

STS Build Guide



Supplies needed

Blucore or Depron Foam. Blucore (Fan Fold Foam) is available at Lowes. Approximately \$25 for 50 feet of Blucore. Depron can be ordered on the internet for slightly more.

CA glue (foam safe)

5 minute epoxy

Exacto knife with #11 razor blades

Hot Glue gun and glue sticks. \$1 each at the Dollar Store.

Cheap plastic credit cards.

Clear packing tape

3/16 inch wood dowel

Basswood stick 3/8x3/8x4 inches

Music wire 3/32 x 24in.

Music wire 1/32 (.032)x 12 in.

Music wire 1/16 in.

2 carbon fiber rods aprox. 1/8 x 12 in. (3mm) with tits. (inserts with threaded ends)

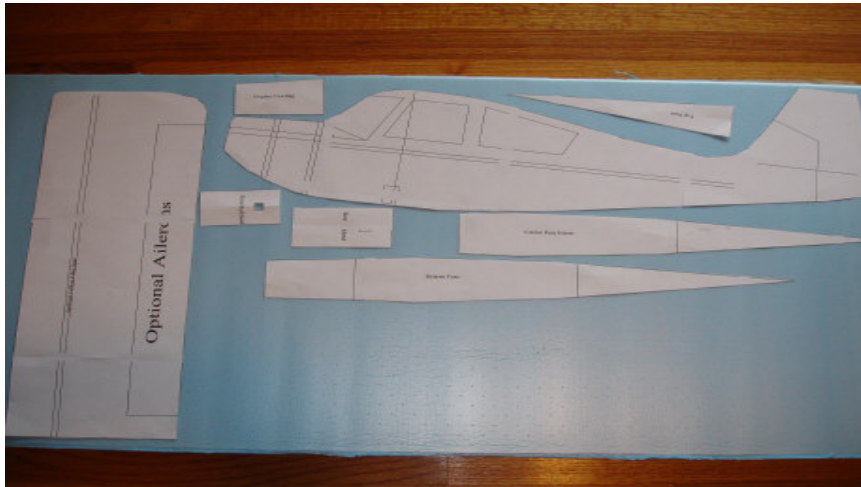
4 Du-Bro Nylon Quick Links, Standard size. Cat. No 122

4 Great Planes Flat Nylon Gear Straps (QPMQ4250)

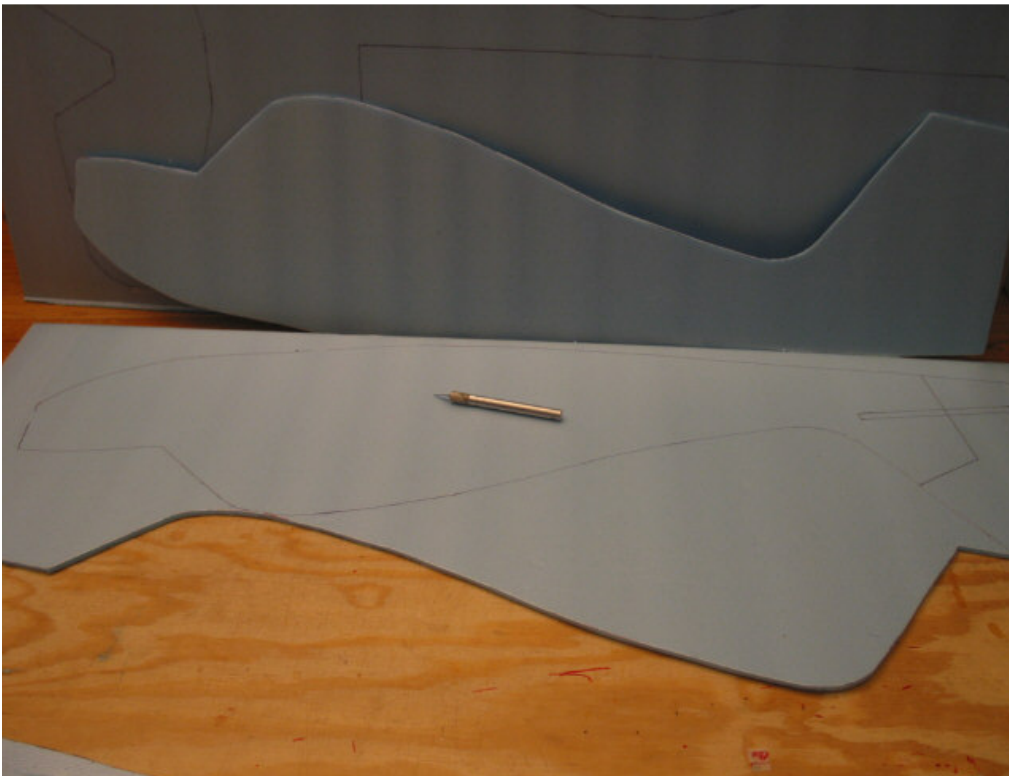
GWS Seaplane Floats or equivalent. Aprox. 21 inches long

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Getting Started



Tape tiled plans together to make full size plan. With full size or tiled plans that have been taped, cut out the STS and tape to the foam. Trace along the outside edge and remove plans. Using a sharp new #11 exacto knife, cut out the STS holding the knife straight. Take your time and make smooth, long cuts.



Continue until all pieces have been cut out of the foam.



Take the two fuselage pieces and peel the skin off the inside halves. Using the plans, mark on the inside fuselage the Center Joiner, glue line for the tail, the two bulkheads of the engine bay, and the motor mount “stick”. Doing the markings now will make it easier to build.



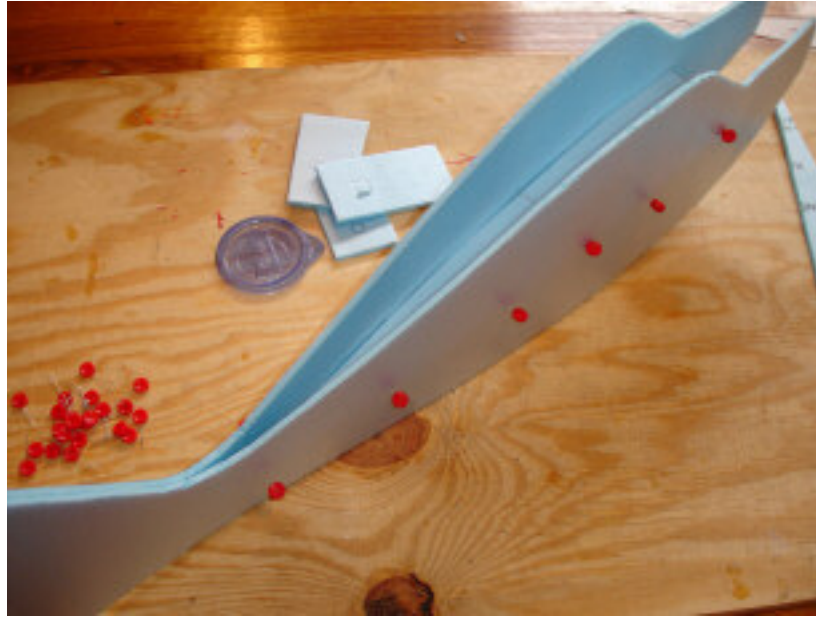
Using 3M 77 Spray or Craft Bond, spray the tail area behind the glue line.



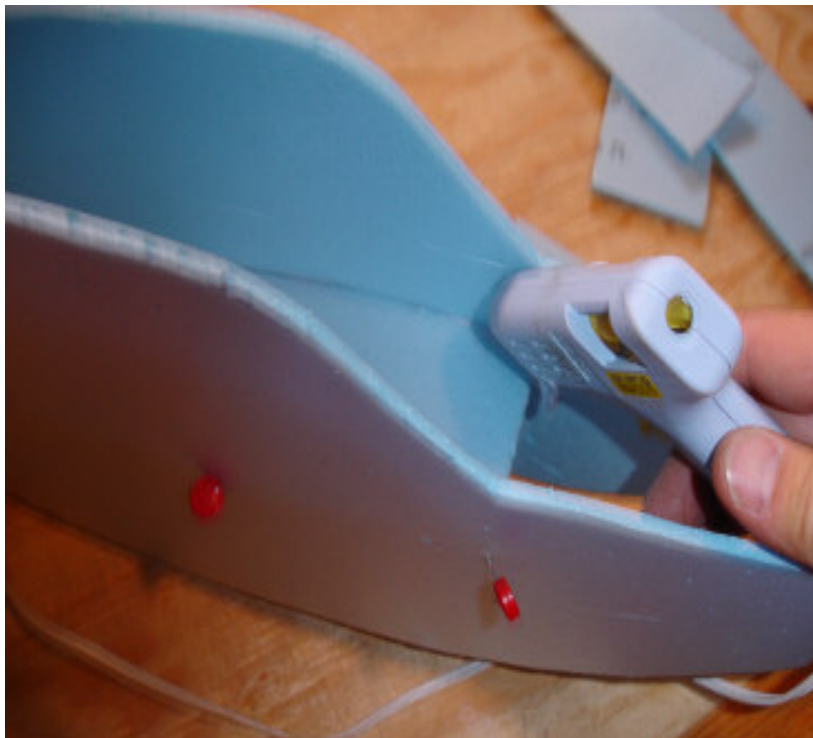
Now press the two fuselage halves together at the tail. Allow to dry.

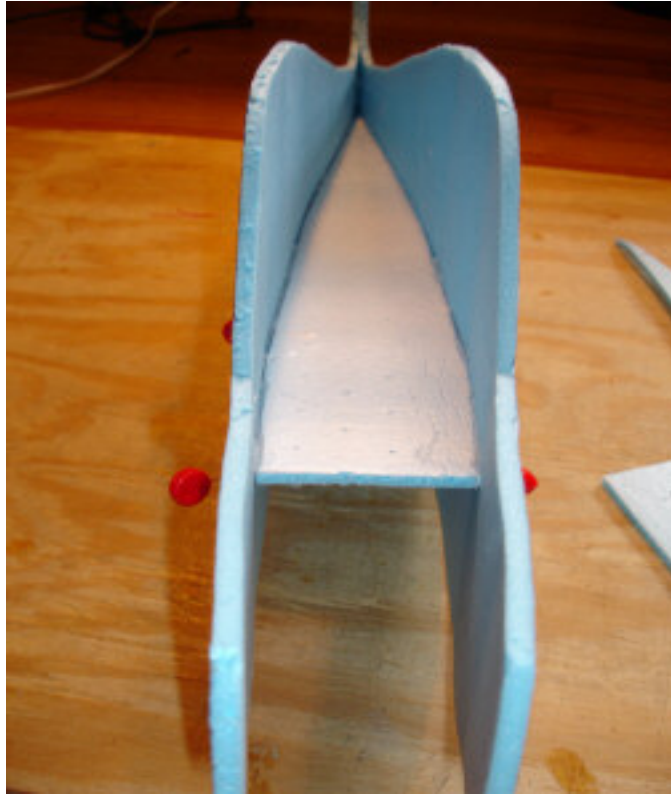


Using the lines on the inside of the fuselage, position the Center Joiner.

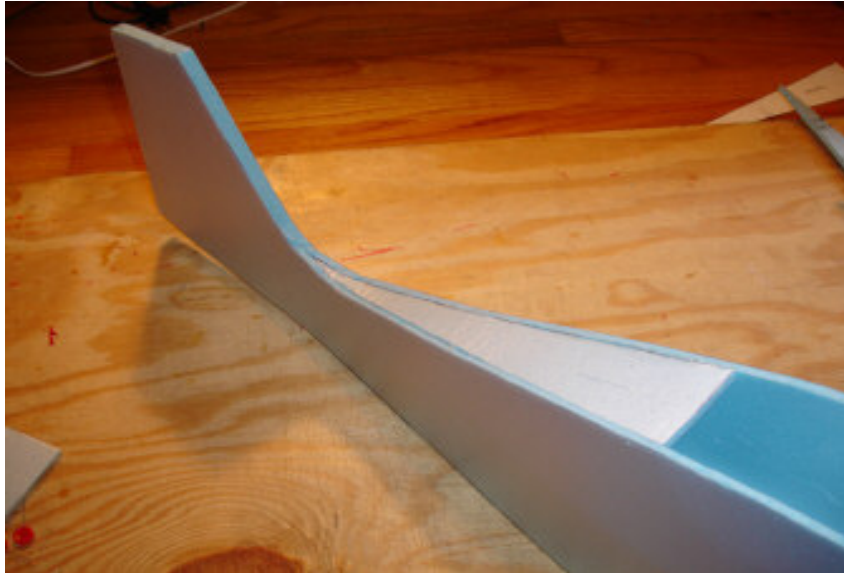


Begin attaching the Center Joiner by hot gluing a few inches on each side and pressing them together. **WARNING!!** Do not attach one whole side and then attach the other. It will come out crooked! Glue about 5-6 inches at a time on **BOTH** sides, then press. Next 5-6 inches, etc. until you work your way to the nose. Use pins if you have them.





Allow to dry.



Position the Top Fuselage and glue. Trim and bend as needed.



Top centered and glued.



Position the bottom fuselage and hot glue.



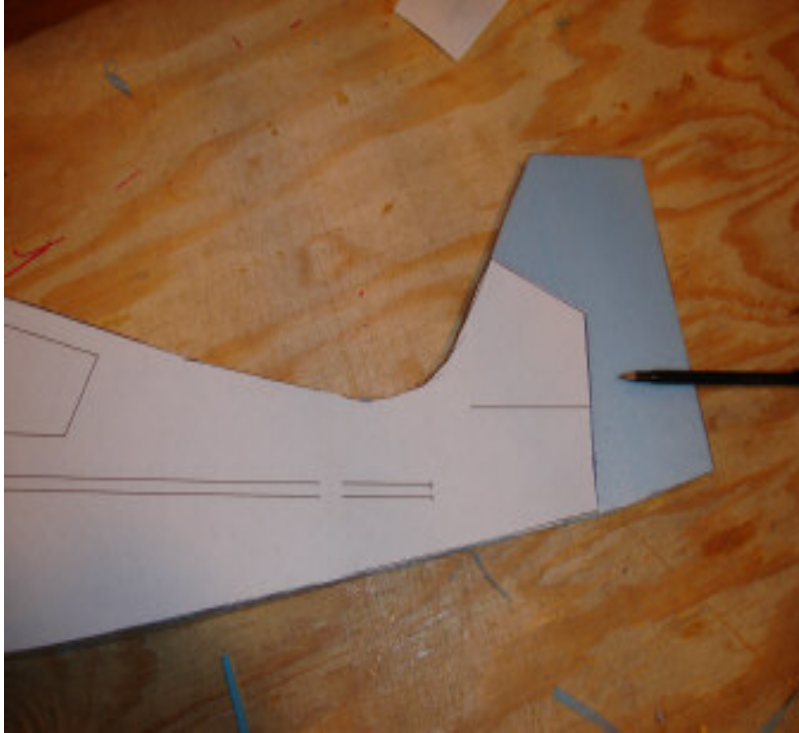
Move a few inches at a time on both sides.



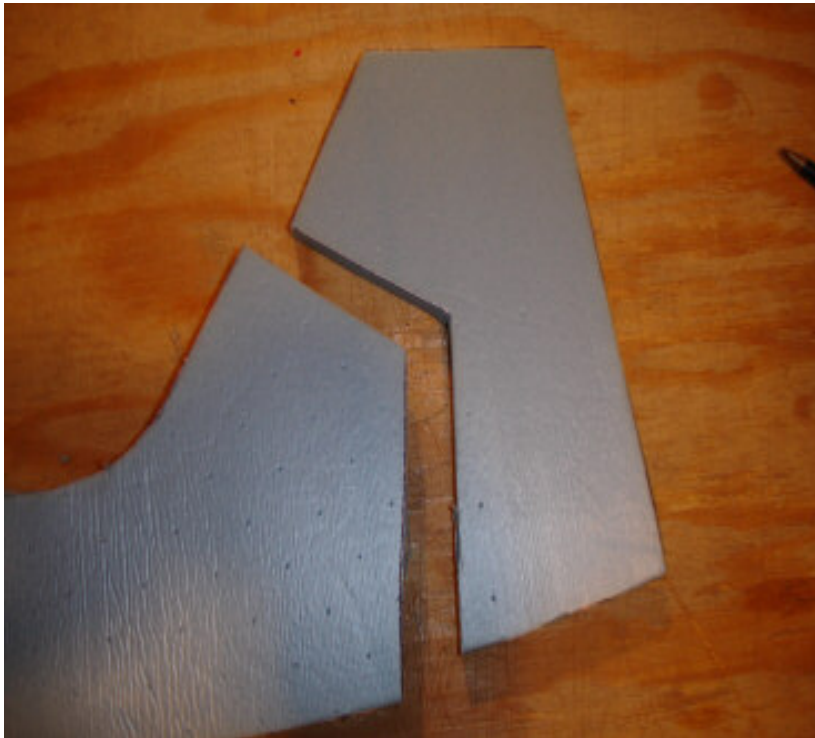
Bottom fuse completed.



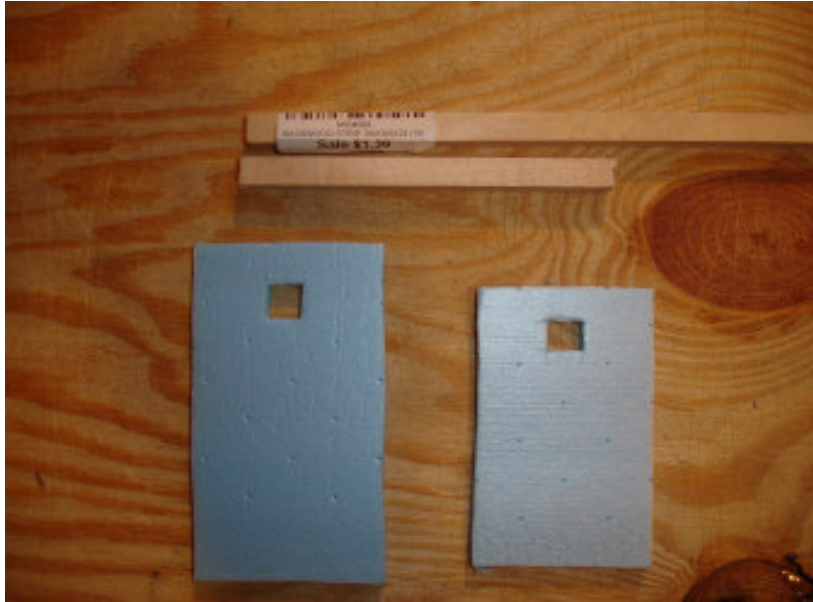
Position and glue windscreen.



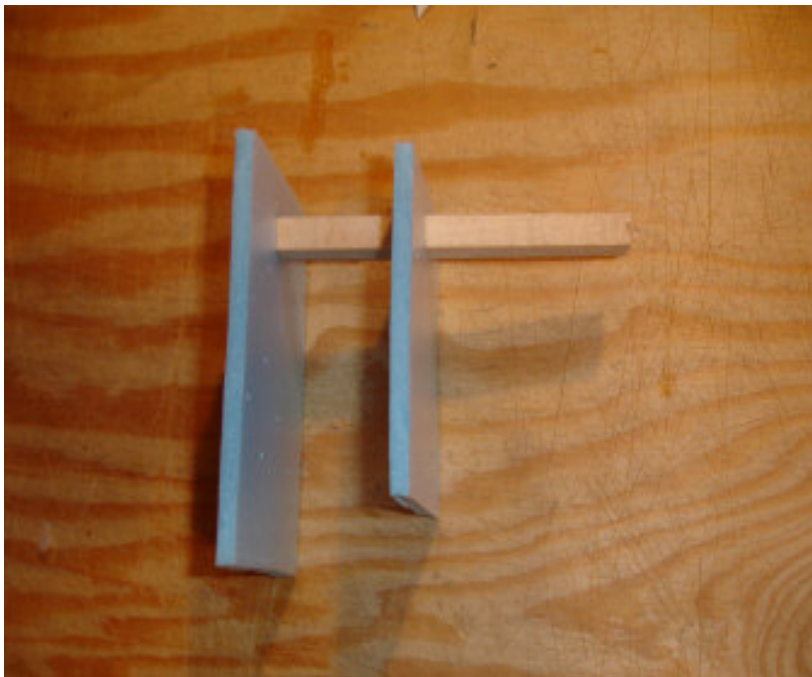
Place plan on fuse and draw the rudder line.



Cut away Rudder.



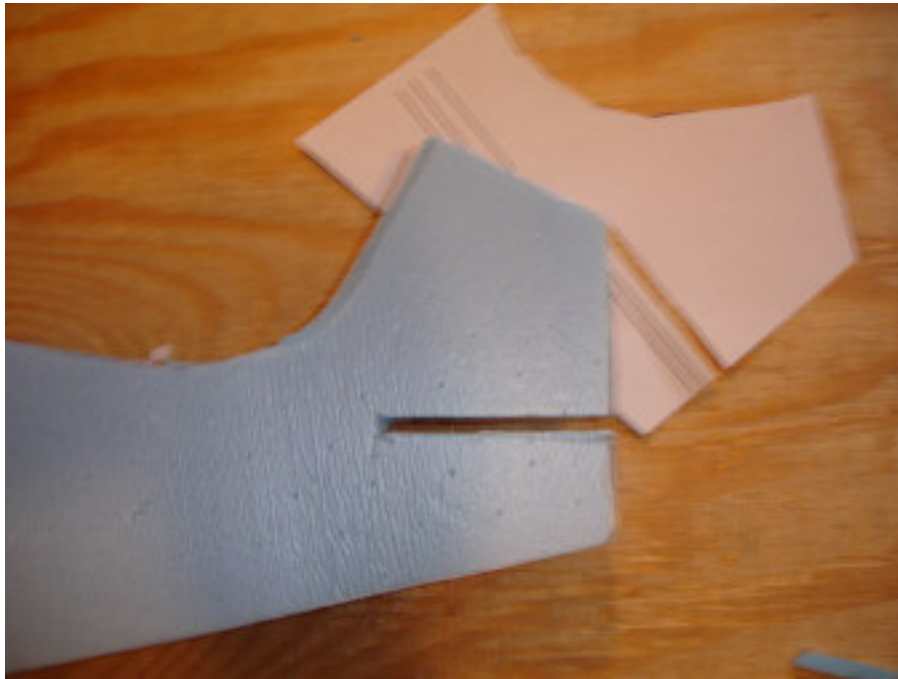
Position bulkheads with a 3/8x3/8 inch square basswood stick. Cut to length in plans.



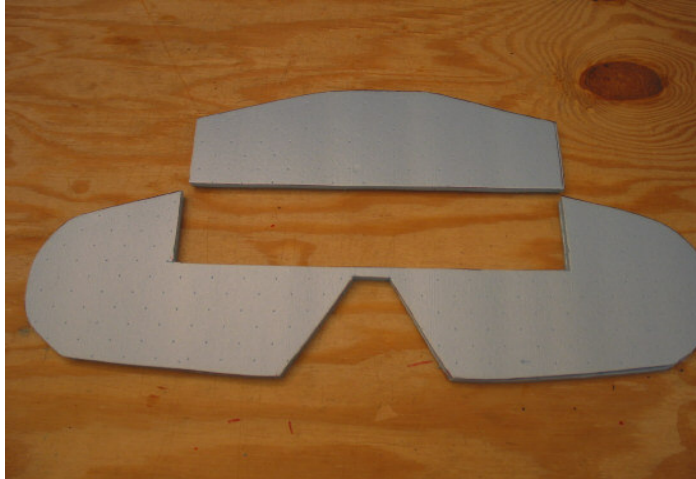
Position for installation.



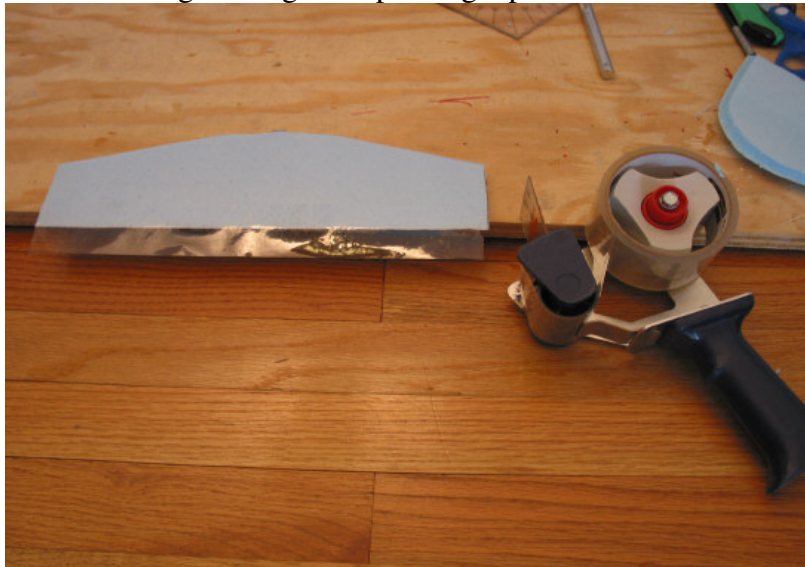
Install using lines drawn in beginning step. Hot glue or 5 min. epoxy bulkheads, making sure motor mount stick is straight and true.



Cut out Elevator slot using plans.



Now add hinges using clear packing tape on the elevator.



Deflect elevator 45 degrees before pressing tape down.



Add tape to other side, deflecting 45 degrees.



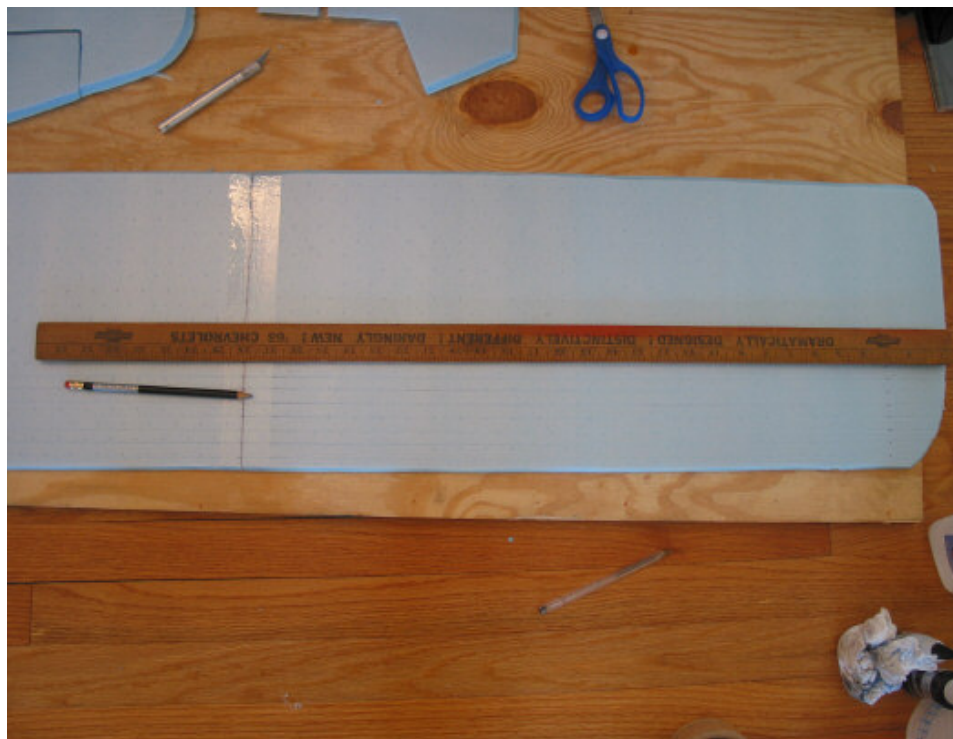
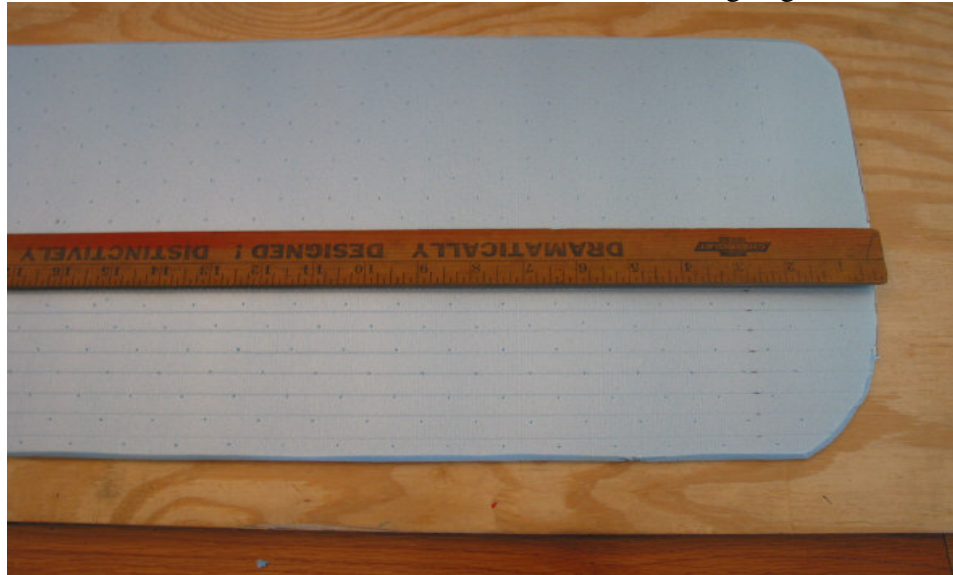
Place wing halves down and align them. If one piece, skip taping.



Use clear packing tape to attach the halves together at the seam.



Using a ruler and a pencil, draw lines along the leading edge of the wing, spacing them a ½ inch apart. Last line should be about 3-4 inches from the leading edge.



Don't press down too hard with the pencil, just enough to leave a visible line.

Now take the wing and place it on the counter or table. Starting at the leading edge, place the first line on the edge of the counter and bend down about 5 degrees. Move to the next line and repeat. Do all lines until a nice curve is made. Check by placing on top of fuselage and matching the curve where the wing is mounted.

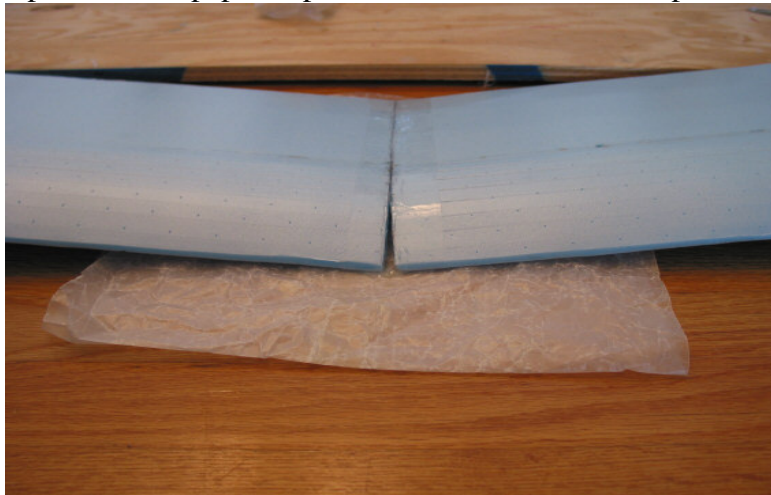


Check curve by placing on top of fuselage. When it matches, you're done.

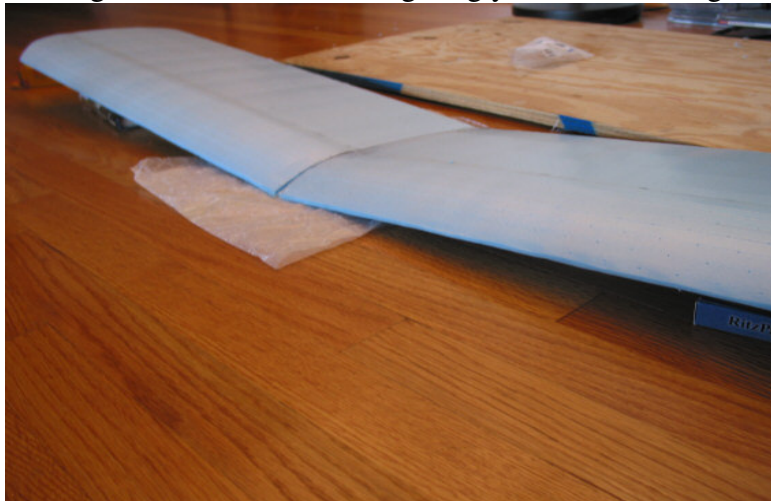
Now cut the tape along the seams and separate the wings.



Lay down a piece of waxpaper to protect the table surface and place the wing seam on it.



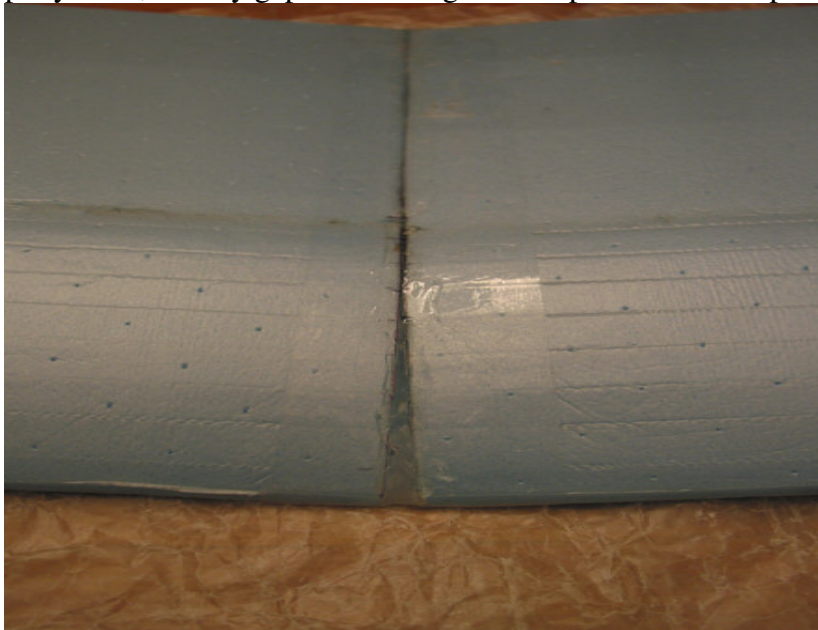
Prop up both wings to about 3 1/4 inches giving you about 5-7 degrees of dihedral.



Mix up 5 min. epoxy and glue the wings together. Pour extra into wide seam to fill space. Don't worry about filling gap completely, we will do that later with the Hot Glue gun. After top dries, turn over and add 5 min. epoxy to seam again.



After epoxy dries, fill any gaps with Hot glue. Wrap seam in clear packing tape.



Run clear packing tape down the leading edge and down the spar, top and bottom.

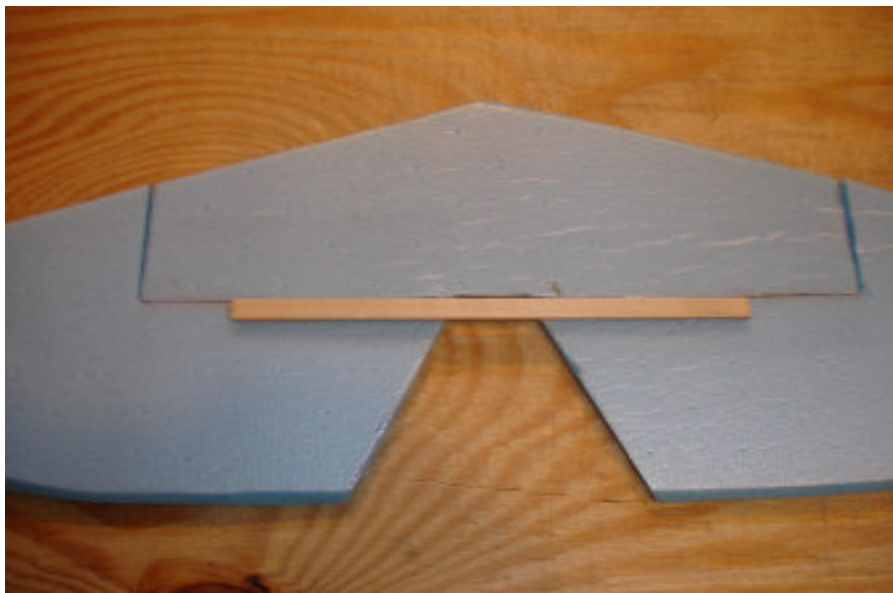


Completed wing.

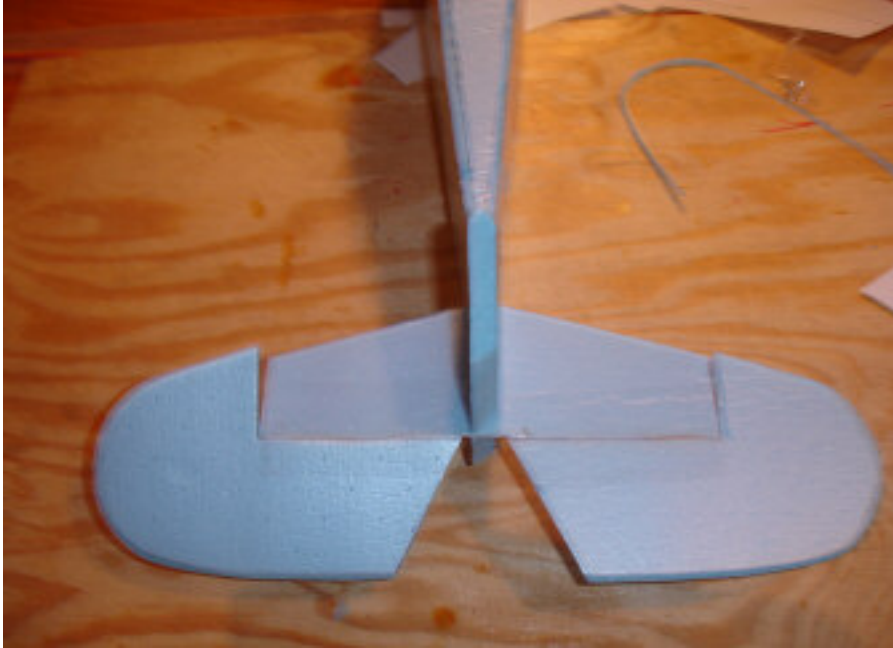




Using medium grade sandpaper, lightly roughen up the packing tape on the elevator. It'll give the wood stick good adhesion when glued.



Glue basswood stick with 5 min epoxy or hot glue.



Glue tail feathers to the fuselage with hot glue or 5 min. epoxy. Check to make sure they are straight and even.



Using the free credit cards they send in the mail, cut 4 squares and drill $3/16$ inch holes in them to accept $3/16$ inch wood dowels.



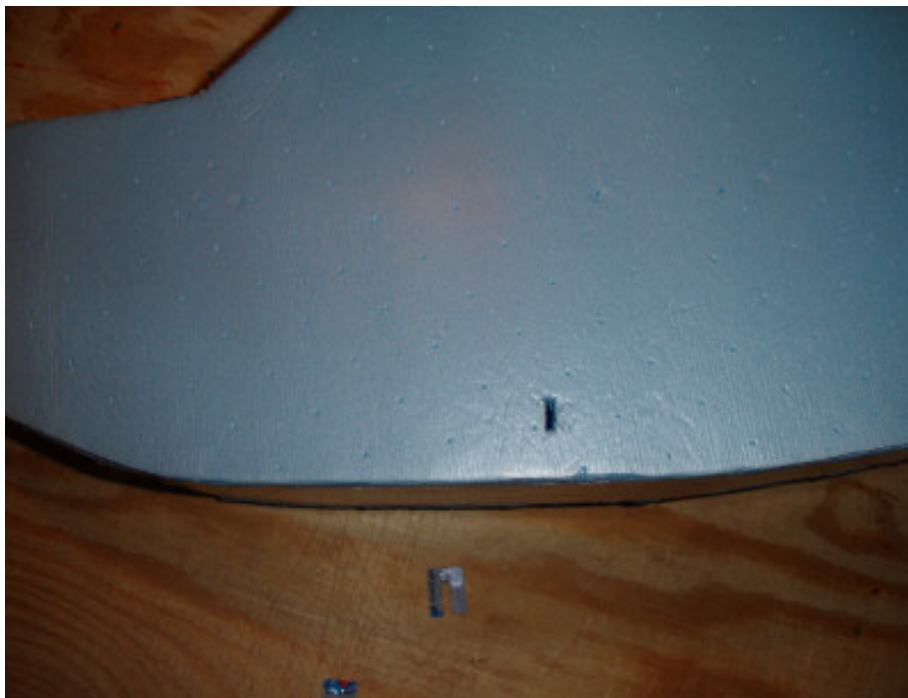
Using plans for placement, hot glue the dowels into position. Slide plastic squares on the dowels and hot glue them to the inside of the fuse.



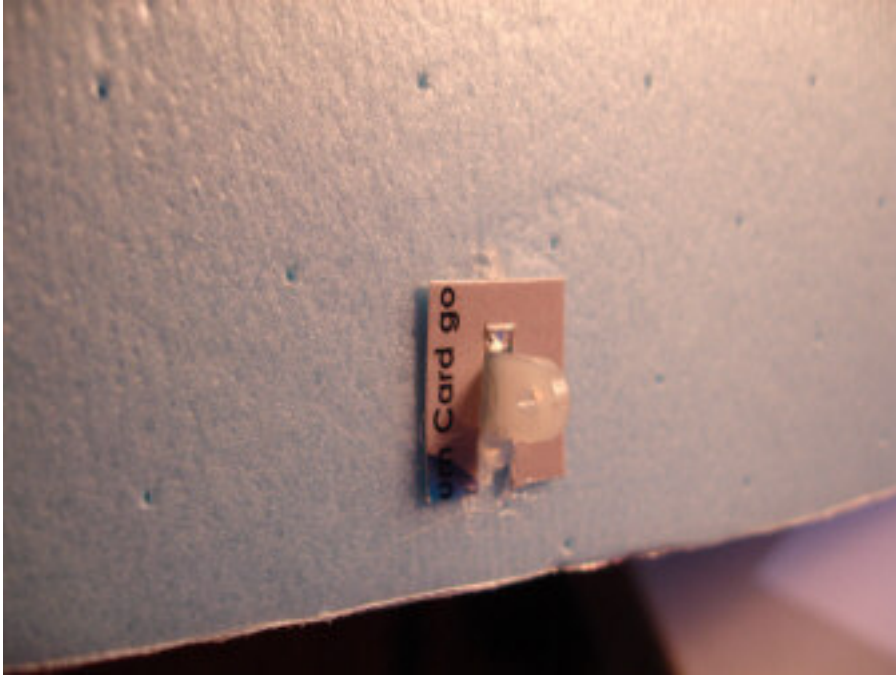
Add wood/bamboo strips to protect the edges of the wing.



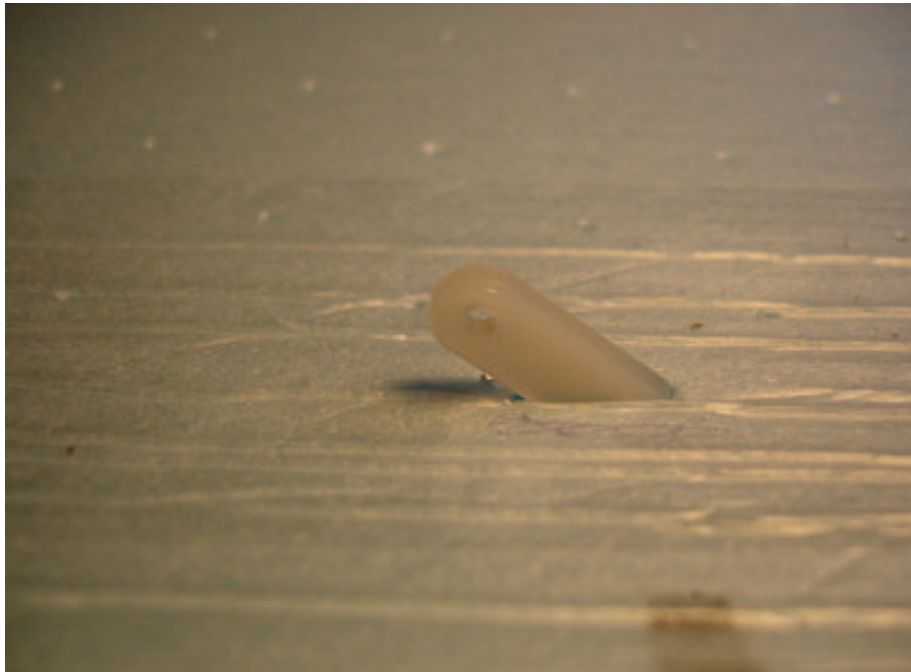
Now its time to make the wing struts. First, cut credit cards like this (above)



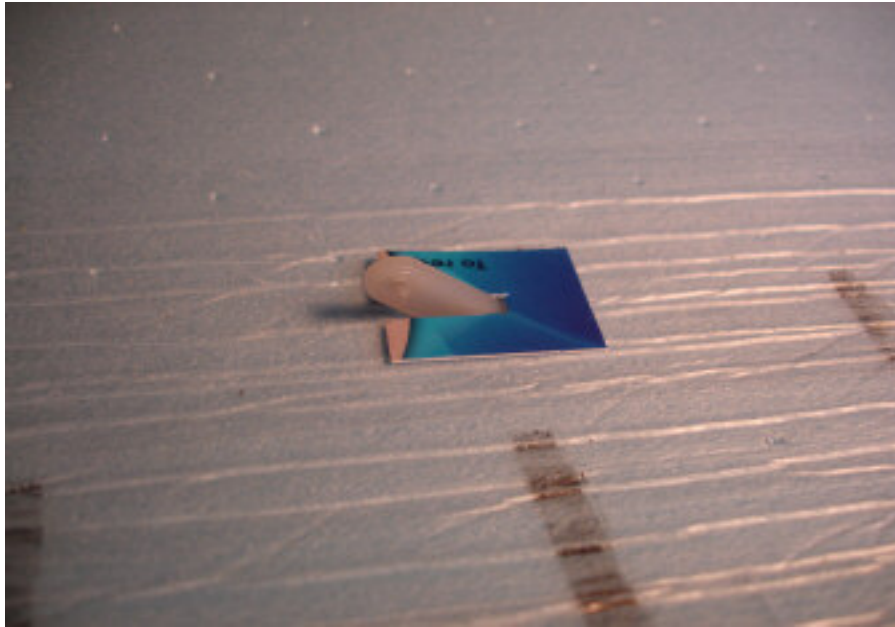
Cut holes on both sides for the struts anchor points.



Insert “strap” halfway. Place credit card square around “strap” and hot glue or epoxy.



Do the same with the wing. Insert “strap” at a 45 degree angle toward the fuselage and hot glue or epoxy.



Place credit card plastic square around strap and glue.

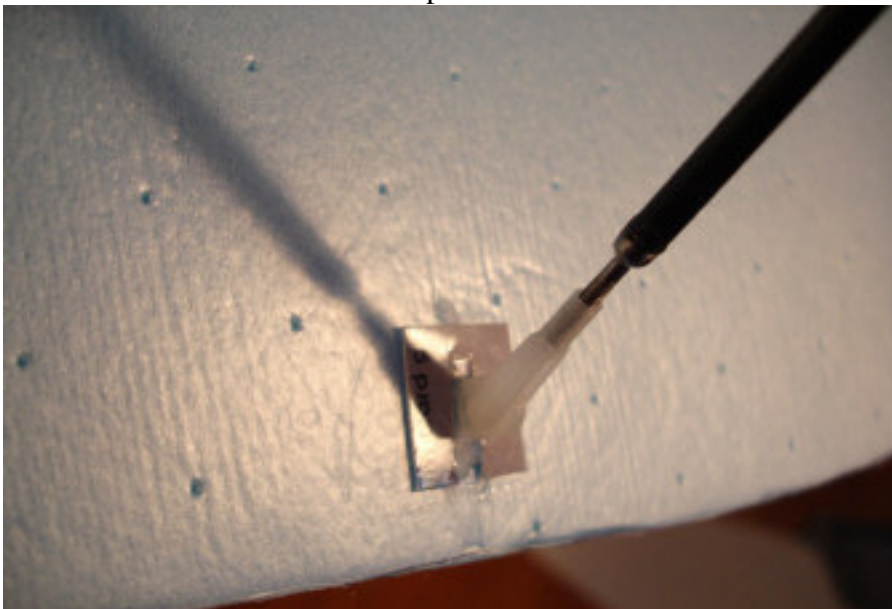
Using the 1/8 inch carbon fiber that came with the threaded inserts, cut two pieces for struts 12 inches long.



CA glue the inserts into both ends of the shafts. Screw on Du-bro Nylon Kwik links Cat. #122 onto the inserts.

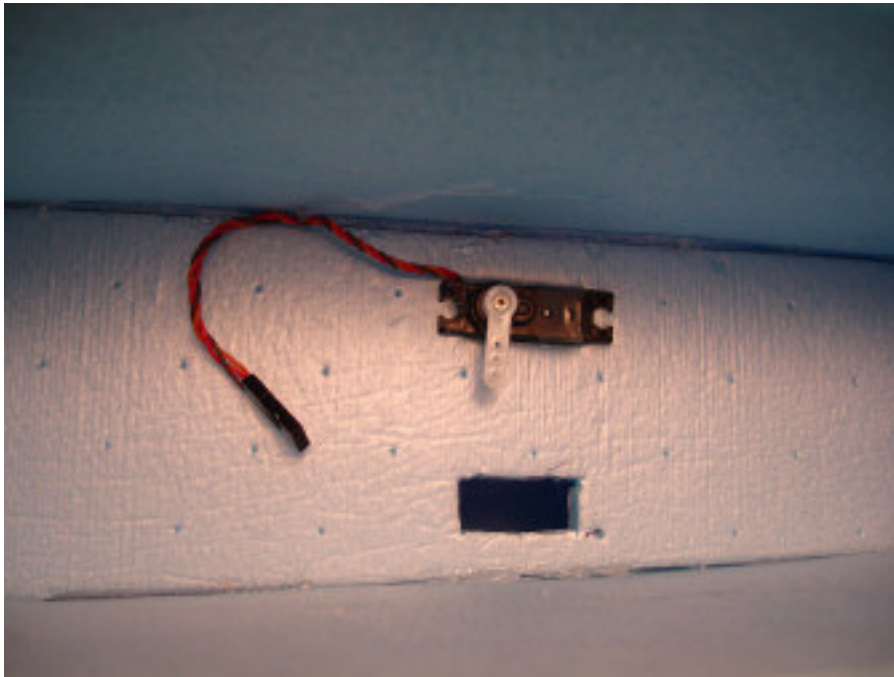


Completed.





Struts attached.



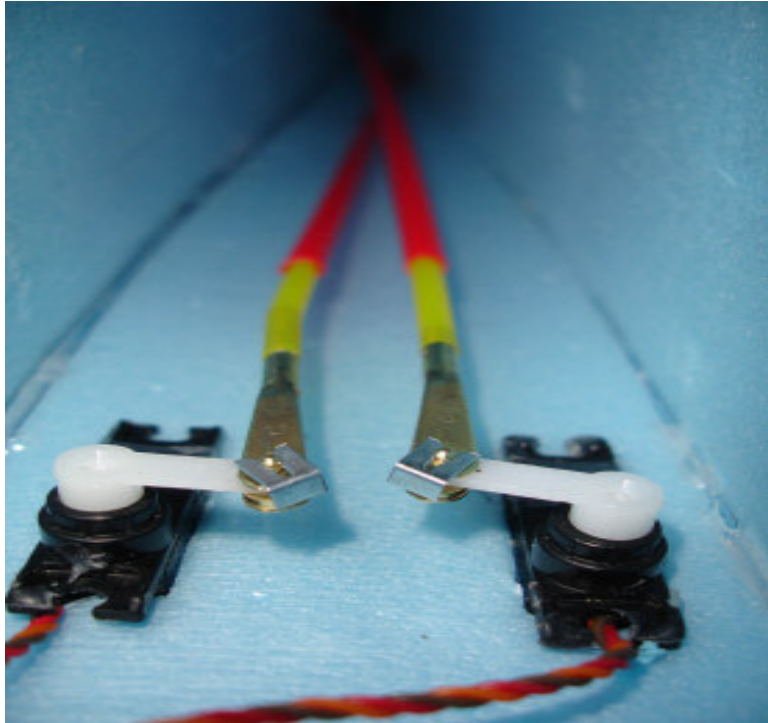
Cut holes for servos. Use plans if not sure where to put them.



Glue on control horns.



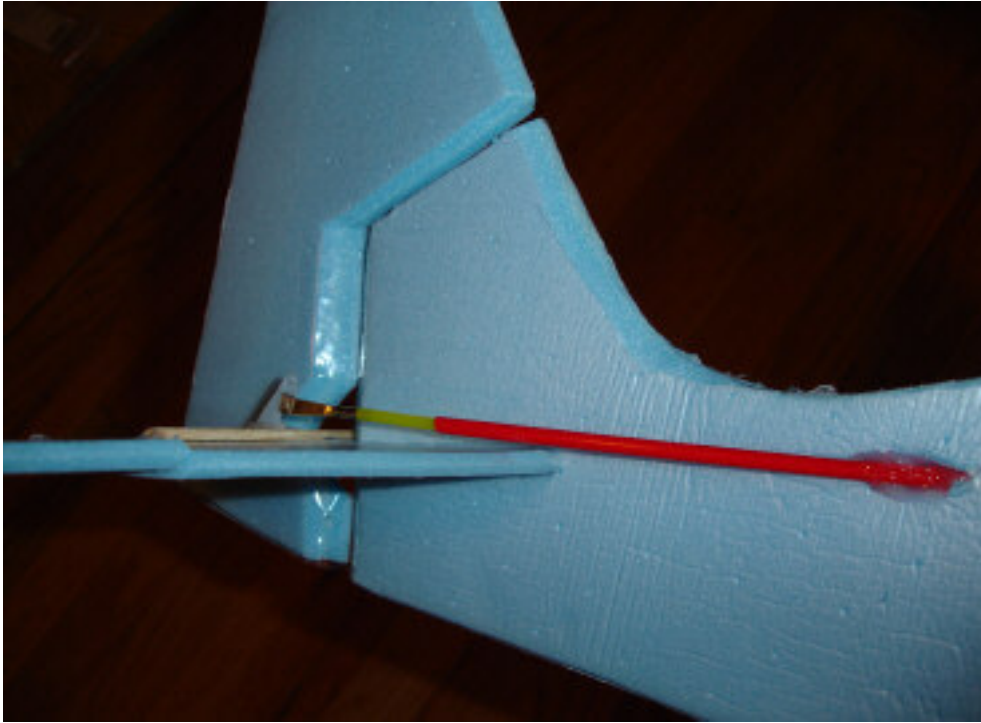
For water use, plastic control rods are best, but wire or carbon fiber will work just as well.



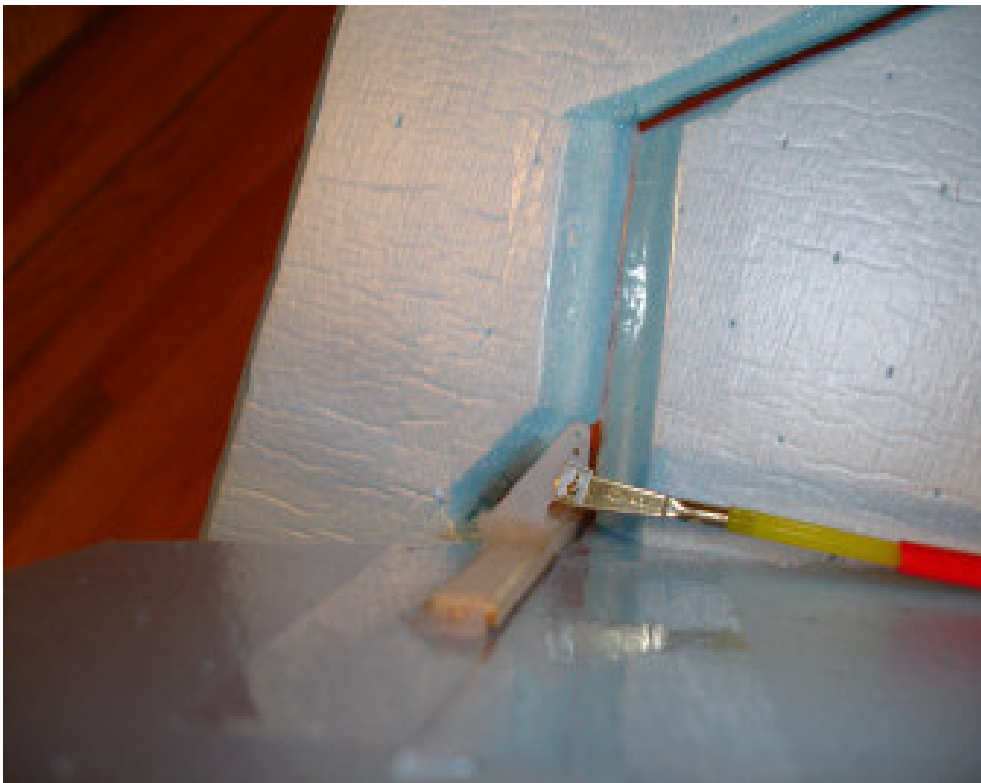
Plastic rods attached.



With metal, remember to coat with grease or Vaseline to help stop rust.



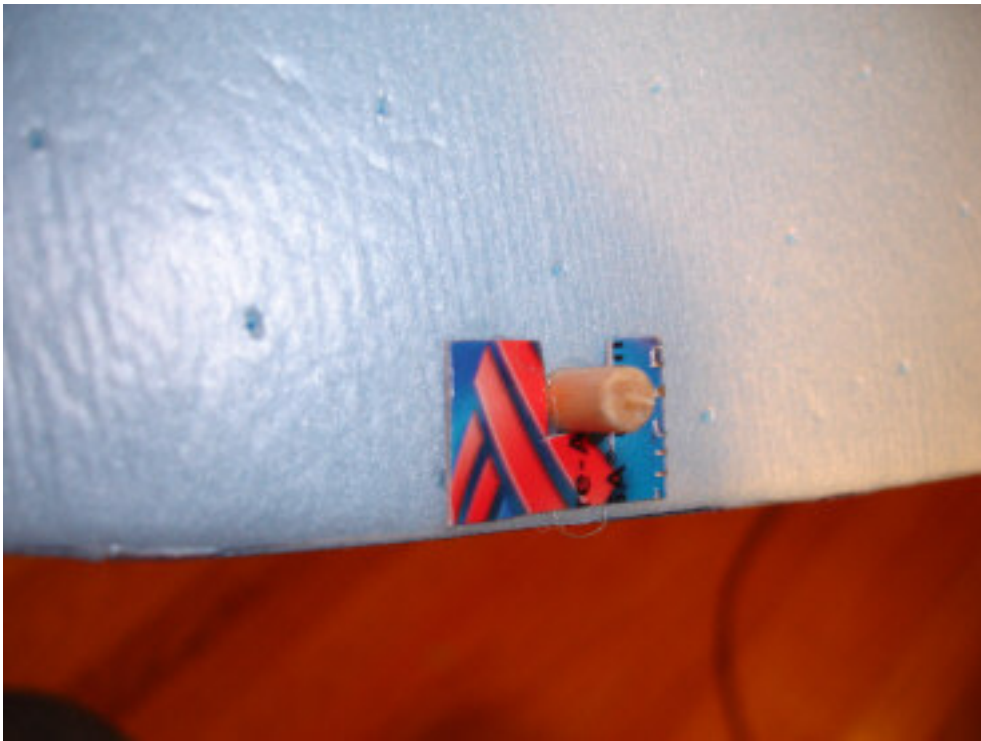
Attach to control horns.



Completed elevator.



Completed rudder.



For float/gear mount, press a wood dowel through the fuse at the point located on the plans. Hot glue/epoxy wood dowels and plastic credit card squares to fuse.

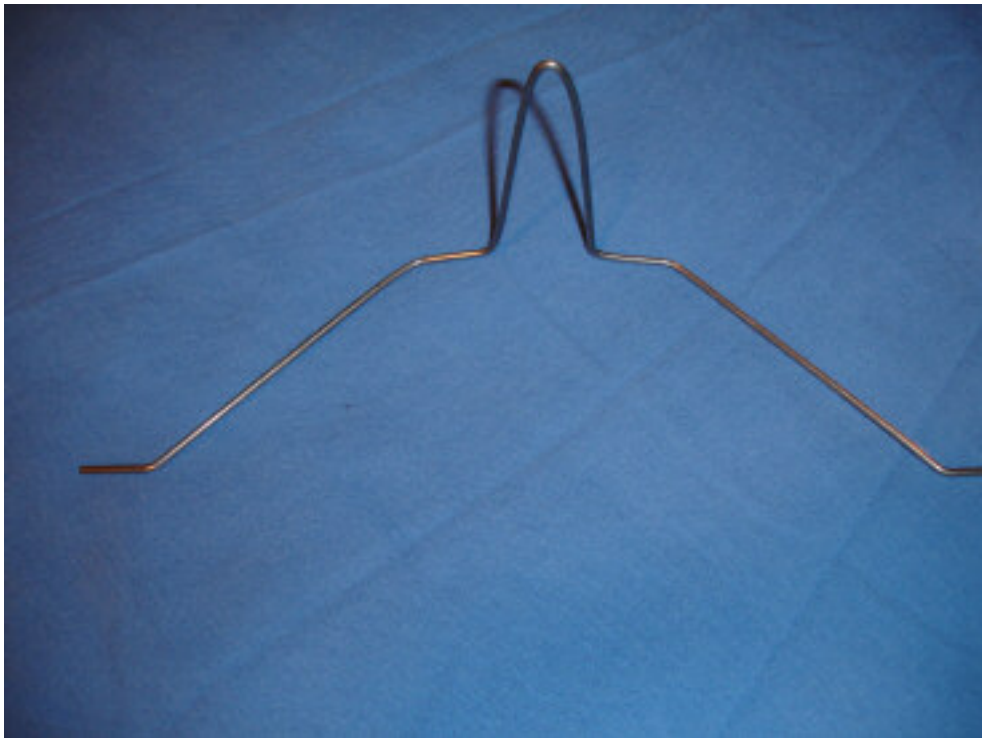


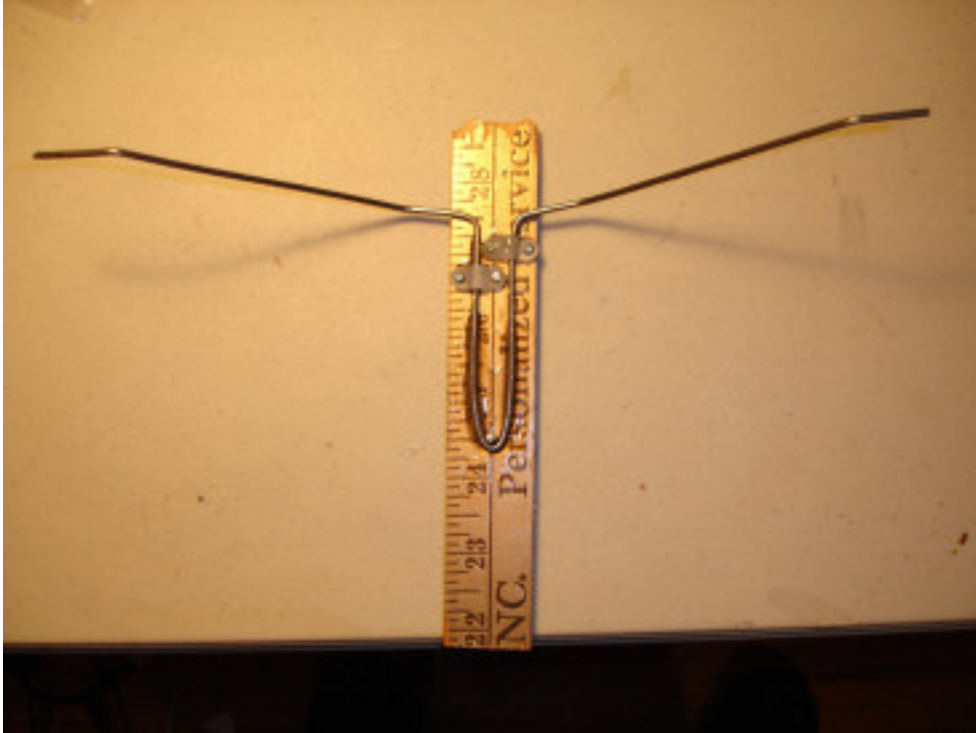
Gear mount completed.



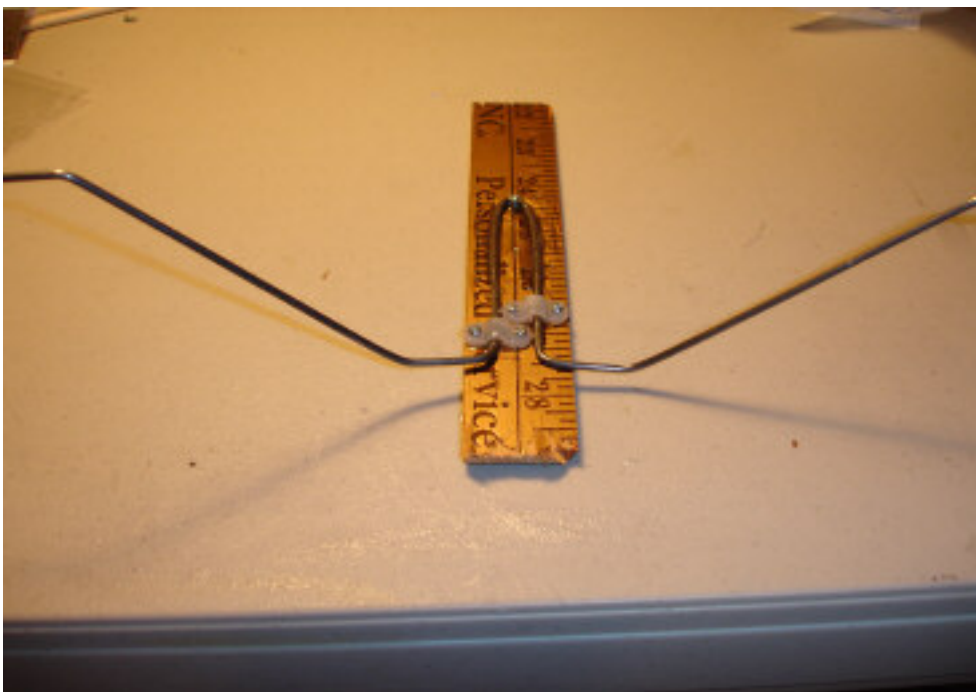


For landing gear, bend wire till it matches plans. Should look like the pictures.





Cut a 6 ¾ inch piece of yardstick. Epoxy and strap wire into place.



These are Dubro gear straps. Anything that secures the wire to the board can be used.



Add a strip of wood, the width of the fuselage, to both ends of the yardstick.
Add wheels and pants and your done. (The wood was left unpainted for the photo)



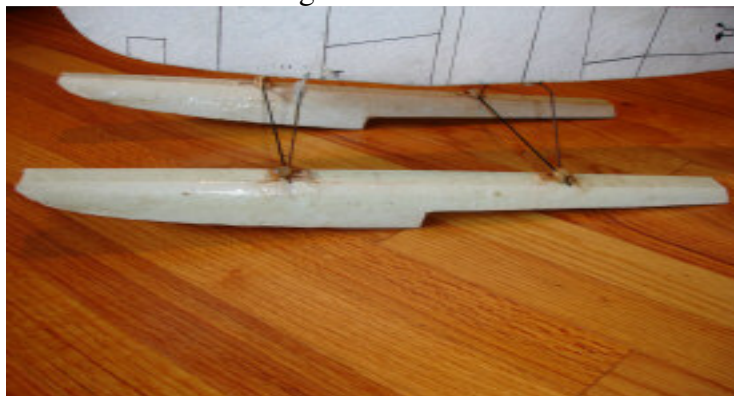


Attach with #64 rubber bands doubled over.

Removable Float Gear



For Floats, I chose to use the GWS Float Set for those who don't want to build their own. However, there many free plans for making floats out of foam that are on the web. They need to be about 21 inches long to be effective.





Using the GWS Floats, first straighten the top of the wires out so there is no “hump” that was designed to fit in the bottom slot of the Beaver, etc. Or make your own using the plans. Cut another 6-7 inch piece of yardstick and attach to the wires with strap and epoxy. Add two end braces and you’re done.

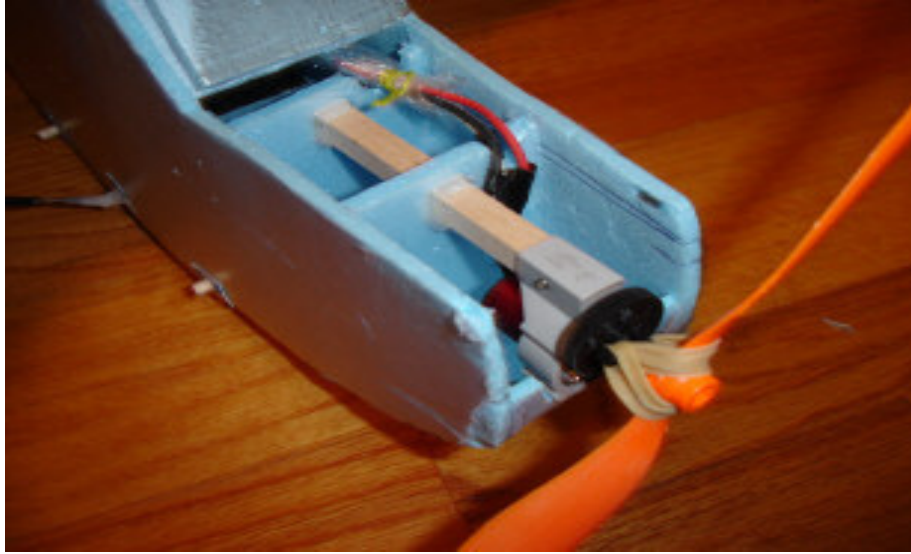




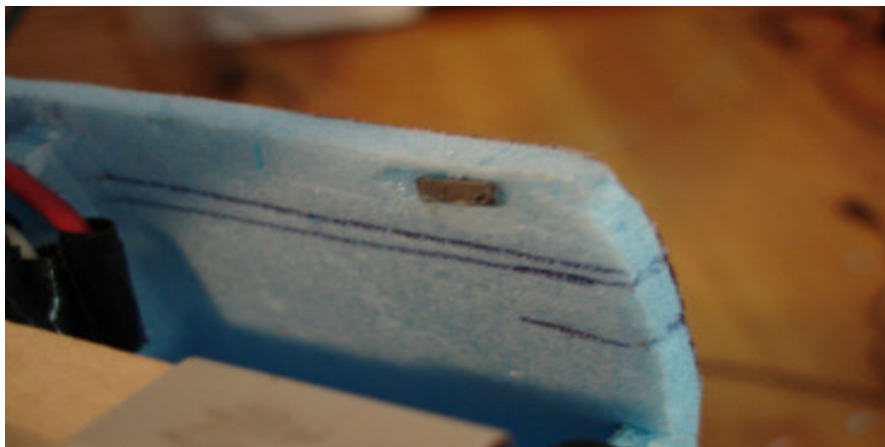
Finished Float Gear



Attach to dowels with #64 rubber bands doubled over. (wood left unpainted for photo)

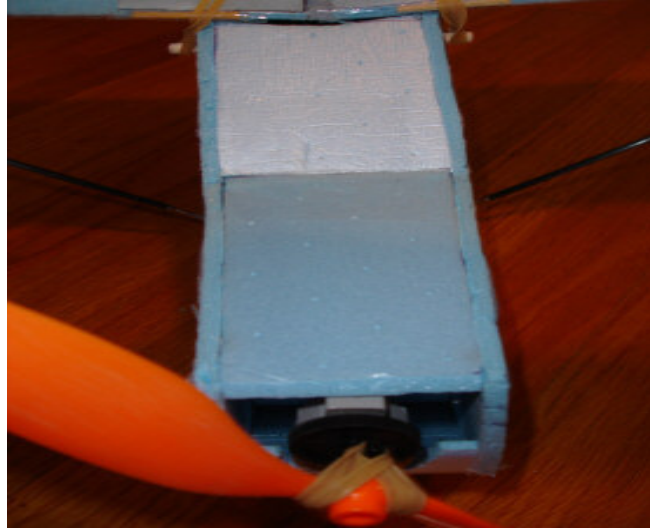


Now is a good time to attach your motor set up. I used a GWS350 w/D gear and a Razor 400 with a 10 inch prop on this one.

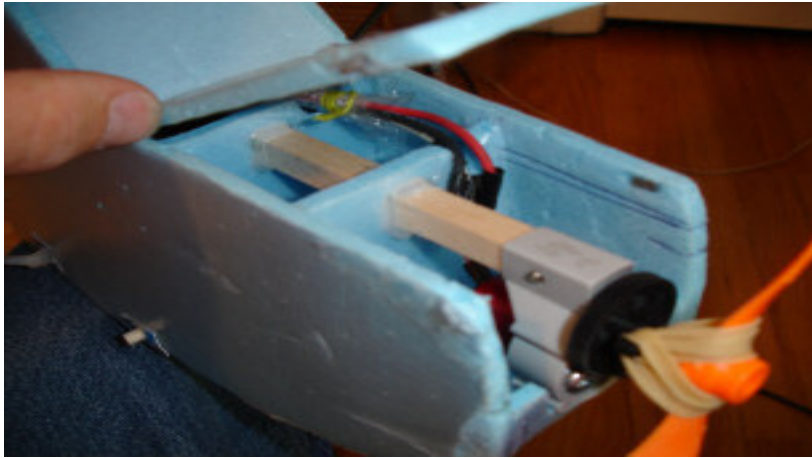


You can glue the engine cowling on or make it open like a car hood. Buy rare earth magnets at Radio Shack and glue them into the front on the inside fuselage. Add two more to the hood.

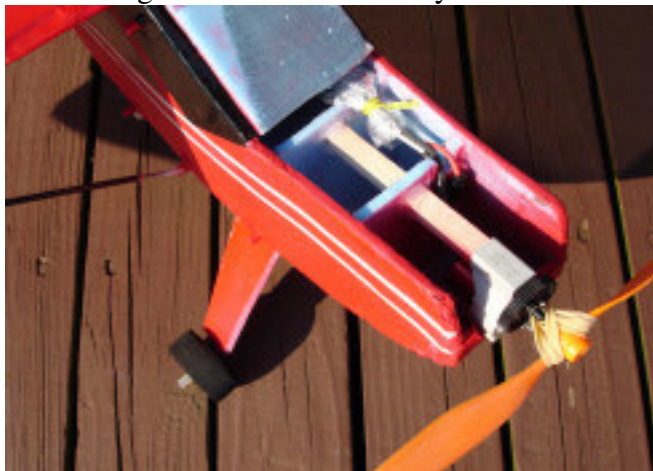




Add clear packing tape to the windscreen and engine cowling hatch to make a hinge.



Finished engine hatch makes it easy to service motor.





The STS should look something like this now.

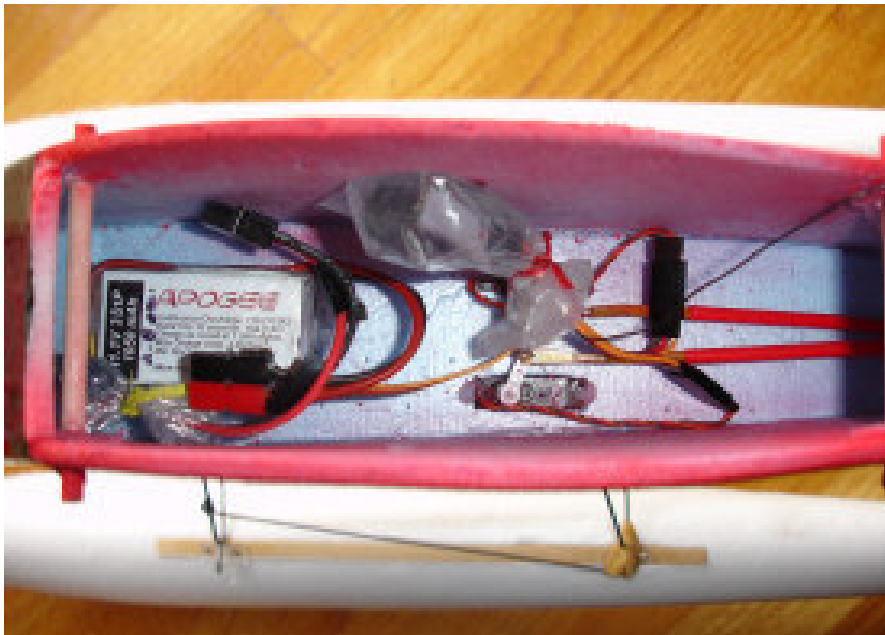


Finish the STS by sanding with light grade sandpaper. Cover with Econolite covering and/or airbrushing with Testors paint and 40% alcohol. Or you can use Magic Markers or other foam safe paint.





Install last of electronics and battery. Flight check and you're ready to fly!





Happy Flying!

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