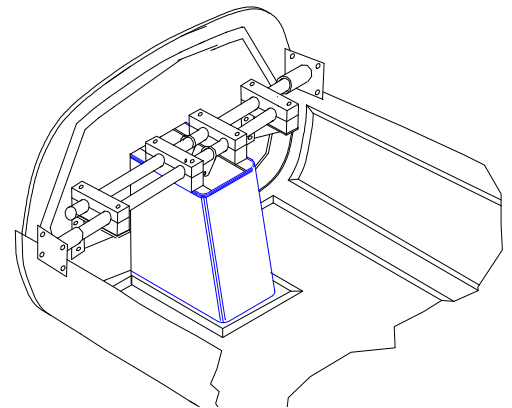


## PROCEDURE 6.010 INSTALLING THE RUDDER TUBE ASSEMBLY

*In this procedure...*

The rudder tube assembly is attached to the rudder block support installed on the center firewall support, and the outer bearing blocks will be installed in the fuselage sides. Cables will carry the pedal motion to the rudder of the aircraft.



### MATERIAL SUPPLIED:

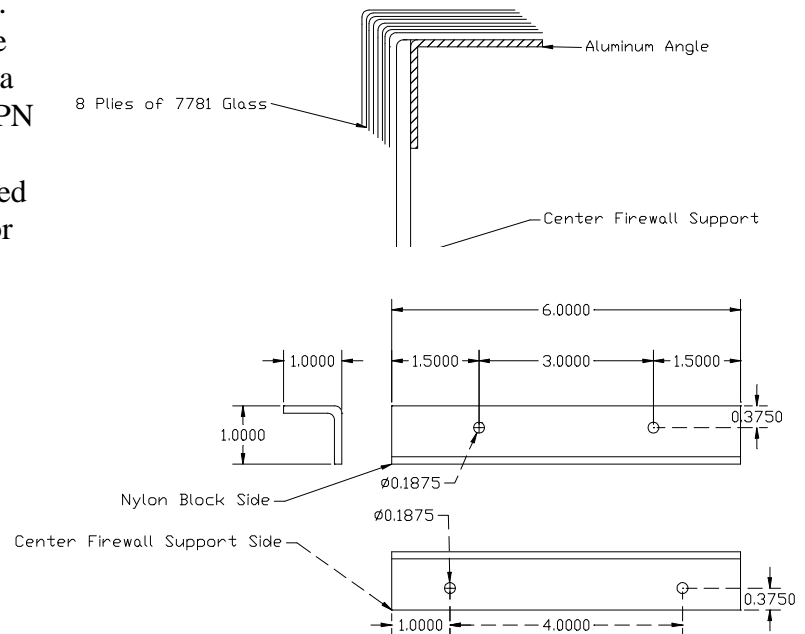
<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
112-24-001	1	Rudder tube, forward
112-24-002	1	Rudder tube, aft
112-24-003	2	Outer Bearing Brackets
112-24-004	2	Bracket, Mid
112-12-006	4	Nylon Block, Rudder Support
112-24-020	2	Bracket, Center
J1616	2	Bearing
AN3-21A	8	Bolt
AN4-15A	8	Bolt
AN365-428	8	Nut, Self Locking
AN960-10	32	Washer
AN960-416	24	Washer
AN365-1032	12	Nut Self Locking
AN3-13A	4	Bolt
AN4-5A	8	Bolts
AN3-4A	8	Bolts

**Note:** The rudder support blocks (112-24-005) are made as matched pairs. Keep the upper and lower parts of each block together and in proper orientation. You should mark each pair on the ends to identify them.

### Step 1 Install Center Support Angles.

In early kits the Center Support Angles we built up from 8 plies of 7781 cloth laminated to the side of the Center Firewall Support.

This procedure has been changed and the fiberglass flange has been replaced with a 1" x 1" aluminum angle 6 inches long. (PN 112-24-020) Kits delivered after 1 January 2001 will have this angle included in the kit. Builders of kits delivered prior to this date can either use the fiberglass flange, or purchase aluminum angle from their Hardware Store and construct the new angle.



Place the center nylon blocks on the torque tube assembly and bolt the aluminum angle to the blocks using AN 3-21A bolts. **Do not tighten the bolts at this time.**



### Step 2. Install bearings in outer Bearing Bracket

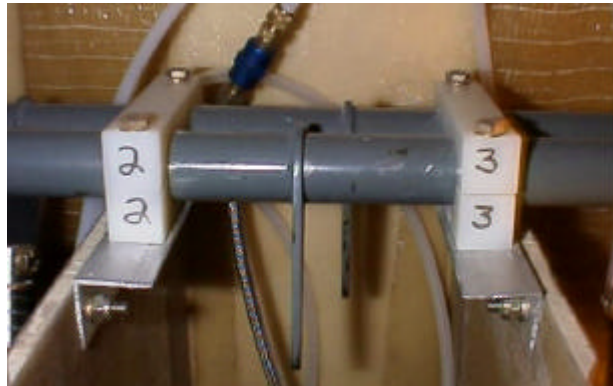
Press the J1616 Bearings into the Outer Bearing Bracket. Place this assembly on the outboard ends of the rudder torque tube. **Note: Bearing is pressed in flush with the end of the bearing bracket. Clean powder coating off the end of the rudder torque tube so that the bearing slips in with very little pressure. Clean and lubricate bearing with grease prior to final installation.**



Sit the Rudder Torque Tube Assembly on the Center Firewall Support with the flanges of the center angles sitting inside the firewall support. Slide the rudder torque tube assembly forward until the Mid Brackets contact the firewall. Position the Center Brackets so that the tops of the angles are flush with the Center Support. Drill and cleco the Mid Brackets to the aft face of the firewall. Slide the outer bearing brackets out against the fuselage side and mark it's location on the fuselage side.

**Step 3. Align and drill rudder block support holes.**

Check the position of the torque tube again. It must be parallel to the firewall and level. When satisfied drill a 3/16" hole through the aft holes of the center support angles and install a bolt. Then drill the front holes. Remove the rudder torque tube assembly.



**Step 4. Install the Outer Bearing Support Pads.**

Use a knife and remove the inner layer of fiberglass and foam from inside of the square drawn in the above procedure. Make sure the 40 lb foam or G10 hardpoint (PN 112-24-006) fits into the cutout area. Use a milled fiber squash to secure in position. To insure proper alignment hot glue the hardpoints to the bearing blocks. Install the rudder torque tube assembly and slide the outer bearing brackets and hardpoints against the fuselage side. The hard points must be positioned flush with the bearing brackets. Allow the milled fiber to cure. Remove the rudder torque tube assembly and laminate two 6" square plies of BID over the hardpoints. After the laminates are cured reinstall the torque tube assembly. Using the bearing bracket as a guide drill four 3/16" holes into the hardpoint. Use caution not to drill completely through the fuselage side. Remove the remove the torque tube assembly Follow the directions provided in your Helicoil Kit and install a 1032 Helicoil in each hole.

**Step 5. Install rudder torque tubes.**

Install the rudder pedals and brake master cylinders per procedure 5.011. Position the rudder torque tube assembly in place. Cleco the mid brackets to the firewall. Install the 8 bolts that secure the outer bearing brackets to the fuselage side. Install the four bolts to the center angles and tighten. Check the rotation of the torque tubes for freedom of movement.

