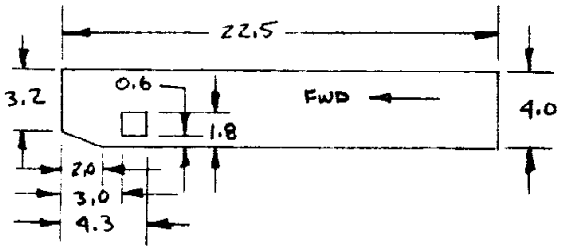
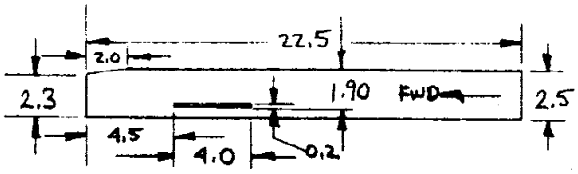
Consoles

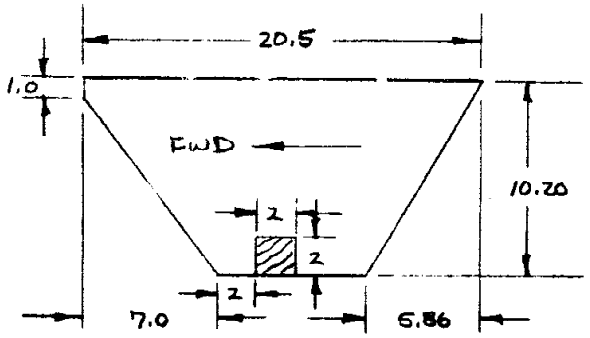
Cut out two 6 lb/ft^3 (red) P.V.C. foam blocks as shown in the sketch and two 1/2 inch thick blue 2 lb/ft^3 styrofoam blocks for the top and sides of the consoles. Fit check the top foam cores to the fuselage sides and seat bulkhead. Cut out the control stick hole and the trim lever slot in the two top foam panels. Bevel the edges of the control stick hole as indicated on page A-11. Cut two 2 x 2 x 1/4 pieces of plywood and bond into the side panel foam cores. The plywood should be flush with the inboard sides of the panels. Sand a smooth transition to the inserts on the outboard sides. Sand a 0.2 inch radius (or any reasonable approximation) on the inboard edges of the top (red) foam panels. Fit the side panels to the top panels as shown and bond with 5 min/micro. Add a one inch foam block to the uncovered front end of the top panel. This block provides a



RIGHT SIDE CONSOLE TOP
.35IN THICK 6 LB/FT³ PVC FOAM
SHOWING CONTROL STICK HOLE

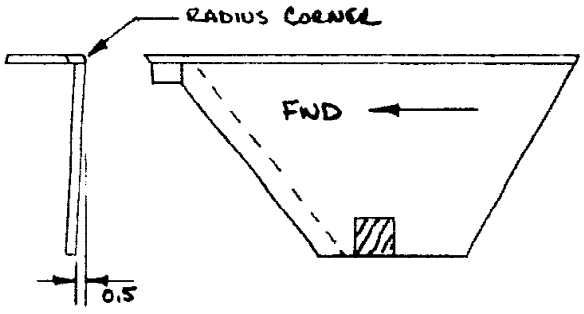


LEFT SIDE CONSOLE TOP
SHOWING TRIM QUADRANT SLOT

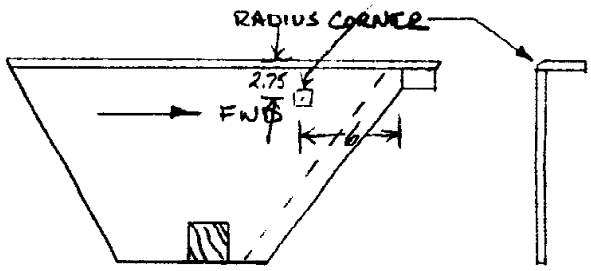


CONSOLE SIDE PANEL
2 REQUIRED 2 LB/FT³ STYROFOAM
PLYWOOD SEAT BELT ATTACH INSERT SHOWN

Tailwheel lock mount block



RIGHT CONSOLE



LEFT CONSOLE

form to lay up a one inch wide lip along the top edge. Go cut the following 45^0 BID and peel ply:

45^0 BID: 2 pieces 15 X 24 (right), 2 pieces 13 1/2 X 24 (left), 6 pieces 2 X 2,

Peel ply: 2 strips 2 X 23, 2 strips 2 X 13, 2 strips 1 X 16, 2 patches 4 X 4.

The prototype Adventure used a tailwheel lock quadrant made out of a rejected shoulder harness inertia reel release lever. I would suggest that you use ingenuity and scrap piles to locate a similar device. You need something that latches at one end--to hold the tailwheel in the unlocked position. If your ingenuity is working you may skip the next paragraph.

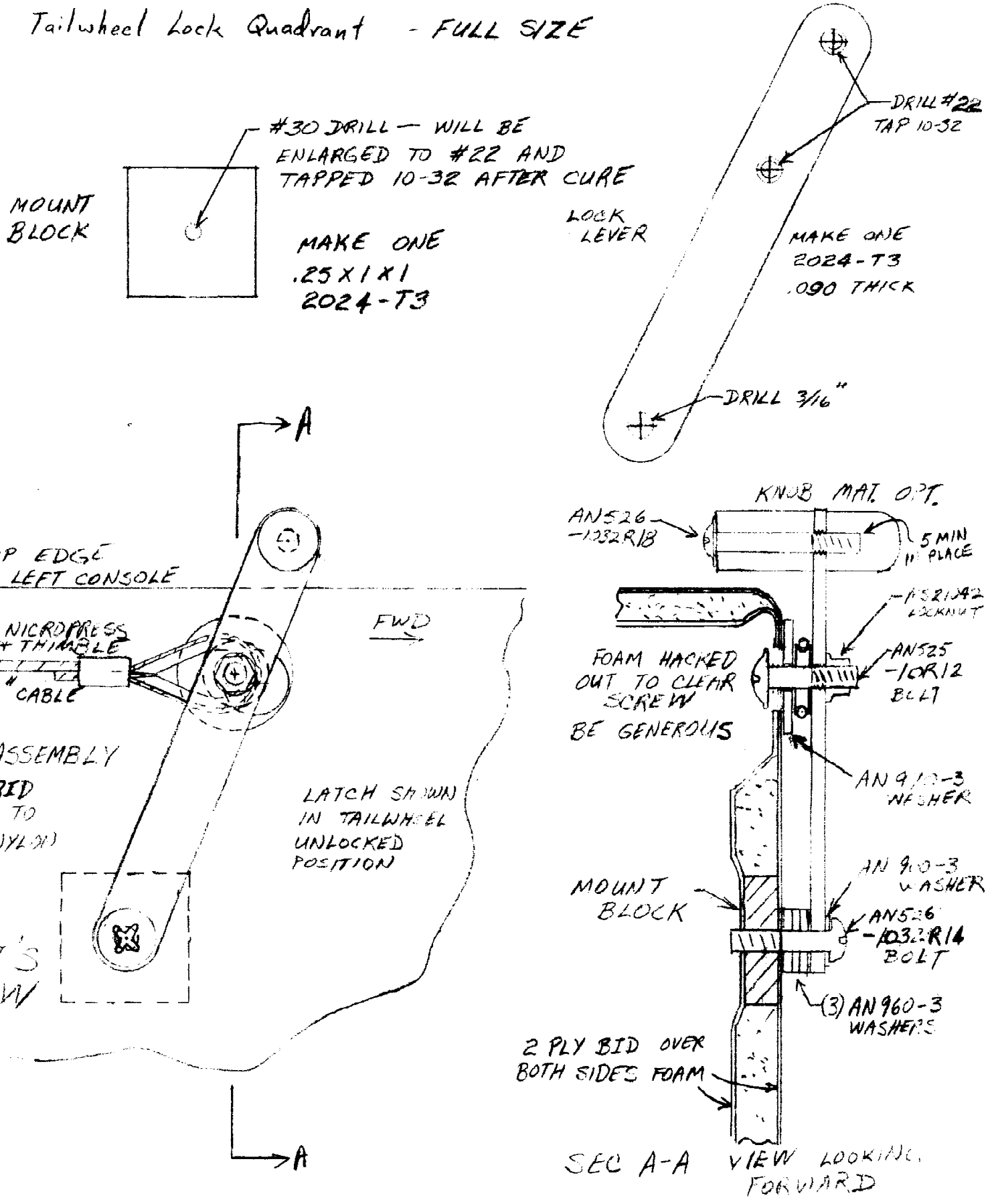
Fabricate the .25 X 1 X 1 mount block described on 116B (TW). Brighten and roughen both sides and coat with pure epoxy as soon as possible. This helps hold down on oxidation and other contaminants. Cut out a 1 X 1 piece of the left console centered 6" back of the forward edge and 2 3/4" down from the top edge. 5 min the mount block into the foam cutout flush with the pilots' side of the console. Cut a 1" diameter patch of peel ply and locate it centered 1" in front of and 2" above the center of the mount block (after the slurry mentioned in the next sentence).

Slurry the foam, then lay up one inch peel ply strips along the forward edge of the side panels (see dashed lines in the sketch on page 116 TW) and on the little extension block. Don't lap the peel ply onto the top panels. Lay up two plies of 45^{0} BID over the whole top and inboard (pilot's side) surfaces. Add 3 BID patches over the plywood inserts. Peel ply the edges which adjoin the seat bulkhead and fuselage side and the plywood insert area. Knife trim and cure.

Remove the foam behind the 1" diameter peel ply patch on the left console. Grind a generous slope on the foam around this 1" hole and around the 1" X 1" aluminum block. Remove the peel ply patch. A glance at the cross section view should clear things up.

116 B
TW

Tailwheel Lock Quadrant - FULL SIZE



Remove the foam one inch back from the forward edge of the side panels and all of the addition blocks. Sand a smooth transition to the outboard (underside) foam surface. Go cut more glass. 45° BID: 2 pieces 14 x 24 (right), 2 pieces 13 x 24 (left), 4 pieces 2 x 2, and 2 pieces 3 x 3. Peel ply: 2 strips 2 x 24, 2 pieces 2 x 3 and 2 pieces 4 x 4. Remove the peel ply from the forward edges of each side panel and lay up 2 plies 45° BID over the outboard and bottom surfaces of both consoles and add 3 BID patches over each insert. Peel ply the insert area and the outboard edge of the top. Peel ply the forward edges of the top panel also. Knife trim and cure.

Locate the pilots control assembly on the right side console as shown on page A-11 . Verify that the aileron actuator arm is on F.S. 55.55 plus or minus 0.3 inches. Install the four mounting screws (AN 525-10R-8) through the stick pivot fittings and install corner type nutplates on the fittings (K3000-3 with AN426A-3-5 rivets).

Locate the two idler belcrank mount brackets and the belcrank on the left console, with the aft face of the belcrank on F.S. 55.55 to match the right side's aileron actuator arm. The idler center should be 1.2 inches inboard of the outside edge. Drill four #11 holes to mount the brackets and install AN525-10R-8 screws with MS 21042-3 nuts. The idler belcrank is attached to the two brackets with an AN3-6 bolt, AN310-3 nut, and an MS 24665-132 cotter pin.

Position the trim quadrant and attach bracket on the underside of the left console with the trim lever centered in the slot. Drill two #11 attaching screw holes through the console and install two AN525-10R-8 screws and MS 21042-3 nuts.

Swage an AN100-3 thimble and 18-2-G sleeve onto one end of a six foot length of 3/32 7 x 19 control cable. Join that end with the trim spring (Lee LE-055D-15 or associated spring E0360-055-6000) using one AN3-5A bolt, one AN970-3 wide area washer, a piece of 1/4 OD x .028 wall tubing 0.2 inches long, another AN970-3 followed by an MS21042-3 nut. Feed the free end of the cable through the trim cable conduit from the right side behind the seat bulkhead belcrank. Attach the trim spring to the belcrank standoff. Place the belcrank in the full up elevator position. Place the trim lever in the full nose up position (aft). Hold the left console in position on the fuselage and hold the cable up to the bottom hole in the trim quadrant. Mark the cable with a piece of tape. Swage another thimble and sleeve on the free end of the cable such that the center of the thimble is 3.6 inches closer to the seat bulkhead than your mark on the cable was. This should result in 3.5 inches of spring extension with elevator full up and trim control full nose up (knob aft).

Cut a 16.7 inch length of 1/2 O.D. x .035 wall 2024-T3 tubing. Insert and rivet (2 each AN470AD4-12) a 10-32 tapped insert in one end and install an HM-3 rod end with AN315-3 jambnut. Slip another threaded insert into the other end but don't rivet it yet. Put another rod end and jambnut in the free end. Bolt the fixed end to the seat bulkhead belcrank with the free end forward. Hold the right console in position (tape) and size the pushrod to exact length with both belcrank and stick in neutral. Remember from page A-11 that the stick is inclined forward and inboard in the neutral position. Trim the tubing as required, drill and rivet the forward threaded insert (AN470AD4-12 rivets). Bolt the pushrod to the stick and check for clearance. Wallow out the seat bulkhead hole as required to clear. Remove the pushrod and store.

Go cut 2 inch wide 0-90^{0} BID tapes 4 each 24 inches, 4 each 13 inches, 2 each 6 inches, 2 each 4 inches, and 4 each 5 inches long. Sand the adjoining areas of the fuselage sides and seat dull as required or remove peel ply. Remove all of the peel ply from the consoles. Prepare the rear edges and the outboard edges of both consoles for flox corners. Mix flox, fill the corners, paint a coat of epoxy on mating surfaces and assemble. Lay up 2 ply BID tapes along the top and inboard joints full length and height. Lay up a 5 inch long 2 ply tape on the top to fuselage side joint lower surface. This lower tape also captures the rudder cable conduit. Cure fully.

Reinstall the control system and trim system components. Connect the trim spring cable to the quadrant (bottom hole) with an AN4-6 bolt, AN970-4 washer, AN310-4 nut and MS24665-132 pin.

Fabricate the aileron crossover bar shown in the following sketch. Size the length to custom fit your airplane. Attach to the idler and aileron actuator with AN3-6 bolts and AN310-3 nuts. Fit check and verify freedom of movement, then remove the crossover bar and store.