Mako Construction Guide

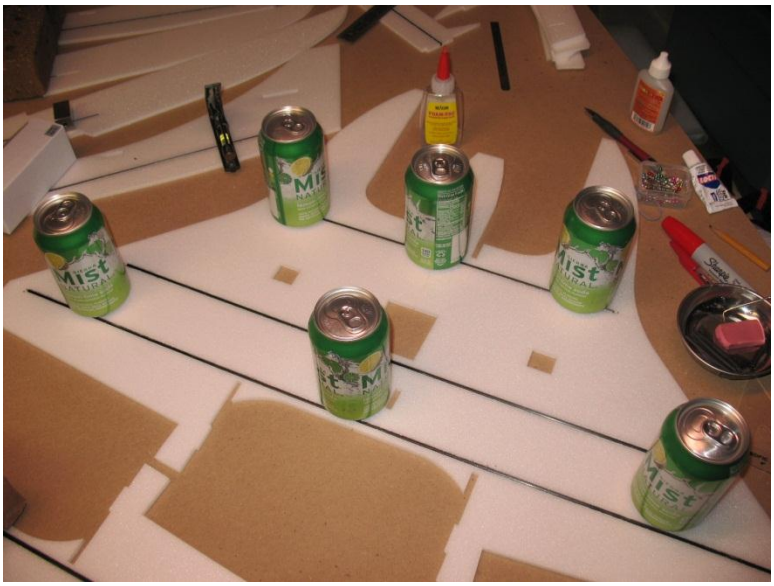
Specifications:

- Wing span – 32”
- Length – 35”
- Wing area 310 sq. in
- Weight - (without battery) – 13.5 oz.
  (with battery) – 18 to 22 oz.
- Center of gravity is 12 ¾” from tip of floats
- Motor: 2212 – 1900 KV or 2212-2200 KV
- Prop: 6X4E or 6X5E
- Battery: 1800 mah to 2500 mah 11.1 V (2200mah is a good size with a 9min flight time)
- Speed Control: 30 or 40 Amp

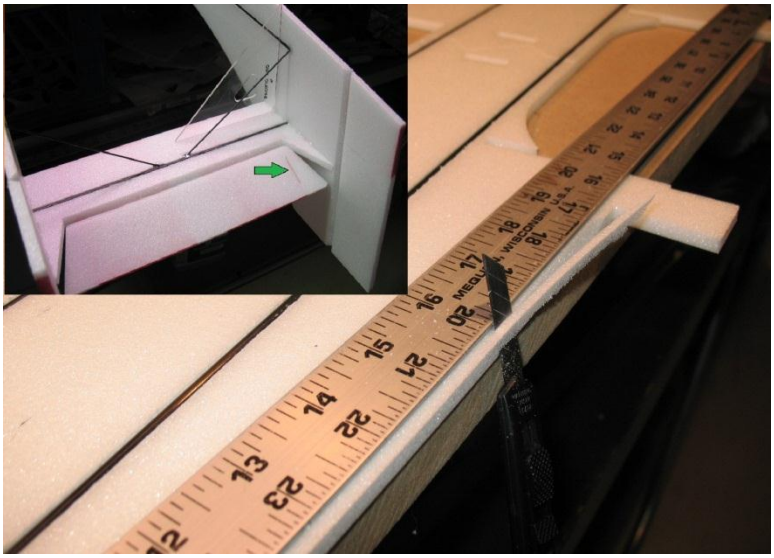
Additional Items needed to complete kit:

- Glue – Foam-Tac or Gorilla Glue
- (WARNING DO NOT USE WELDERS ADHESIVE, IT WILL MELT DEPRON)
- Velcro
- 4 - 5 gram servos
- 1900 KV – 2200 KV motor
- 6 x 5 – 6 x 4 electric prop
- 30 Amp – 40 Amp ESC
- 4 - servo wire extensions 10 to 12 inches long
- Blenderm Tape for hinges
- 11.1v 1800 mah – 2500 mah battery
- Paint or decals
- Screws to mount motor to plywood
- CorrosionX (water proofing for motor, esc, receiver).
- A two piece receiver with a remote is recommended for flying off of water, water can interfere with the signal.

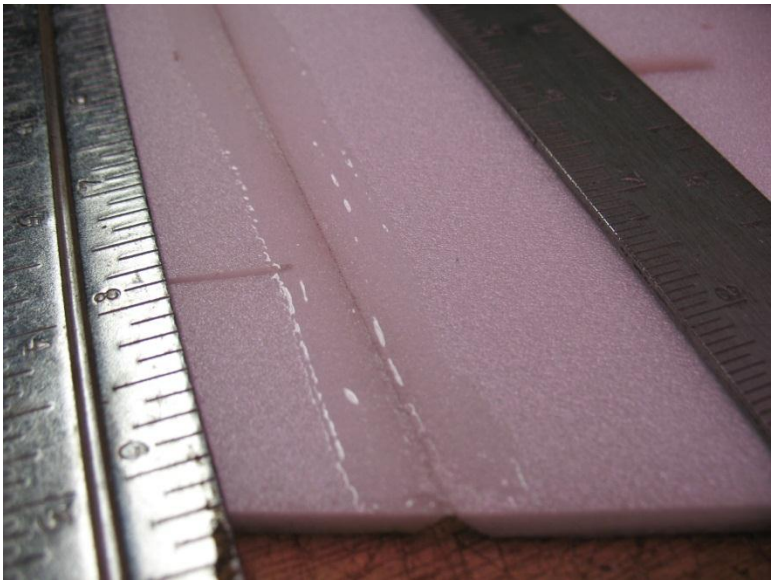
In this Photo we assembled the main wing, the tail halves, and carbon spars. When installing spars, use only a small amount of glue in the groove, (Foam-tac can melt the foam a little) (WARNING DO NOT USE WELDERS ADHESIVE, IT WILL MELT DEPRON) Press the spar into the groove, remove the spar and let the glue chemicals evaporate for a few seconds, then push the spar back in. It is recommended that you use a flat smooth surface, wax paper, and some heavy items to keep the wings flat while glue is drying.



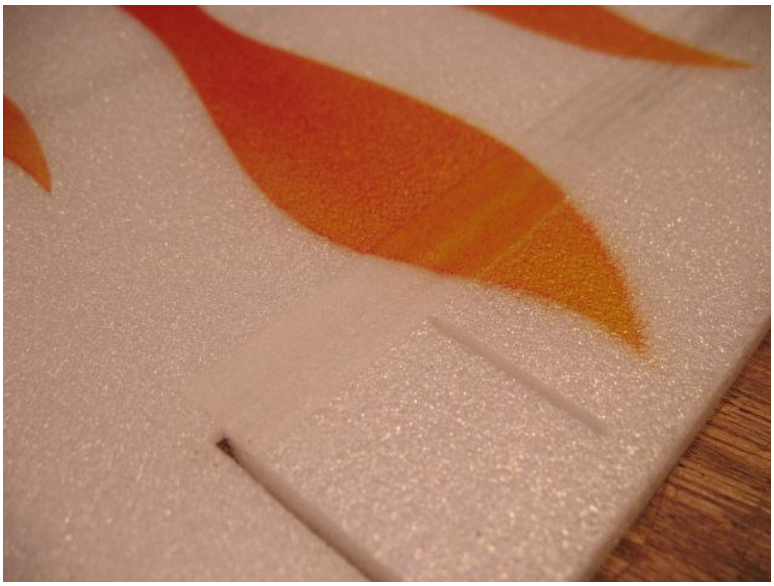
You should now bevel and hinge all control surfaces. Make sure to bevel the correct side. The Photo on the right shows the underside of the control surfaces being cut at an angle. And the elevator slot location with stab upside down.



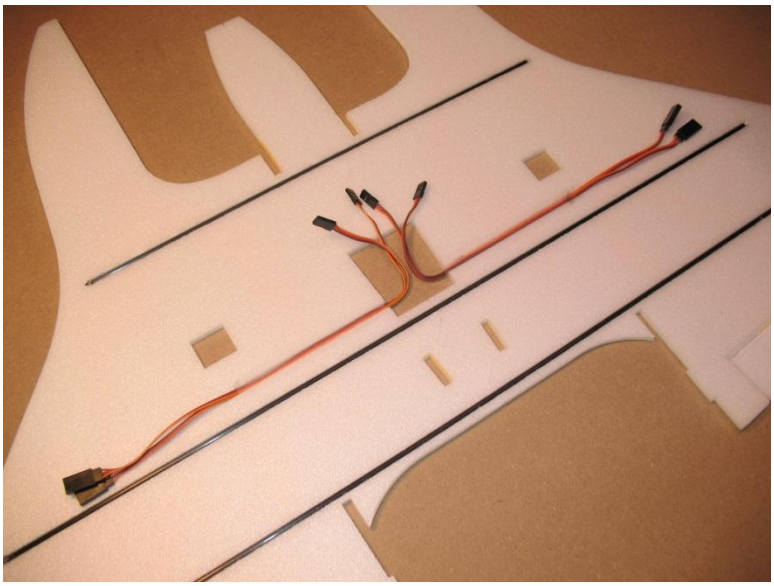
We use a simple tape hinge (Blenderm tape works well). The Photo on the right shows a thin layer of Foam-tac on the depron before tape, it makes the tape stick even better.



Now is a good time to sand the corners, paint the wing, tail, and fuselage sides. Krylon shortcuts spray paint from Hobbylobby works good and is foam safe. Most spray paints will **melt** depron foam; test the paint on a scrap of foam before using on the plane.

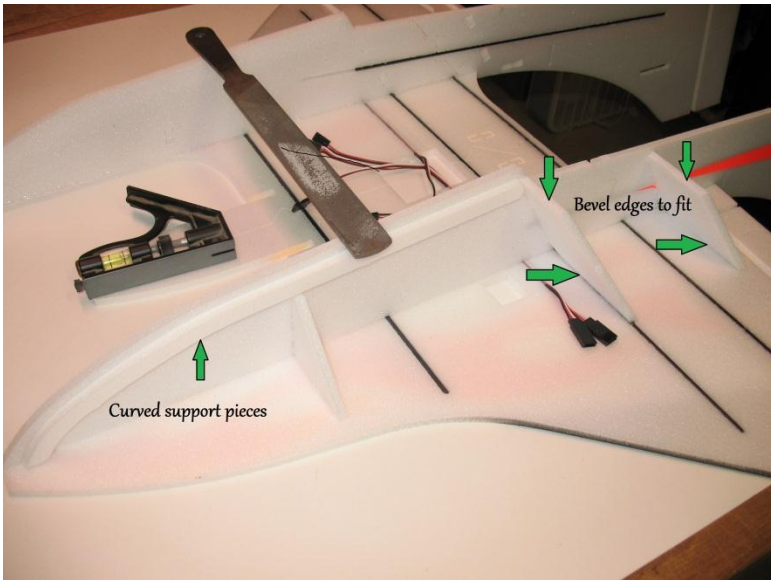


In this photo the servo wire extensions are put into the grooves and covered with tape.

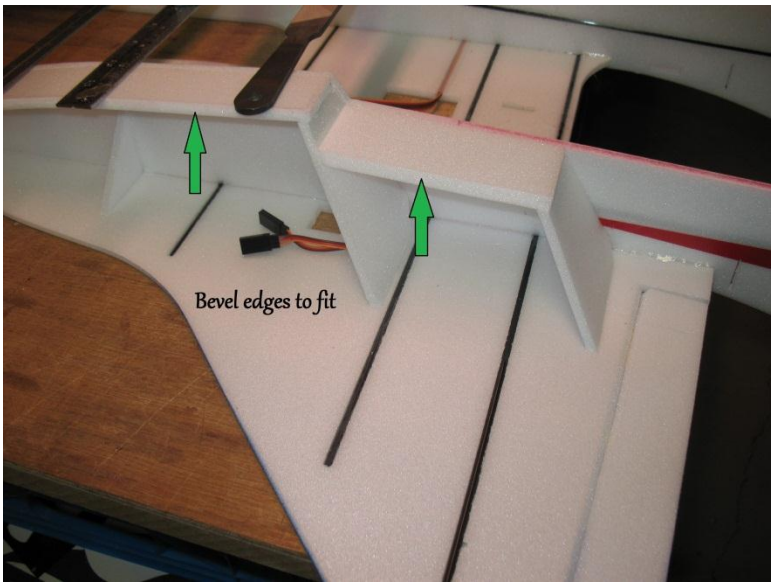


Note:
One of the great things about Foam-tac glue is that it works like a contact adhesive, apply glue to one piece, push the two pieces together and pull them apart, let dry for half a minute and push back together.

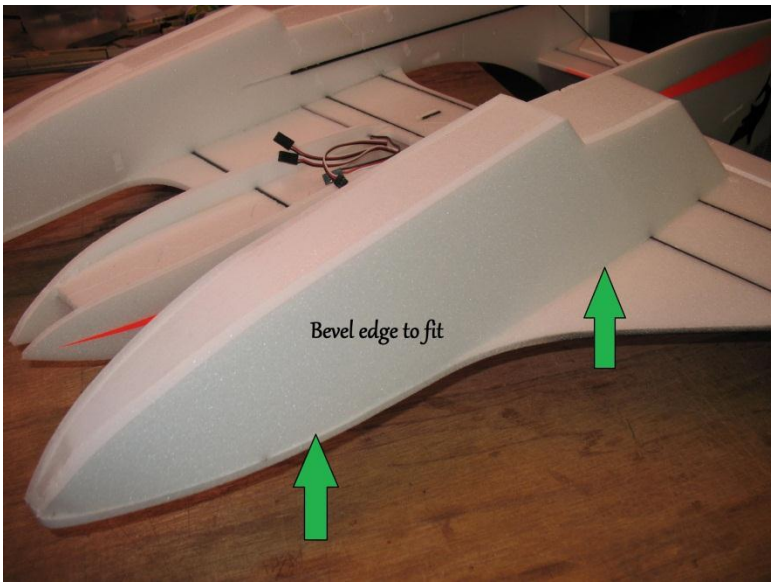
Now the float sides can be glued to the wing, then the curved support strip, bulk heads, and float end cap, (bevel edges to fit). Use a piece of scrap foam to get the correct spacing on the support strip. Check to make sure sides are square and straight. **Let glue cure for a few hours before starting the next step.**



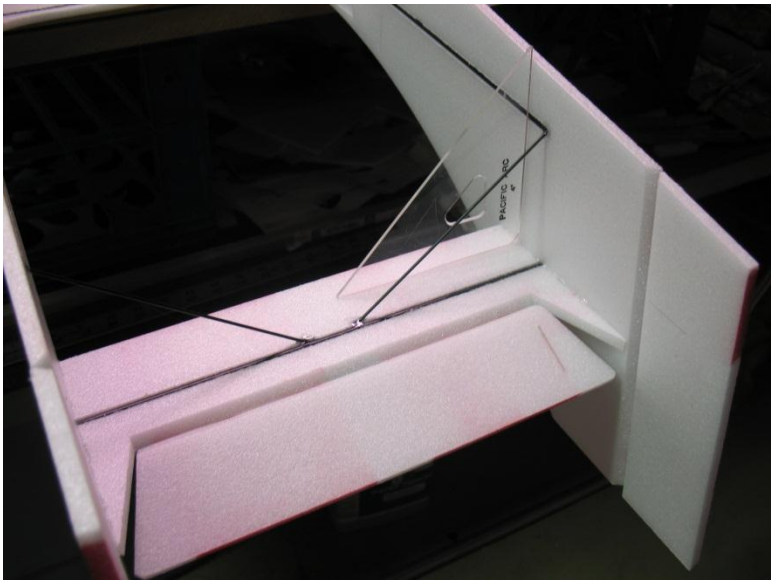
Bevel edges of float bottom pieces, and glue in place.



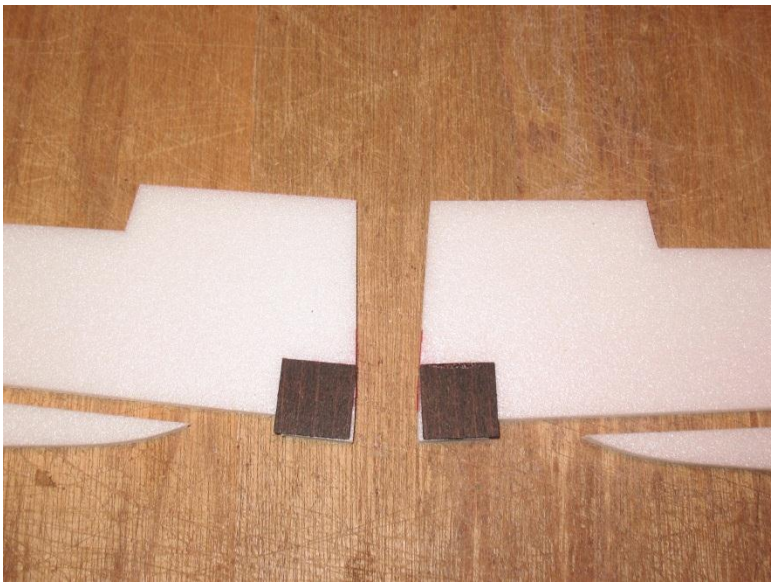
Bevel edge of float side and glue in place. After glue is cured, trim and sand float bottom flat and square.
The fiber glass wear strips can now be <u>trimmed to fit</u>, and glued to the float bottom, First spread a layer of Foam-tac glue on the bottom of floats and let dry for a few minutes, then remove protective backing from fiber glass strips and apply to floats.



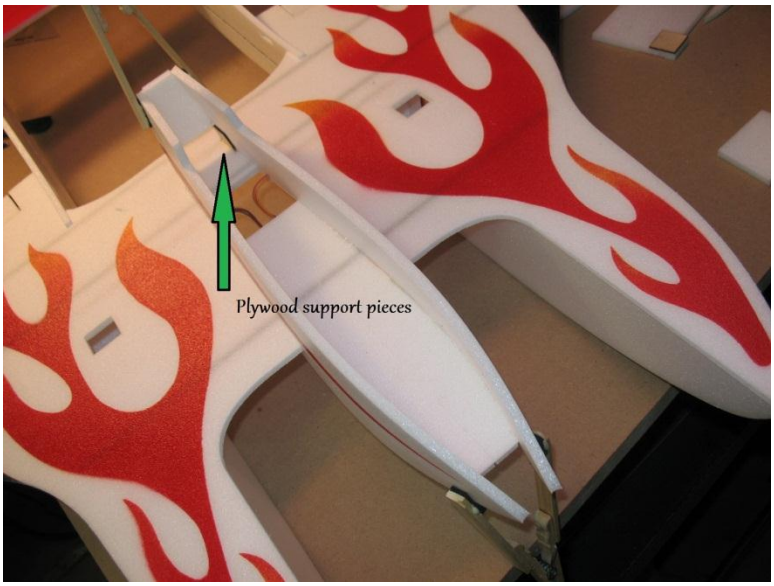
The horizontal stab and carbon trussing can now be glued in place. Make sure sides are straight and square.



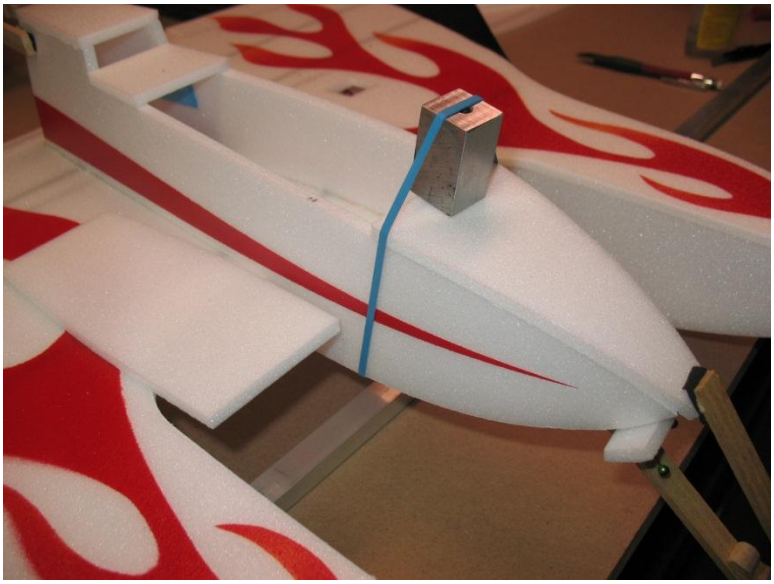
This photo shows the plywood support squares glued on the inside of the fuselage.



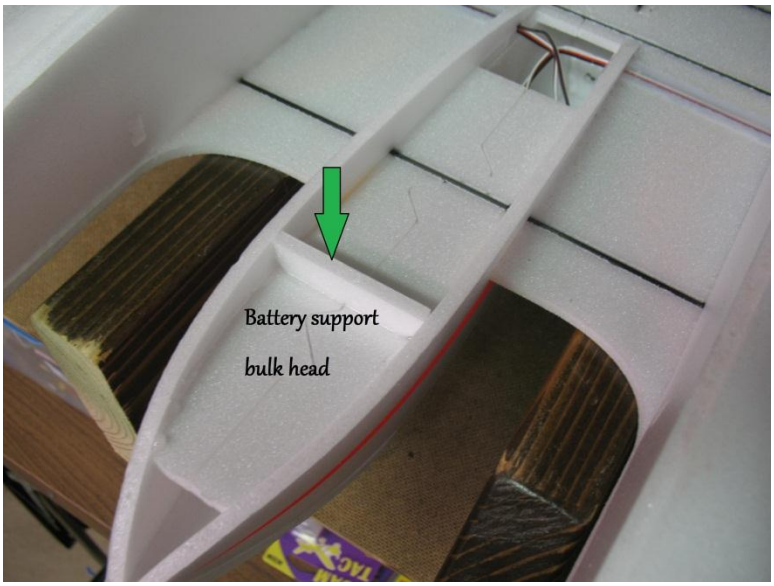
Glue the fuselage sides to the wing and clamp in place.



Cut hatch to size and glue top of fuselage in place. **Let glue cure for a few hours before starting the next step.**



Glue battery support bulk head, and fuselage sides to bottom of wing.

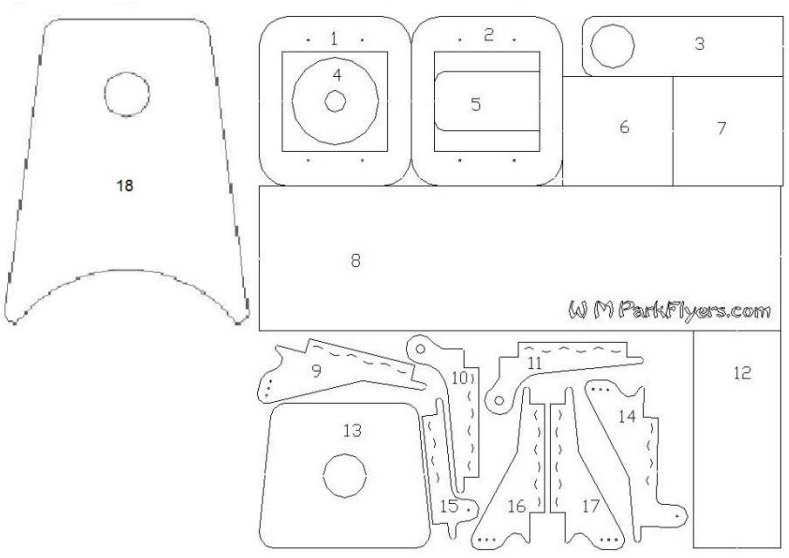


Cut the bottom of the fuselage to size and glue in place. **Let glue cure for a few hours before unclamping.**

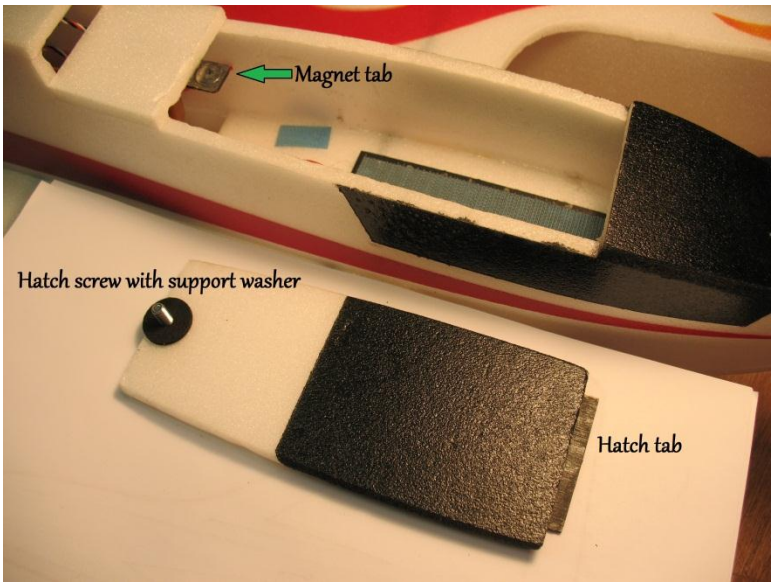
Trim off any extra foam and sand flush with a coarse sanding block.

Plywood accessory pieces.

- 1 & 2 - Servo bracket
- 3 - Magnet tab
- 4 - Hatch screw washer
- 5 - Magnet tab backer
- 6 & 7 - Fuselage support square
- 8 - Battery tray
- 9 – Elevator horn
- 10 & 11 – control rod support
- 12 – Hatch tab
- 13 – Motor mount
- 14 – Right rudder horn
- 15 – Left rudder horn
- 16 & 17 – Aileron horns
- 18 – Motor mount backer

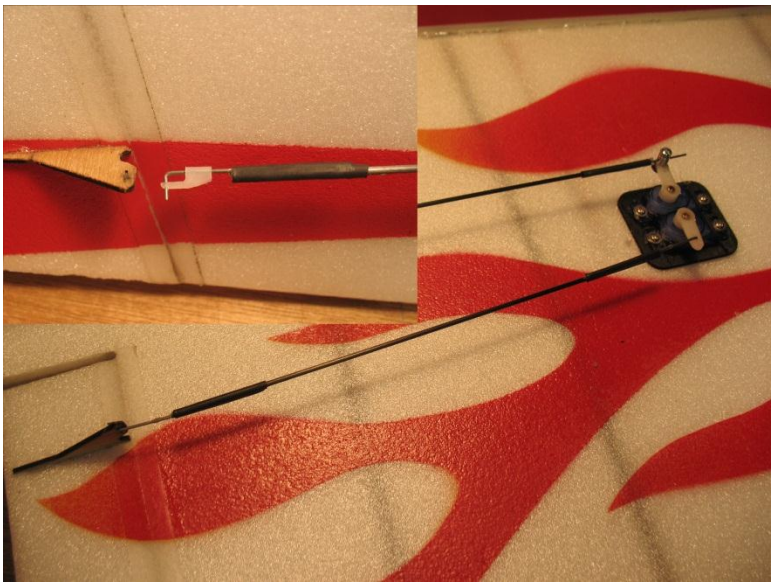


This photo shows how the hatch can be held shut with a magnet, a screw, and the supplied plywood tabs.
Apply velcro to battery tray (8) and glue tray to inside of fusalage.
The plywood motor mount (13) should be glued to motor mount backer (18) with CA glue or epoxy. And the motor mount backer is then glued to the back of the fuselage with epoxy or polyurethane glue (gorilla glue), Don't use Foam-Tac glue, it can loosen up from the heat of the motor.



The wire control pieces can be easly attached to the carbon rods with Foam-tac glue and shrink wrap. The glue is flammable, so be carefull and ready to blow out flames if they flair up. The glue and shrink wrap can also be reheated to move and adjust the wire.

Glue plywood horns and control rod supports into provided slots. Glue servo brackets to wing, and install servos.
For easy setup and adjustments, use the 90 deg EZ links on the rudder and elevator horns, the EZ connects on the rudder and elevator servos, and the wire Z bends on the ailerons.



A hole can be cut in the nose for added ventilation.

Congratulations! You have completed the construction of the Mako.
Recommended CG is 12 ¾” from tip of the floats.
If using 2.4 Ghz, a two piece receiver with a remote is recommended for flying off of water, water can interfere with the signal.