



Tuff-Cub Construction Guide

Specifications:

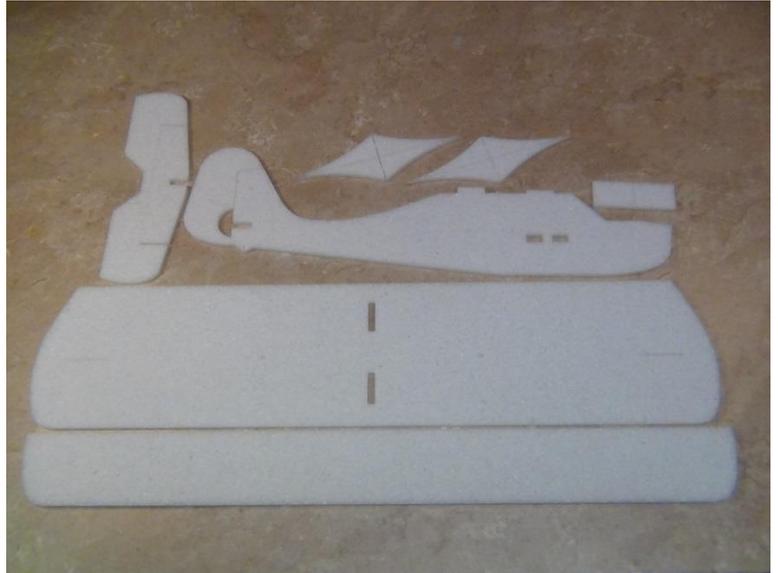
- Wing span – 32"
- Length – 25"
- Wing area 256 sq. in
- Weight - (without battery) – 5 oz.
- Center of gravity is 2-1/2" from edge of wing
- Motor: c2403 – 2100 KV
- Prop: 8x4DD or 7x3.5DD
- Battery: 460 mah to 800 mah 7.4 V
- Speed Control: 6 Amp
- 5 gram servos, 2 total

Additional Items needed to complete kit:

- Glue – Foam-Tac and Gorilla Glue
- Velcro
- Servos
- Motor
- electric prop
- ESC
- Battery
- Paint
- Construction paper

The Tuff Cub kit should include the following;

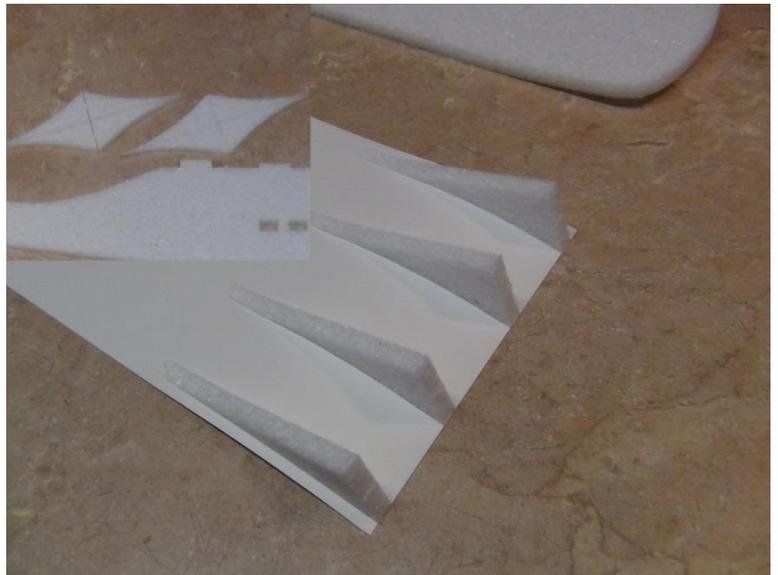
- Laser cut foam parts
- Hinged control surfaces
- Carbon fiber spars
- Carbon fiber trussing and control rods
- Wooden control horns and motor mount
- Wire z bends for control rods
- EZ connects for servo horns



We will start the build by making a jig for the dihedral wing.

Cut a piece of construction paper 7"x32" (you may have to tape two pieces together to get it 32" long).

Then glue the 8 foam triangle pieces to the construction paper (4 on each end with **curved** side glued to paper).



Once the glue has dried, (20 min) flip the jig over and put wax paper on it. Use white Gorilla glue or Foam-tac to laminate the small wing half on top of the large wing half.



Lay another sheet of wax paper over the wing and use bags of stone or full pop cans to weight the foam wing down. Allow to dry for at least one hour before removing.



The carbon fiber spar can now be glued into the grooves at each end and up against the **top edge** of the wing. Use some pins if needed to hold the spar in place while glue is drying.



Bevel the leading and side edge of the small top wing half.



Now glue in the fuselage carbon spar and paint the plane. Then glue in the plywood control horns.

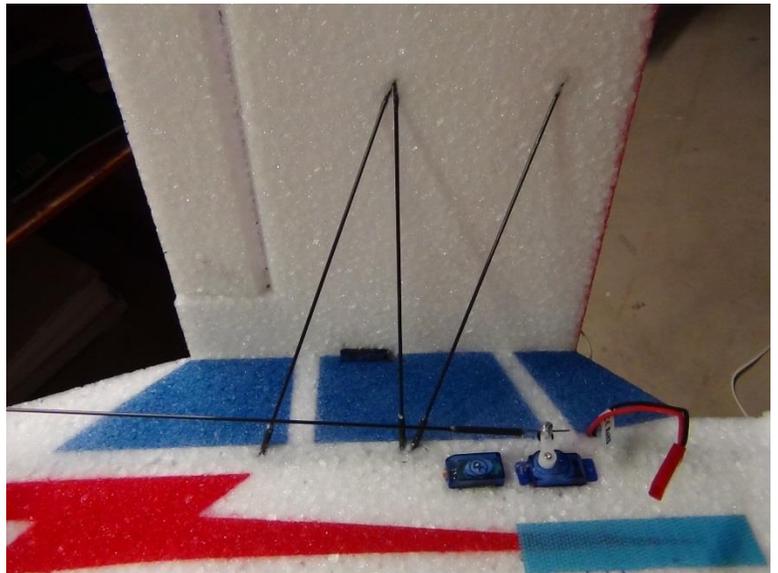
You may add ailerons as shown in the picture if you want. But the plane flies great without them.



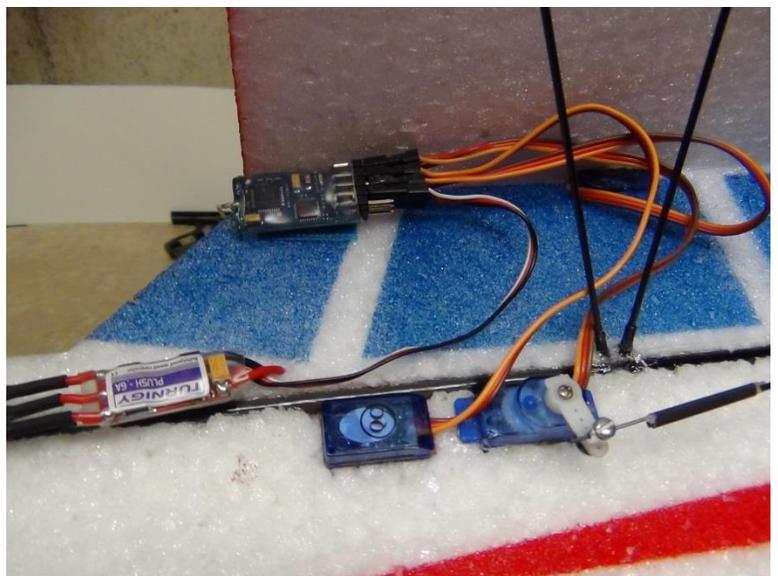
Glue the main wing and the horizontal stab to the fuselage.

Note: The bottom of the rudder hinge is left open to allow the stab to be attached. Once the stab is glued in, apply a thin layer of Foam tac to attach the bottom of the hinge.

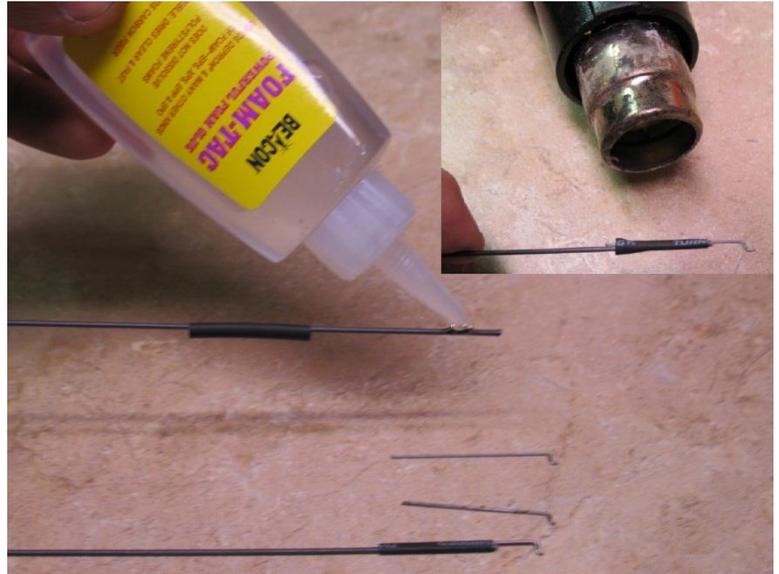
Use a small amount of glue to hold the **elevator servo** in place on the **right** side of the plane, as shown in the picture.



Use a small amount of glue to hold the **rudder servo** in place on the **left** side of the plane, and attach your receiver with Velcro as shown in the picture.



The wire control pieces can be easily attached to the carbon rods with Foam-tac glue and shrink wrap. The glue is flammable, so use a heat gun or hair dryer on the shrink wrap. The glue and shrink wrap can also be reheated to move and adjust the wire. Attach a straight wire to one end and a Z bend to the other.



Connect the control rods to the top hole on each plywood control horn.

Then glue tail and main wing trussing into provided slots.

Make sure that the wing and stab are held 90 degrees to the fuselage!



Bevel both halves of the motor mount sides, and use a heated wire to melt a groove in one half. This groove is for the motor wires.



Glue the foam sides and the plywood motor mount onto the nose.

After the glue dries, attach motor, ESC and prop as shown in the picture. Prop should spin clockwise when plane is pointed away from you. If it spins counter clockwise, switch any two of the three wires that plug into the motor.

Center your servos arms so that the elevator is pointing up and the rudder servo arm is pointing down. Attach control rods to servo arms with EZ connects.

Note: drill a large enough hole in servo arm so that EZ connect will turn freely.

Glue Velcro on the nose for the battery as shown in the picture.

Adjust the battery forward or back to get the plane to balance on its center of gravity, which is located 2-1/2 inch back from the leading edge of the wing.

Recommended throws for beginner and maiden flights are, rudder 1/4 inch and elevator 3/8 inch both directions. Plane can easily be flown this way with no EXPO.

Before flying always check control surfaces. Pulling the elevator stick back should make the **tail edge** of the elevator to go up as in the picture. Pulling the rudder stick to the right should make the **tail edge** of the rudder to go to the right as in the picture. NOW GO FLY THAT FOAMY!

