

## MS Composit P-51 EPP "Foamy" pylon racer



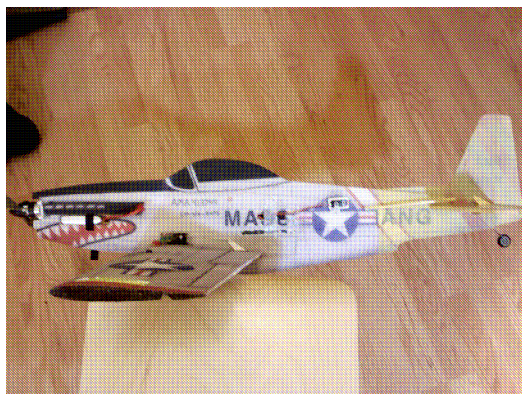
Purchased at Trumps Hobbies for @\$130 (plane/motor/ESC/battery) for pylon racing. While up there I grabbed a few \$14 Hitec HS-55 micro servos, \$1.50 APC slowflier 8x6 props and of course some 3ft CF rods and sticks(@\$20 for 3 sizes total). I used a spare HS-81 servo for the wing.

Buy foam safe CA glue and kicker only. I use thin and medium thickness rubberized Bob Smith as it flexes instead of cracking, it may be listed as "hinge CA" and when hit with kicker it will cure almost instantly.



### 1st - Assembly

.... and what instructions? They are a suggestion at best but you get the basic idea.



The EPP fuse can have a little snake in it but it comes out when I laid it flat on the build table and carefully using a covering heat gun to heat a large area of skin on the other side it allowed the EPP to stretch and bend the fuse strait. After the fuse was straight enough, I sharpened/saw-toothed the end of a 24inch piece of 4mm CF tube and drilled it slowly down the center of the fuse, starting at the tail and carefully aimed it towards the nose. In the nose I lined up the motor mounting plate to mark where 2 screws go into the fuse, here I screwed in (2) 6 inch CF



tubes with medium CA, then attached the motor mount using 2 screws screwed into the tubes. This stiffened the fuse in a huge way and allows for better rudder effectiveness as the fuse will not bend in opposition.

Wing halves were joined together using medium CA and a 0.5mm thick CF rib in the middle, with one wingtip lifted to 30mm. The instructions show string being used as a spar, and I agree this to be surprisingly effective! Using a piece of balsa I fashioned a 3mm depth cutting sled with a #11 blade and used a ruler to slice the 3mm deep lines where the spar string is to be buried. Starting with the top of the wing and wingtip with a single string anchored with a little CA and pulled tightly to keep the string taut, I used a toothpick and laid it into the wing all the way to the other tip, and then follow with the 2<sup>nd</sup> string. Once one side of the wing had both strings pulled, I soaked the whole length of the wing spar string with



thin CA and let sit a minute, then used the medium CA down the spar to help the EPP close together above the buried string, then hit the whole spar with kicker. Repeat the same procedure on the bottom of the wing. The best way I found to loosen up the aileron hinge-line on EPP material is to perforate the hinge-line every 1/2 inch with 1/4 inch of material uncut with a #11 blade, like this.....

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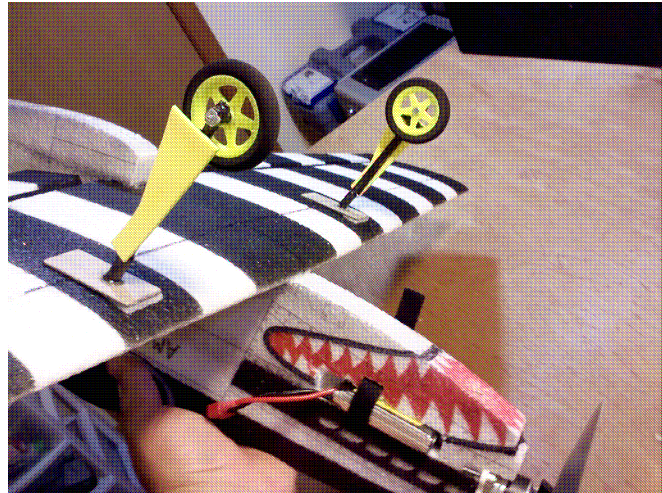
Installed the HS-81 servo and linkage, then attached the wing using medium CA and once aligned, hit it with kicker.



Tail parts are made of a different type of foam that melts! with thin CA, so used the medium and kicker CA and some 0.5mm CF strips to strengthen them. I glued them to the fuse and stuck a CF stick through the leading edge of the vertical stabilizer and into the fuse. Added 1/64<sup>th</sup> plywood scrap to each control horn for added strength; did this on the ailerons as well.

## 2<sup>nd</sup> - Radio

I installed the receiver as far from the wing servo as the lead would allow and placed the HS-55 servos as far back as those leads would allow. Attached the brushless 2208/12 motor and placed the Thunderbird-18 ESC as far back as those leads would reach, and then hot glued it into a recessed cutout in the fuse. Tested the radio and adjusted control linkages. Battery placement next... Made a CG jig and flipped the plane over to set the CG while figuring out the location for the battery. Last thing was to cut out the spot and loop Velcro through it to hold the battery in place. Flying weight 11-14 oz using the Thunder Power Pro 1350 mAh 2S lipo pack in the package. RTF weigh came in at 13.1 oz.



### **NOTE: the CC Thunderbird-18 ESC low voltage cut-off**

I hooked it up to my Castle-Link and found the factory setting to be 5.5volts!!! Way too low for a 2S Lipo pack. After some digging, it looks like 3.4V/cell will cut the pack off at the @85% depletion point.

So, I would suggest a setpoint of 6.8 volts on the Thunderbird ESC. \*Note- I have 2 Castle-Links if anyone needs to borrow one to reset their ESC cut-offs.

Yeah, I added removable landing gear and a tail wheel! They weigh another ounce..... so @14.2oz. As it turns out, it's actually a great flier and not very "foamy" feeling in light winds. We need more of these in the club.....

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