

3DMON'S F-22

Designed by:
Shaun Frank



Items needed:

- 1- 1.96 x 24" carbon tube for wing spar
- 2 pieces of 1/18" carbon tube cut at 7 5/16" for aileron push rods
- 2- 56 threaded rod and clevises
- 1- Sullivan Push Cable.032 w/Gold-N-Clevis 36" (this is optional but needed if using rudders)
- 1- Small servo extension used for the elevator servo
- Packing tape and glue (I used hot glue for the build, but any foam safe glue would be fine)

Suggested power setup:

- 2200kv parkjet combo (motor and 30amp esc) from Graysonhobby.com
- 6x4 or 5x5 APC electric prop
- 11.1V 1300 mah 20c Lipo battery
- Servos: Hitec HS-55's on ailerons and Hitec HS-65's for elevator and rudder
- *If using other servos make sure they are close to the same torque rating

Specs:

- Wingspan: 25"
- Length: 35"
- Flying weight: 15 to 16 ounces
- C.G.: 7/14" in front of the carbon spar (where the leading edge of the wing starts to angle forward)

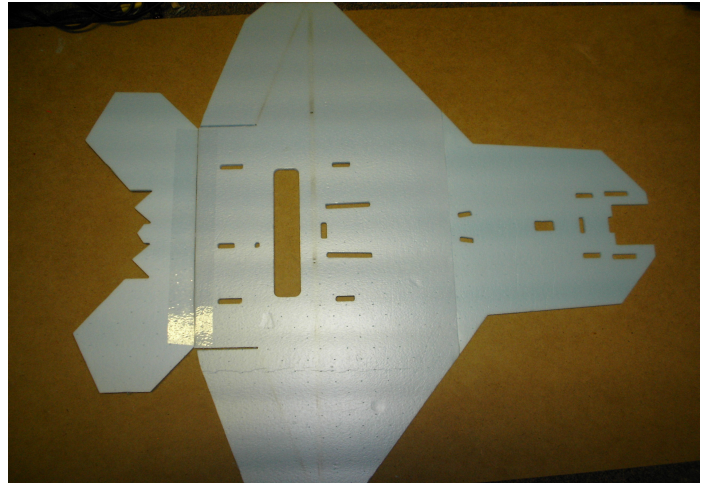
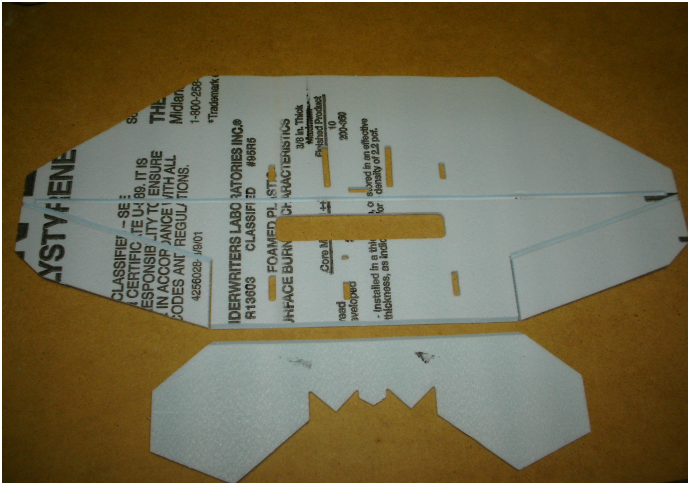
Recommended throws:

- Low rates: 20 degrees on all control surfaces
- High rates: 45 degrees on all control surfaces with plenty of expo

If you have a programmable radio, you can get the plane to do some awesome high alpha maneuvers by putting about 20 degree's of spoilerons (ailerons going up) on a switch. Flip the switch right before right before yanking on the elevator in high rates to get it to do a crazy double flip.

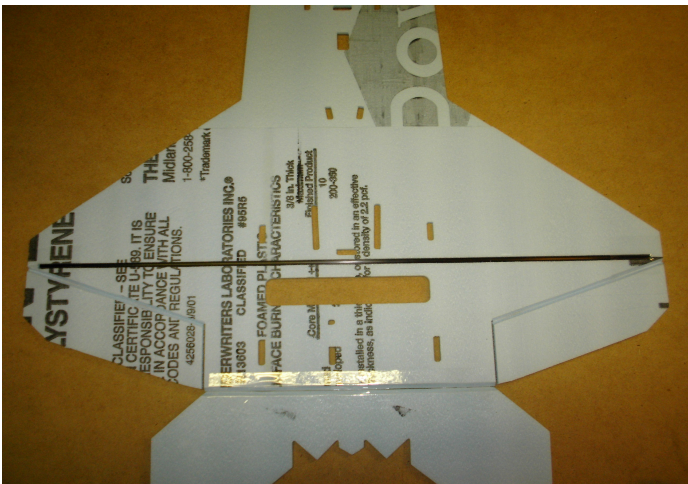
Build instructions

Cut or sand a 45 degree bevel on the elevator and the back of the wing where the elevator meets. Tape the elevator and aileron hinges and glue the forward part of the wing to the rest of the wing.

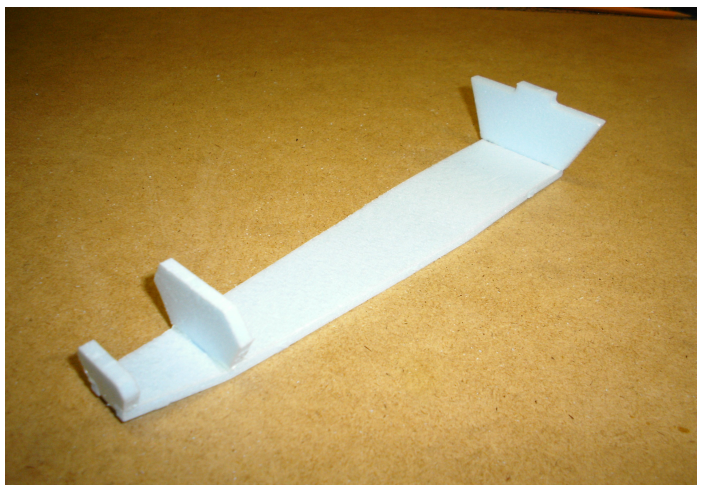
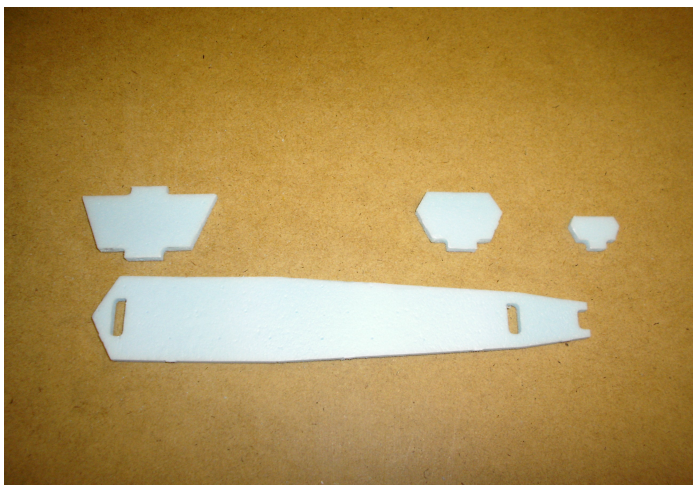


Install a .196 x 24" carbon tube for the wing spar.

Glue the motor mount former.



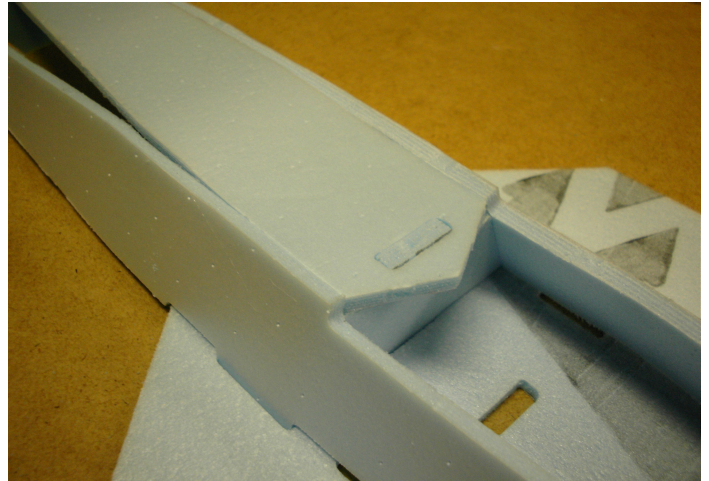
Glue the formers to the bottom front half of the fuselage.



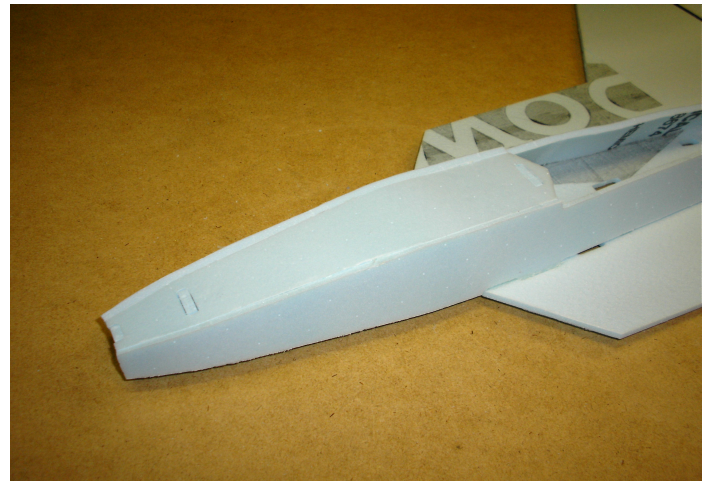
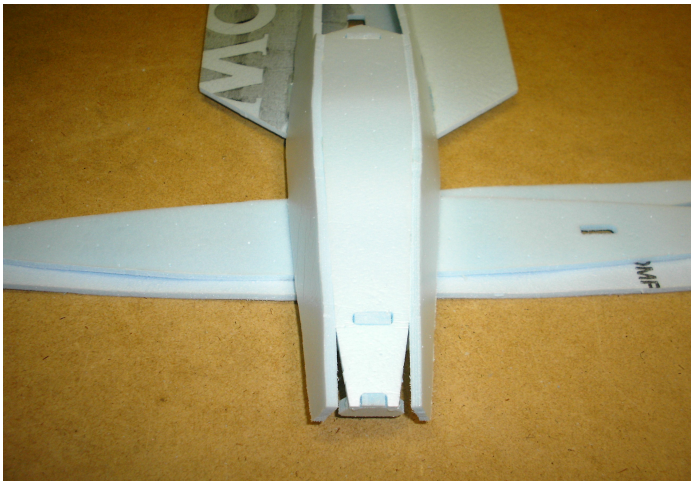
Glue the 2 sides and bottom fuse assembly to the wing.



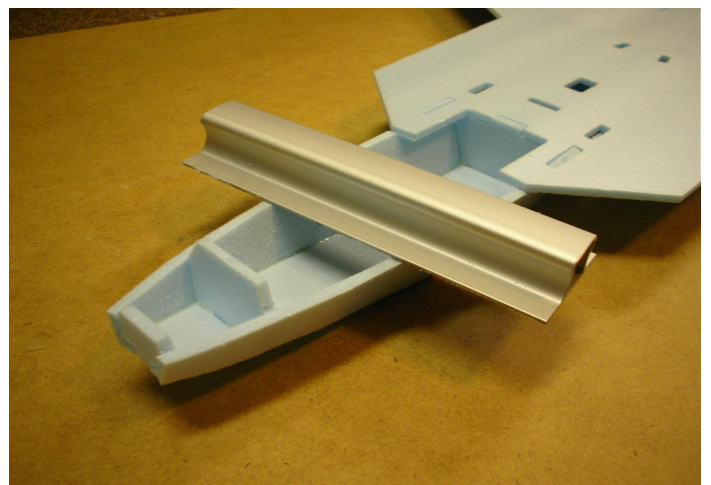
Make sure to line the fuselage assembly up like this.



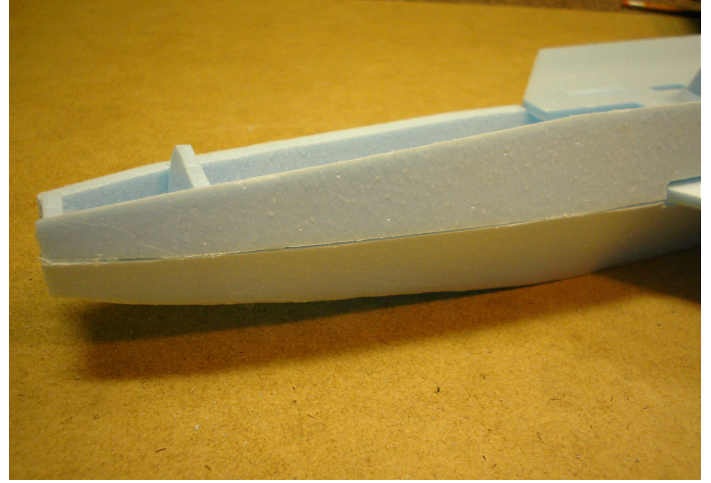
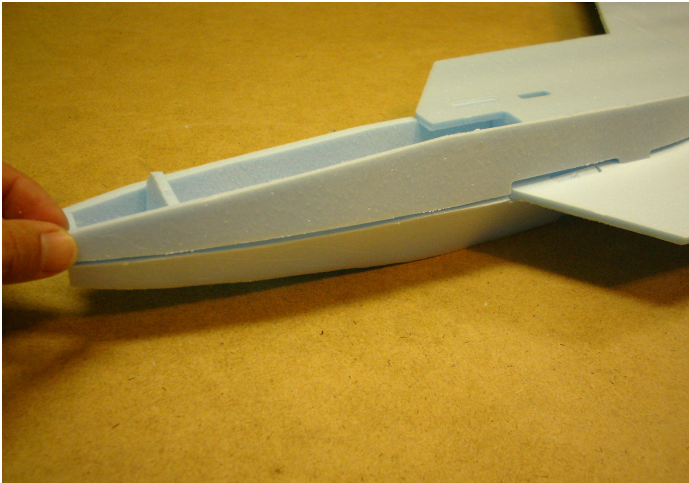
Glue the sides all the way to the nose making sure to keep things strait.



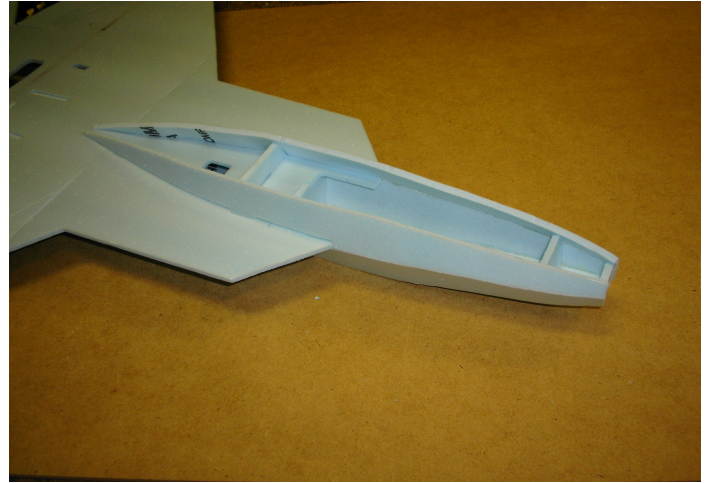
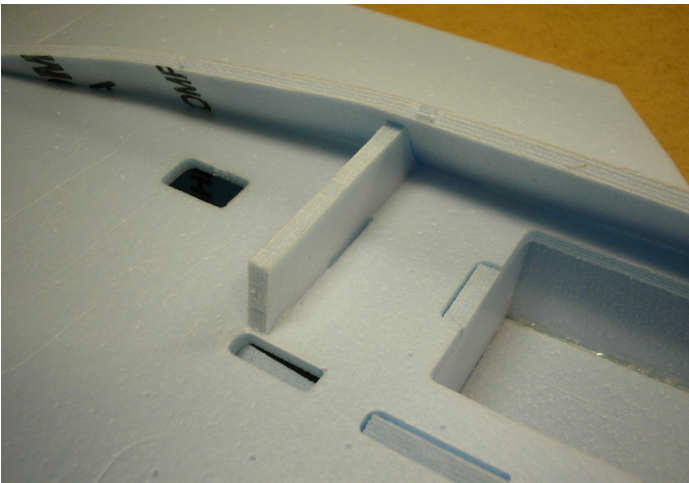
Glue motor mount, control horns and elevator servo mount in place.
Flip over and sand the middle of the fuselage assembly flat.



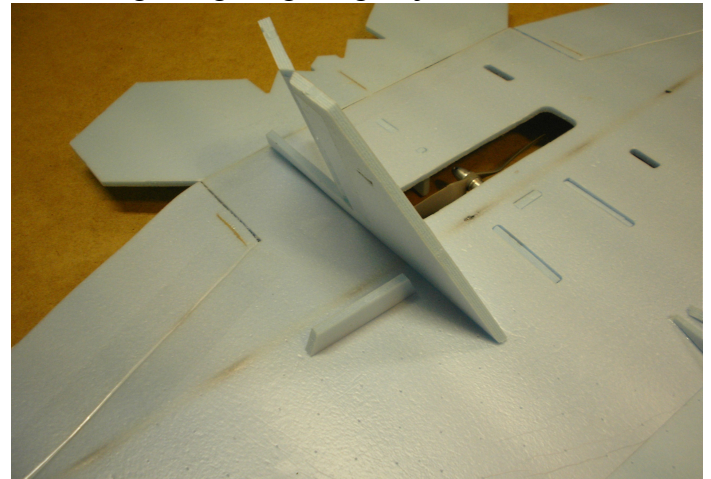
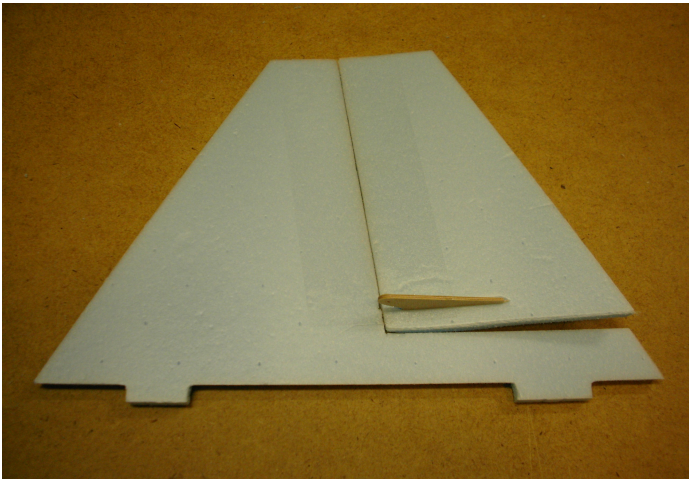
Sand the top half of the fuselage sides where it meets the bottom fuselage assembly.
You don't have to worry about sanding the part where it sits over the wing.
That gap will be hid later by the top deck.



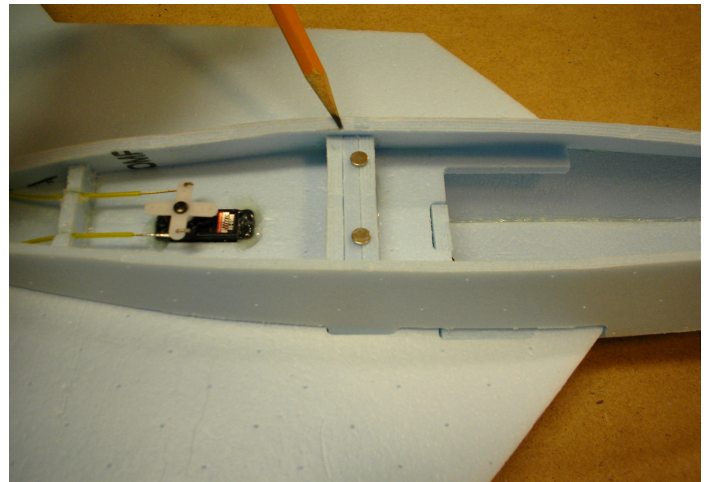
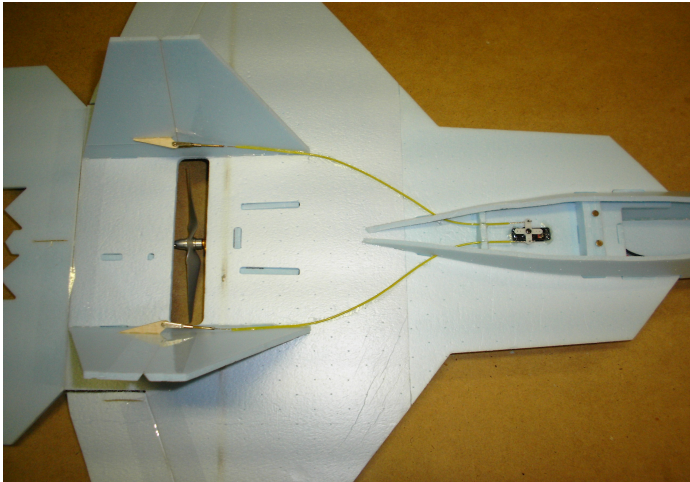
Add the side brace former and glue the side pieces on.
The former used here has a tab, the 2 others that look like it with out tabs are used as the magnet holders.



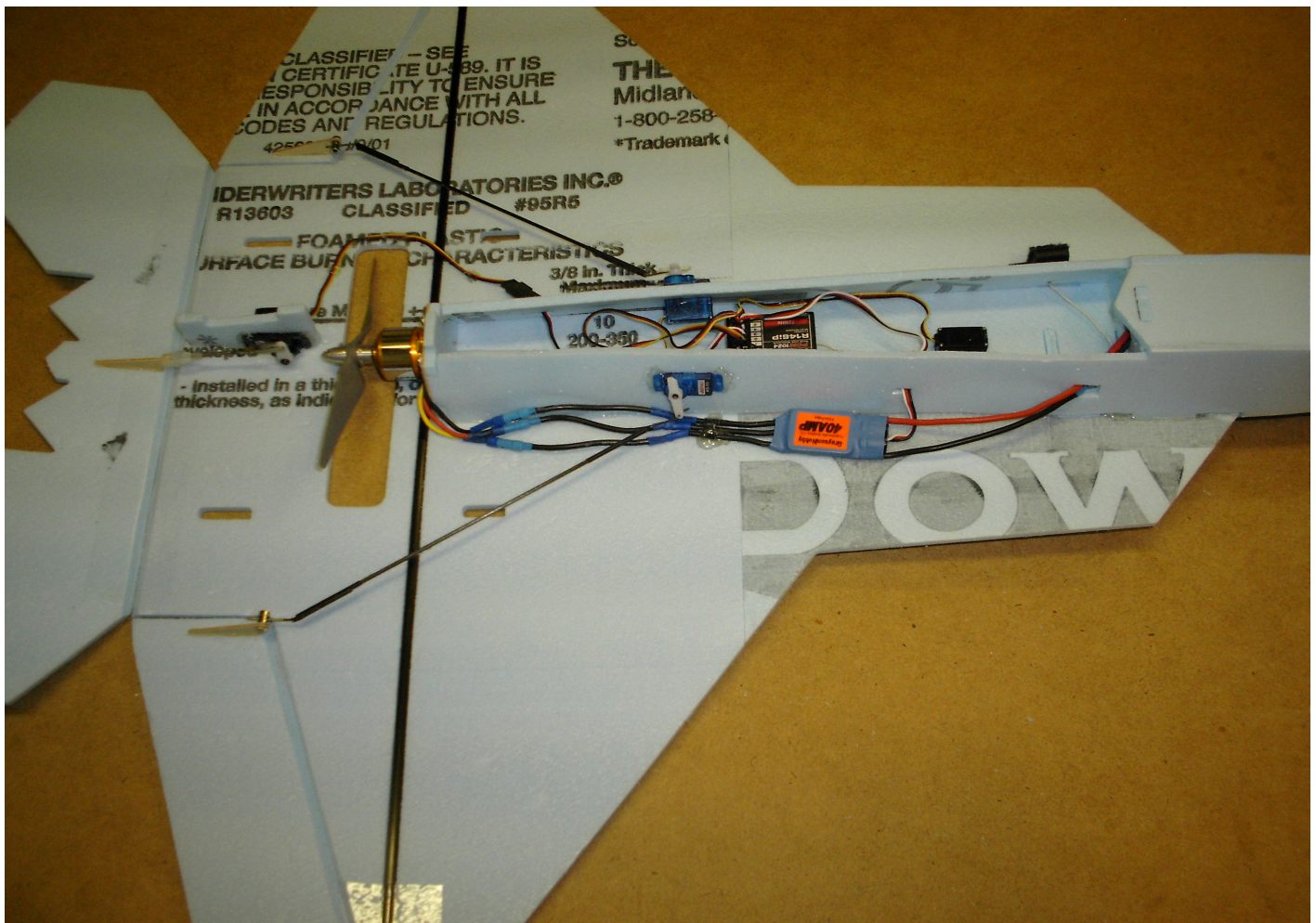
Now is the time to decide if you want rudders or not, they are optional.
Cut rudders out using the template. Bevel and hinge them on. Add the control horn on the inside of the part.
****Check tab placement to make sure rudders are going the right way****
Use one of the magnet holder pieces as an alignment guide to glue rudders on.
It's best to sand the bottom of the rudder at an angle to get a good glue joint.



Install rudder servo. Glue Sullivan push cable in the route shown. The clevis end goes to the rudder side.
Then make a Z bend on the other end of the cable that goes to the servo horn.
Glue the small former used to support the cables behind the servo.
Glue the 2 magnet holder pieces in. Dig out 2 small holes for the magnets and glue them in.

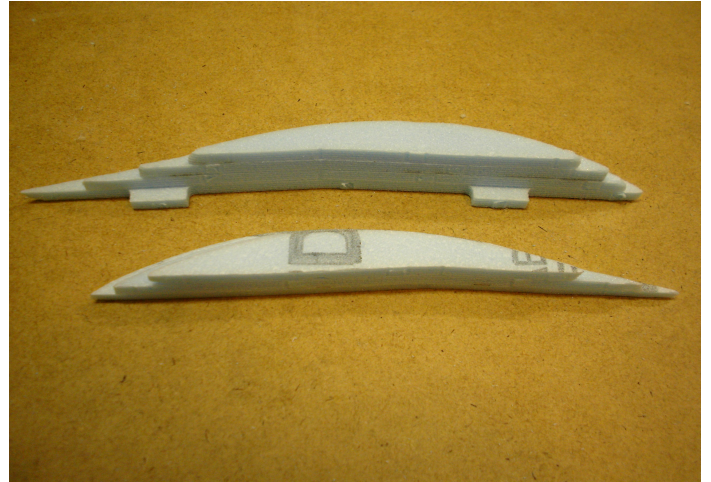
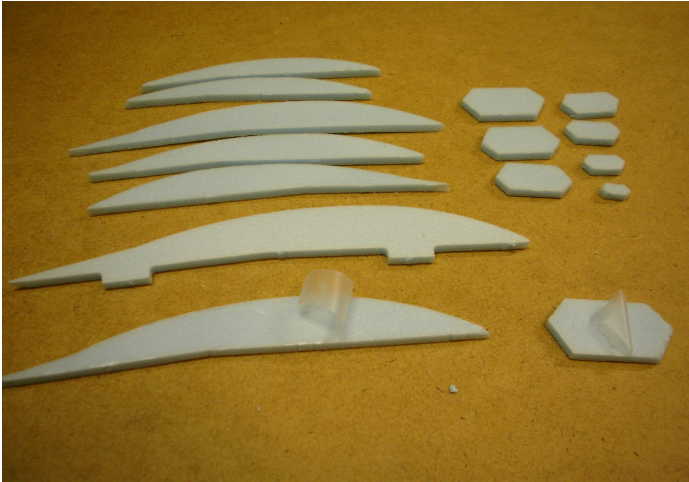


Install the elevator servo. Use the 2-56 threaded rod with 2 clevises to attach the servo to the control horn.
Glue the servo wire in a couple of spots around the prop slot. Mount the motor and prop.
The speed control should be placed outside the middle fuselage assembly for cooling purposes.
You will have to extend the motor and the battery wires on the speed control for them to reach everything.
Put a dab of glue on the speed control wires so they don't hit the aileron linkage.
Use the 1/8" x 7-5/16" carbon tubes to make push rods for the ailerons.
Attach the receiver just in front of the aileron servos.



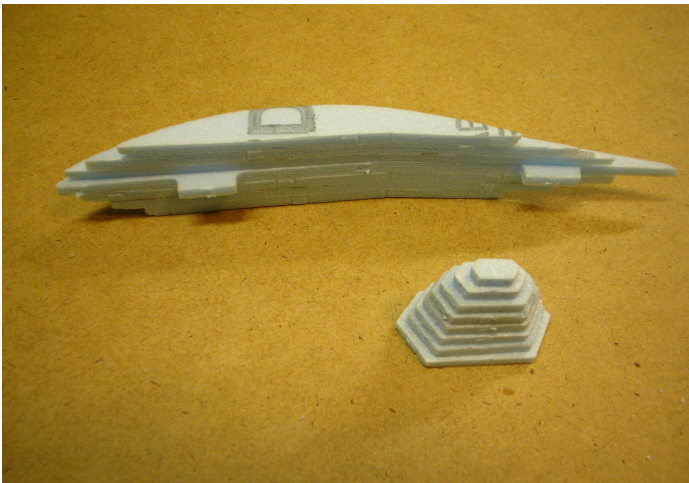
The blue foam has a skin that needs to be peeled off of the canopy and nose pieces.
Glue the canopy pieces together lining them up on the bottom edge where it angles slightly.

****Make note to do a left and right side when gluing the sides together****



Glue the nose pieces together.

Sand and shape the canopy and attach it to the top fuselage part. The nose will get shaped later.

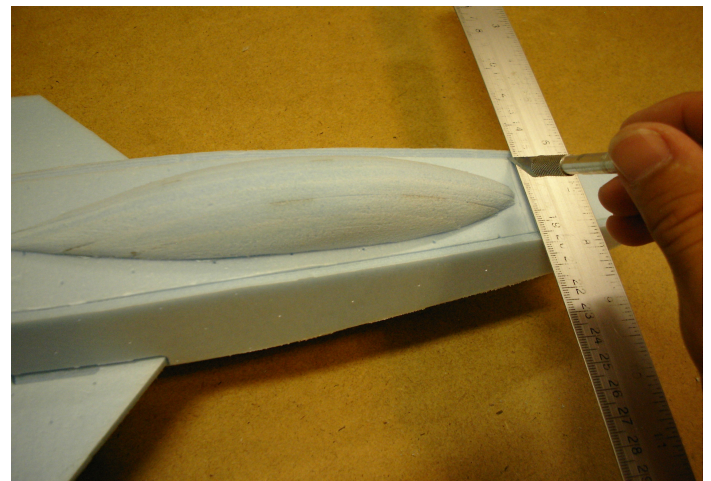
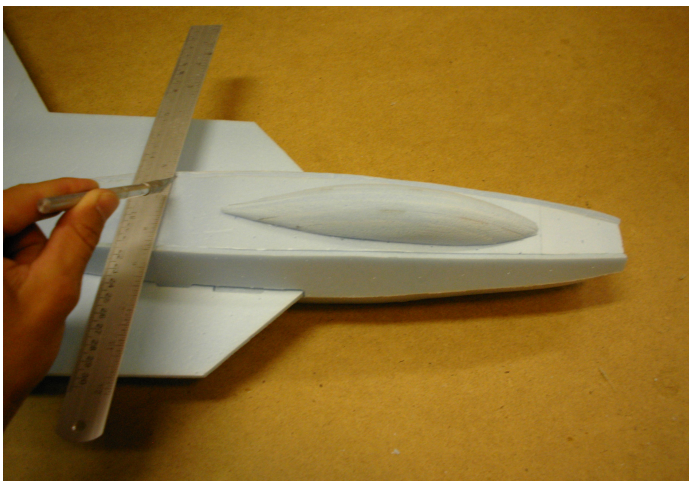


Make pencil marks on the fuselage sides showing you where the magnet holders are.

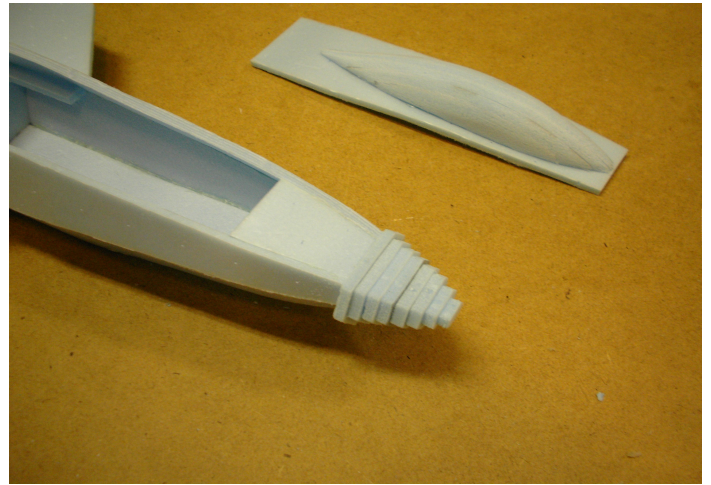
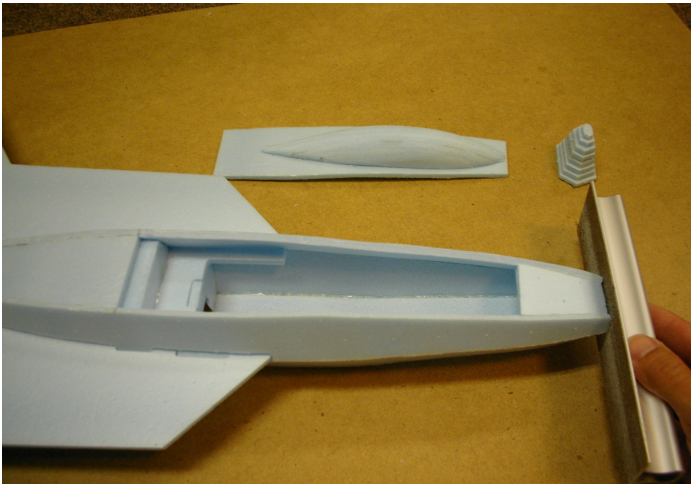
Set top of fuselage in place, lining it up at the nose.

Line up and cut across your marks. Then make another cut a little in front of the canopy to make the hatch.

Glue the forward part down first, place hatch back in place, then glue the back section down.



Sand the front flat and glue the nose piece on.

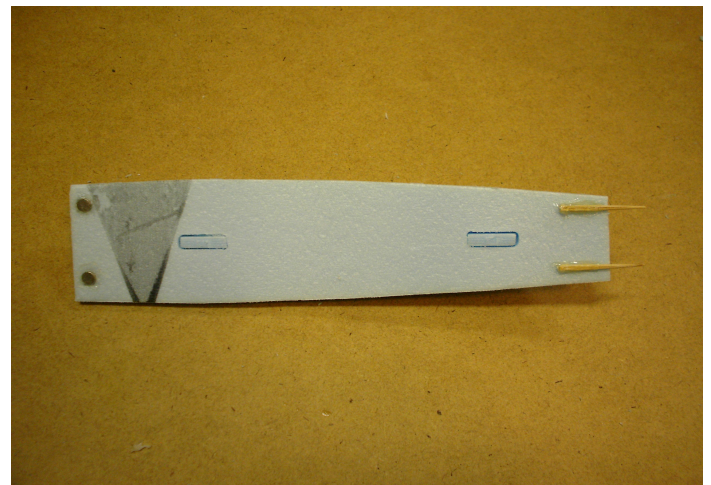
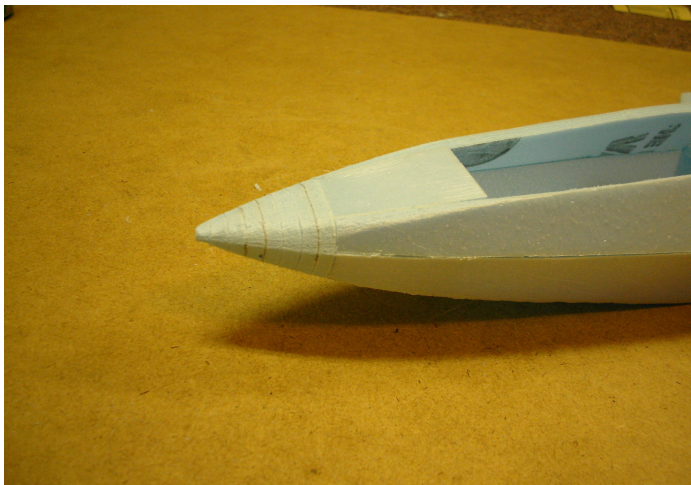


Sand and shape the nose.

Glue the magnets in and toothpicks on.

****Make sure the polarity is going the right way on the magnets****

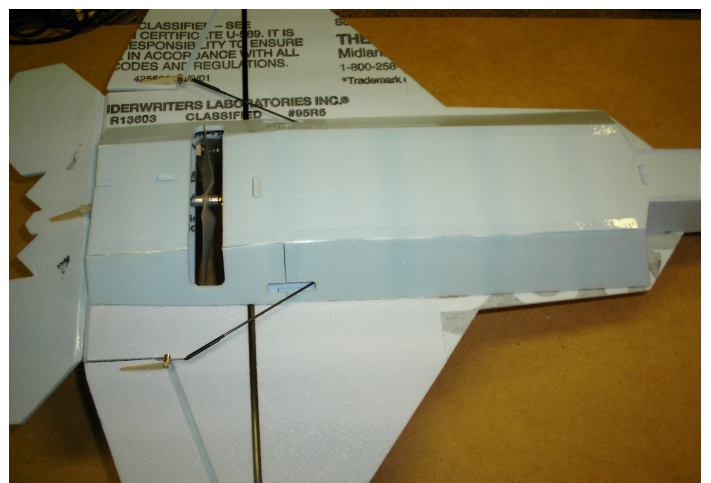
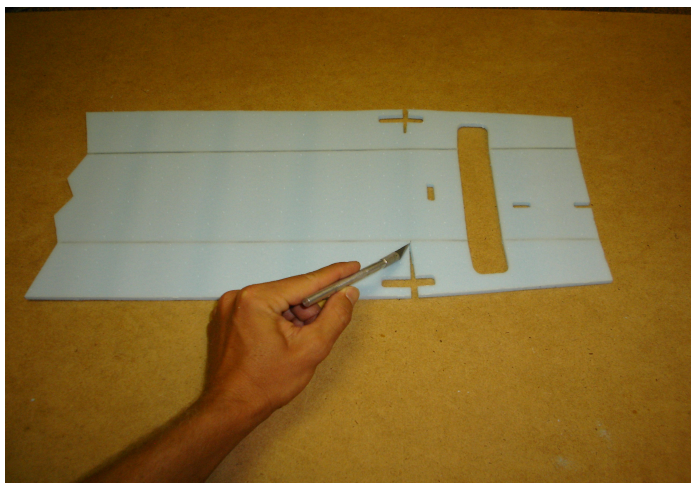
When putting the canopy hatch back on be sure to poke the toothpicks through the former in front of them.



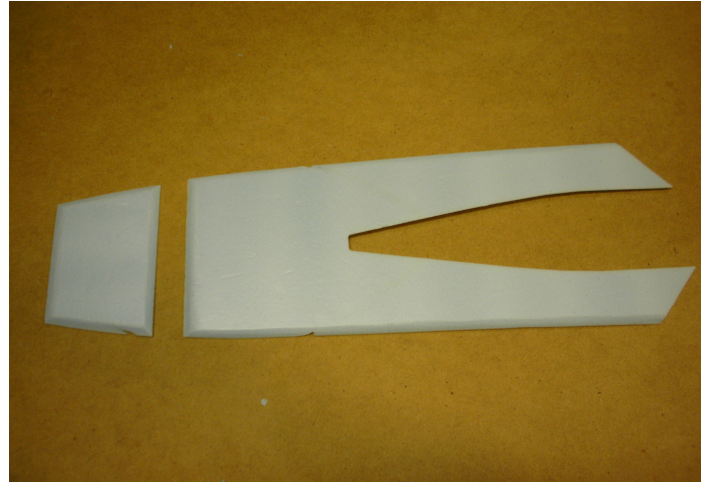
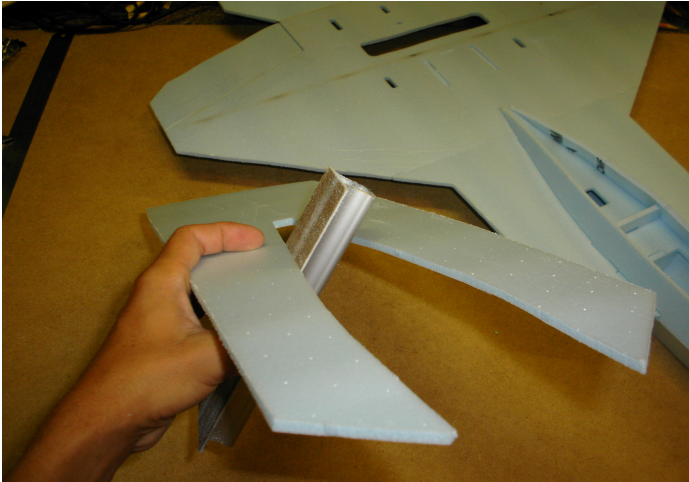
Make sure the push rod cutouts are extended to the fold line on the bottom fuselage part.

Tape over the fold lines and glue to the middle section of the fuselage first.

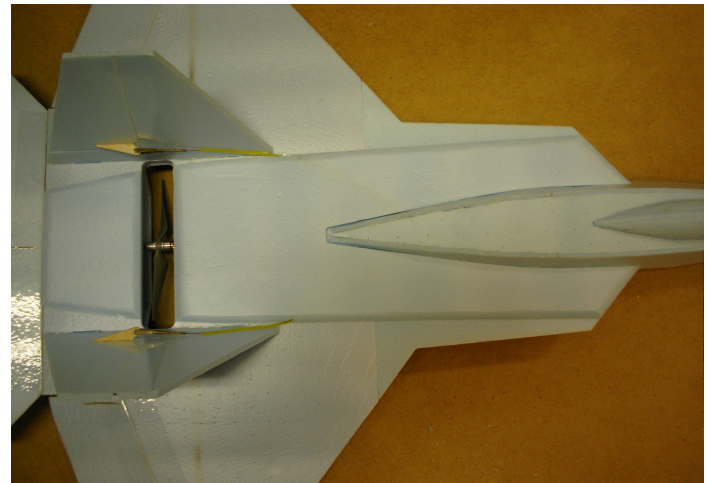
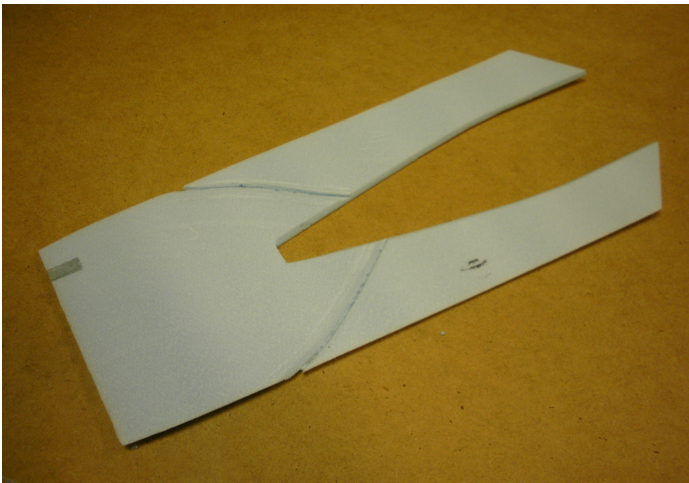
Fold the flaps over and glue them to the underside of the wing.



Sand a bevel on the inside of the top plate so it sits right up against the fuselage and round over the outside edges.



If you added rudders, sand a groove on the underside of the top plate where the push cables go. Glue the top plates on and round over all the edges.



Attach a piece of velcro to the inside of the hatch area for your battery to sit. A 3s 1300 mah lipo should set at the back of the hatch area to give you the right C.G. The C.G. is where the leading edge starts to angle forward.

