Fury Assembly Instructions

Parts and Materials List

Included Hardware:

1. Wing control horns *2
2. Rudder control horn *1
3. Stabiliser control horn *1
4. Wire for tail springs *2
5. Wire for pull-string *2 lengths
6. Crimps for pull-string *4
7. Wing pushrod sleeves *2
8. Wing metal pushrods *2
9. Wing bolts *4
10. Stabilizer bolts *2
11. Rudder bolt *1
12. Servo tray (designed to fit KST X08 and A08) *1
13. Motor mount *1
14. Plastic guide tube for pull-wires *2

Equipment needed to complete the Fury assembly:

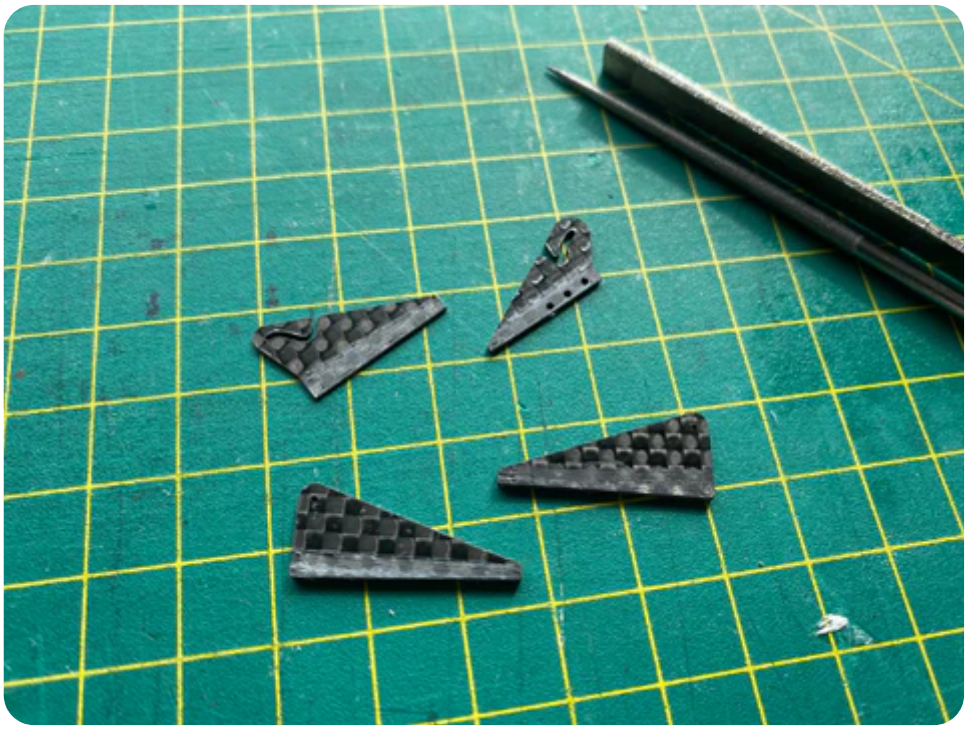
1. 2S LiPo battery pack, around 500 mAh capacity. I am using the ArmSoar 2S HV LiPo packs.
2. Small full range receiver with 5+ channels, dual antennas highly recommended. The following have been tested to fit: FrSky GR6, G-RX6, Spektrum AR6610T, Futaba 3008, Jeti R5L.
3. 4* KST X08 v6, A08 v6, or X06 servos.
4. Motor, 1507-1806 sizing.
5. ESC, 20A with prop braking.
6. CN Models 25/5 spinner
7. Fury 7x4 or 6x4 carbon folding propeller.

Supplies and equipment needed to assemble the Fury:

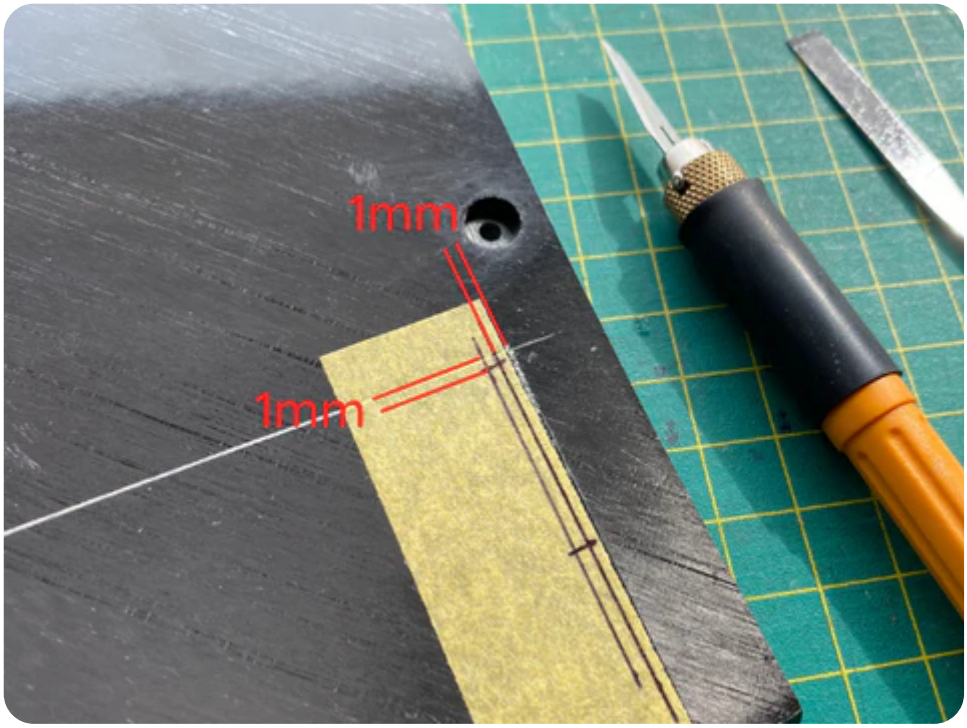
1. Model knife (X-acto #11, etc),
2. Masking tape
3. Pen
4. Straightedge
5. Dremel
6. Pliers
7. Small file (flat and round)
8. Phillips screwdriver
9. Superthin CA
10. Medium CA
11. White Gorilla Glue
12. Soldering station
13. E6000 or epoxy (for motor mount)

Wing

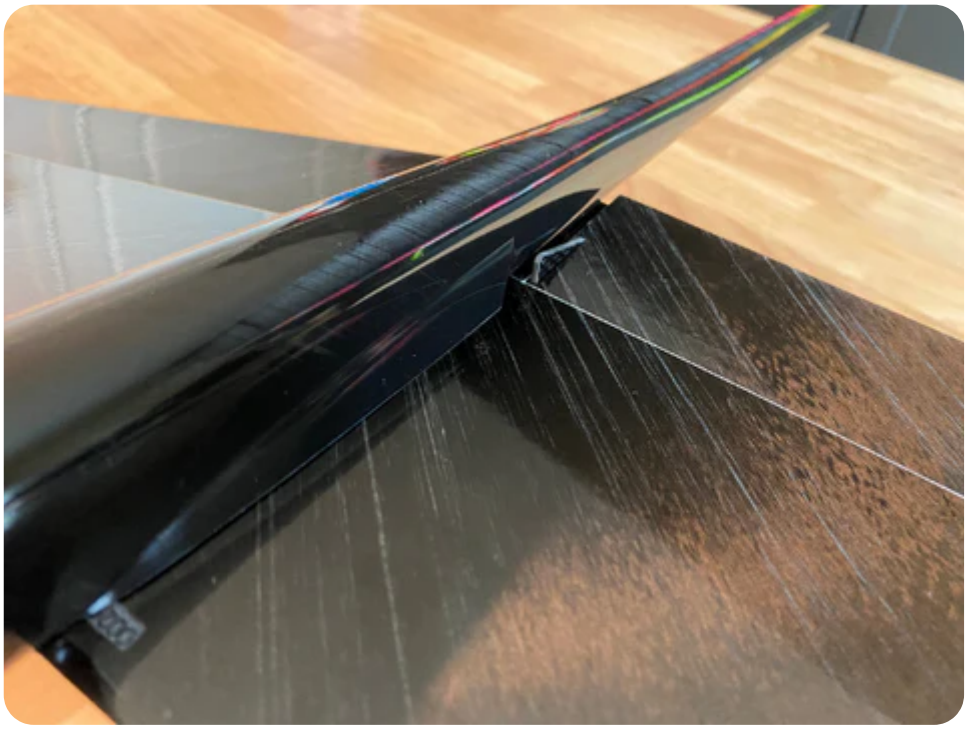
1. Roughen up all wing and tail control horns.



2. Using a piece of masking tape, mask the root of the bottom of the flaperon right up against the edge of the flaperon and hingeline as pictured. Mark the position of the control horn as follows: 1mm from the edge of the flaperon, 1mm from the hingeline.

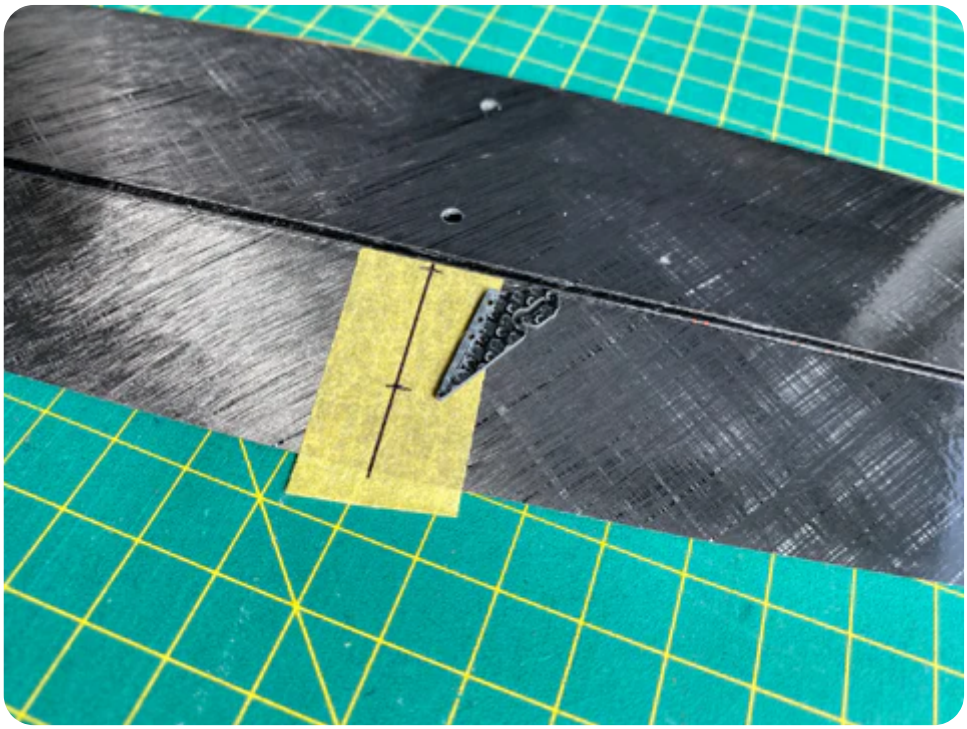


3. Cut the slot for the control horn using a sharp knife and use a file to widen the slot to make sure the control horns fit in tight and snug. Roughen the surface of the control horn by scoring with a knife then clean the surface with rubbing alcohol to rid it of dust and grease. Slip the control horns into the slots and make sure they are parallel to each other going straight up and down (not normal to the wing surface). Glue with super thin CA.

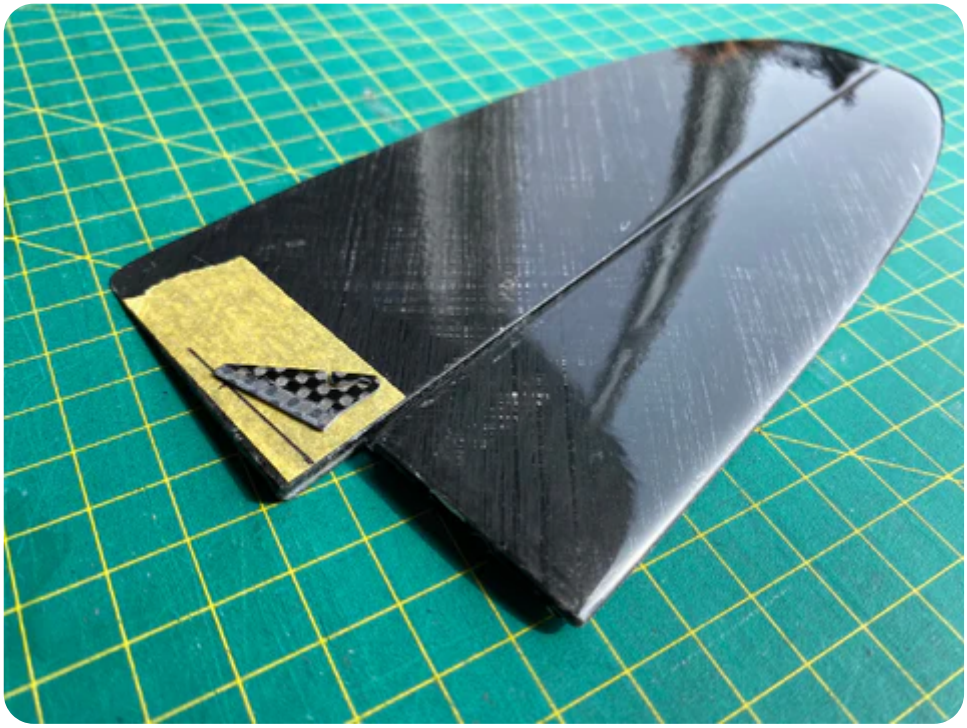


Tails

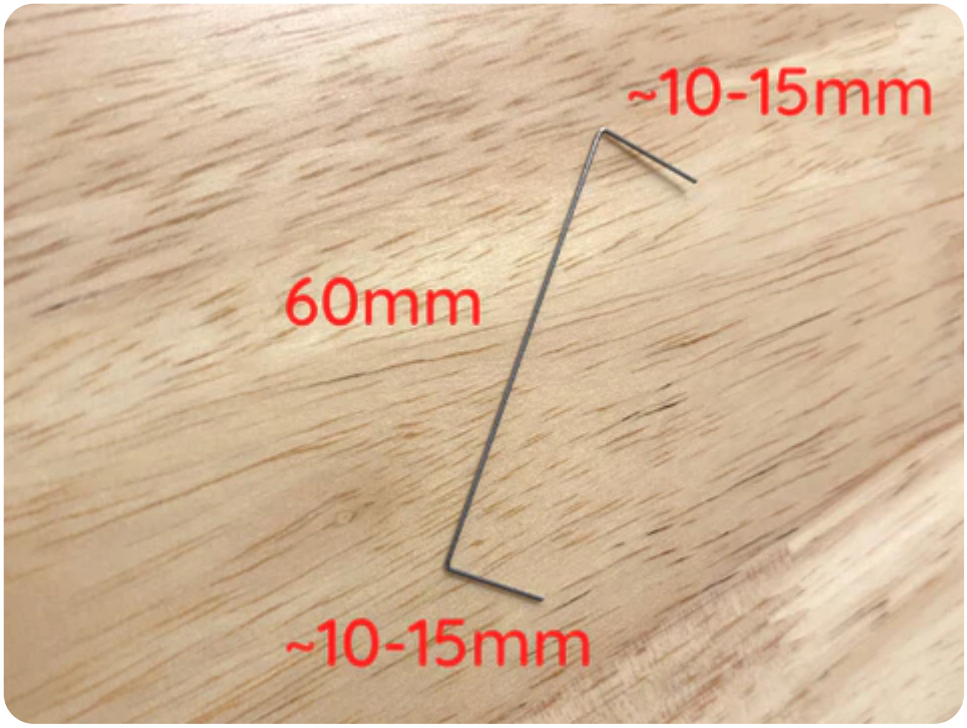
1. Apply a piece of masking tape to the elevator as shown, and mark the centre line in line with the bolt holes. Mark out the location for the control horn. The leading edge of the control horn should be 1mm from the hinge. Cut the slot for the control horn and glue it in with super thin CA.



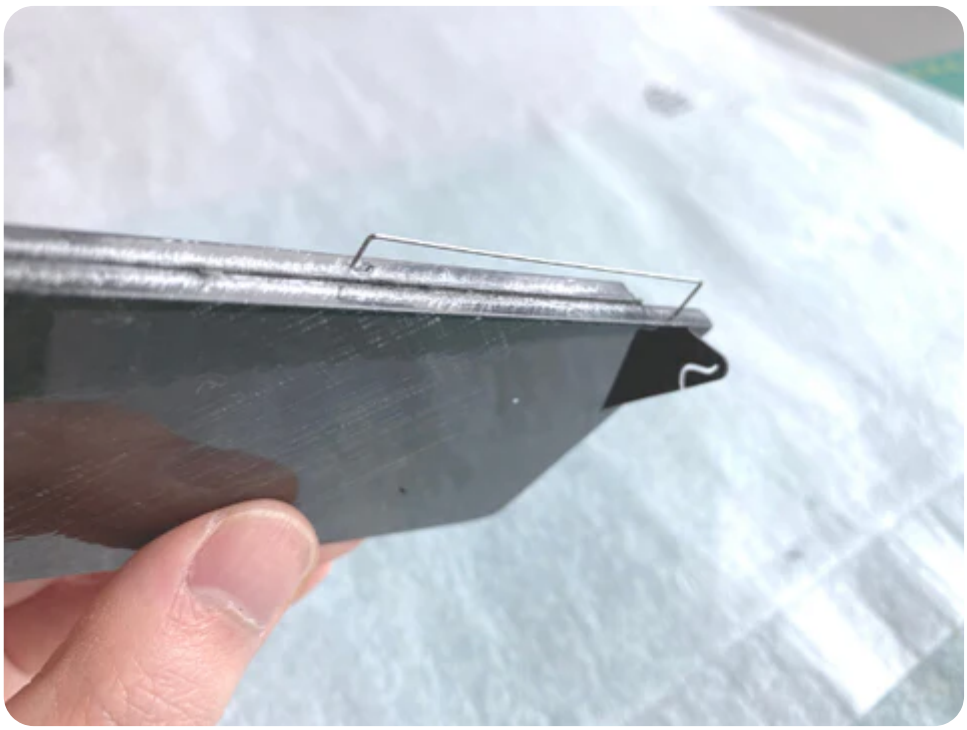
2. Repeat the above for the rudder. The leading edge of the control horn should be right up against the hinge.



3. Bend the springs into a |_____| shape as shown. The centre portion is 60mm long. One spring is needed for each tail surface.



4. Bend the rudder 180˚ around the hinge. Poke a hole on either side of the hinge to fit the spring legs. The hole on the control surface should be right beside the control horn so the force can transfer directly from the spring to the horn.



5. Dip the two legs of the spring into white Gorilla glue, then insert them into the tail. Repeat for the stabilizer.

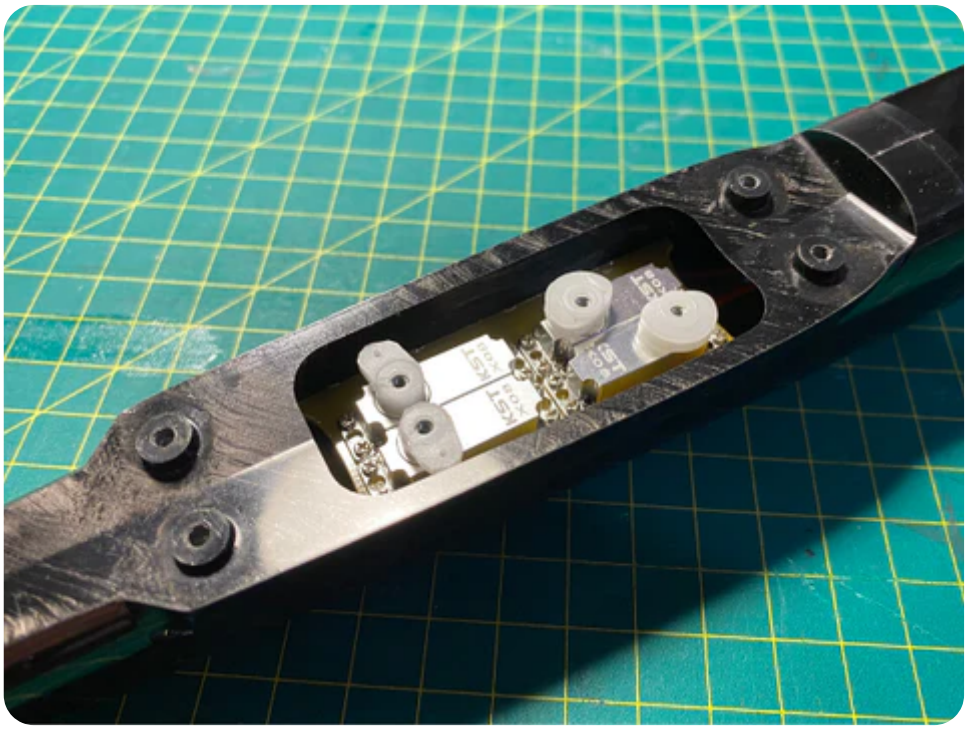
Note 2, the white Gorilla Glue expands and foams up as it cures. This helps the concentrated load from the thin spring wire spread to a larger surface so it doesn't rip through the core material and potentially poke out the skins.

Fuselage

1. Drill the rear of the elevator mount so the stabilizer control horn can slip inside.

2. Mask the right side of the boom under the elevator mount. Draw a line down the centre, and cut a thin slot roughly 15-20mm long. This is for the pull-wire for the rudder.

3. Mount the servos onto the servo tray and test fit the assembly in the fuselage. Remove it for the next steps.
   Note, I use the rear servos for the wings and front servos for the tails, but both orientations work well.



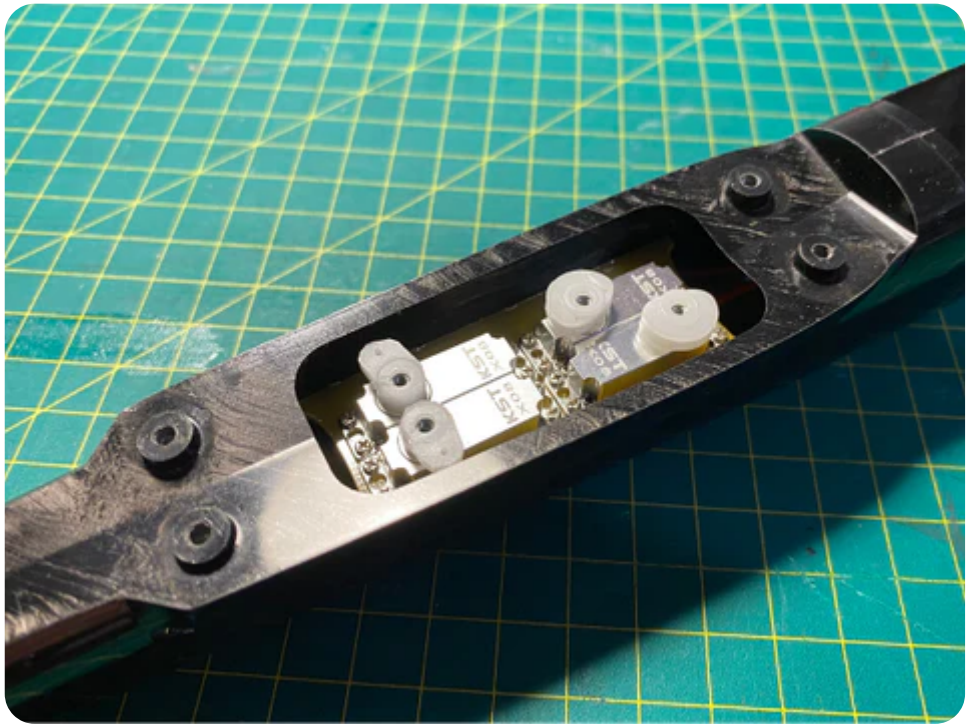
4. To prepare the servo arms for the wing servos, plug a wing servo onto a servo tester and make sure it is entered. Take one of the cross-shaped arms and put it on the servo with one of the long arms facing out. The goal is to have the arm pointing straight out. If the arm is coming out at an angle, flip the servo arm 180˚ and try the other long arm.

Cut off the remaining arms, and shorten the remaining arm to the innermost hole.

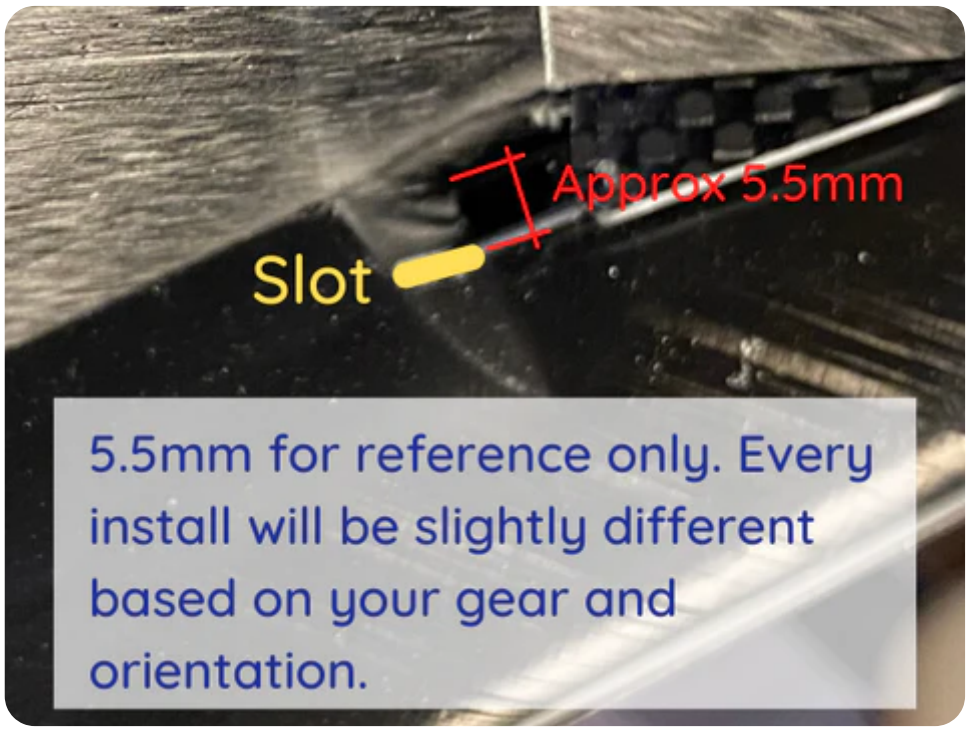
5. In this build, I am using pulleys for the tail servos. You can also use regular servo arms. Pulleys offer better resolution and torque at the centre while increasing travel at the extremities.

6. Roughen the inside of the fuselage where the servo tray will be glued, then clean the area.

7. Mount the servo tray (with servos) into the fuselage, then glue with super thin CA. Once cured, create a fillet with medium CA.



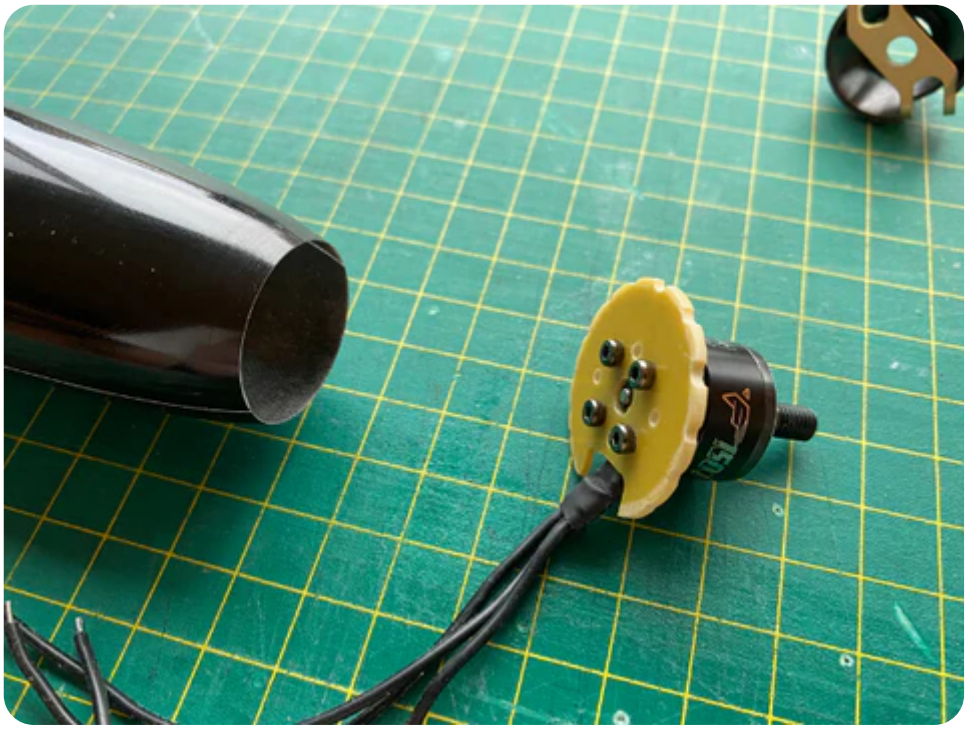
8. Mask the pushrod flaring on the fuselage with masking tape, then attach the wing onto the fuselage. Using the control horns as a guide, mark where the pushrods will come out to attach to the control horns.



9. Remove the wing, and drill the two slots for the pushrods.

10. Attach your motor to the motor mounting plate. The plate is pre-drilled with the standard mounting pattern for 1806 motors. If you are using other mounting patterns, the mount is intentionally left with lots of material so you can drill new mounting holes to fit your motor.

11. Remove the motor from the motor mount. I like to cut small grooves along the edge so the glue has more surface area and has a better mechanical bite. I also sand the outside perimeter of both the front and back of the mount so the glue fillet can hold it better. I also cut a small cut in the motor mount so my wires can pass through as shown.

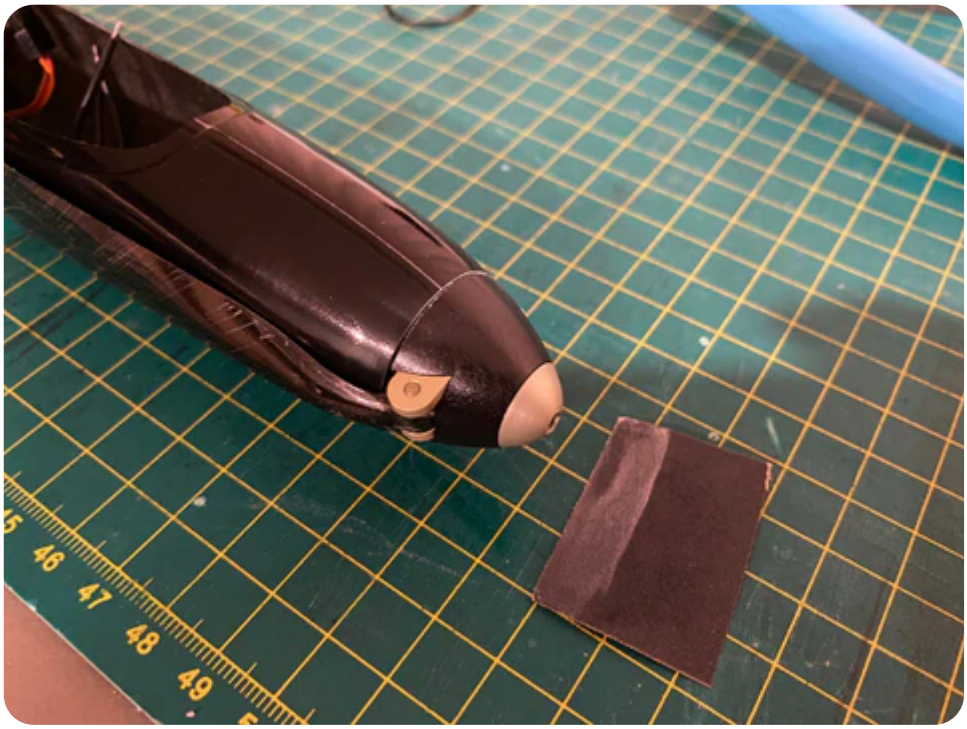


12. Complete the wiring to your ESC. Please check your ESC instructions for wiring information.

    Note, I like to use Drone (BLHeli_32) ESCs because they are very small and light, perfect for gliders. You'll need to connect it to your computer to enable prop brakes so that your prop can stop and fold properly when power is off.

    Note 2, since all of my gear is direct 2S LiPo capable, I power my entire system through a single XT30 connector to the ESC.

13. Mount the motor back onto the motor mount, and slip the assembly into the nose from the canopy. Test fit it by pushing it forward until it sits squarely and snugly, then attach the spinner assembly from the nose. If the spinner is rubbing the nose, sand the motor mount to reduce the diameter so the assembly can sit further forward. Repeat until you are happy with the fitment.



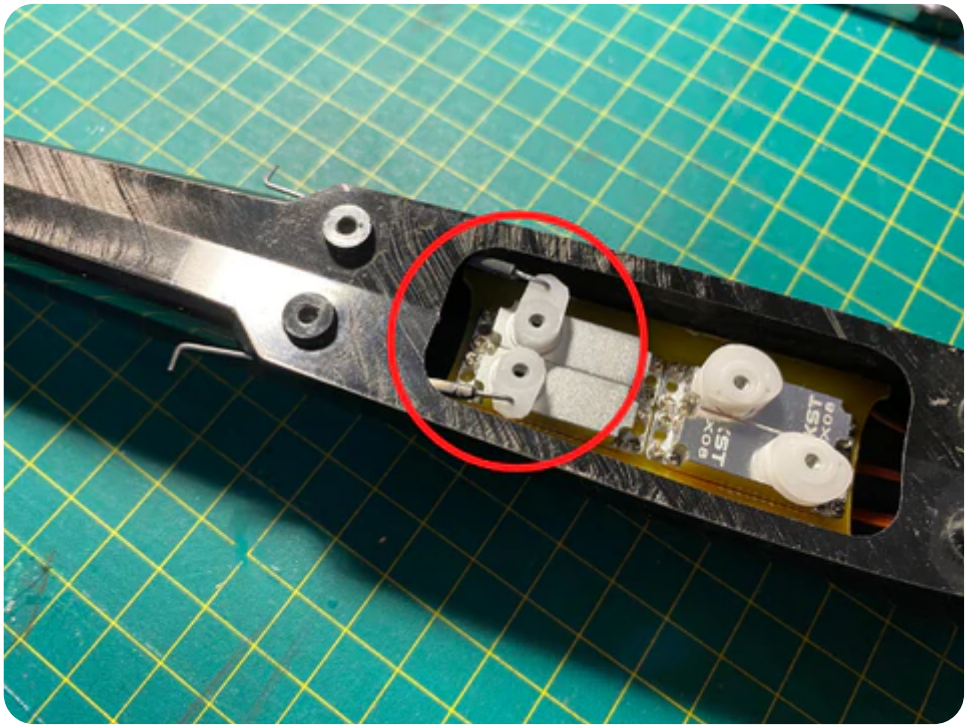
14. Remove the spinner and take the motor assembly out of the fuselage. Apply glue to the outside edge of the motor mount and reinsert it into the fuselage. Attach the spinner assembly to make sure the motor mount is in the correct position as it cures.

    Note, I like to use E6000 for this step because it's more than strong enough for this application, but if you ever need to remove the mount, you can do so without damaging the mount and the fuselage.

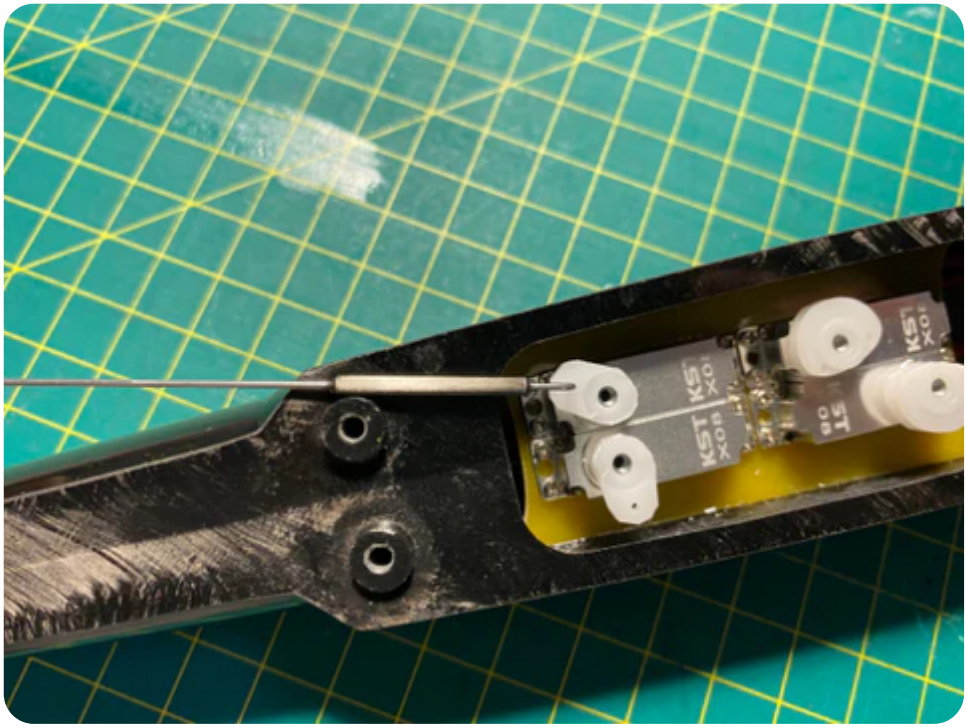
15. After curing, remove the spinner and apply a fillet around the motor mount so it has a better bond. Allow to cure.

16. We'll work on the wing pushrods next. We will be installing offset flaperons which maximizes the use of the servos entire travel. After installation, when servos are at centre, the flaperons will be down as pictured.

17. Take the pushrod wires and bend a 90˚ bend. The bent section should be around 3-4mm long, this will hook onto the servo arms.



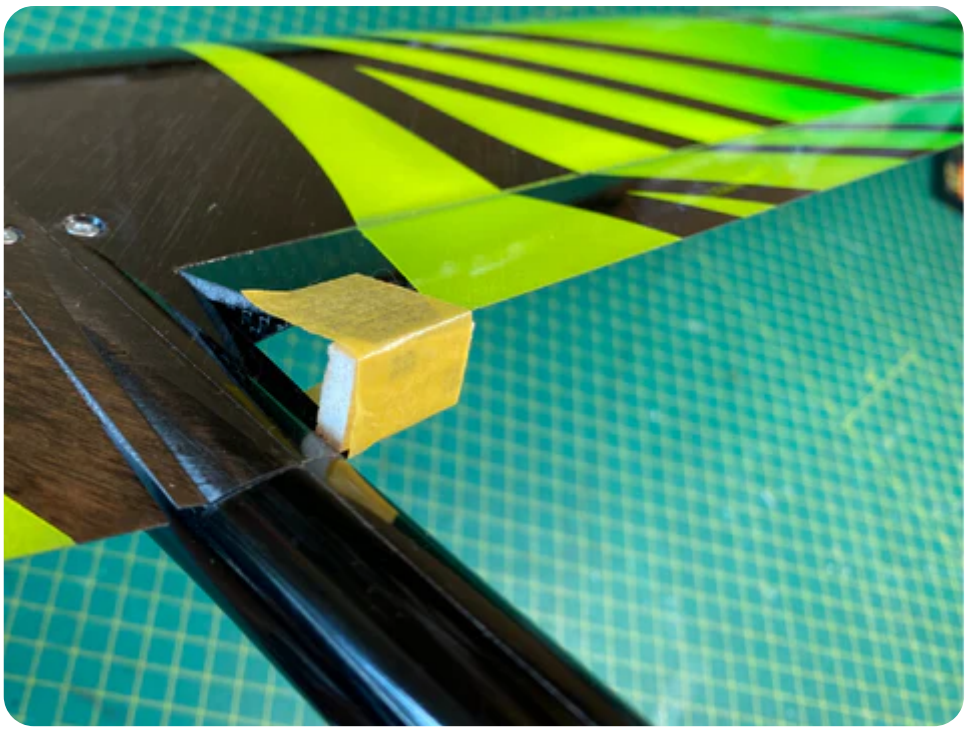
18. Measure your carbon pushrod sleeve to cut them to the correct length. This length depends on how/where your servos are orientated. In my pictured installation, the pushrods are very short. The front of the tube should sit a minimum of 2mm from the edge of the servo arm to avoid interference. The rear of the tube should sit approx 5mm from the fuselage flaring to avoid interference.



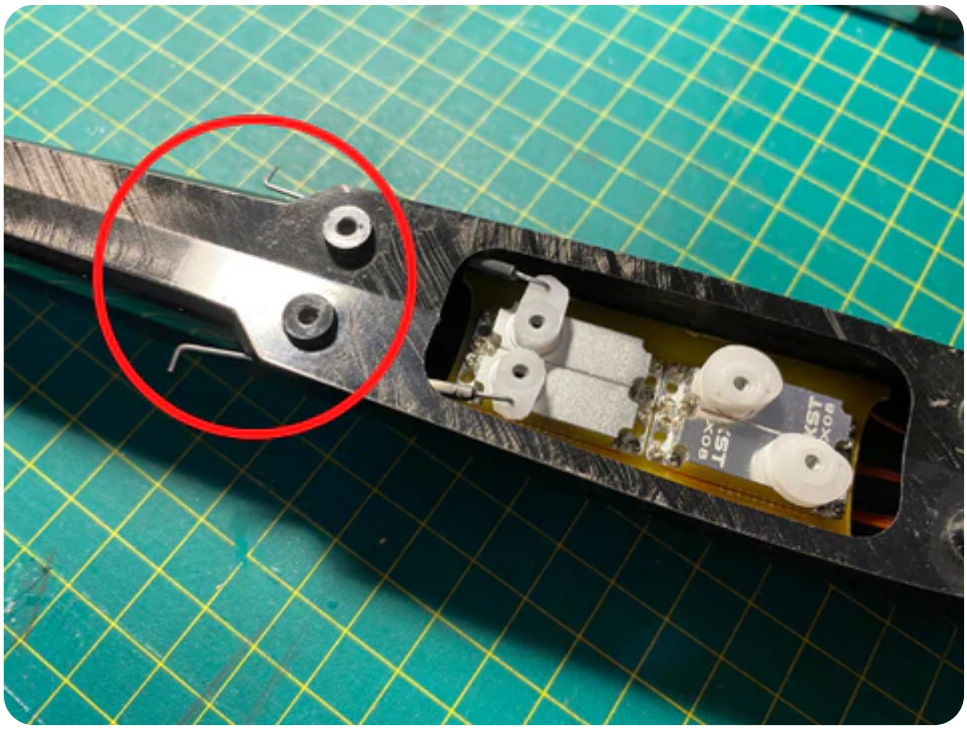
19. Glue the shortened tubes onto the pushrods with super thin CA, then attach both pushrods to their servo arms. Make sure the unbent end comes out of the fuselage through those flaring slots you already cut.

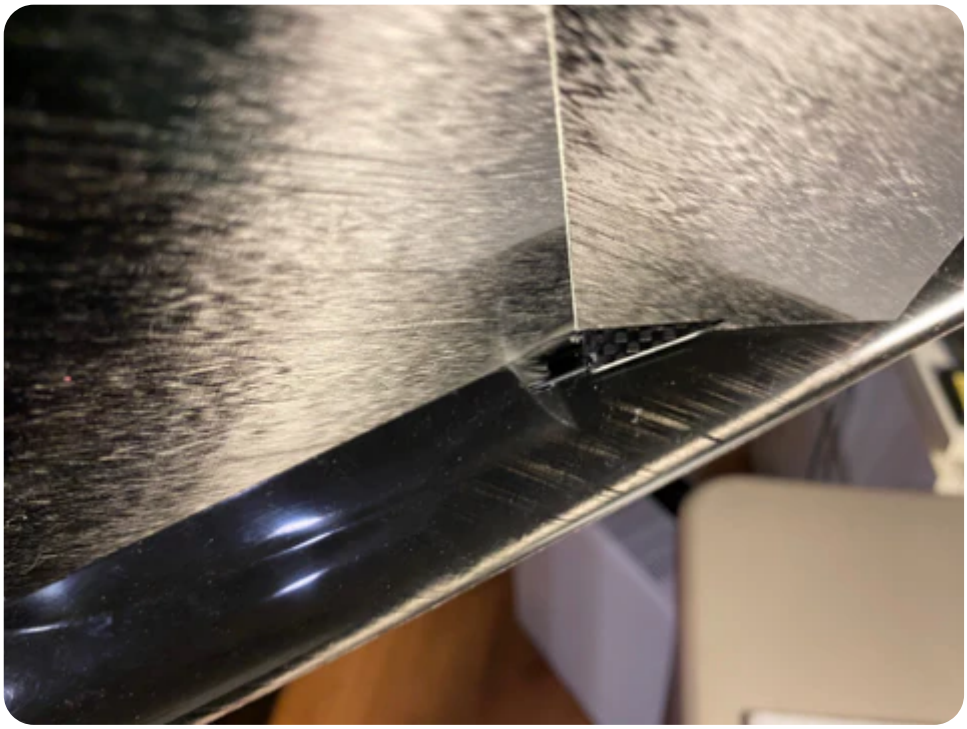
20. Attach the wing to the fuselage. Attach one servo to your servo tester, then set the servo to its max up deflection.

21. Using a spacer, set your aileron up 12mm. After the installation, this will be the max up deflection available on the flaperons. If you prefer more deflection, use a bigger spacer.



22. Remove the wing, then remove one of the pushrods. Bend the pushrod and cut off the excess. Leave around 3-4mm on the bend. Repeat on the other side. Mount the pushrods back onto the fuselage/servos, then test fit the wing to make sure there is no rubbing between the pushrod and fuselage when servos are neutral.

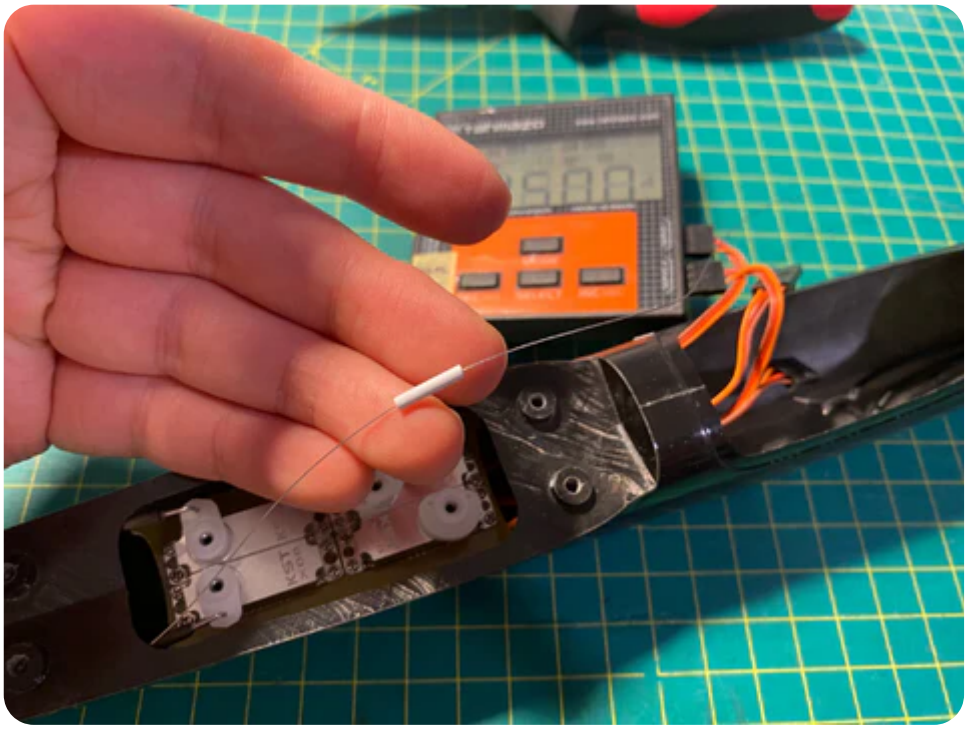




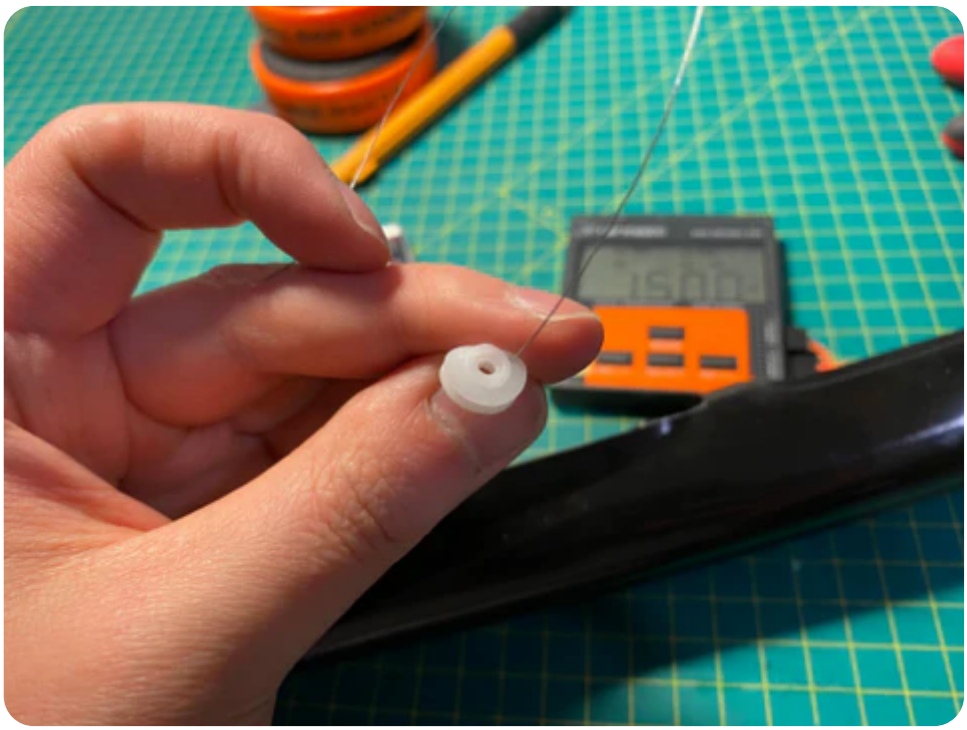
Note, reminder that since we've installed offset flaperons in the steps above, at servo neutral the flaperons will be slightly down. This is correct.

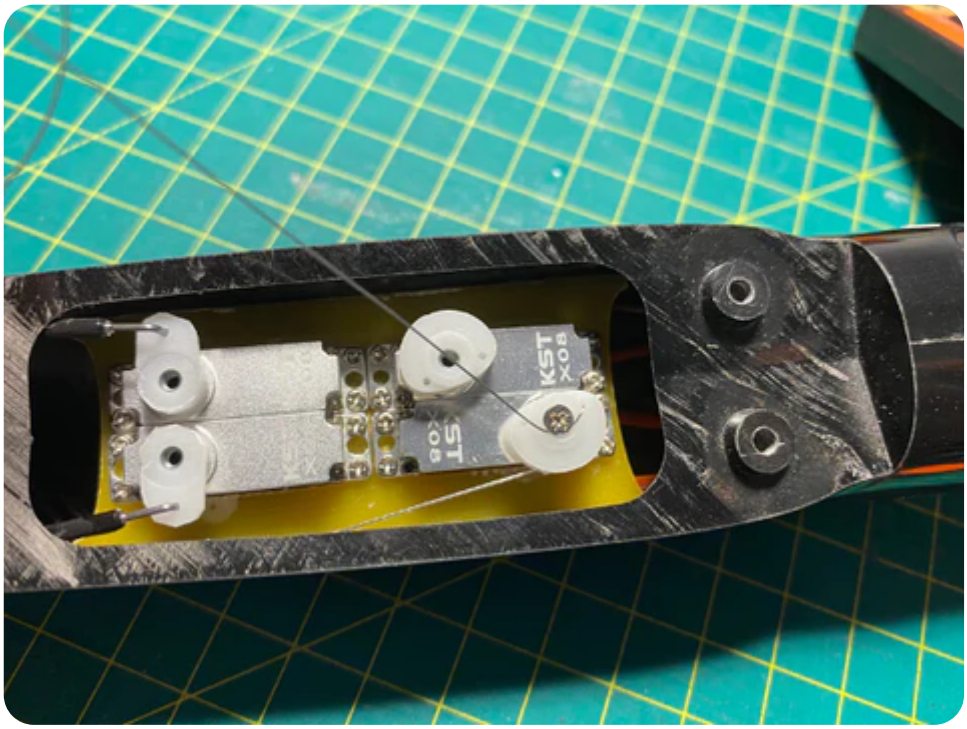
23. Mount the fin onto the fuselage, then take one of the pull string wires and insert one end through the slot on the side of the boom that you cut earlier and feed it to the servos. Insert a crimp tube into the rear end and form a loop with the wire, and crimp it with a pair of pliers. Hook this end onto the rudder control horn.

24. Insert the front of the wire through a plastic guide tube, and glue the guide tube inside the fuselage so the wire doesn't interfere with the pushrods.

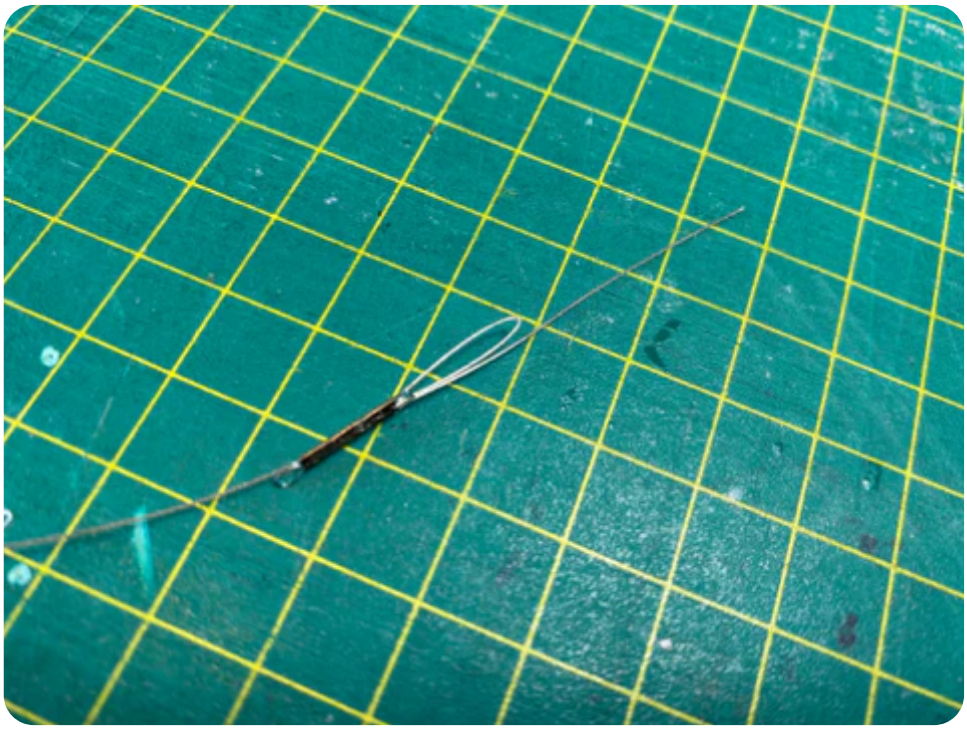


25. Plug the rudder servo into the servo tester and centre the servo. Thread the pull wire through the pulley or servo arm and wrap it around the servo screw. Tighten the screw to hold the wire in place. Cut off the excess wire.

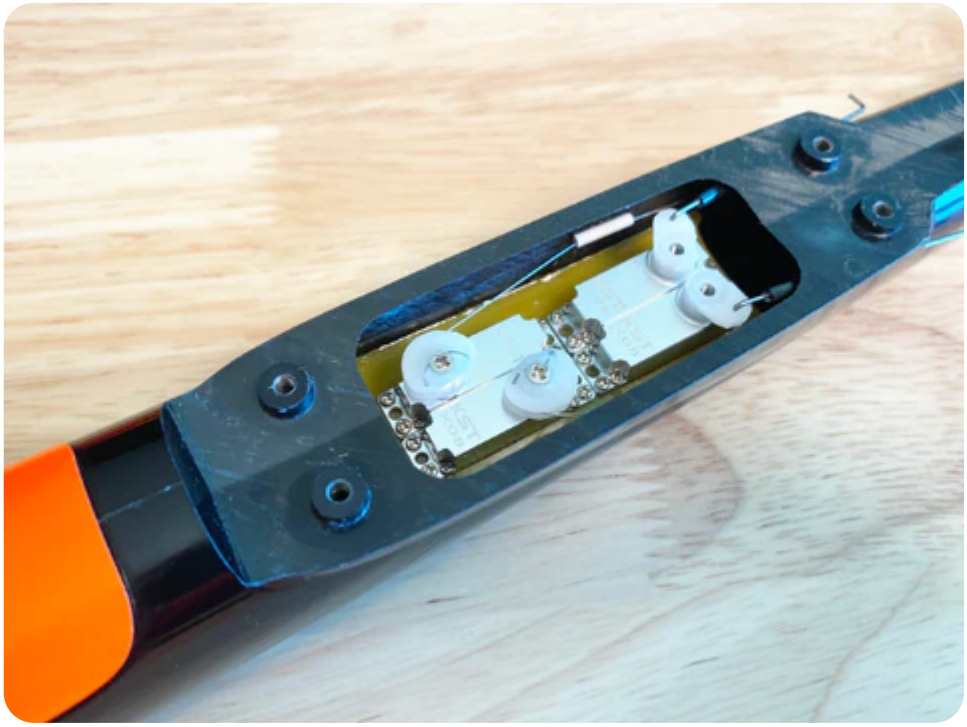




26. Thread the second wire through the elevator mount. Slip on a crimp tube, then form a loop and pigtail. The pigtail allows you to easily get the wire out of the fuselage if it ever drops in. Hook the loop on the elevator control horn, then attach the elevator to the fuselage.



27. Repeat step 25 and 26 for the elevator pull wire.

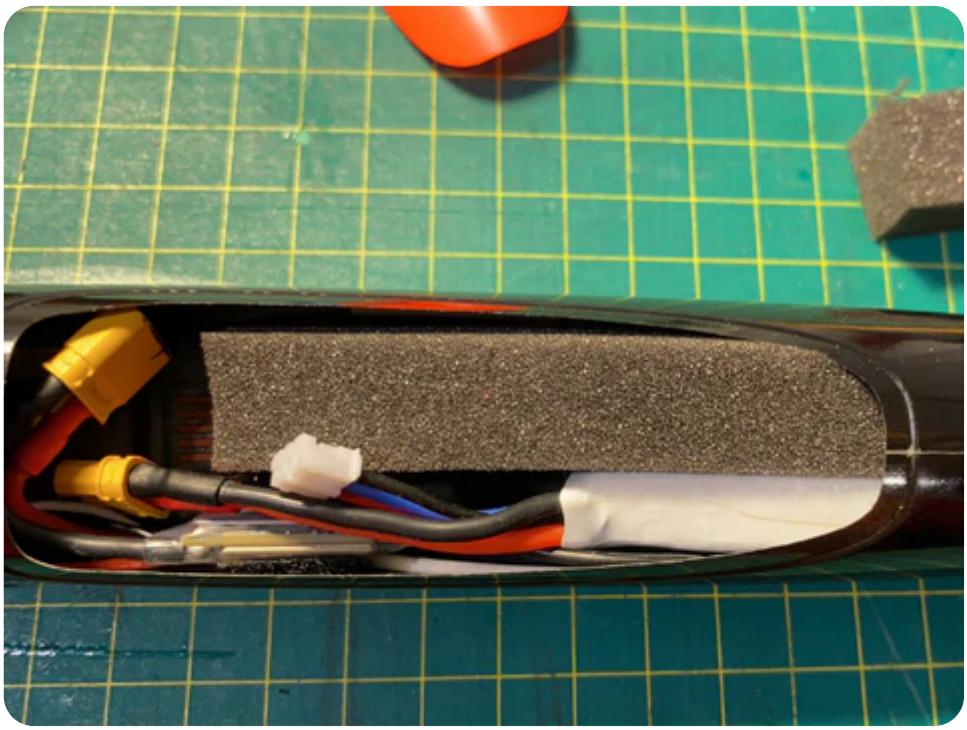


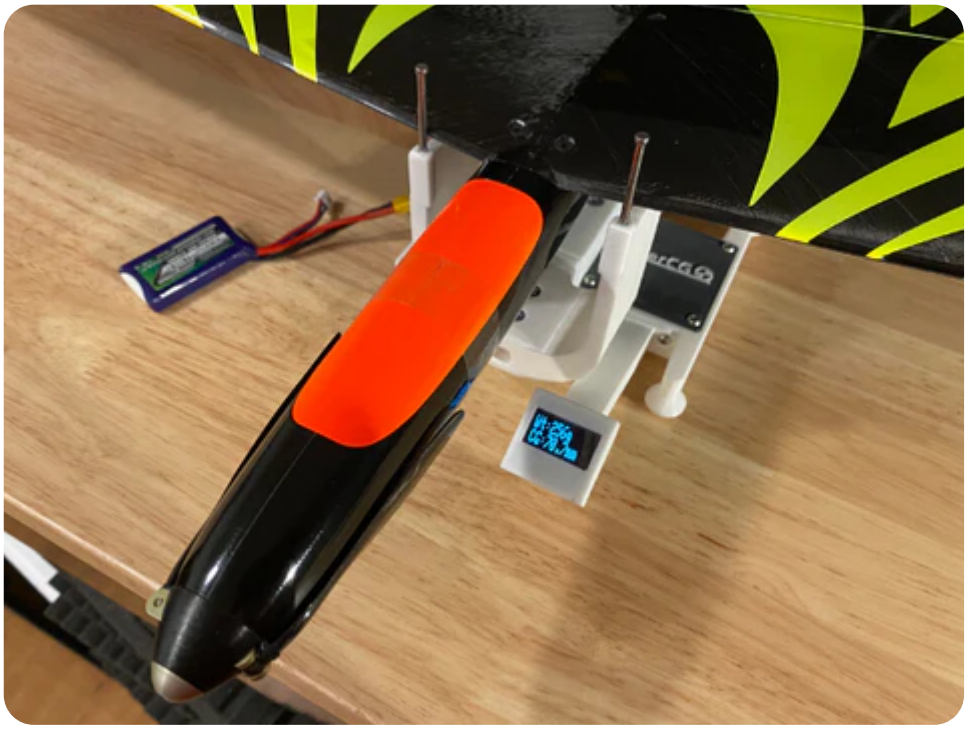
28. Attach your propellor and spinner assembly onto the nose. Insert your battery and receiver. Adjust your CG as needed.

    Note, I use velcro to hold the receiver in place, and I use light foam blocks to hold the battery in place so they don't move around and change the CG once it is set.

    Note 2, the front of the fuselage is coloured fibreglass and 2.4ghz friendly, you can leave your receiver antennas inside the nose.

    Note 3, for safety, always remove the prop from the model when doing settings inside the workshop to prevent injury.





Basic Setup

These are my basic settings that will be a good starting point for setting up your Fury to your preferences. There are pilots flying the CG from 65-73mm, but I prefer a slightly forward CG at 68mm for most conditions.

CG: 68mm

Camber
Speed: 1mm reflex
Cruise: 3mm down
Thermal 1: 6mm down
Thermal 2: 10mm down

Snap Flaps: ~5mm at full elevator deflection

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