airplane.

Go back up front to the leading edge attachment and make a good, close fitting marine plywood spacer to fill the gap between the tail attach bulkhead and the forward attach pads of the stabilizer. Bond the spacer to the bulkhead with 5 min/floc permanently. Slip the vertical stabilizer back into position on the fuselage. Check it to verify that it is standing up straight (eyeball at 10 ft) and that both front and rear spars are centered up on B.L.O. Carefully drill four #11 mounting bolt holes through the front spar and bulkhead. The front

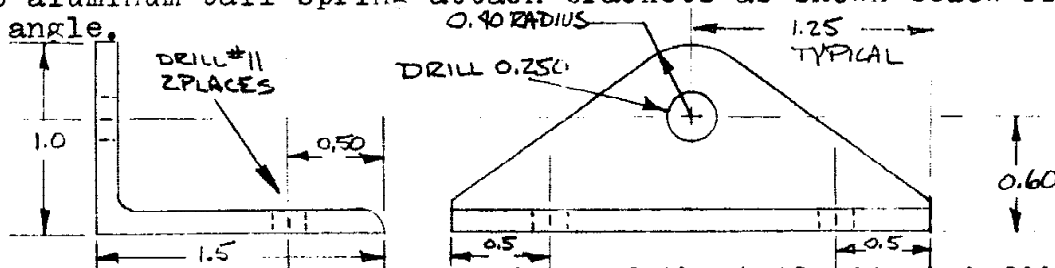


CLOSE OUT BULKHEAD  
REAR VIEW SHOWING CONTROL SYSTEM AND  
EMPEPAGE ATTACHMENTS

The front spar bolt holes should be centered up vertically in the bulkhead's plywood inserts and 1.1 inch either side of B.L.O. (centerline). The top mount bolt holes should be continued through the spacer and horizontal stab attach pad. Stick bolts in all four holes to maintain alignment and take your drill back to the rear end. Use the two bottom stabilizer hinge mounting holes as pilot holes and drill two #11 mounting holes through the closeout bulkhead. Add two more #11 mounting holes through the rear spar 1/2 inch below the top of the closeout bulkhead and spaced 1/2 inch either side of center.

Make up four metal (.020 aluminum) plates with K1000-3 nutplates installed to mate up with each of the four pairs of bolt holes. Brighten the mating faces of the plates and bond in place with 5 min/flox. (8 each K1000-3's and 16 each AN426A-3-3 rivets required). The rear mounting bolts (2 AN3-8A's and 2 AN3-6A's) install from the rear side. The front mount bolts (2 AN3-8A's and 2 AN3-12A's) install from the front side of the vertical stabilizer spar.

Make two aluminum tail spring attach brackets as shown below from 6061-T6 angle.



Locate these brackets on the rear face of the tail attach bulkhead as shown below. Drill four #11 mounting bolt holes through the bulkhead inserts using the brackets as a guide. Brighten the brackets and remove the peel ply from the bulkhead over the inserts. Bond the brackets to the bulkhead with 5 minute epoxy/flox and install AN3-7A bolts with An960-10 washers and AN365-1032 nuts in four places.

