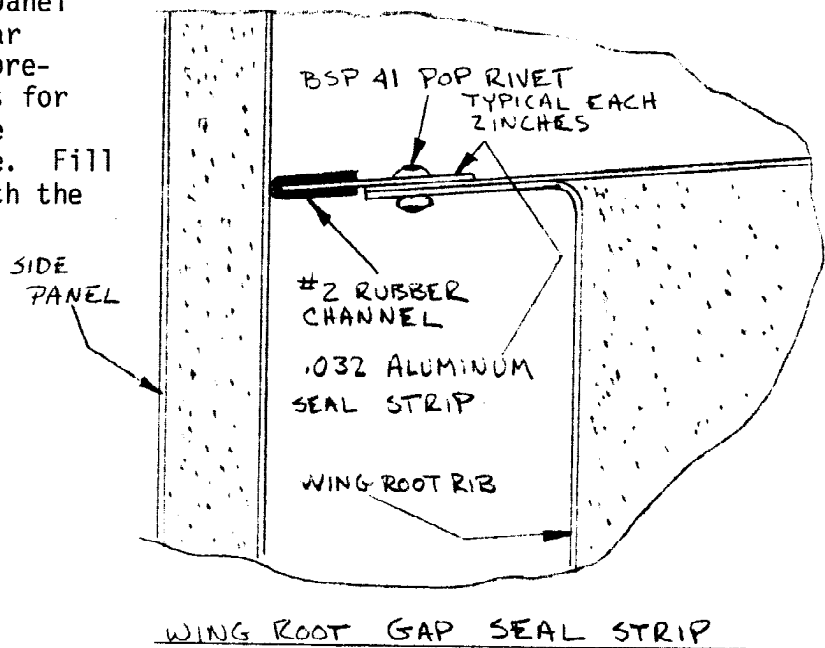
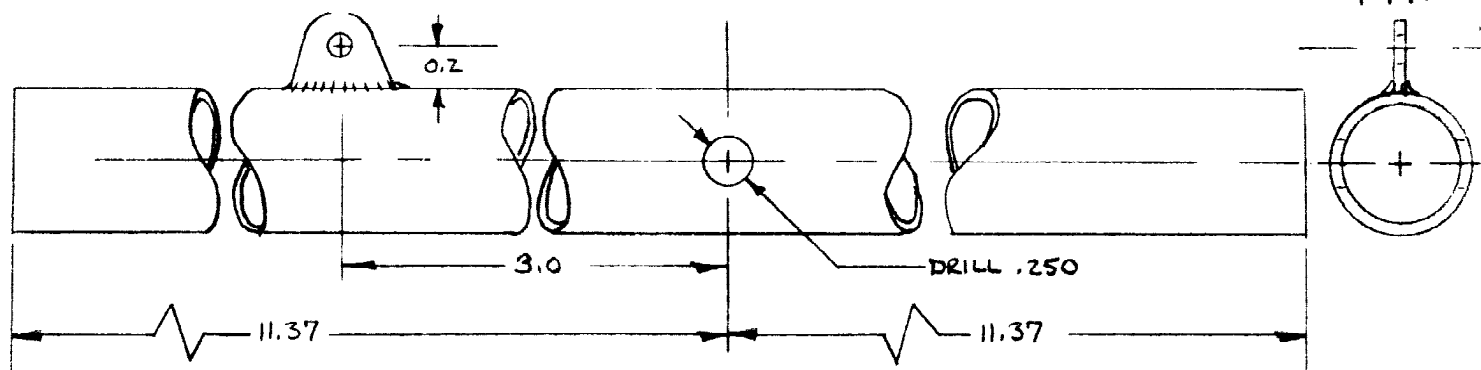


Before removing the wings, cut strips of .032 aluminum (6061-T4, 5052-H34, or 2024-T3) to make a wing root gap seal. Fit 3/32 x 3/8 (aircraft spruce #2) rubber channel onto the inboard edge as shown in the sketch. The gap seal should be a tight fit to the fuselage side on both top and bottom surfaces. Pop rivet the seal strip each two inches as shown.

Remove the wings. Use your rotary file to route out the first 1/2 inch of side panel foam core around the spar hole (not plywood) and prepare the inside surfaces for a flox corner. Fill the edges with flox and cure. Fill the cured flox flush with the edges of the hole.

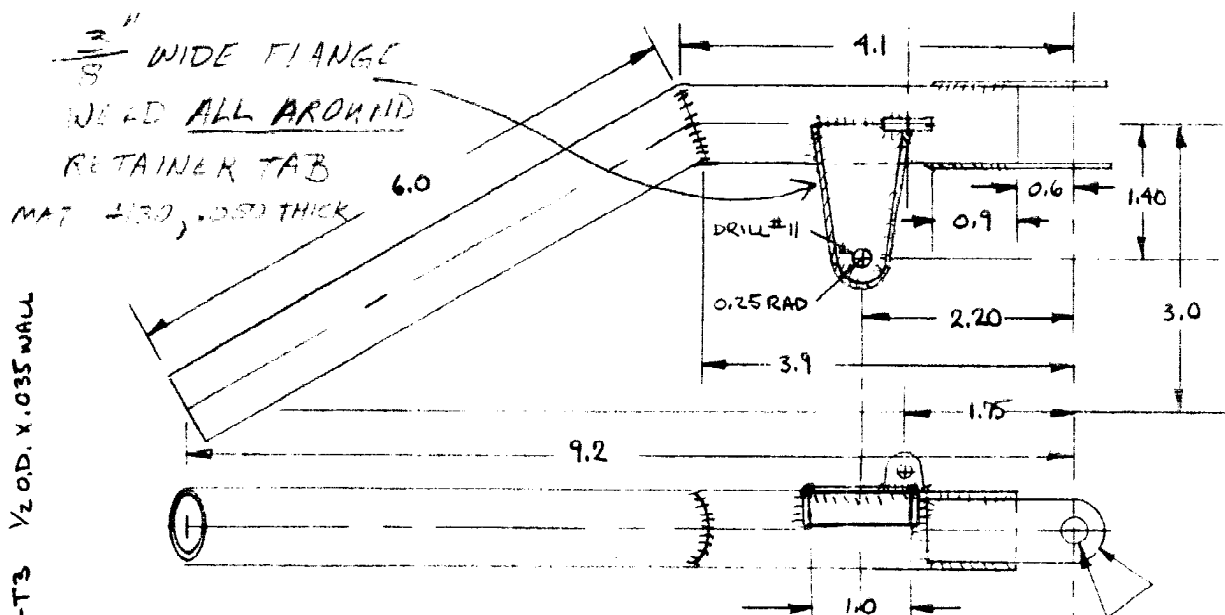


While the wing is out of the way, we will install the flap actuator. Go make the latch plate, torque tube, flap handle, belhorns and pushrods shown on the following drawings. Bore the aileron pushrod and flap torque tube holes (3/4" Dia.) through the fuselage side panels in the locations marked inside. Bond two 5/8 I.D. 3/4 O.D. 3/4 long flanged oilite bronze bushings (bunting FL62-6) into the flap torque tube holes with 5 min/flox. Measure the distance between the inboard faces of the two bearings left and right. The flap torque tube must be cut 0.05 inch shorter than that.



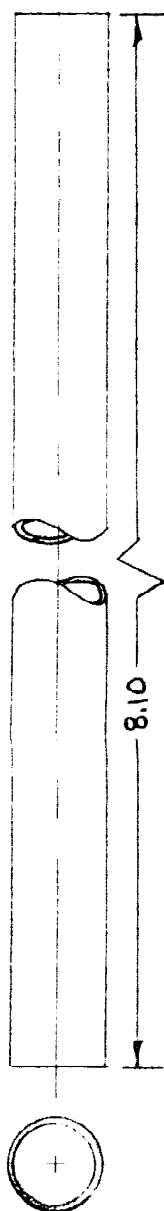
FLAP TORQUE TUBE - FULL SIZE

MAKE ONE $\frac{3}{4}$ O.D. X .058 WALL 4130 TUBE
SPRING RETAINER TAB .050 4130-N



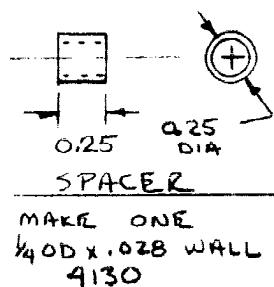
FLAP HANDLE - HALF SIZE

$\frac{3}{4}$ O.D. X .035 WALL TUBE AND
0.050 4130-N



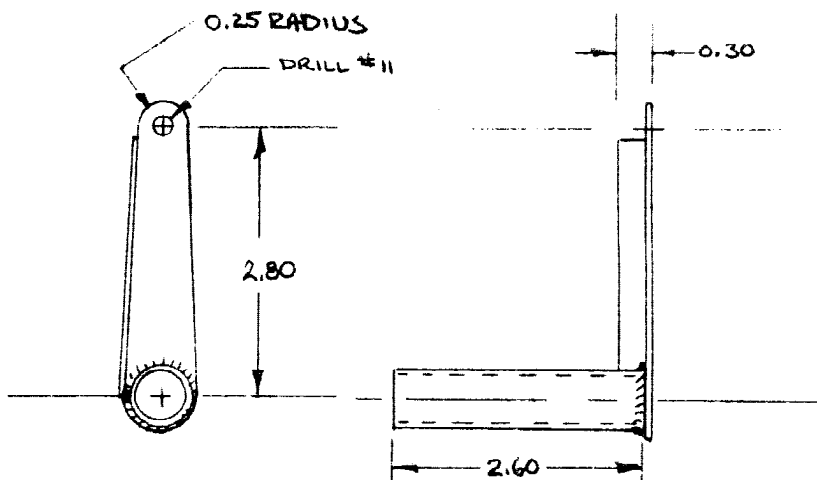
FLAP PUSHROD

MAKE TWO 2024-T3 $\frac{1}{2}$ O.D. X .035 WALL



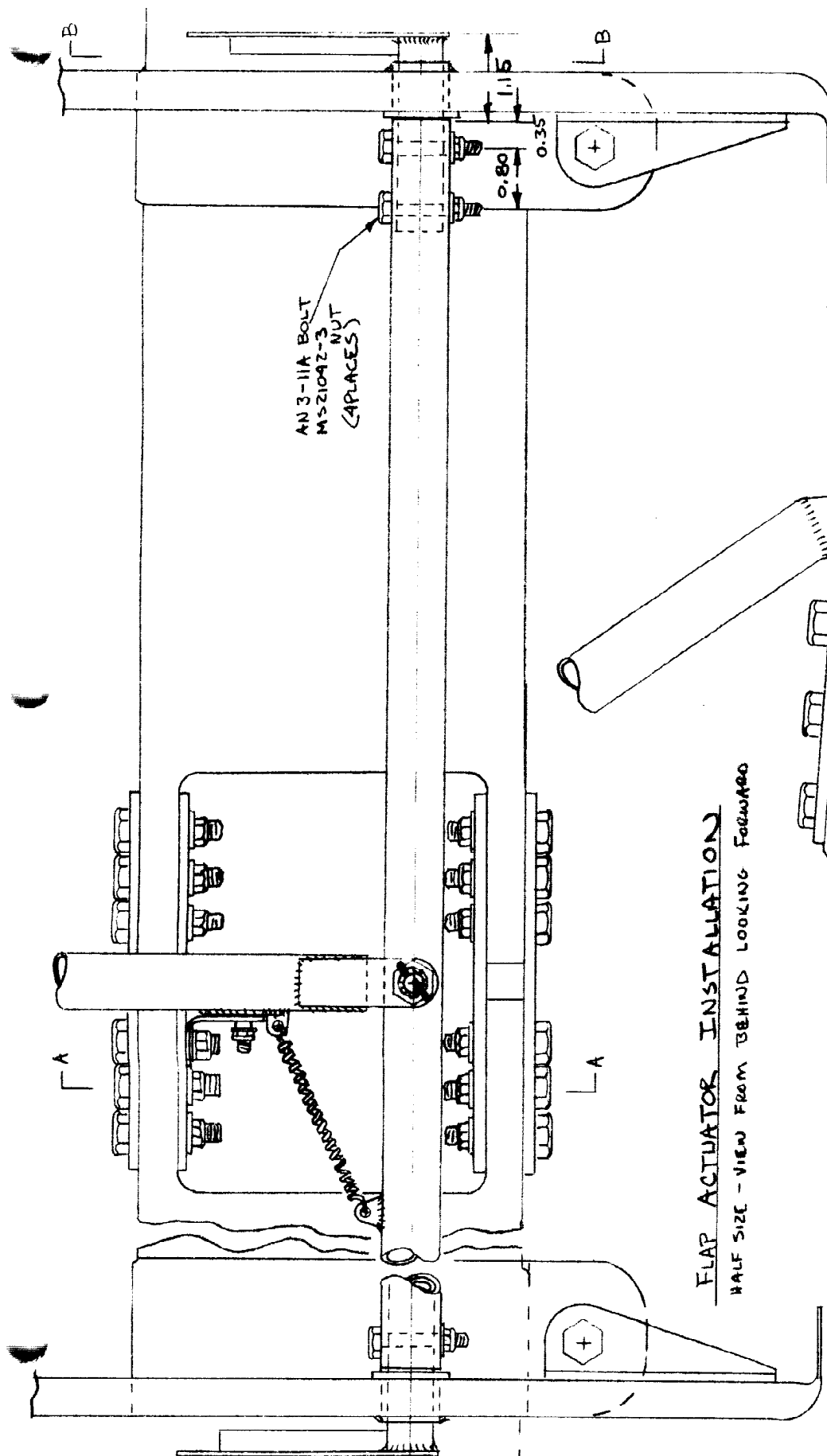
SPACER

MAKE ONE
 $\frac{1}{4}$ O.D. X .028 WALL
4130

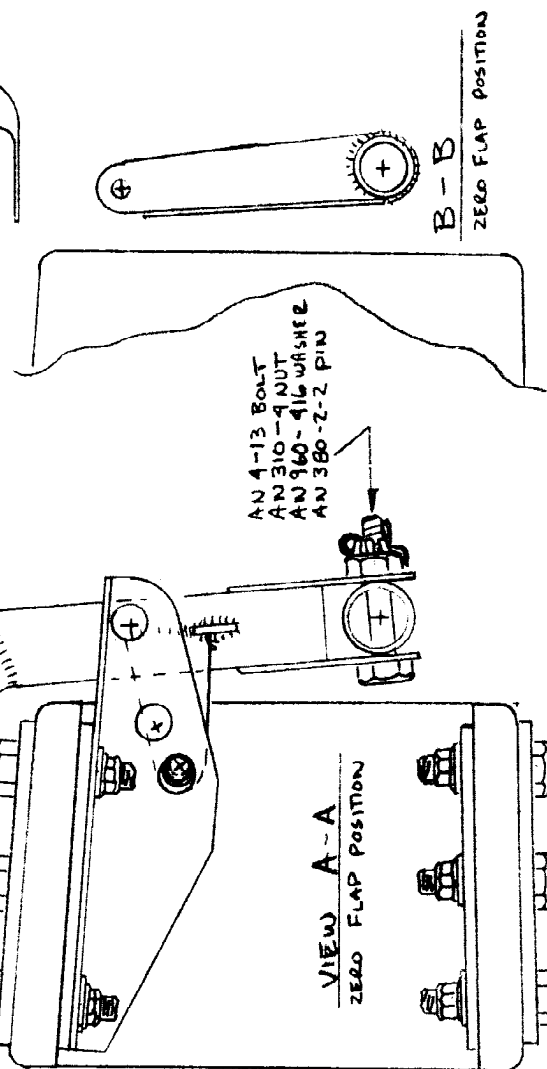


FLAP BELHORN - HALF SIZE

MAKE TWO $\frac{5}{8}$ O.D. X .065 WALL
TUBE AND 0.050 SHEET 4130-N



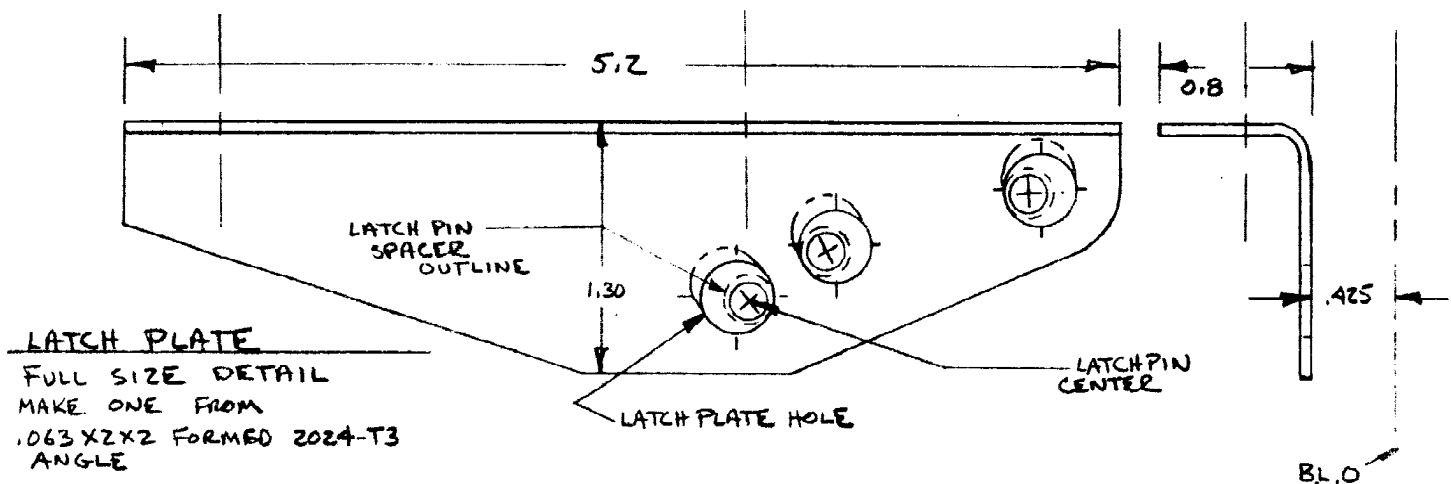
FLAP ACTUATOR INSTALLATION
 HALF SIZE - VIEW FROM BEHIND LOOKING FORWARD



Remove the torque tube and drill the belhorn assemblies into the torque tube as shown. Mount the torque tube, flap handle and belhorns on the fuselage. Rivet two 10-32 threaded inserts into the ends of the two flap pushrods. (AN470AD-4-12 rivets, two places each insert). Thread HM-3 rodends into each end until the threads bottom, then bolt one end to each belhorn. Install the wings, pausing to notch the flap slot inboard of the root rib to allow the flap pushrod to operate.

Join the wing splice with the flap latch plate installed under the two inboard top lefthand bolts (see installation sketch). Position the flap handle so the foremost part of the handle is 1/4 inch aft of the spar's top edge. Mark the latch pin hole center on the latch plate.

Install the flaps on the wings and attach the pushrods to the inboard leading edges with AN3-7A bolts and a washer on both sides of the rodend. Adjust the pushrods to achieve zero flaps with the handle in neutral position as just described. Use a pair of inclinometers (Sears Roebuck Catalog No. 9HT3995 Automatic Protractor is good), tapped to the upper surface of each flap to set the latch positions. Position the flaps at 20° down and mark the latch plate, position at 50° and mark again. Check that both flaps deploy equally. Remove the latch plate and drill three 3/8 holes as shown below.



Note that the 3/8 Dia. holes are located off center from the marked locations. Elongate the holes vertically by 0.10 inches. This will allow the latch pin to swing out of the hole without hanging up on the upper edge. Install the 1/4 O.D. x 1/4 long spacer on the left side of the stick assembly with an AN3-5A bolt and MS21042-3 nut. Put the nut on the spacer side. Reinstall the latch plate and check the operation and latching. The flap handle is moved to center the latch pin in the hole, then moved outboard (right) to disengage. Check all three positions. Install a Lee P/N LE-037C-8 or associated spring P/N E0240-037-2250 spring between the flap handle and torque tube spring tabs. Make a foam rubber block which will fit around the flap pushrods and fit very tightly against the fuselage side and wing root rib when the wing is installed. The foam rubber has to be split vertically to allow the flap pushrod to operate properly, but should be oversized such that when compressed against the fuselage side, no gaps occur. This block seals a leakage path from the flap slot into the cockpit. Under certain flight conditions, (balked landing climb) the unblocked wing will allow exhaust fumes to enter the cockpit. Plug them up for safety. In fact, any leaky areas in the wing root seal strip are unacceptable for similar reasons.