



Thankyou for buying a TBRC Villain



Detailed Build Video



[www.TBRCwings.com](http://www.TBRCwings.com)

# VILLAIN

Thank you for purchasing a TBRC wing.

## **Kit Contents**

- 1: 1x Left Wing Core
- 2: 1x Right Wing Core
- 3: 1x Blunt Centre Section Core
- 4: 8x Carbon Fiber spars
- 5: 1x Laminate
- 6: 2x Balsa Elevons
- 7: 1x Motor Mount
- 8: 2x Coroplast Winglets
- 9: 1x Coroplast Equipment Bay Hatch

## **Tools Required**

Sharp Hobby Knife

Hobby Iron

Sand Paper

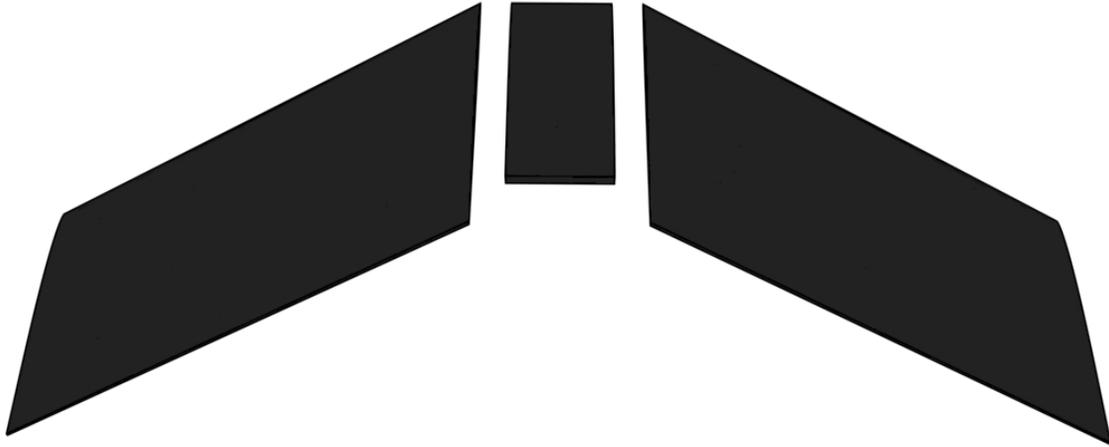
Soldering Gun/Dremel tool

Goop glue (or similar, eg Welders, ShoeGoo)

Centre of Gravity is 6.25" from the nose

# Step 1

Using Goop (or similar adhesives) Glue the three foam sections together. Be sure that you have them all the right way up.

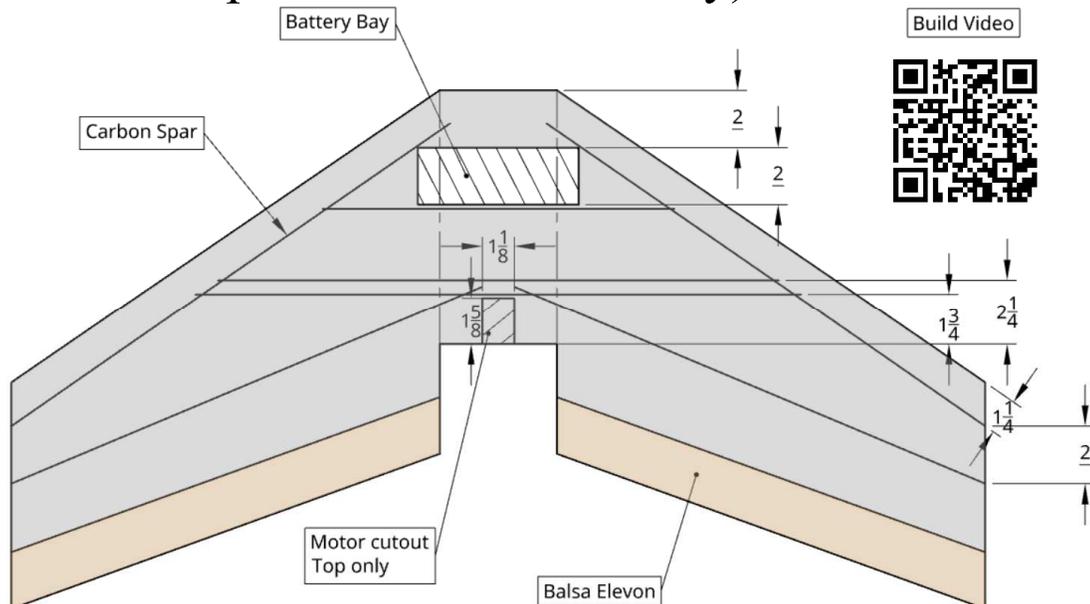


Let the glue cure



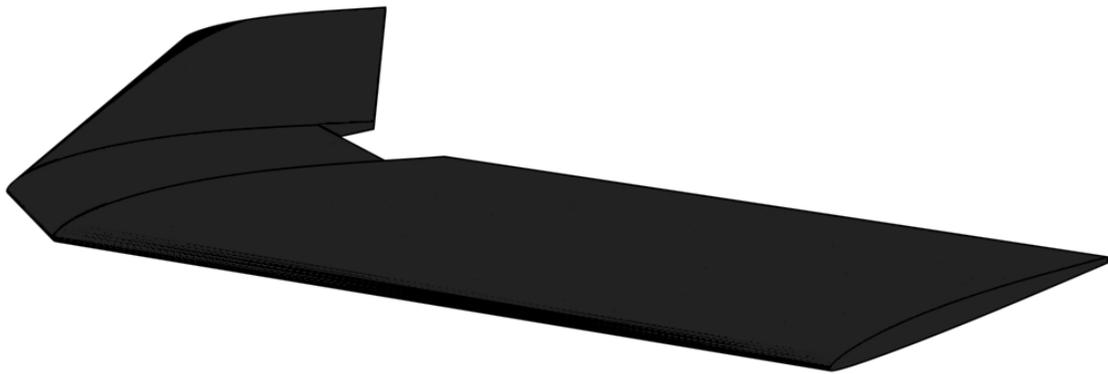
# Step 2

Mark onto the top and bottom of your wing where the spars, battery bay and motor cut-out will be. (motor cut-out is only if you want to mount your motor inboard of your plane, and it's to be cut out from the top half of the foam only)



### Step 3

Cut 1/4" into your foam for where your spars will go, following your marks from Step2. Once all the spar channels are cut, measure and cut your carbon spars to fit. Install the carbon spars using Goop or similar adhesive. While the glue is drying be sure to weigh down the wing so that it dries straight, without any unwanted twist.



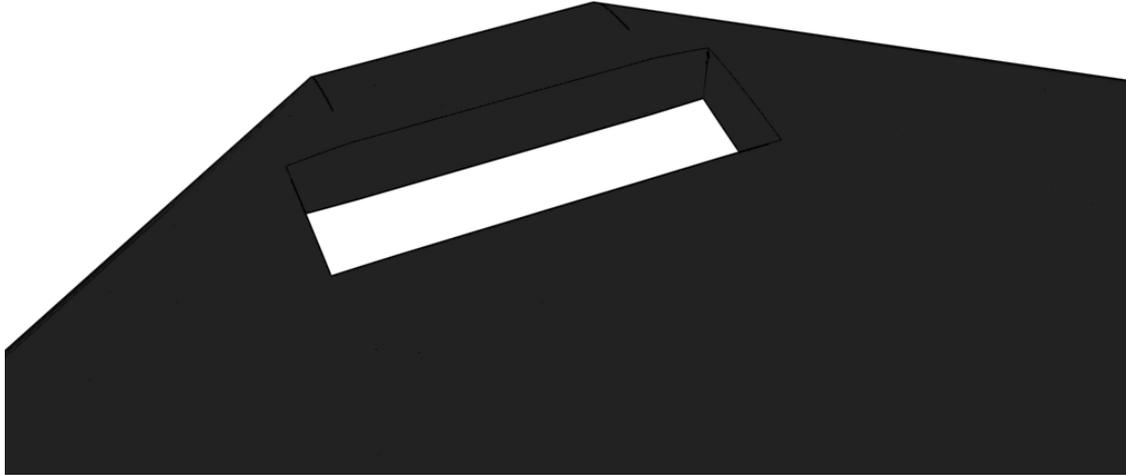
Let the glue cure



## Step 4

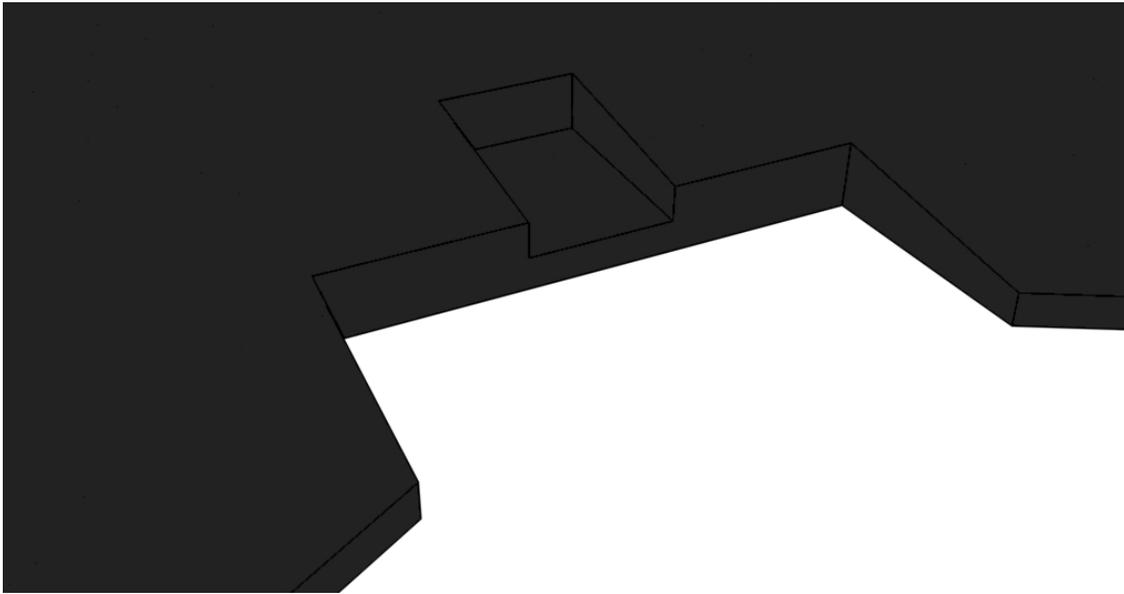
Cut in your battery bay, as marked in Step2.

Adjust the dimensions of the battery bay to match the battery you plan to use. This way you will ensure a tight fit with your setup. Cut all the way through the foam.



## Step 5

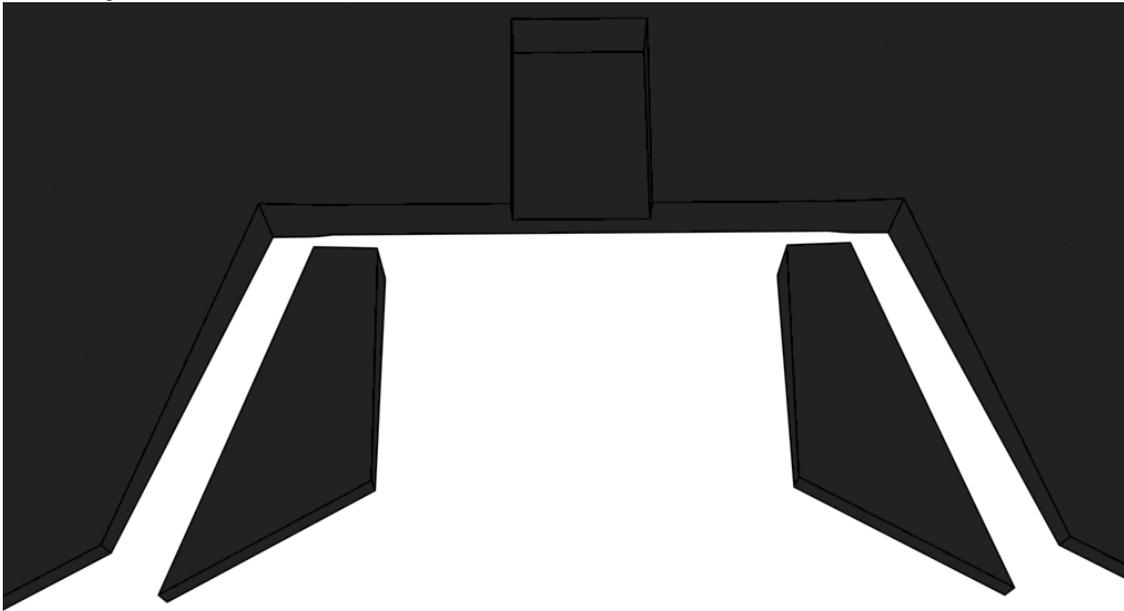
If you want to mount your motor rearward of your motor mount you can skip this step. Cut in the motor cut-out on the top side of your wing. To do this cut in about 1/4" along the sides of the cut-out you marked in Step 2. Then from the rear cut into the trailing edge 1/4" down from the top of your wing to cut out the top half of the foam within the cuts you just made. This could also be done with a Dremel tool.



## Step 6

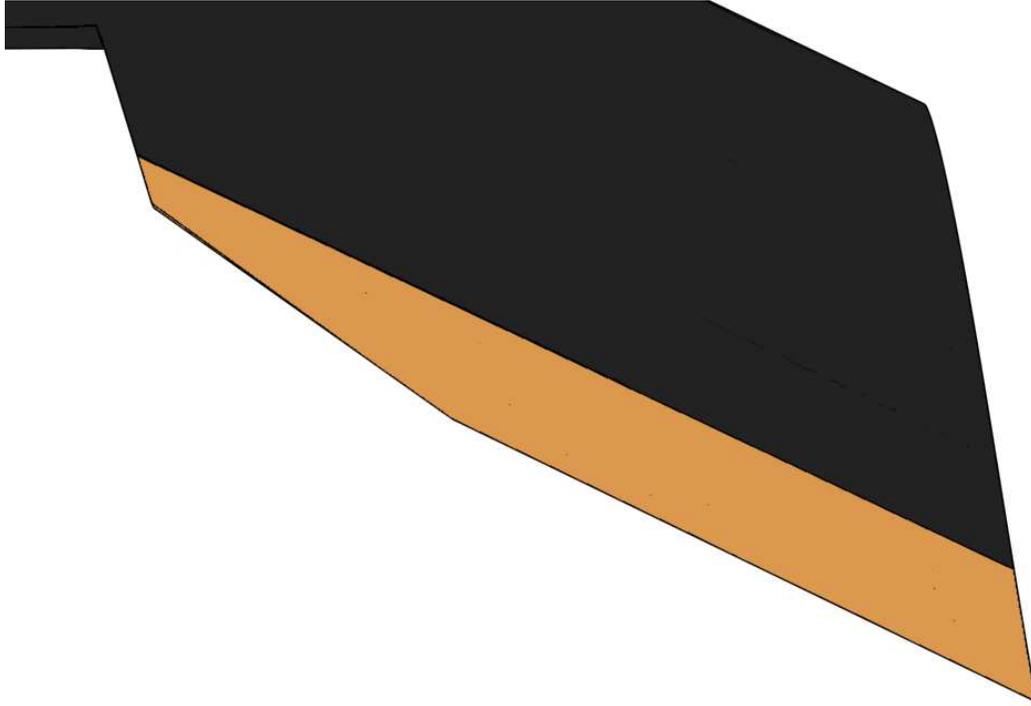
These measurements are for a 6" propeller, if you're using a larger propeller please adjust them accordingly.

Mark onto your wing 1/2" sideways from the trailing edge of the blunt section. Mark 1 3/4 inches along the trailing edge. Connect these dots and cut out the wedge of the trailing edge of your wing to allow space for your propeller to spin freely.



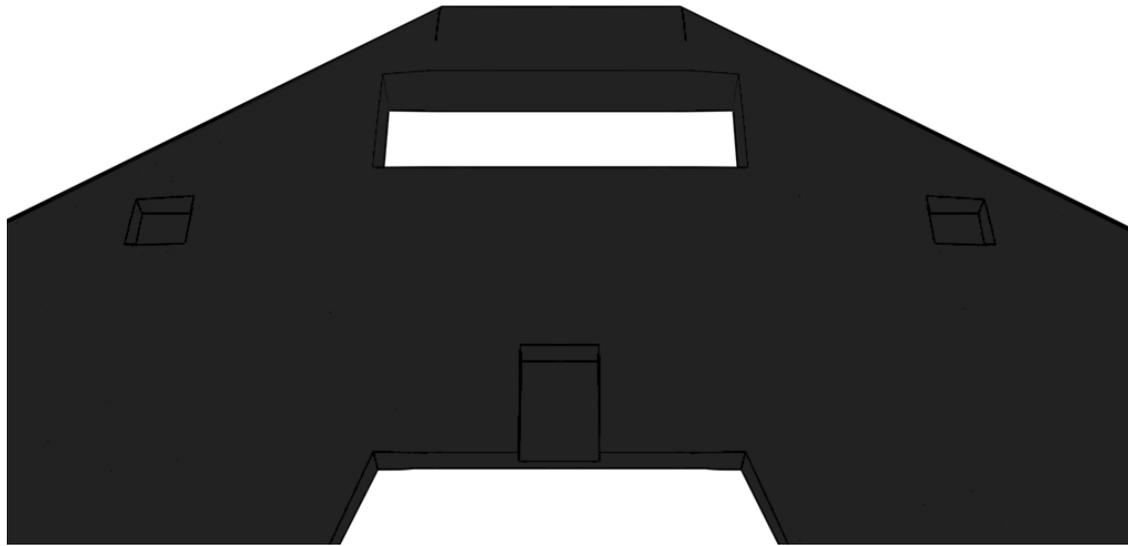
## Step 7

Mark the elevon angles and cut them to match your wing's angles. On the trailing edge of your elevon mark 9" from the outer tip, then mark 1" back from the inside leading tip on the inside edge. Connect these dots and cut along this line.



## Step 8

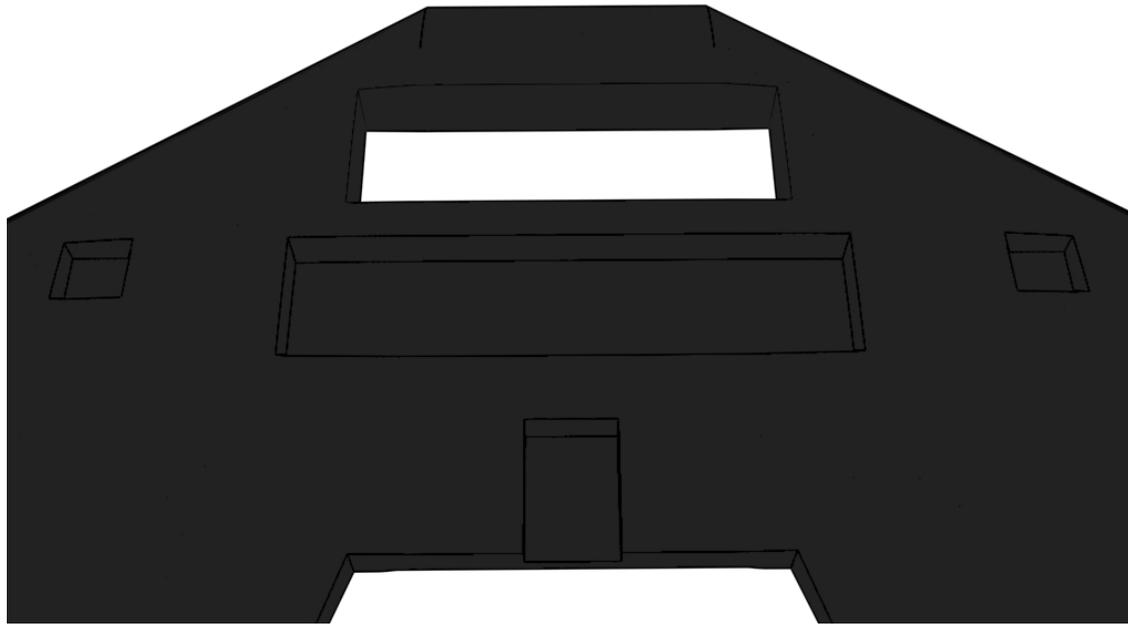
Mark the desired positions for the servos on your wing. Cut out the pockets for the servos. Slice in around the marks for the servos with your knife the depth of the servo. Using needle nosed pliers pluck out the foam from the servo pocket. Using a Dremel tool with a grinding bit and flatten the bottom of the servo pocket.



## Step 9

Optional step

Using the same techniques you used to make the servo pockets, cut out some pockets behind the battery bay for your electronics.



## Step 10

Now is the time to paint your plane if you're wanting to do so.

## Step 11

Laminate the top and bottom of your wing using a hobby iron and the included laminate. Make sure to overlap the bottom and top sections of laminate over the leading edge for strength. Add an extra layer of laminate over the bottom of the battery bay for extra strength. Feel free to add a thin layer of plastic over the bottom of this hole prior to laminating if you want super strength in your battery bay.

Be sure to not cover the wingtips, as this will be where we will be gluing the winglets

## **Step 12**

Bevel the bottom of the leading edge of your elevons to allow for enough deflection. Laminate your elevons. Once they are covered, cut 4 strips of laminate about 2" wide and as long as your elevons. Lay one strip on top of your elevon and laminate it to your wing. Turn your plane upside down and use a 2nd strip to laminate the underside of the elevon to your plane. Be sure to check for ample throw movements once it's been laminated. Do this to both elevons.

## **Step 13**

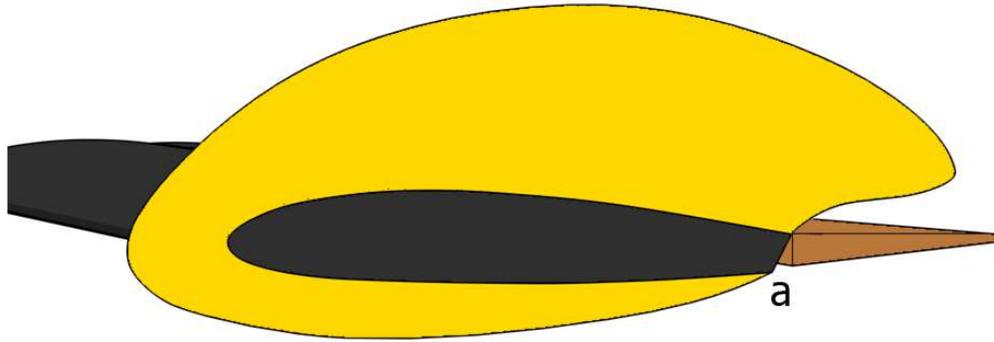
Cut out the laminate on the underside of the wing where the motor mount will fit. Then glue the motor mount onto your wing. By cutting out the laminate you are getting a strong bond between the motor mount and the bare foam.

## **Step 14**

Install all your electronics. When setting up your throws for your elevons we recommend about 1" total throw from highest to lowest point. Using 50% expo and setting dual rates is up to personal preference.

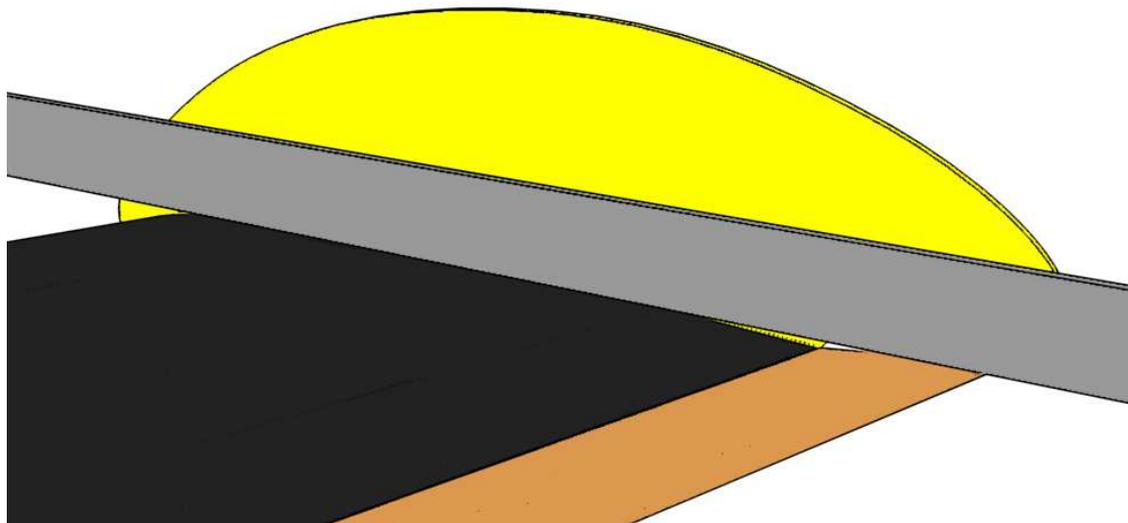
## Step 15

Glue your winglets onto the ends of your wing



## Step 15

Prior to your first flight make sure you have about 3mm of reflex added to your elevons. This can be easily measured by placing a straight edge from the top of the aerofoil to the tip of the elevon at the wingtip and measuring the vertical distance between the straight edge and the hinge line.



You now have yourself a TBRC Villain ready for flight. Make sure you balance your plane on your cg mark, 6.25" from the nose, and you'll have a good time. Good luck on your maiden flight.

Thank you again for purchasing a TBRC Wing.

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