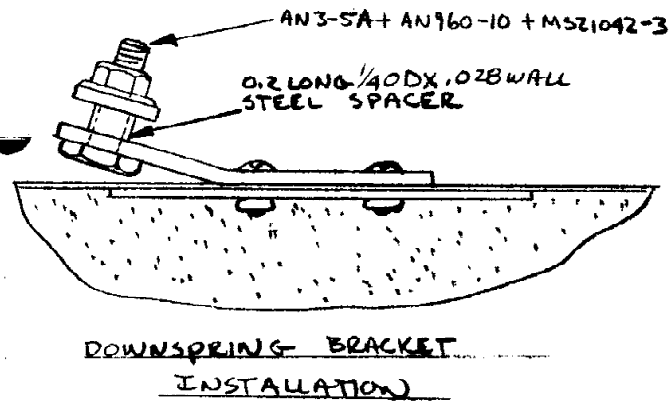
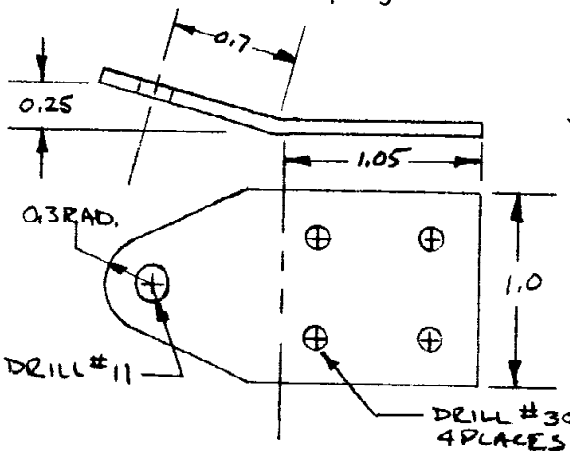
Elevator Pushrod: Install the horizontal stabilizer and elevators. Put the elevators in neutral position and do the same with the seat bulkhead belcrank (refer back to the bulkhead buildup). Take your 12 foot tape measure and define the distance between the two attachment holes. Cut a 58 inch length of 5/8 O.D. x .058 wall 2024-T3 tubing and install a 1/2 O.D. x 1 1/2 long aluminum (or steel) insert in one end threaded 10-32 3/4 inch deep. Use two AN470AD-4-14 rivets to hold the insert. Cut a 16 inch long piece of 1/2 O.D. x .035 wall 2024-T3 tubing and install a 10-32 threaded aluminum insert in one end also (AN470AD-4-12 rivets this time) slip the 1/2 x .035 tube inside the open end of the 5/8 x .058 tube. Install HM-3 (TRE-3) rod ends in each end along with AN315-3 jamb nuts. Adjust the center to center distance to your measurement, then drill six equally spaced #30 holes through the tubes at the overlap and install six cherry BSP42 pop rivets. Install the pushrod for a clearance check. You may grind the edges of the holes in each bulkhead if required. Remove the elevator/stabilizer assembly and store.

Downspring Mounting: Make the spring bracket shown below. Locate the spring bracket over the metal insert in the right side panel such that the mounting bolt center is about 9 inches from the top hole in the seat bulkhead belcrank. Drill four #30 holes through the bracket, skin and insert. Brighten the bracket for bonding sand the glass over the insert dull for bonding. Mix 5 min/flow spread over the mating surfaces and rivet the bracket in place with 4 cherry BSP42 rivets. Connect a Lee spring P/N LE-055D-15 spring or associated spring P/N E0360-055-6000 spring to the bracket for safe keeping.



DOWNSPRING BRACKET INSTALLATION

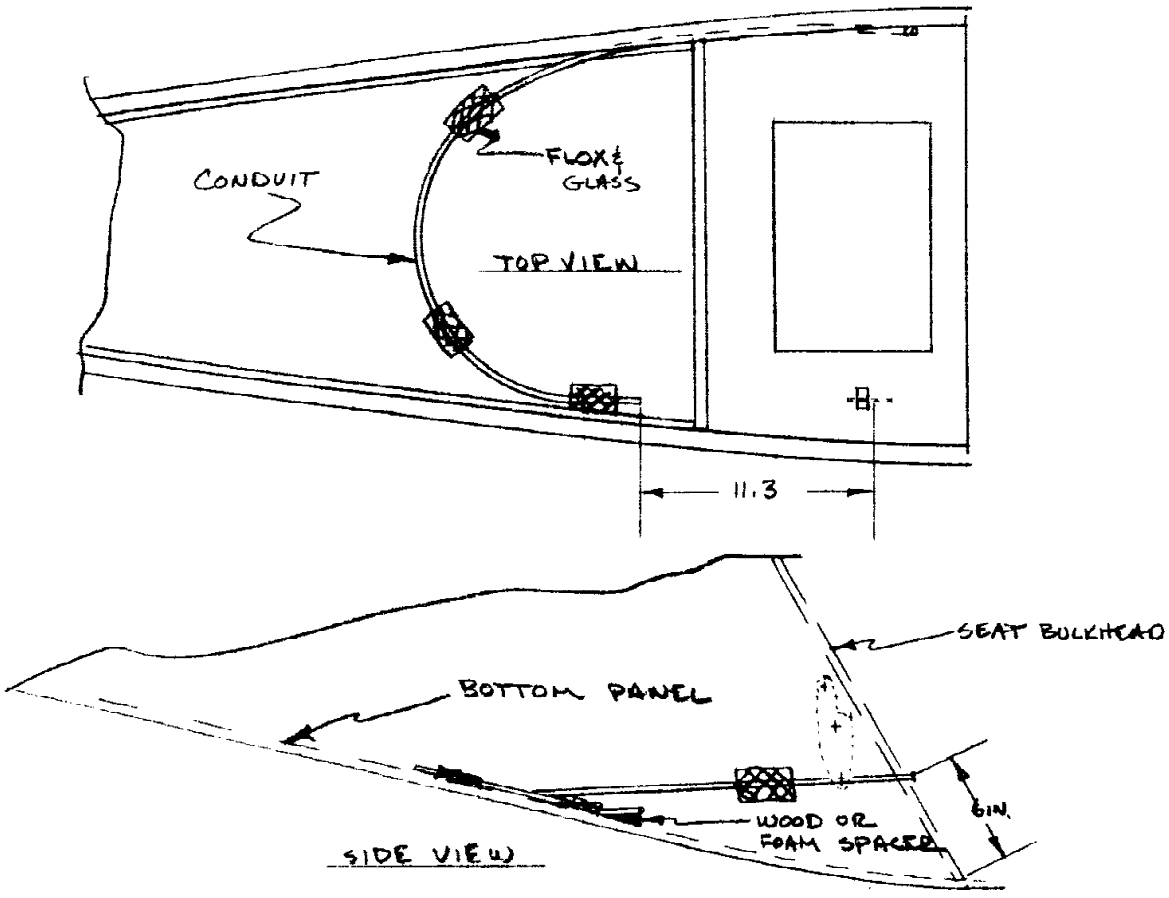


DOWNSPRING BRACKET
MAKE ONE FROM .063 2024-T3

Install spring standoffs as shown in the installation sketch on top outboard and bottom inboard sides of the seat bulkhead belcrank.

Trim Spring (Upspring) Mounting: Elevator trim is accomplished by pulling on the upspring. The upspring or trim spring is connected to the pilots trim control by a cable which runs inside a nylon conduit. The conduit is formed into a big circle which starts at the seat bulkhead under the left console and runs around the bottom to the right side corner block. The following sketch gives the detailed routing of the conduit. Cut a piece of 3/16 O.D. x .025 wall polypenco nylaflo tubing and make it conform to the circular shape (shown in the sketch) against the bottom panel and corner blocks. Drill a #11 hole through the seat bulkhead and push the tubing through about 1/4 inch beyond the front side. Sand the gloss off of the outside of the conduit and sand the glass inside skins dull on either side of the conduit (1 inch) in four places as indicated. Use heavy stuff to weight the conduit in position while you use 5 min/flox blobs to anchor it permanently. After the 5 min has cured over night go back and sand its surface dull, then pack flox around the conduit in four

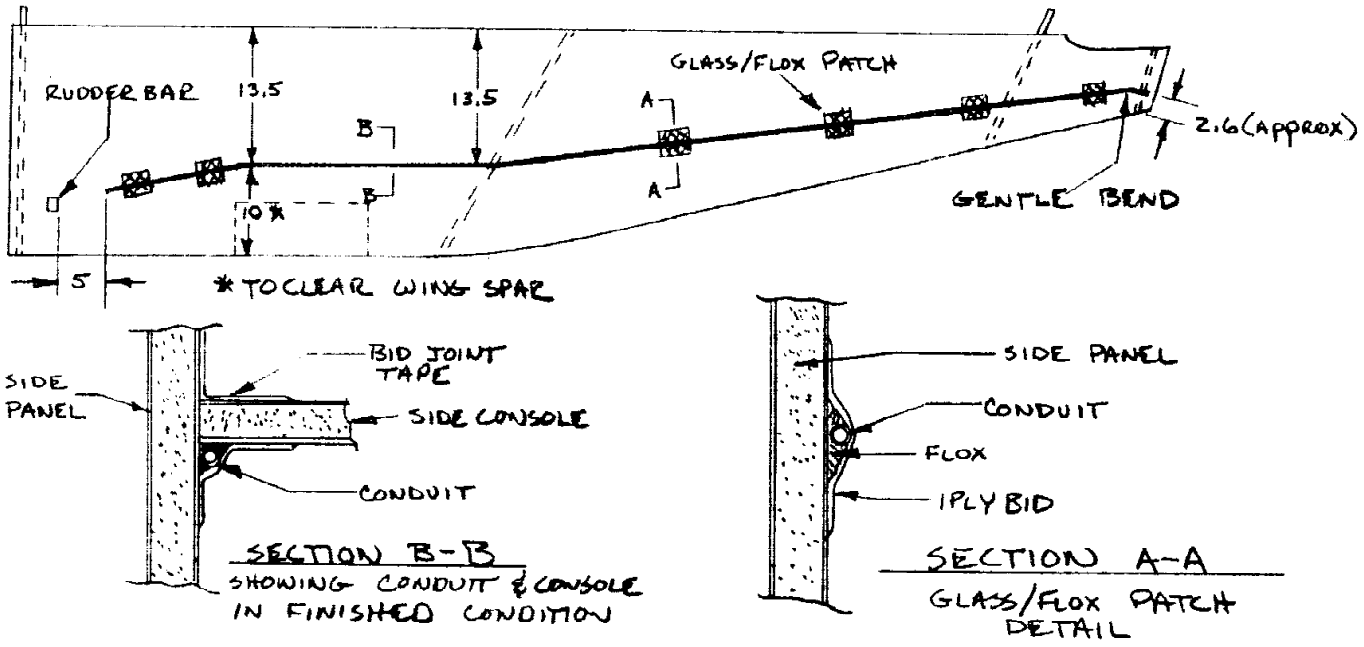
2 inch long areas and lay up a one ply 0-90^0 BID tape over each area. Note that the end of the conduit on the right side must be at least 11.3 inches away from the belcrank's bottom hole in neutral position.



A triangular spacer made from a scrap of red foam or wood is bonded under the end of the conduit to aim it up at the belcrank.

Rudder Cable Conduits: Install the rudder and stabilizer. Mark the position of your conduits on the closeout bulkhead so that the conduit is slightly above the belcrank surface. Remove the vertical tail and store. Drill a #11 hole through the closeout bulkhead in the two places marked. Mark the general routing for the cable shown in the sketch below and drill holes through the tail attach bulkhead and seat bulkhead to allow the conduit to pass. The conduit is difficult to keep straight so don't sweat the small squiggles. Keep the conduit against the side panel skin. Dull the tubing and side panel skins every foot or so along its length and put a flox and glass (1 ply) patch over the conduit. The conduit should be potted with flox where it enters and leaves each bulkhead.

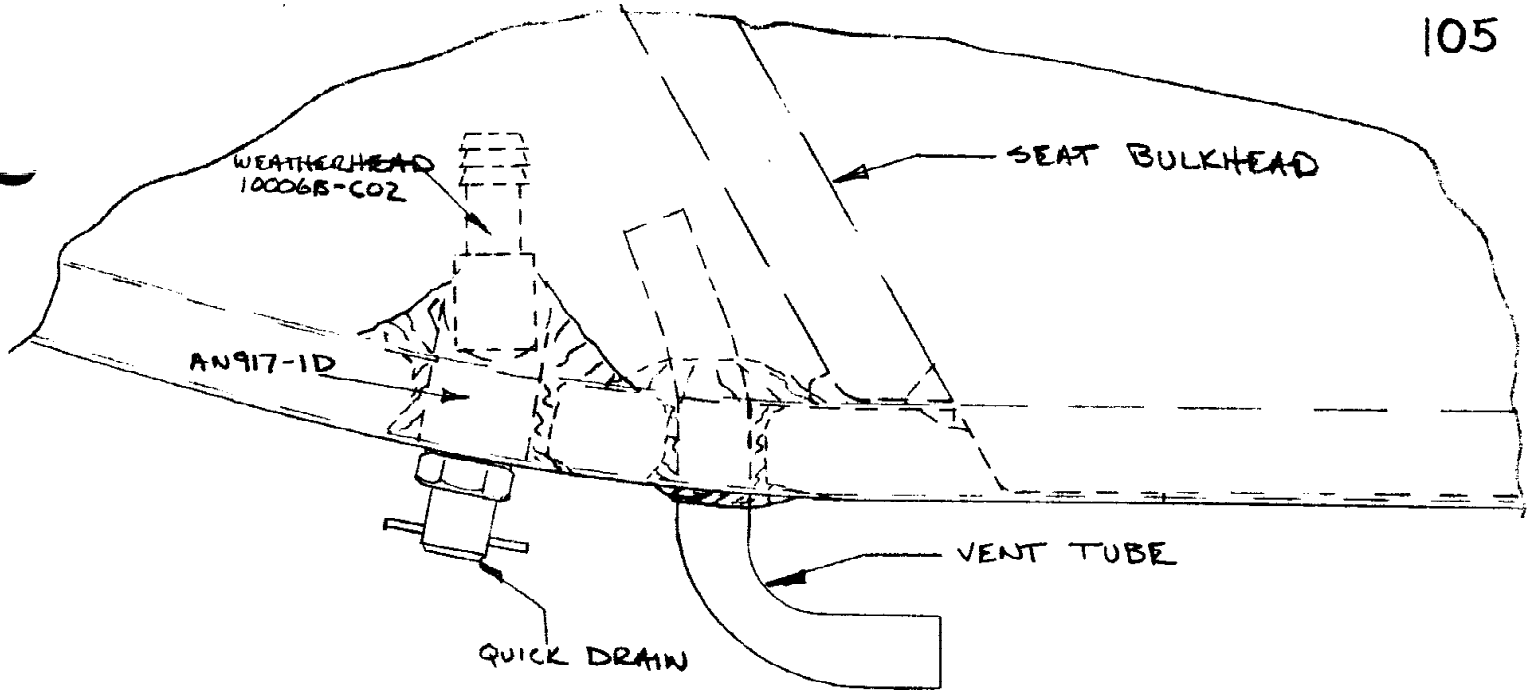
RUDDER CABLE CONDUITS



Static Port: Locate a spot on the fuselage left side eight inches aft of the seat bulkhead (top) and six inches below the top edge. Drill a 1/16 diameter hole through the outside skin, core and inside skin. Use your rotary file to open the inside skin up to a 1/2 inch diameter hole and route out the foam core to the 1/2 inch diameter, leaving only the outside skin with the 1/16 hole. Drill four more 1/16 holes around the first about 0.2 inches above, below, forward, and aft of the original hole. Paint the foam edges inside with epoxy to seal. Reopen the 1/16 holes if necessary. Sand the inside skins dull around the hole for bonding. Center an AN867-1 aluminum weld bushing over the center hole, drill two #30 holes through the bushing and inside skins. Brighten the aluminum, mix 5 min/flox bond the fitting in place and install two BSP 42 (Cherry pop) rivets. Drill a #11 hole through the seat bulkhead to allow the static line (3/16 OD nylaflo) to pass through under the side console.

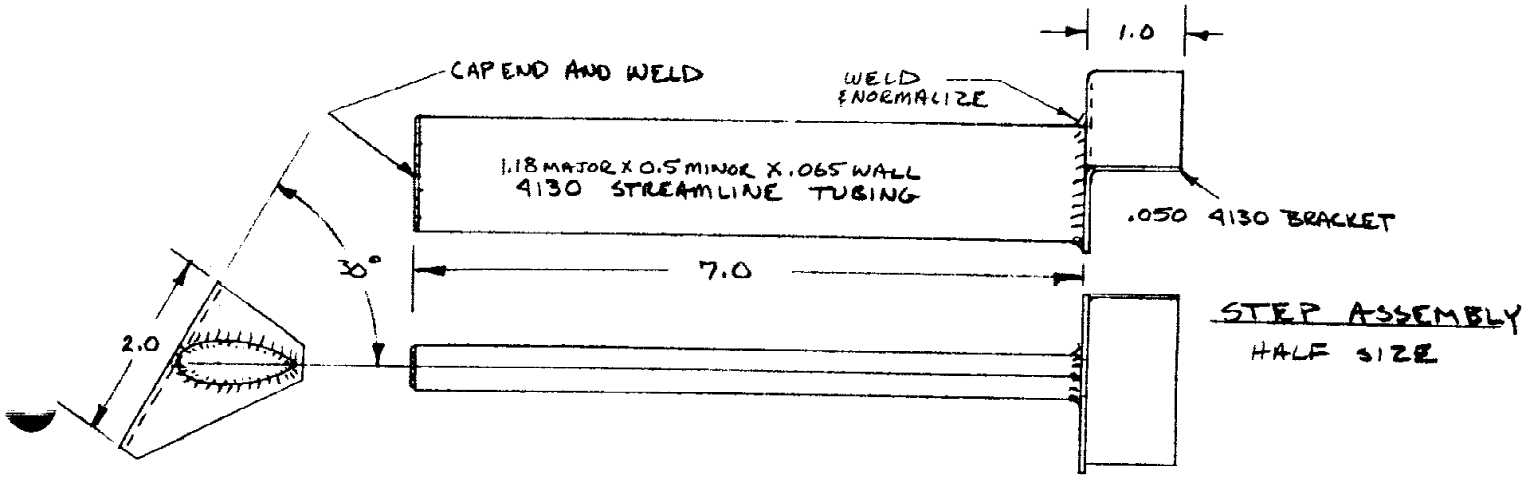
Rear Fuel Tank Drain and Vent Tube: Round up a 6 inch length of 3/8 O.D. soft aluminum tubing, one AN917-1D tee, two weather head 10006B-C02 fittings, and one curtis CCA-1550 drain valve. Use teflon tape to seal the threads and install the three fittings as shown in the sketch. Bore a hole through the bottom panel (drill, then rotary file) behind the seat bulkhead on the left side which will accept the AN 917 tee as shown in the sketch. Sand the area adjoining the hole inside dull for bonding. Remove the quick drain fitting (leave the two weather heads installed) and brighten the outside of the AN 917 fitting for bonding. Mix flox and bond in place.

Bend the aluminum tubing into an "L" shape. Drill a 3/8 hole through the bottom panel forward of the quick drain, brighten the tubing, and bond in place with a good radius of flox. Drill two 1/2 inch holes through the seat bulkhead just below the side console reference marks.



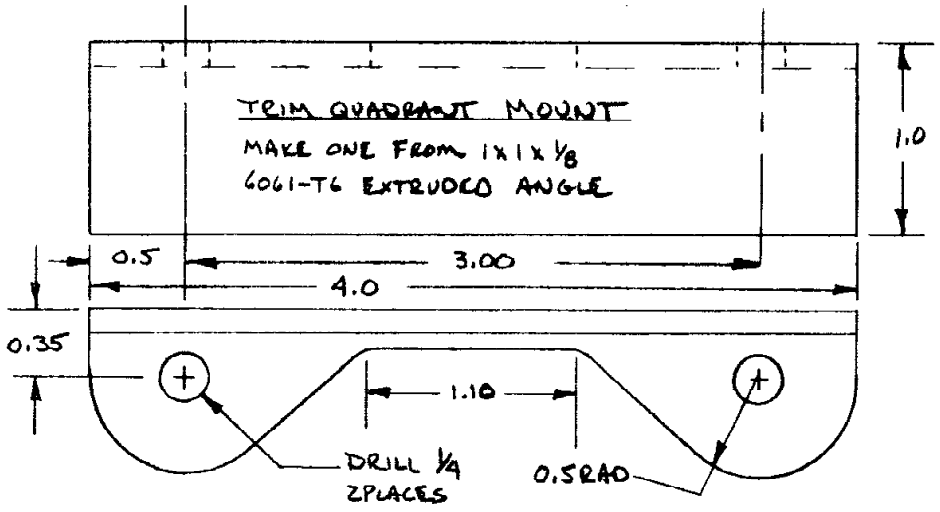
Build the welded steel step assembly shown below. If you can't find streamline tubing, round 5/8 O.D. x .058 wall tube may be substituted. Bore or route a hole through the left side to allow the tubing to just slip through. The leading edge should be adjacent to the seat bulkhead's aft face. You can use the marking on the inside of the side panel to locate the step (3.6 inches above the seat bulkhead's bottom edge and level with the insert in the seat.

Slip the step assembly through the side panel from inside. Position the bracket over the seat bulkhead insert and drill two #11 mounting holes through bulkhead and bracket. Remove the step and use your 1/4 diameter ball end rotary file to remove the foam from the side panel core all around the step hole and prepare the inside edges of the hole for flox bonding. The bottom side of the hole should have 3/8 to 1/2 inch ready for flox and about 1/4 on the upper half. The hole should be a <u>tight</u> fit on the tubing on the outside skin. The inside skin's hole may have about an .05 gap all around. The steel part should be completely degreased, sand blasted, and primed. Pack the edges of the hole full of wet flox, push the step through from the inside, flox the leading edge of the tube and bracket then install the two AN3-8A mounting bolts (plus AN960-10 washers and MS 21042-3 nuts). Clean up the mess and cure. Don't climb on the step until next week.



Build or buy the pilot's control stick assembly shown on page A-11 . Store for installation with the side consoles.

Build the trim quadrant mounting bracket shown below. Attach the quadrant to the bracket with two AN4-5A bolts and two MS 21042-4 nuts. Store for side console installation. The trim quadrant is a quadrastat control model Q12-061, these units are available from Aircraft Spruce and Specialty Company.



Build the aileron idler bracket and idler shown on page A-11 . Save for installation with consoles.