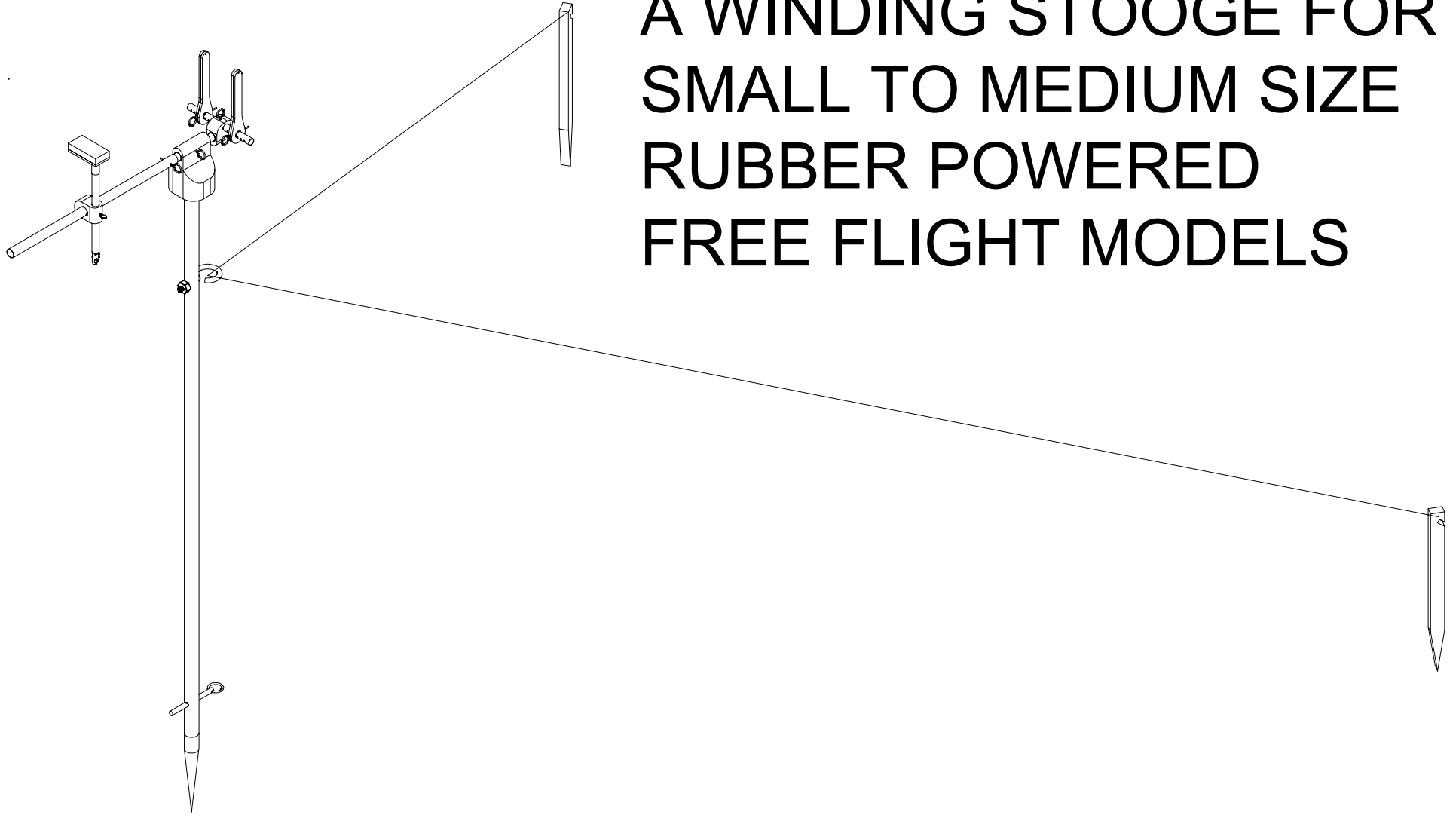
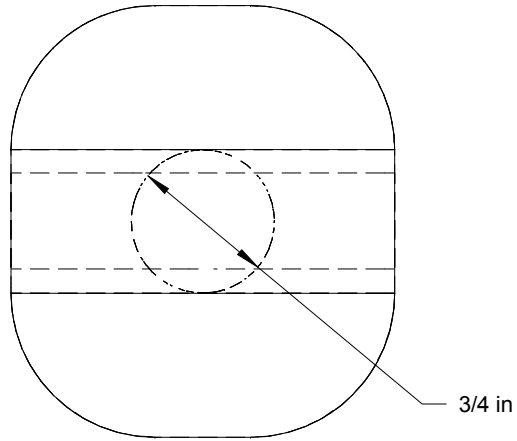


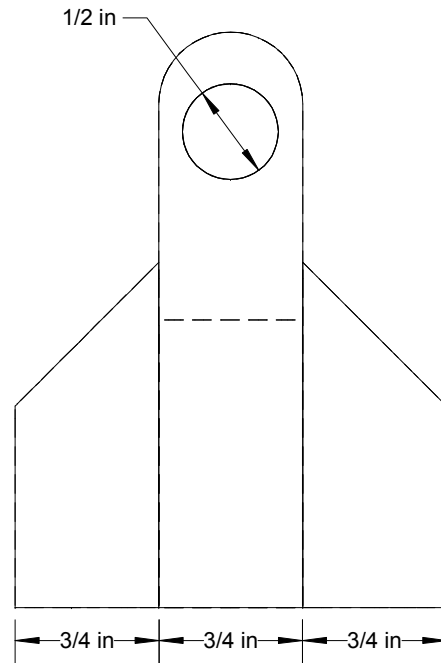
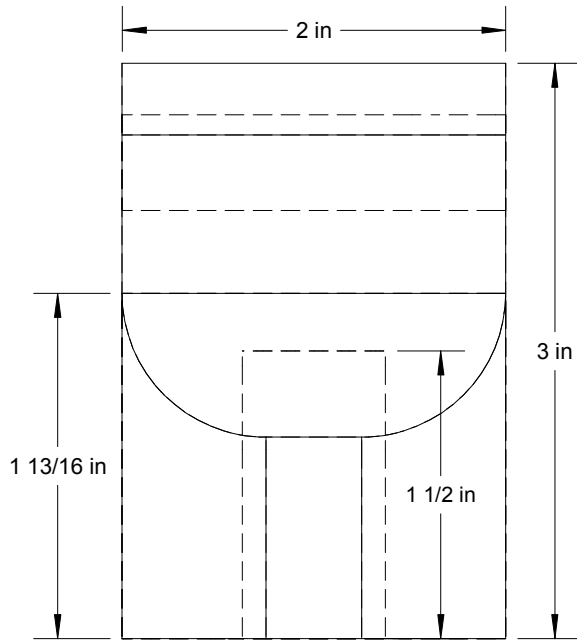
A WINDING STOOGGE FOR SMALL TO MEDIUM SIZE RUBBER POWERED FREE FLIGHT MODELS



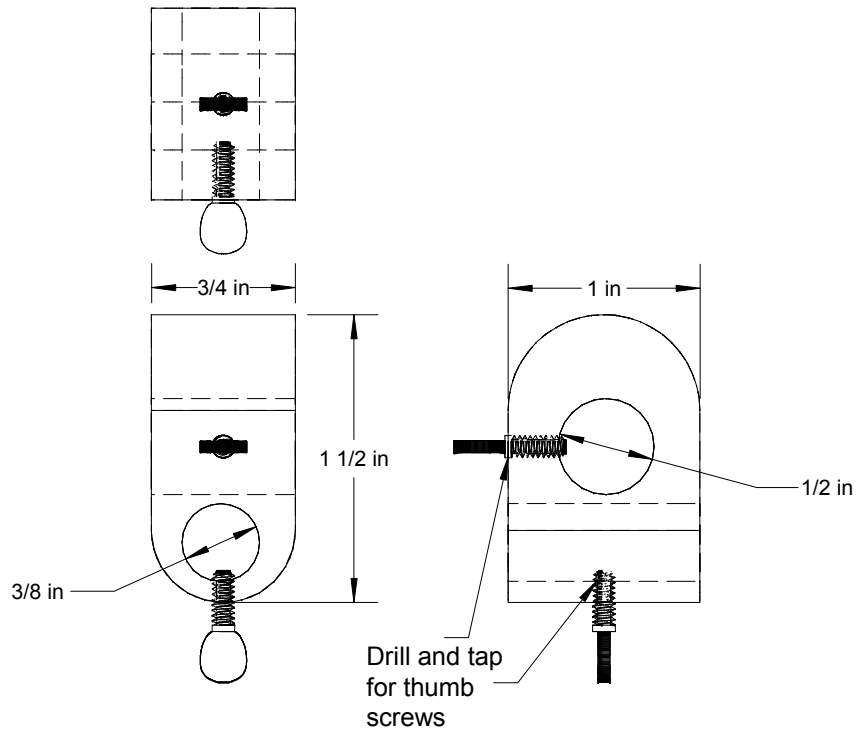
BY PAUL BRADLEY



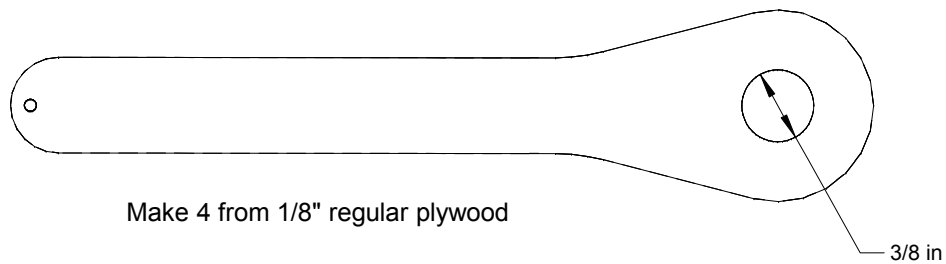
Make from hard wood such as oak



HEAD PIECE

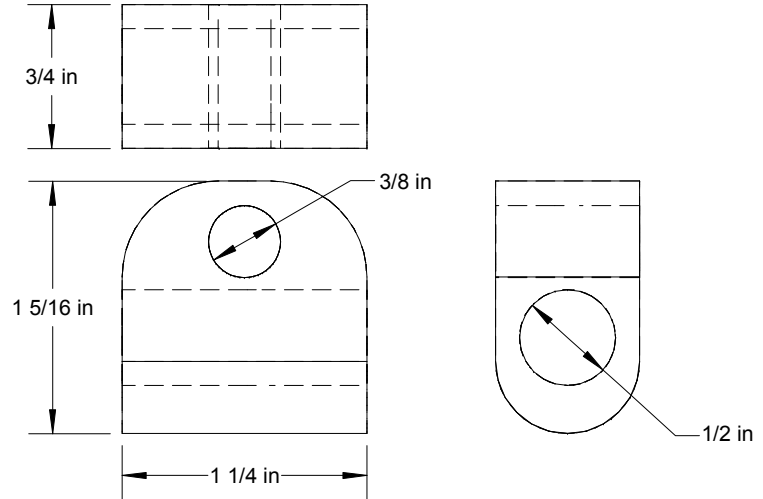


SUPPORT BLOCK
Make from hard wood such as oak

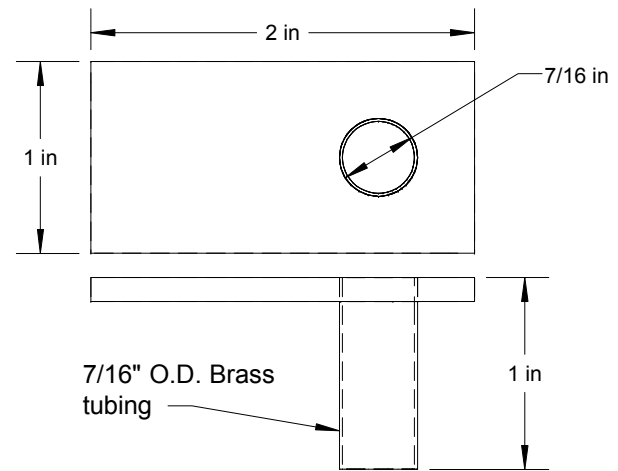


Make 4 from 1/8" regular plywood

ANCHOR PIECE



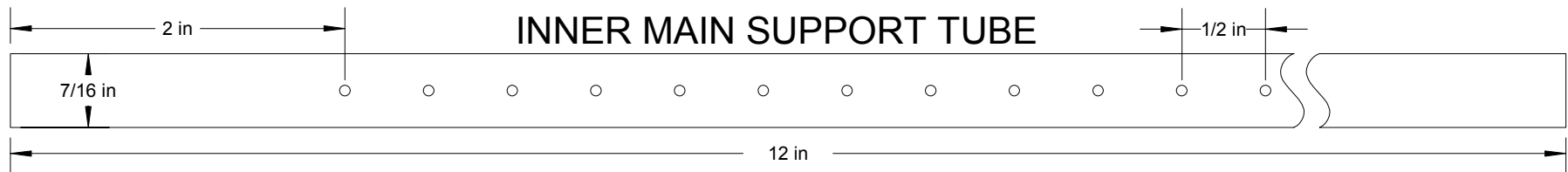
TAIL BLOCK
Make from hard wood such as oak



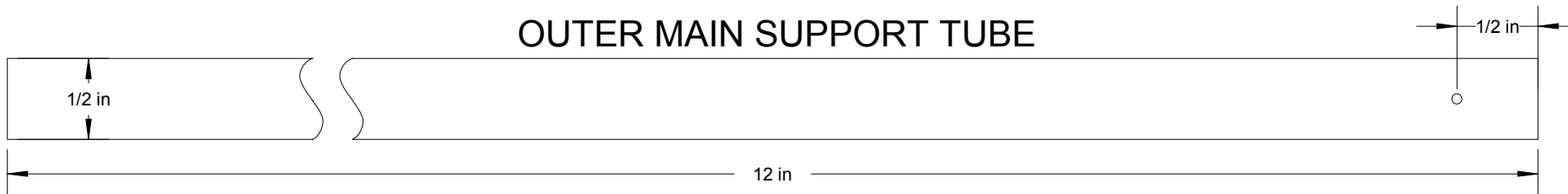
SUPPORT PLATFORM
Make from 1/8" regular plywood

WINDING STOOGIE

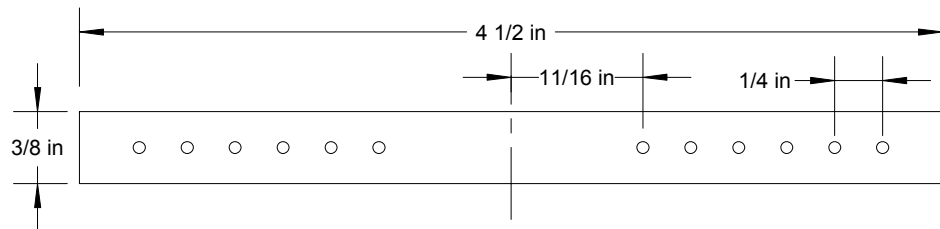
Designed and Drawn By Paul Bradley



INNER MAIN SUPPORT TUBE



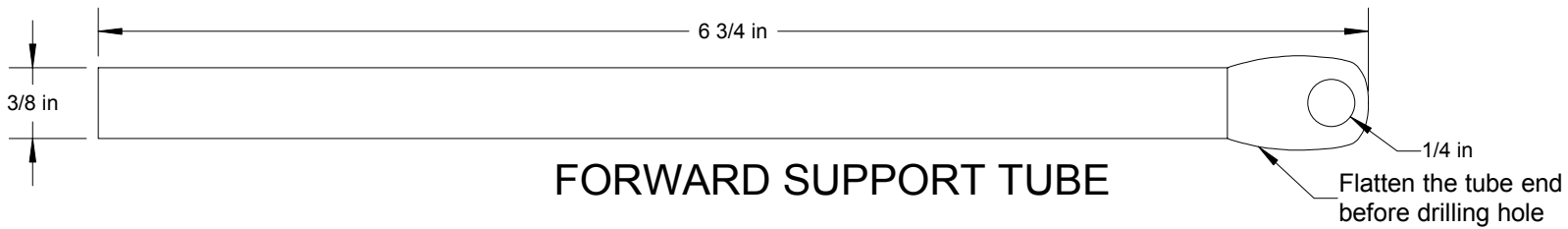
OUTER MAIN SUPPORT TUBE



TAIL PIECE TUBE

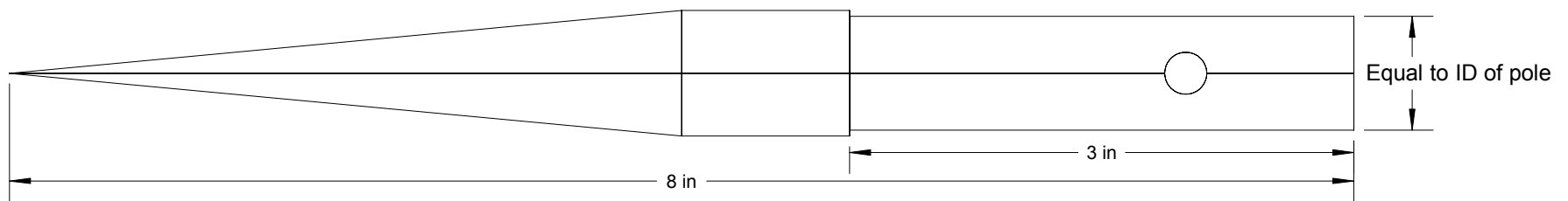
All tubes are brass

All tube cross drilled holes are 1/16" diameter



FORWARD SUPPORT TUBE

Flatten the tube end before drilling hole

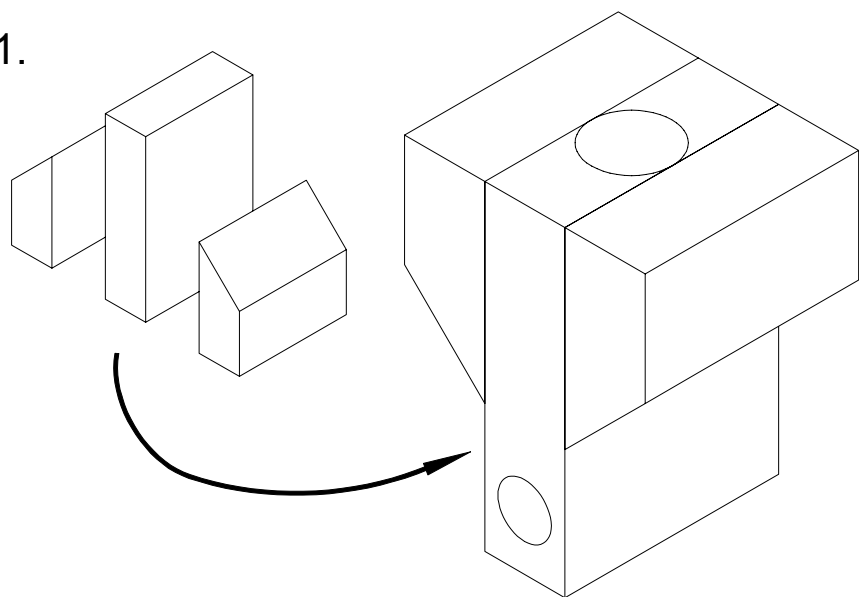


GROUND PENETRATOR

Make from 3/4" steel rod

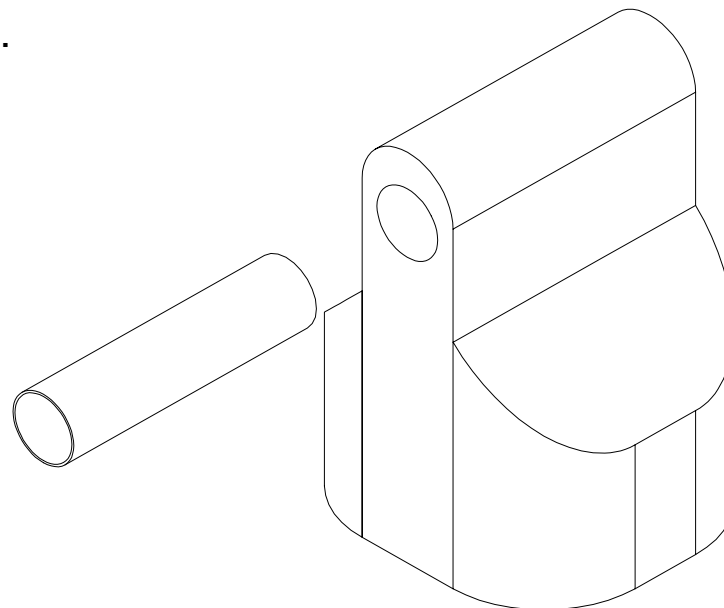
WINDING STOOGES
Designed and Drawn By Paul Bradley
Sheet 3 of 3

1.



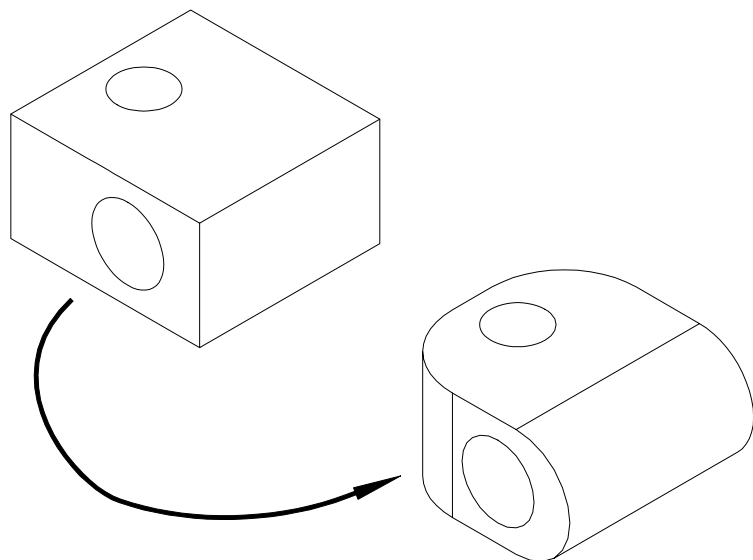
Begin by making up the head piece. Cut the three individual pieces and then glue them together. Drill the 3/4" hole for the support pole and the 1/2" hole for the main fuselage support tube.

2.



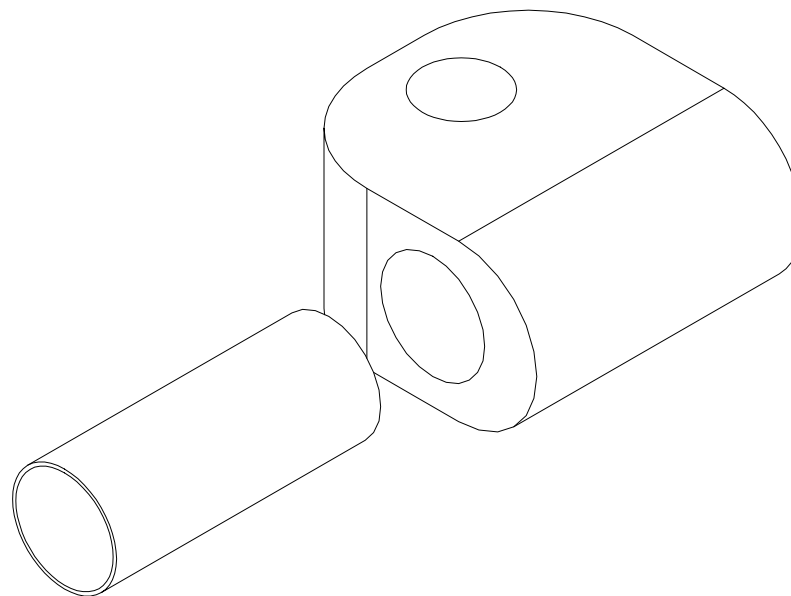
Cut a length of 1/2" brass tubing to a length of 2". Glue the piece of tubing into the 1/2" hole in the head piece. Round off the edges of the head piece as shown.

3.



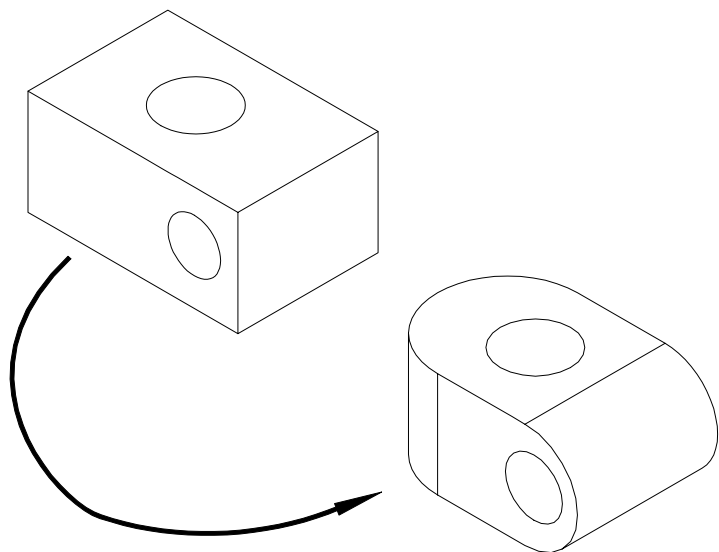
Cut a block to the dimensions of the tail block. Drill the holes and then round off the edges as shown.

4.



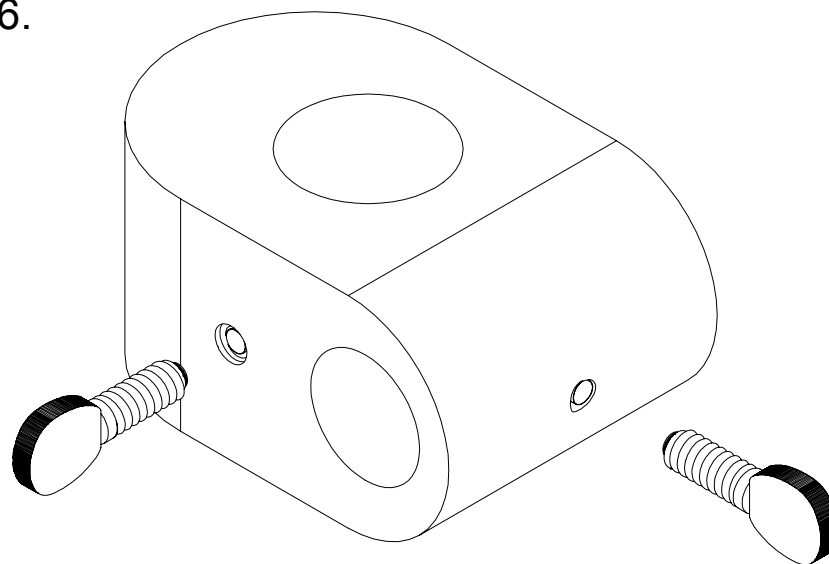
Glue a 1 1/4" length of 1/2" tubing into the 1/2" diameter hole in the tail block.

5.



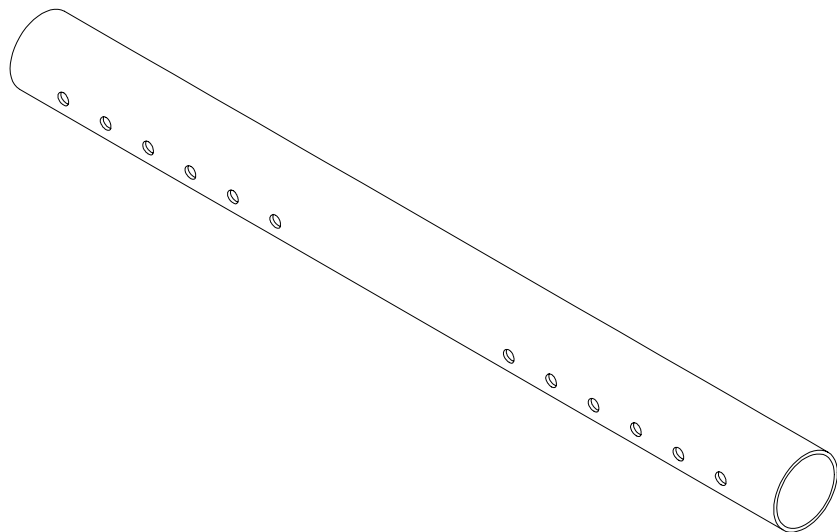
Cut a block to the dimensions of the front support block. Drill the holes and then round off the edges as shown.

6.



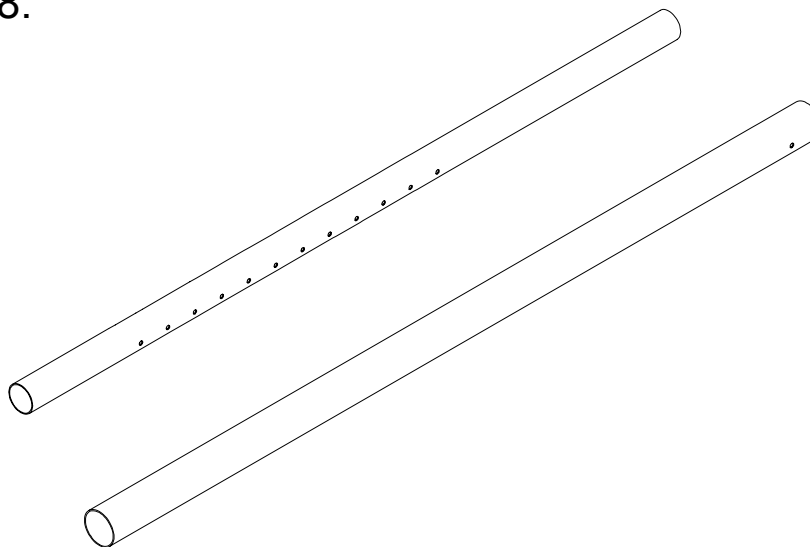
Select two thumb screws from your favorite hardware source. Drill and tap the block for the thumb screws as shown.

7.



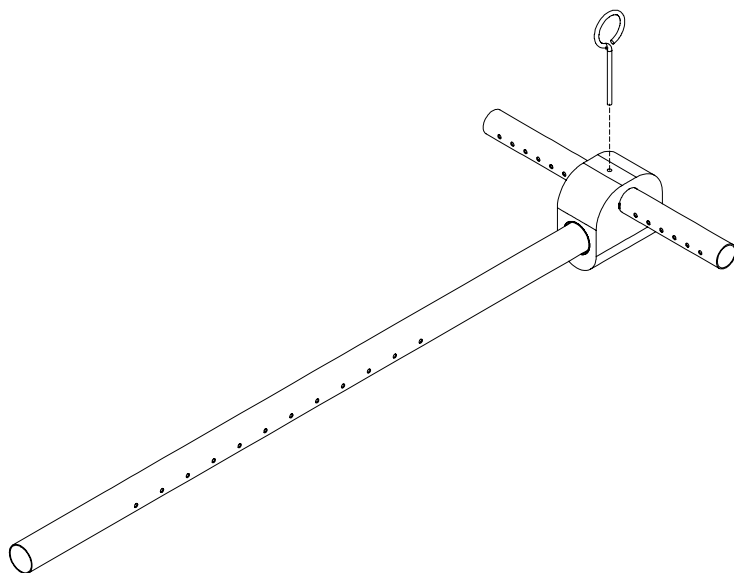
Make the tail piece tube from 3/8" diameter brass tubing. The 1/16" diameter holes are drilled through both sides of the tube.

8.



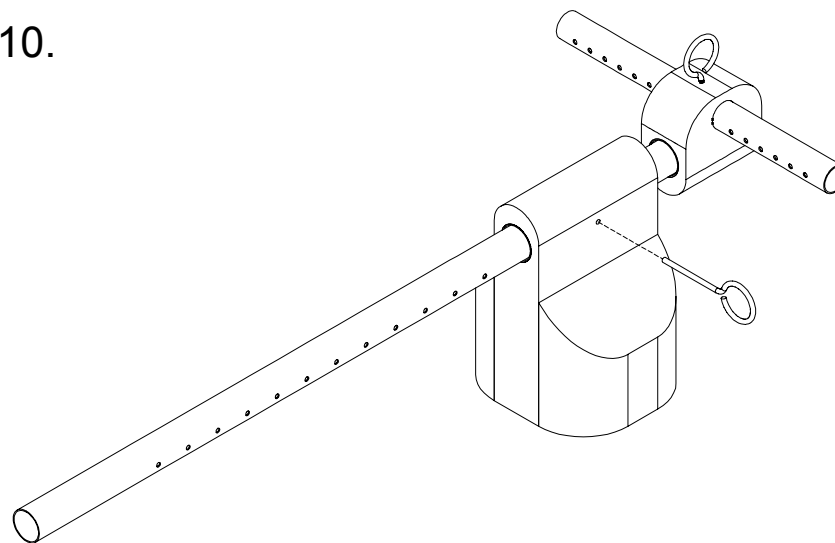
Make the inner main support tube from 7/16" brass tubing. The 1/16" diameter holes are drilled through both sides of the tube. Also make the outer main support tube from 1/2" brass tubing. The 1/16" diameter hole is drilled through both sides of the tube.

9.



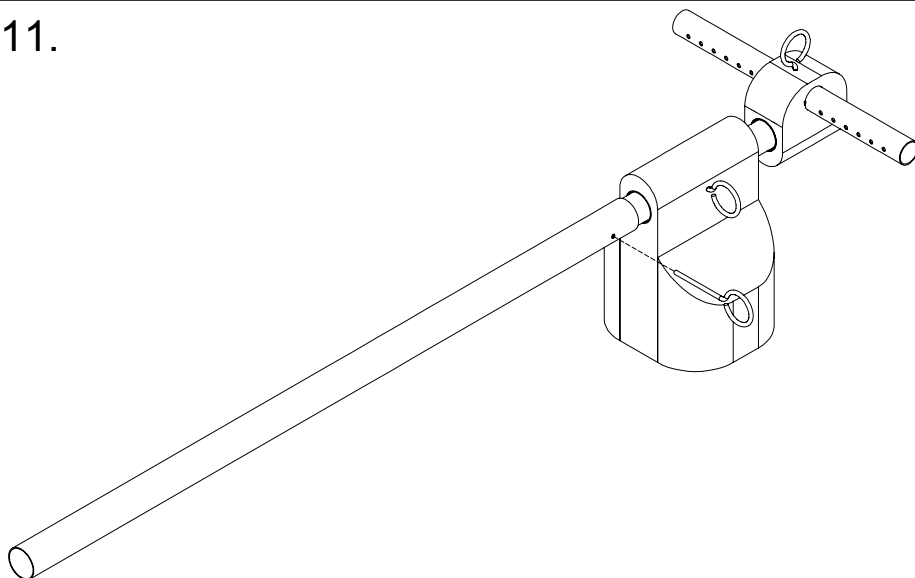
Insert the tail piece tube in the tail piece block. Be sure the tube is centered in the tail piece block. Also insert the inner main support tube in the tail piece block as shown. Drill a 1/16" diameter hole through the tail piece vertically through the tube as shown. Insert a pin made from 1/16" music wire in the hole to secure the tube.

10.



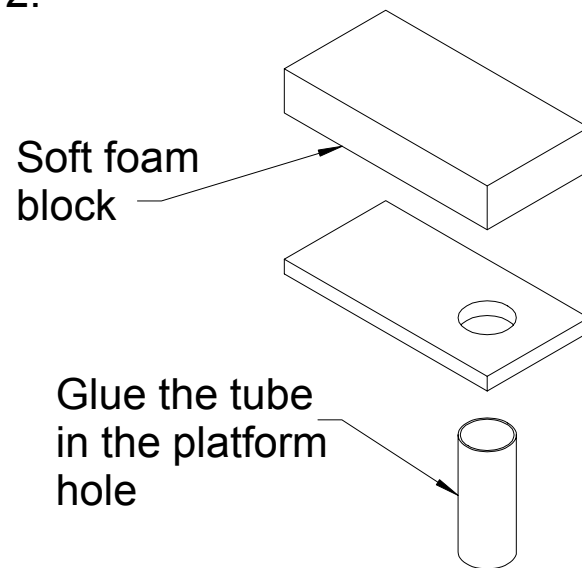
Slide the head piece on to the inner main support tube. The rear edge should be close to the tail piece block. The actual dimension is not critical. Drill a 1/16" diameter hole through the head piece and the inner main support tube as shown. Insert a pin made from 1/16" music wire.

11.



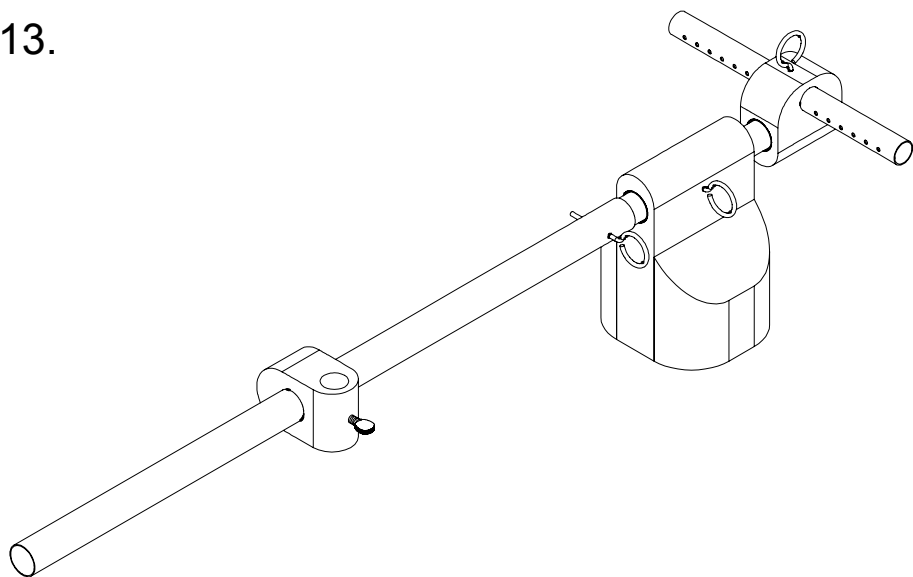
Slide the outer main support tube over the inner main support tube. Align the holes in the outer tube with an appropriate set of holes in the inner tube for the length of the fuselage of the model to be wound. Insert a pin made from 1/16" music wire in the hole to lock the outer main support tube in place.

12.



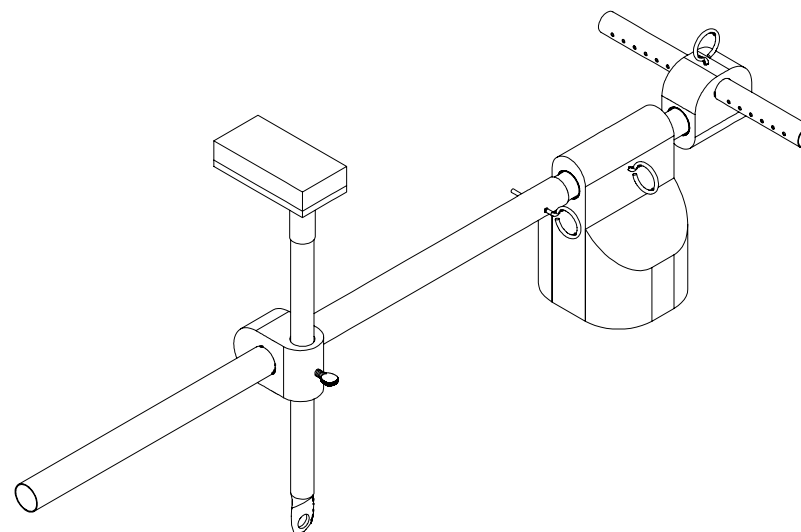
Build the forward support platform from 1/18" plywood and a 1" length of 7/16" brass tube. Glue a block of soft foam to the top of the platform.

13.



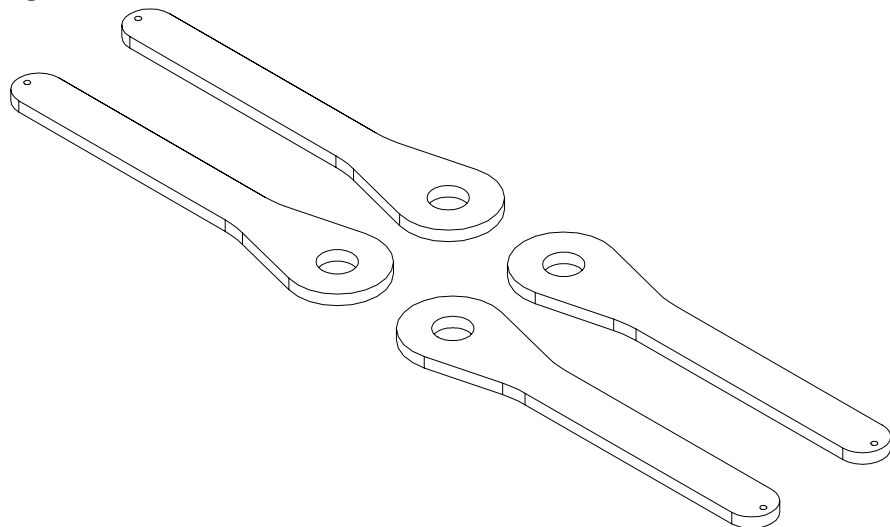
Slide the forward support block on to the main support tube. Locate it so the nose of the model's fuselage will rest on the support platform. Use the thumb screw that will be on the bottom to lock the forward support block in the desired location.

14.



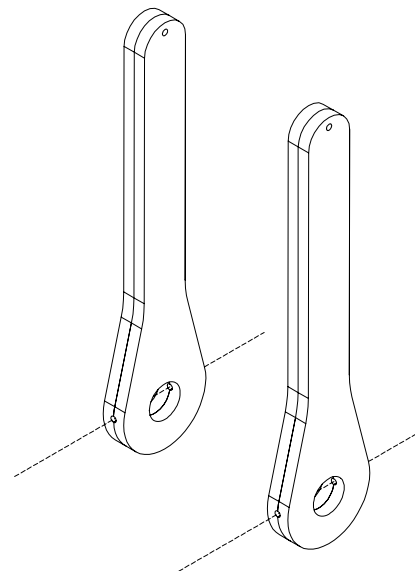
Slide the support post into the forward support block from the bottom as shown. Place support platform on top of the post. Set the height to match what is needed to hold the nose of the model being wound. Lock the position with the thumb screw.

15.



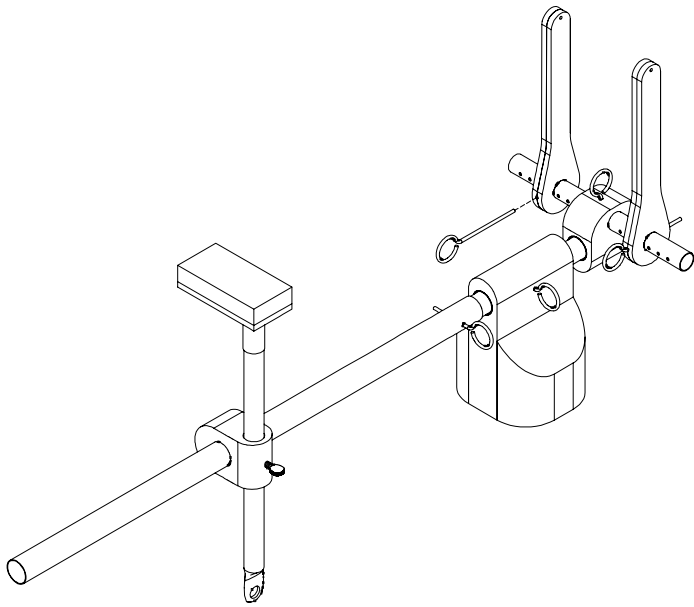
Cut out four anchor pieces from 1/8" plywood.

16.



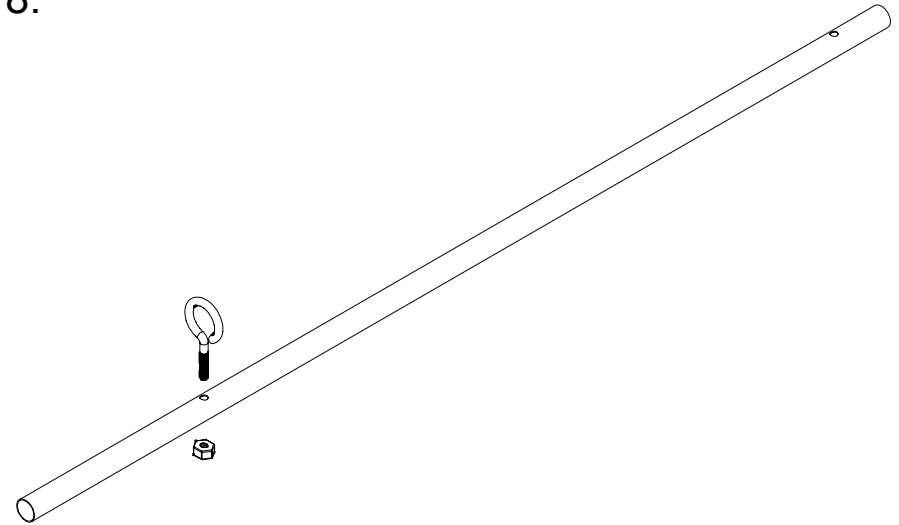
Make up two anchors by gluing two pieces together. Drill a 1/16" diameter hole through each anchor as shown. The holes should pass through the center of the tail piece tube hole.

17.



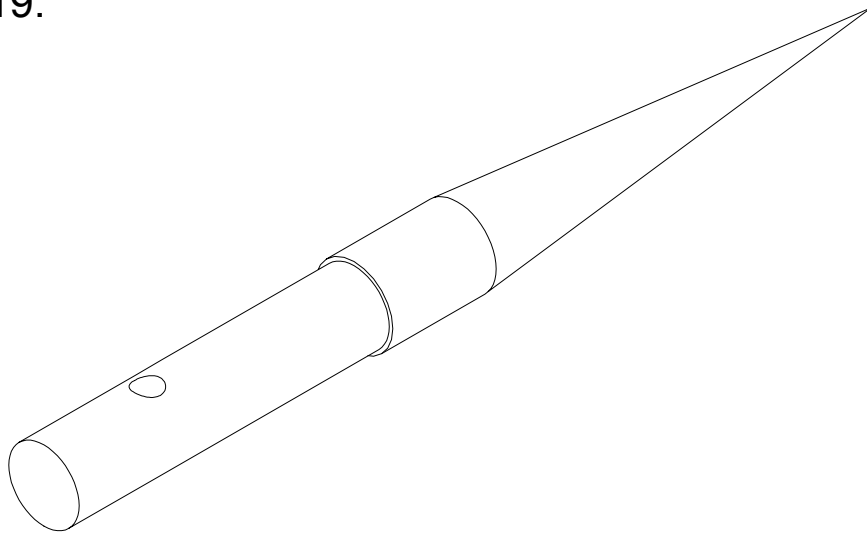
Slide each anchor over the tail piece tube. Line up the holes with the appropriate holes in the tube based on the width of the model's motor peg. Insert pins made from 1/16" music wire to lock the anchors in place.

18.



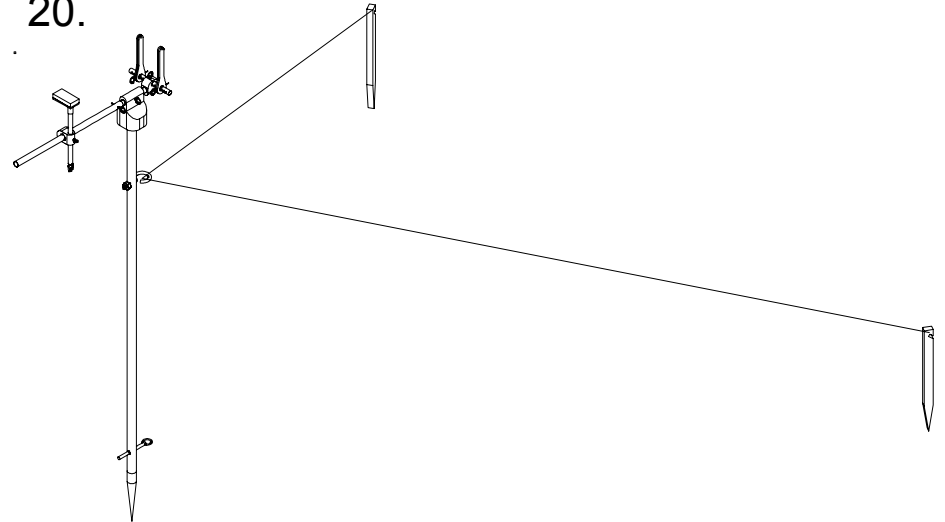
The support pole is made from 3/4" diameter aluminum tube that is 36" long. Drill a hole for a 1/4" eye bolt 7 1/2" from the top of the pole. Insert an eye bolt in the hole and secure with a nut. Also drill a 1/4" hole 2" from the bottom of the pole for a drift pin.

19.



Make the support pole ground penetrator from a 8" length of 3/4" steel rod. Grind the top 3" of the rod to a diameter that matches the inside diameter of the support pole. Drill a 1/4" hole 2" from the end of the reduced diameter end of the rod. Also grind a taper at the opposite end of the rod.

20.



The stooge is set up by driving the ground penetrator into the ground. Place the support pole over the end of the penetrator. Align the hole in the pole with the hole in the penetrator. Place a drift pin through the hole. Clip two dog leashes to the eye bolt. Extend the dog leashes away from the pole so they form a "V" pattern. Anchor the dog leashes to the ground using tent stakes. Place the stooge on the pole and you are ready for your model.