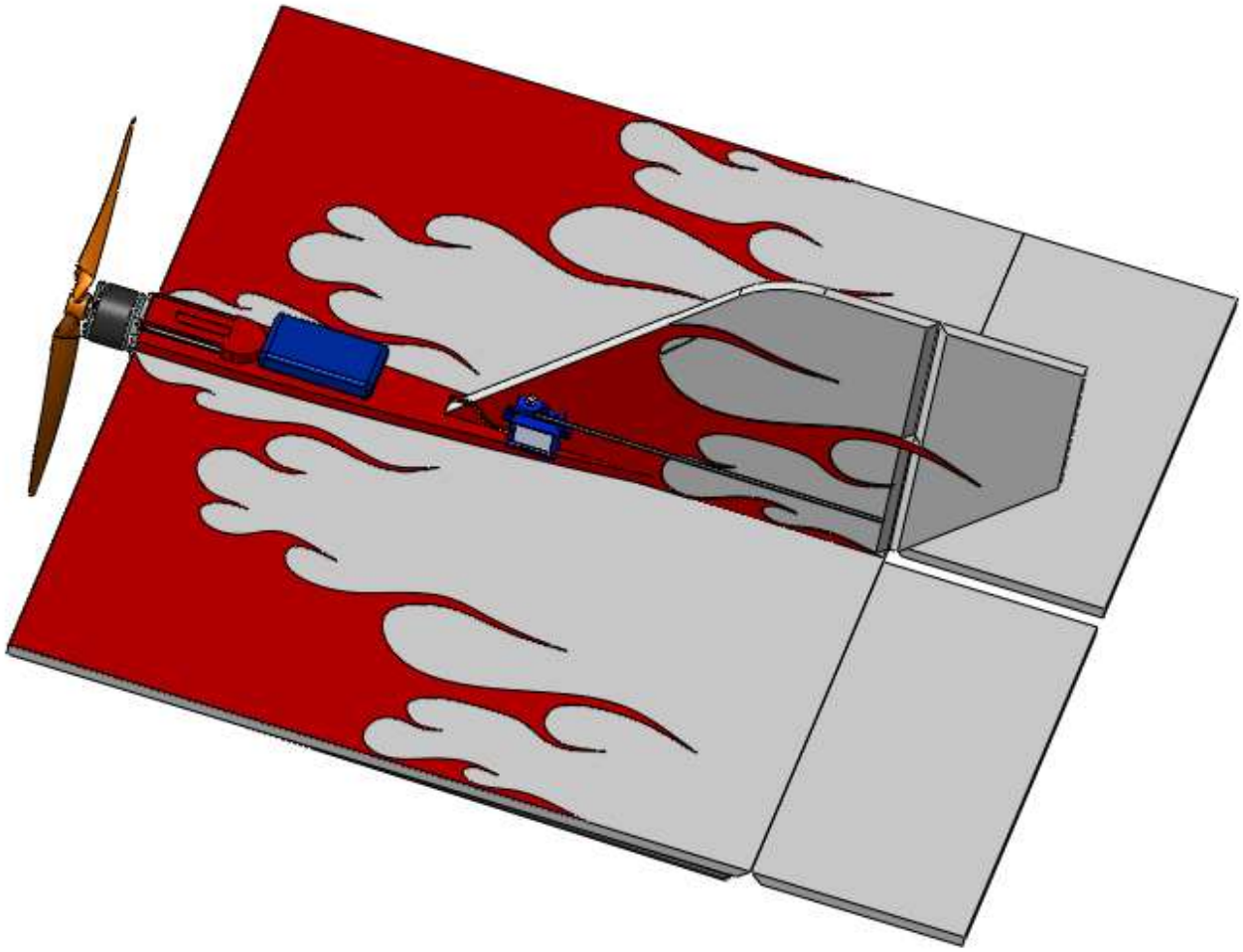
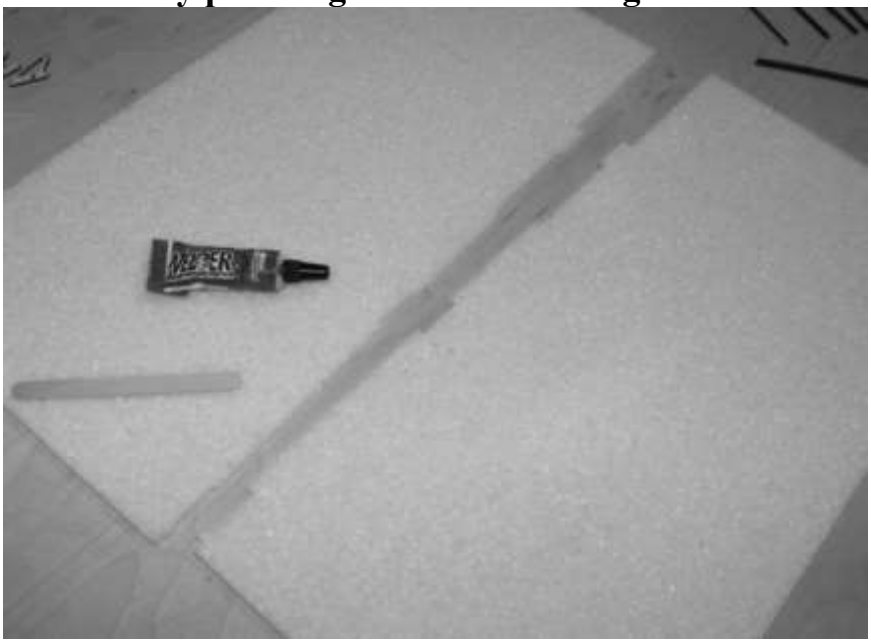
Mini PBF



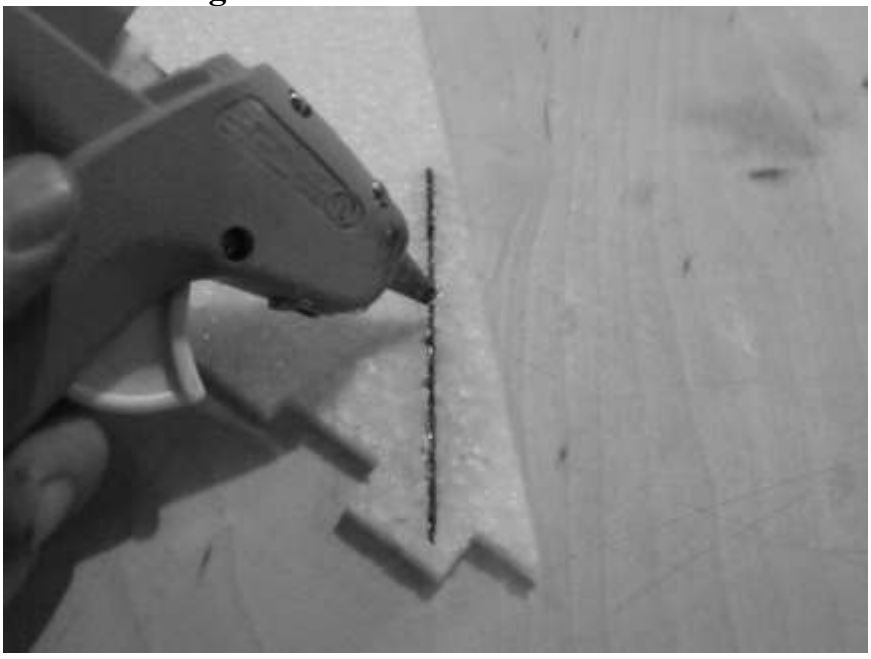
1. **Glue Body halves together**
2. **Glue carbon into vertical stab**
3. **Glue plastic tubes to foam**
4. **Cut/build control rods**
5. **Glue carbon X to body**
6. **Glue front end foam**
7. **Glue in control horns**
8. **Glue in vertical stab**
9. **Install electronics**

1. Glue the two body parts together. “Welders” glue works well for this.



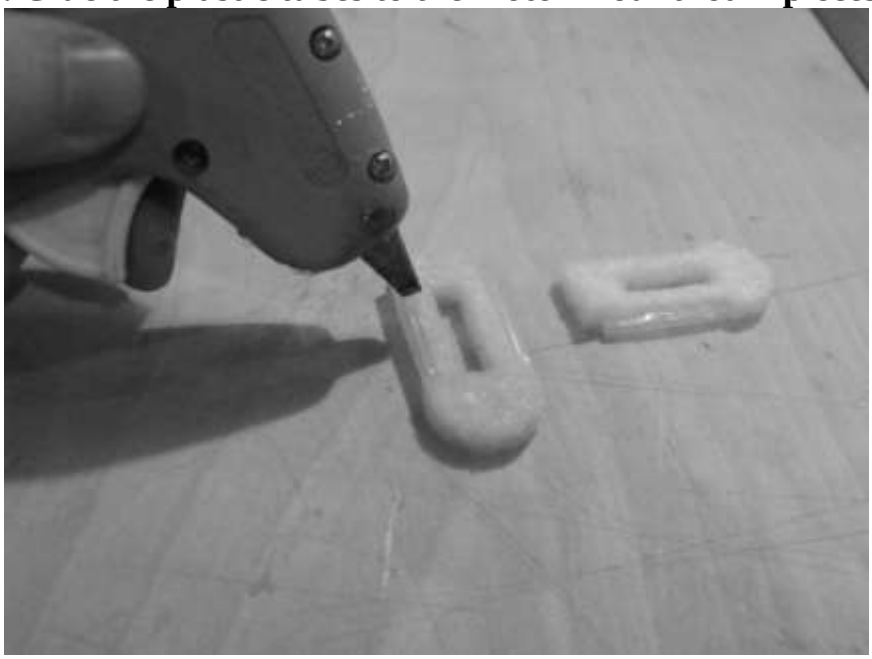
Putting a bead on the edge and using a popsicle stick to smear it around is any easy way to get even coverage and keep your fingers out of the glue. Working on wax paper can help keep your table clean. Another option is to cover the affected area with low tack tape.

3. Glue 4” long flat stick of carbon into the vertical stab.



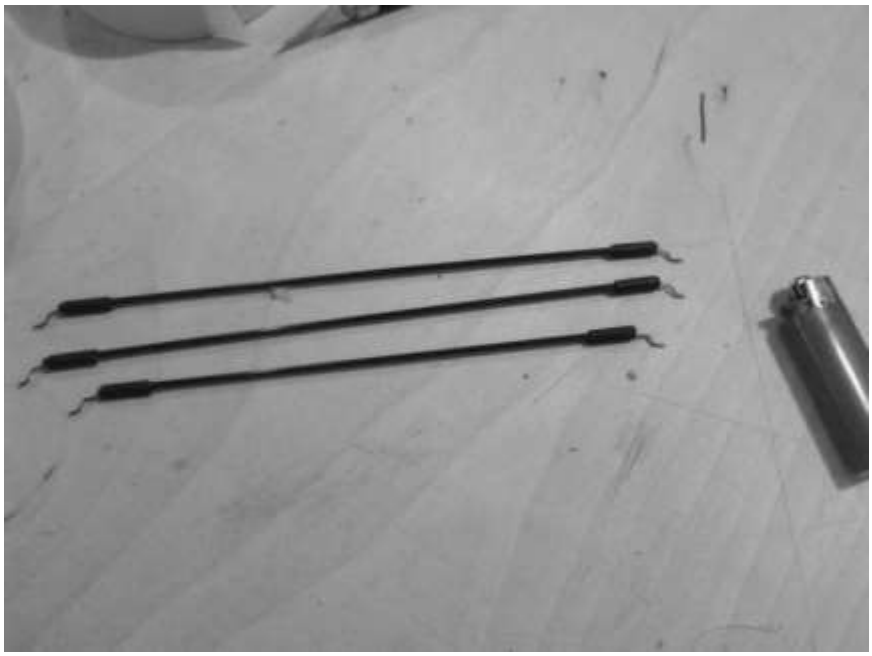
Low temp hot glue works well for this. Insert the carbon and run the glue gun across. The carbon will recess some while doing this. Flip over and do the same, the carbon should be somewhat centered and secured at this point.

4. Glue the plastic tubes to the motor mount foam pieces.



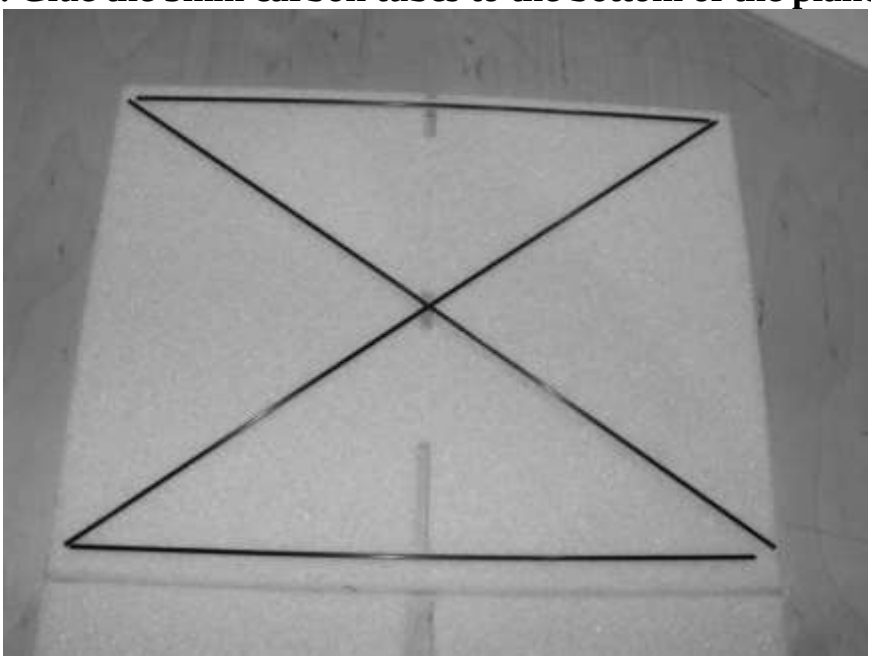
Cut the tube to 1” lengths. Slide the tube to the rounded side of the foam. The tubes should be recessed from the leading edge side to allow motor angle changes. Start by gluing the tube to the foam with both parts laying flat on the table. The tubes will be offset when compared to the thickness of the foam. If not running a motor with a 28mm mounting pattern, adjust this step to accommodate your setup.

5. Cut and build the control horns



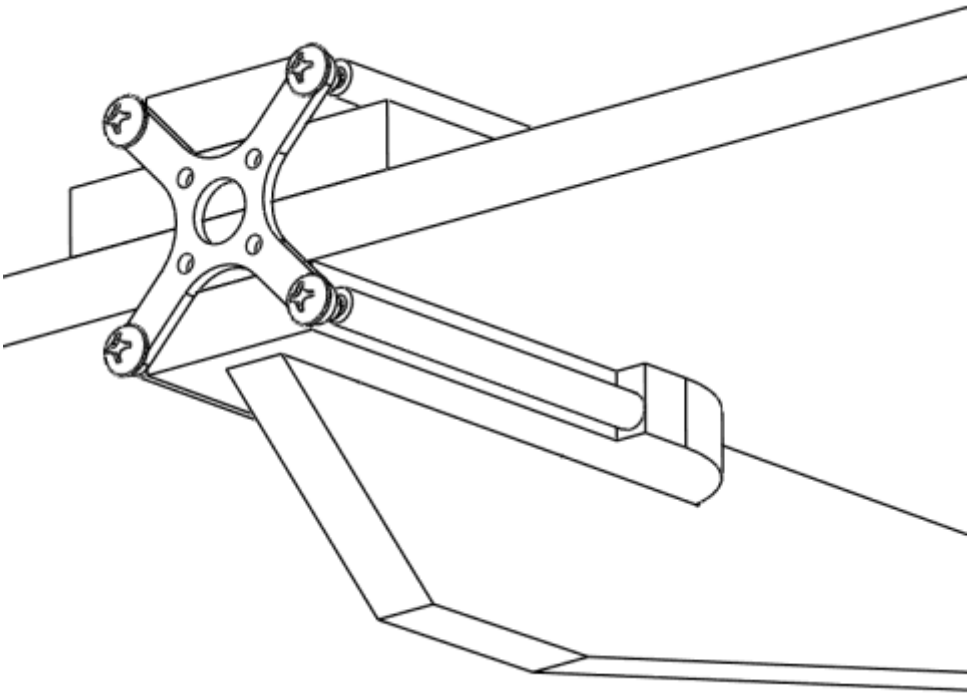
Cut the wire to 1” lengths, you will need 6 pieces. Put a Z-bend onto one end of each wire. The adhesive shrink wrap will also need 6 pieces, but at 9/16” lengths. 2mm carbon tube should be cut to lengths of 7”,7” and 5.5”. With the carbon cut attach the wire Z-bends to the tubes by heating the shrink wrap around them.

6. Glue the 3mm carbon tubes to the bottom of the plane.

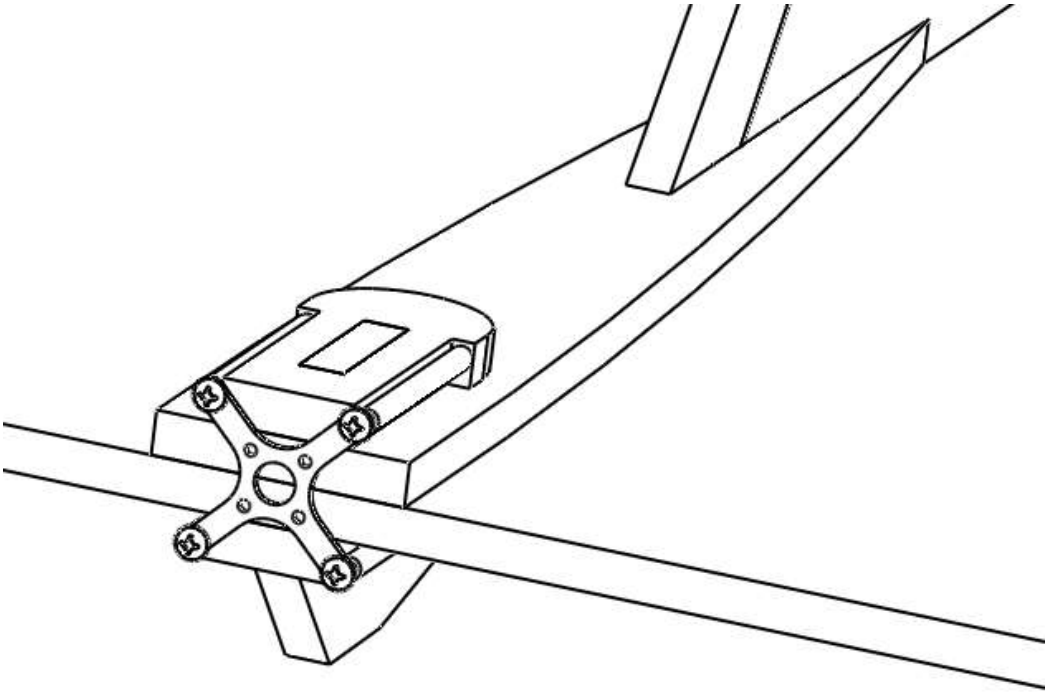


The 16.5” tubes should be mounted fore and aft, the 21” tubes run diagonally from front to back. Low temp hot glue works well here too.

7. Glue the front end foam

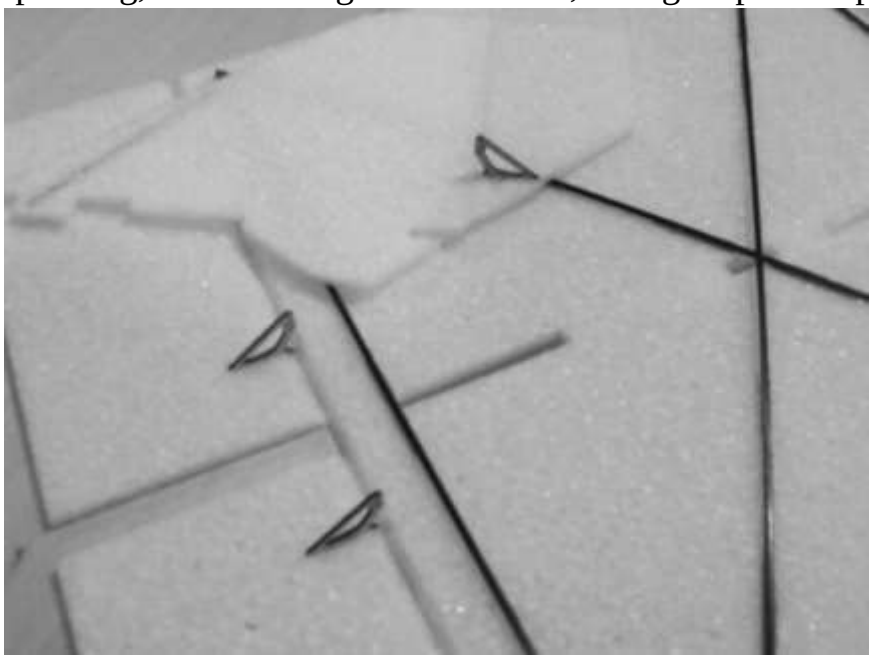


Slide a mount piece onto the foam piece with the long tab. Then slide the tab thru the slot in the body in the front of the plane. A small notch should be cut into the foam to add clearance for the carbon tube near the leading edge.



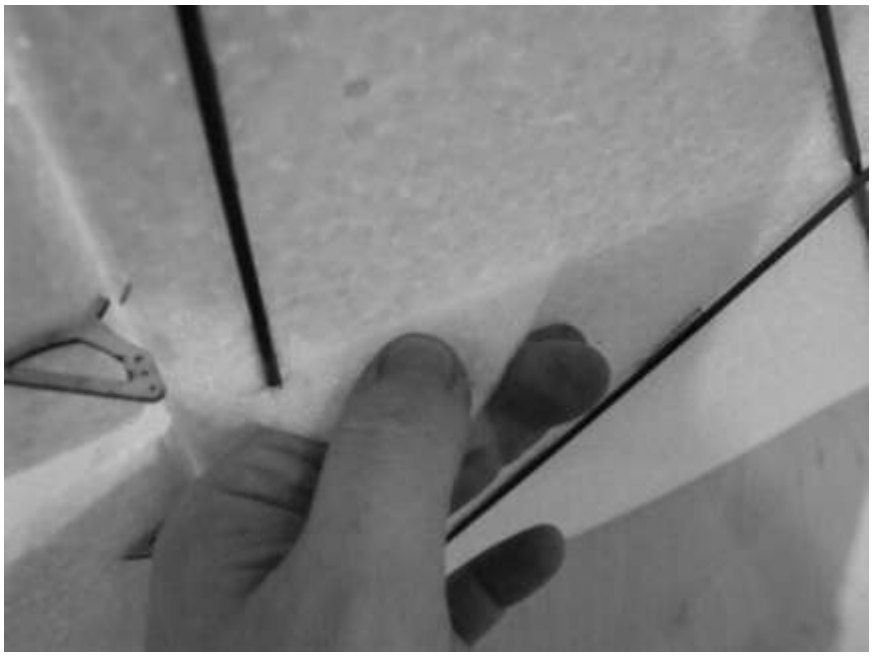
Place the long foam part over the tab sticking thru the bottom of the plane. Then slide the upper motor mount onto that. Check the alignment of the plastic tubes to your motor mount. For a 28mm pattern the tubes will be flush to the foam side up on the top down on the bottom.

If you have not painted your plane, now is a better time than later!!!
After painting, and checking motor fitment, then glue parts in place.

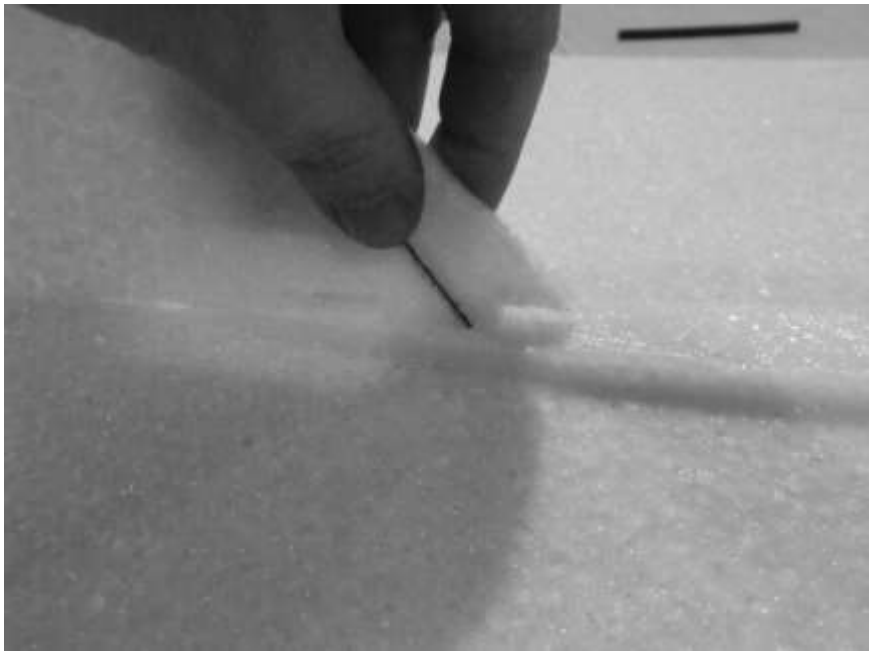


8. Glue in control horns
You will need to cut slots in the control surfaces. Elevons should have the horns mounted facing down.

9. Glue in the vertical stab

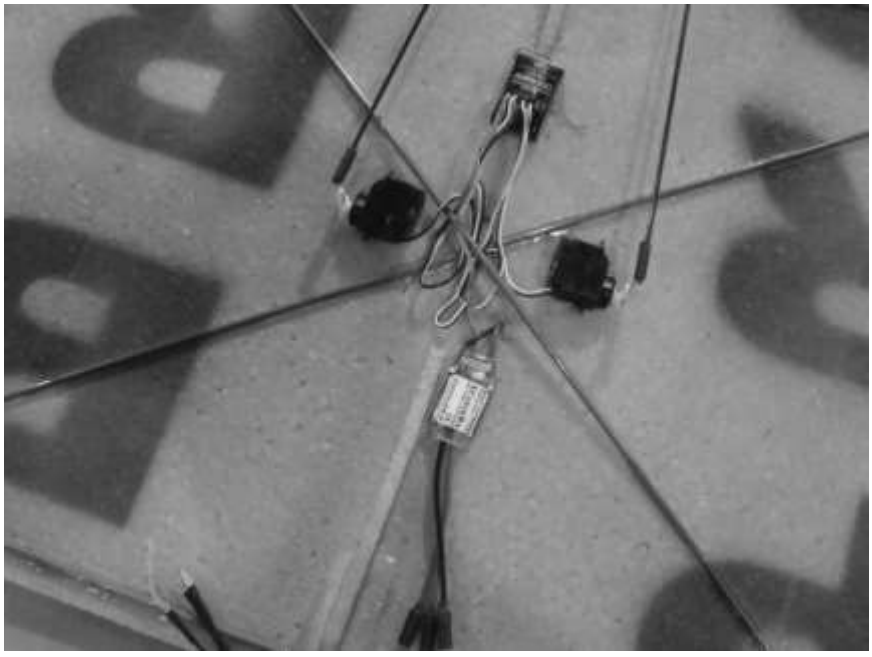


Start by rotating the aft portion of the vertical stab thru the hole, pulling it over the rear carbon spar. With the vertical stab pulled thru enough the forward side will come thru the slot. You can then slide the leading edge of the vertical stab into it's notch.



While paying attention to squareness, glue the vertical stab in place.

10. Install electronics



Center your servos, attach the servo arms. Attach the control rods to the horns and the servo arms. Glue the servo on to the plane while centered, place the servo so as to center the affected control surface, and hold until glue sets. Cut a small line into the body to allow the rudder servo wire and ESC battery wires to pass thru. Mount the Rudder servo and ESC on opposite sides of the body to help balance. The battery is typically mounted on the top side of the plane, just in front of the vertical. If needed to allow for proper CG mounting the battery on the underside is perfectly acceptable.

CG should be 4.5" aft of leading edge. A down thrust angle is suggested as a starting point. Try 5° down thrust at first, adjust by compressing the foam behind the motor more or less. The objective of changing the thrust angle is to allow one to change throttle with minimal effect to flight.

Parts Included:

(2) 21” 3mm carbon tubes

(2) 16.5” 3mm carbon tubes

(1) 19.5” 2mm carbon tube

(1) 4” 3x1mm carbon strip

(1) 6” z-bend wire

(1) 4” adhesive shrink wrap

(1) laser cut foam plane (hinges router cut)

(1) 4” PE mount tubing

(4) motor mount screws

Suggested Parts:

This design can be adapted to a wide range of products. The suggested parts should balance out well with the directions described above. If choosing a heavier motor, moving servos aft, and mounting the batter under the plane and aft may be needed. If running an extremely light motor, mounting the battery directly behind the motor, and using a pull-pull type control system can allow this.

Expect a target weight of around 5-6 oz. If targeting the lighter end of the spectrum, battery will likely be located on the leading edge. Also be warned that a tail mounted streamer will affect balance.

CG set to 4.5” aft of leading edge

9 gram servos (3)

24 gram motor (minimum, or use larger battery)

2s 500-800 mAh battery

Elevon mixing radio

AUW 5.5oz
Width 18”
Length 18”
Wing Area 2.18 sqft
Horz Area 2.18 sqft
Vert Area 0.25 sqft
Elevons 2.25”
Rudder 1.5”