



Thank you for buying a TBRC Reflex38



Video Build Series



TBRCwings.com

# **TBRC REFLEX 38**

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: 1x Carbon Fiber Tube
- 5: 2x Fiberglass Rods Long
- 6: 1x Fiberglass Rod Short
- 7: 1x Laminate
- 8: 2x Balsa Elevons
- 9: 1x Laser Cut Plywood Motor Mount
- 10: 2x Coroplast Winglets
- 11: 1x Coroplast Equipment Bay Hatch
- 12: 2x 4mm flat Carbon Fiber

## **Tools Required**

Hobby Iron  
Gorilla Glue  
Sand Paper  
Soldering Iron/Gun  
T-pins  
Goop glue (optional)

Centre of Gravity is 140mm from the nose, which is also the back of the equipment bay hatch.

## Step 1

Smear a very thin layer of Goop on the inside of the equipment bay. This is to allow Velcro to adhere better and add a bit more strength to the bay.

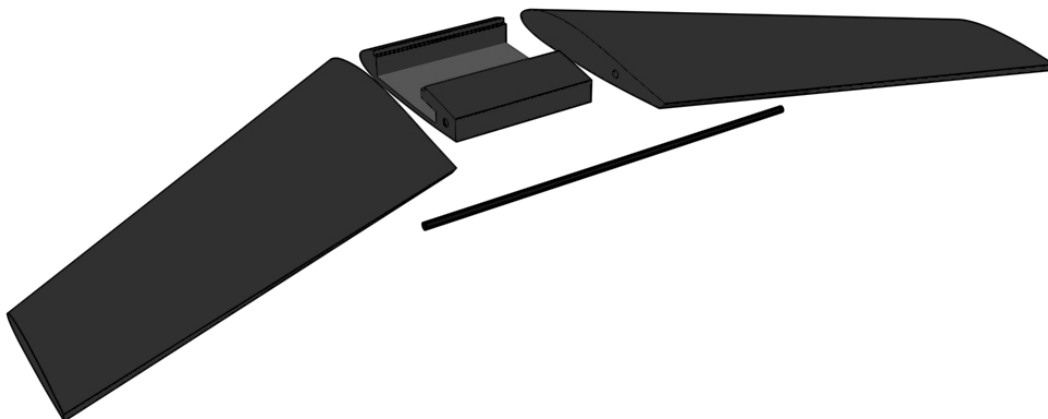


## Step 2

Identify your left wing, right wing centre blunt section and your carbon fiber tube.

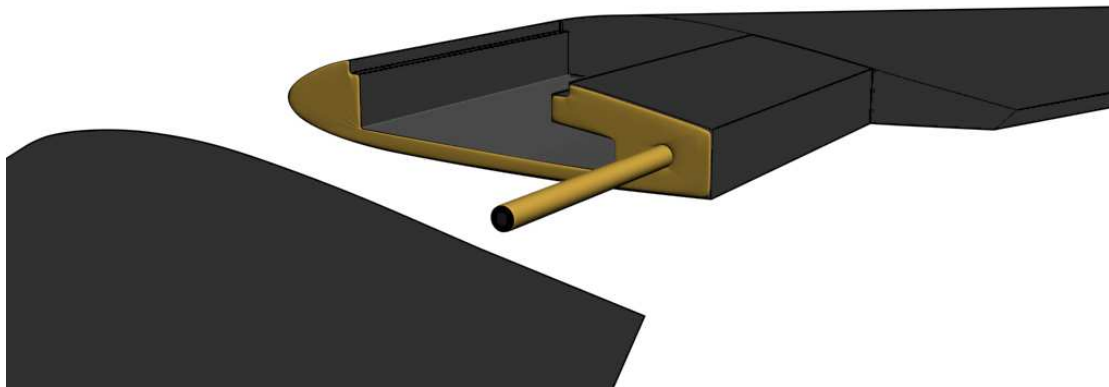
There is a hole going through the blunt section and into each wing. This is where you will be putting your carbon fiber tube.

Do a dry fit to make sure everything lines up.



### Step 3

Mix some Gorilla Glue with a few drops of water in a separate cup and lather up the entire carbon tube. Working quickly, insert it into the centre blunt section and then lather your Gorilla Glue mixture onto one side of the blunt. Press the blunt and the matching wing together making sure the carbon tube is pushed all the way into the wing. Then lather your Gorilla Glue mixture onto the other side of the blunt and push the other wing onto the carbon tube and butt it up against the blunt. Use T-pins to hold all the 3 pieces together as tightly as possible.



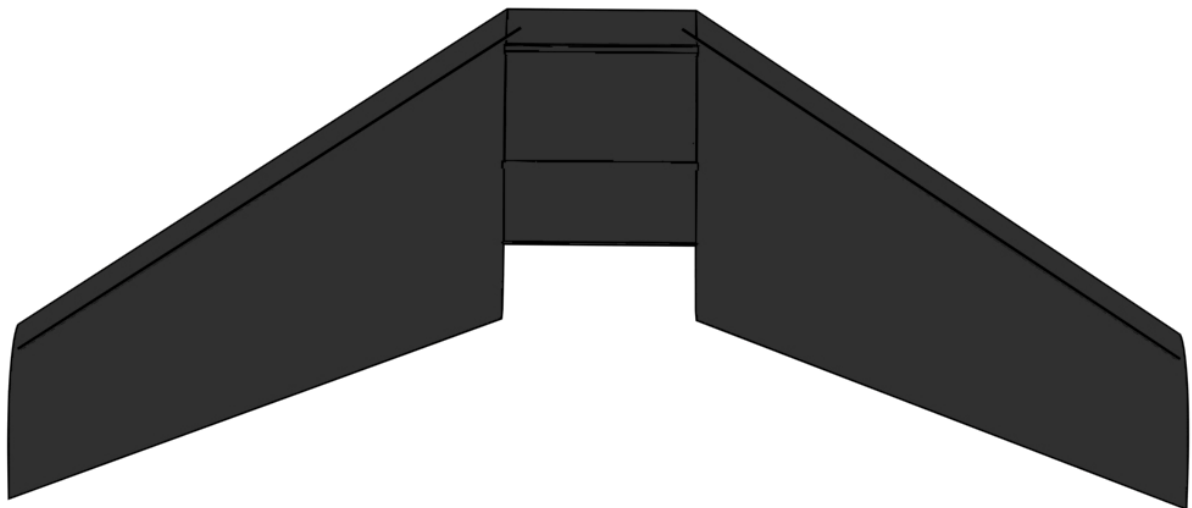
Gorilla Glue takes 24 hours to cure properly.

## Step 4

Do this for both the left and right wings. On the top of your wing mark a line about 1 inch back from the leading edge. Cut along this line about 1/2 inch deep. This cut should extend from the wingtip all the way into the blunt section. Test fit one of your long fiberglass spars into this cut you've just made. You should be able to press the spar all the way in. Remove your spars.

Apply Gorilla glue into these cuts and push your spars back into their holes. Use T Pins to hold the spars down as the Gorilla Glue expands.

(You can use Goop instead of Gorilla glue here and you will not need to use T pins to hold the spars in)

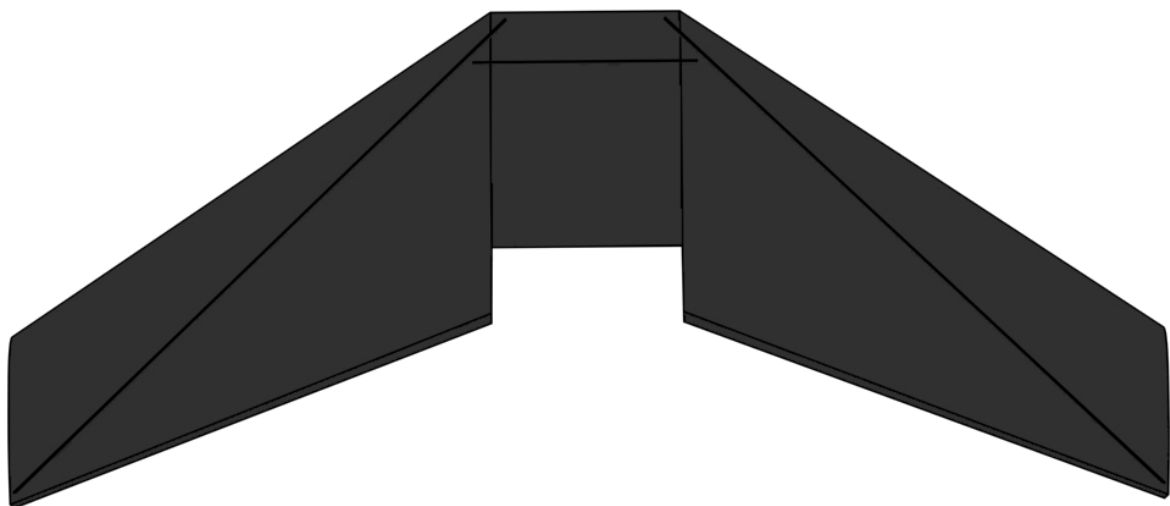


## Step 5

On the underside of the wings we will be adding the carbon fiber flat spars and the small fiberglass rod.

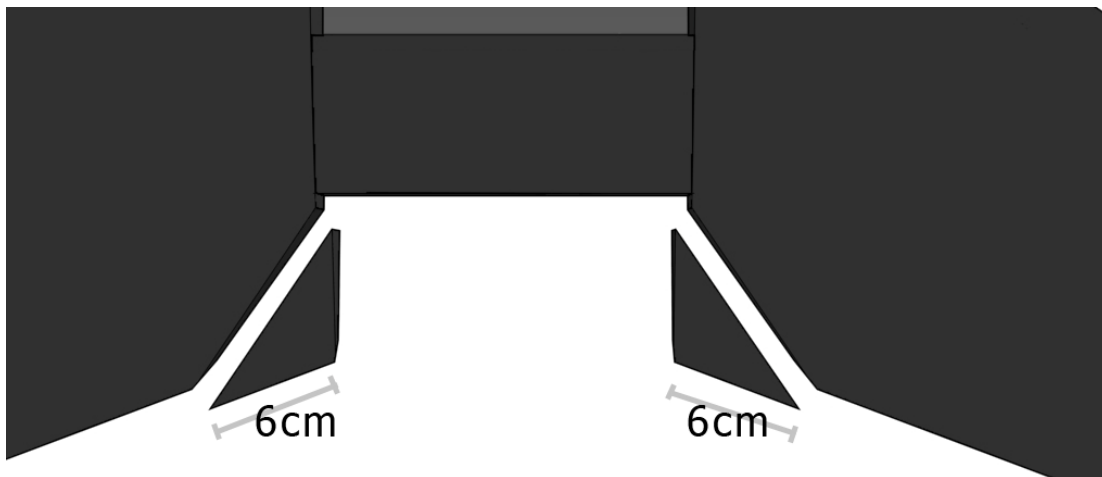
mark a line from the trailing edge at the wing tip to the nose of the plane just inside the blunt section. Cut along this line just deep enough for the carbon spars.

once test fitted and glued in place mark a line across the nose in front of the battery bay and cut along this for installing the small fiberglass spar. Glue the small fiberglass spar in.



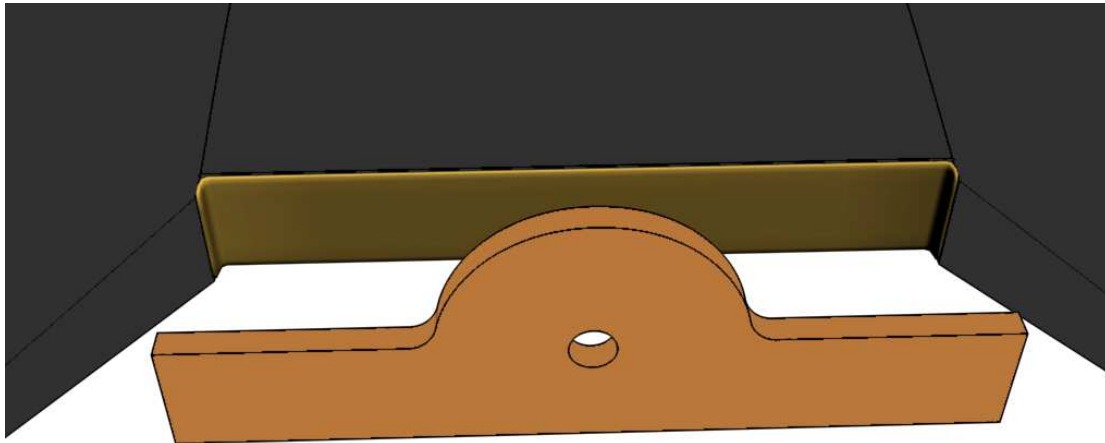
## Step 6

We now need to cut out part of the back of the wings to fit the propeller. Measure it to the size propeller you want to use. If you're using a 6 inch propeller measure 6cm along the trailing edge from the inner most part of the wing and draw a line from this point to 6mm from where the wing meets the blunt. This will leave a nice notch for the motor mount to glue. Now cut out these triangle pieces of foam.



## Step 7

Add some slight scratches to one side of the horizontal section of the motor mount for extra surface area for the glue to stick to. Apply Gorilla glue along the back of the bunt section of your wing and to the side notches which will glue your motor mount on 3 sides.



Gorilla Glue takes 24 hours to cure properly. In this step you can also use Goop instead, although Gorilla Glue will give maximum strength.



## Step 8

Use either 150 or 220 grit sandpaper. Lightly sand the surface of the wing to help the laminate adhere better to the foam. The foam surface should feel almost fuzzy to the touch.

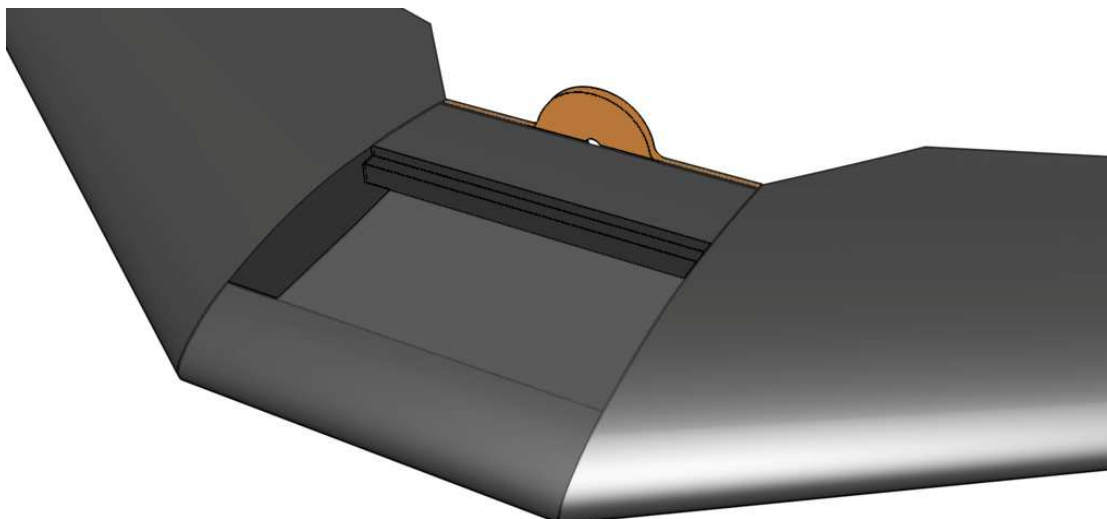
\*\*\*Now is a great time to paint your plane if you desire.



Be sure to let the paint fully cure before continuing.

## Step 9

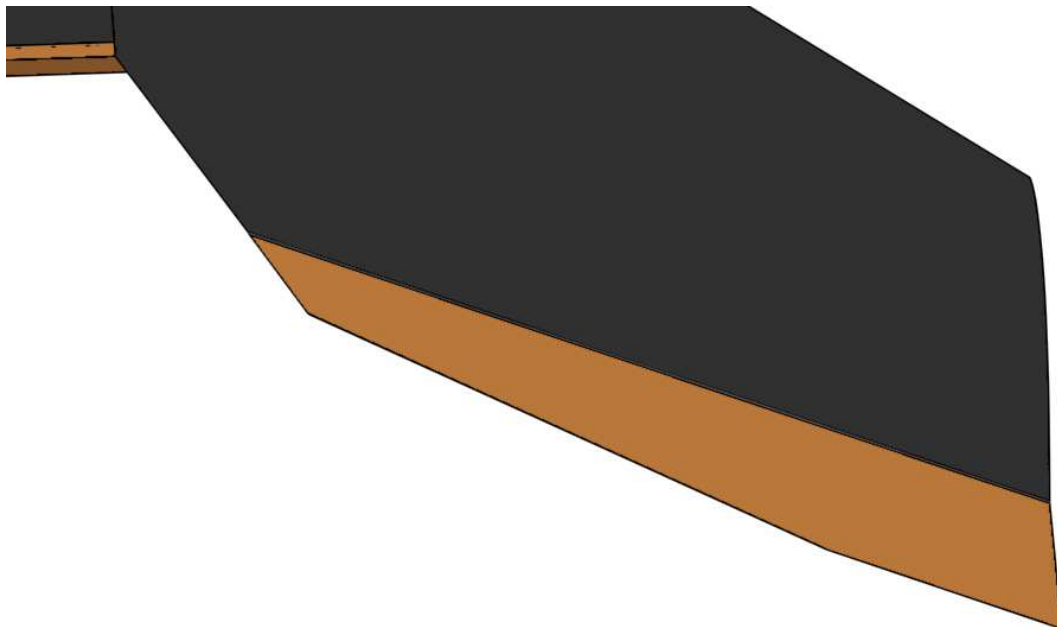
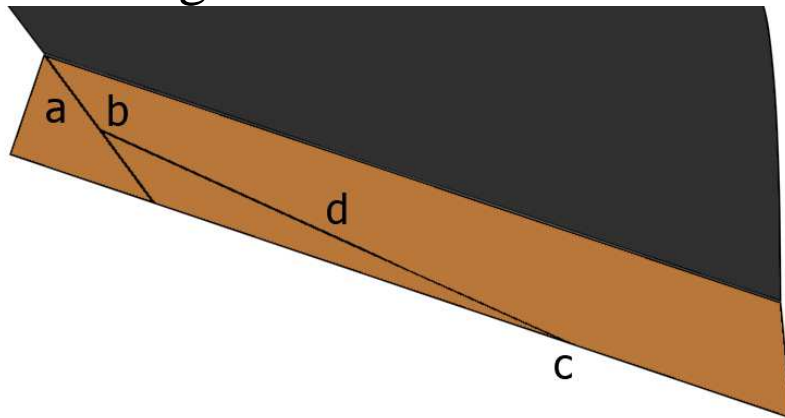
Using a hobby iron, laminate your aeroplane. Be sure to add an extra strip over the sides of the motor mount for added strength. Do not cover the wingtips as we'll be gluing the winglets on later.



## Step 10

Do this for both elevons. Measure your elevons to be the same length as your trailing edge of your wing. You can leave the elevon full sized, but we recommend you cut them to match this shape. To achieve this shape,

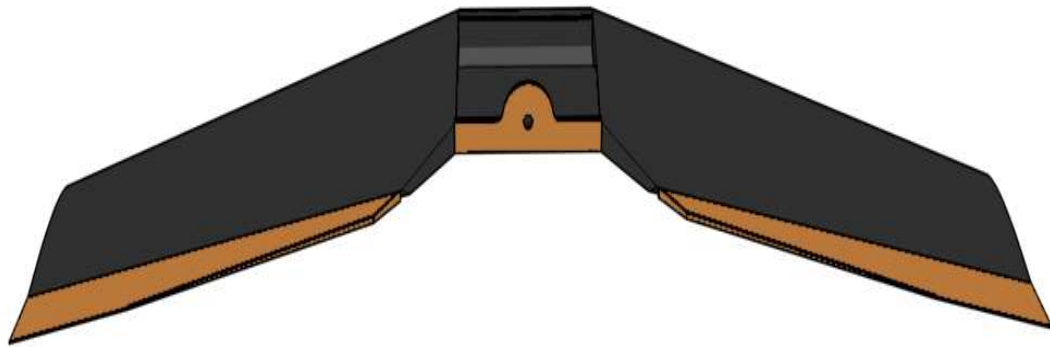
- a:** Cut the inside at the same angle as your propeller slot on your plane.
- b:** Measure halfway down this cut and make a mark.
- c:** Measure  $\frac{1}{3}$  the distance from the tip to the inner most point of the trailing edge.
- d:** Connect the lines between points **b** and **c**.
- e:** Cut along line **d**.



## Step 11

Laminate your Elevons. Once they are covered, cut 4 strips of laminate about 50 mm 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 12

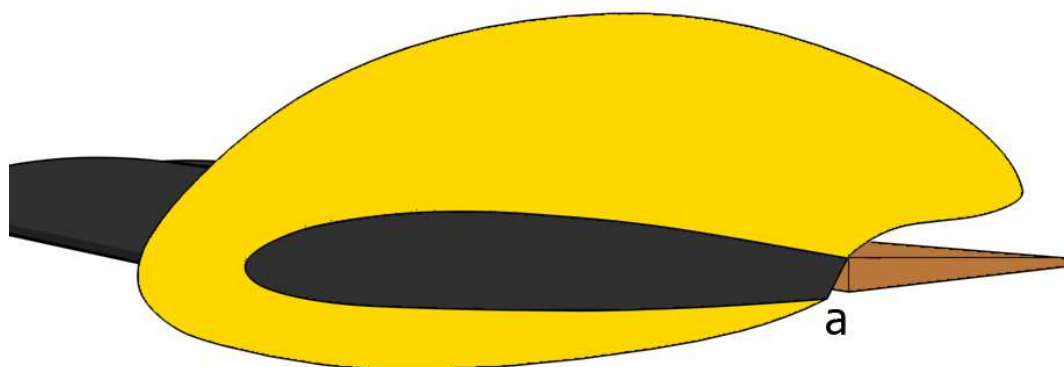
Using a soldering gun cut out bays in the wings for your servos and your other electronics that you plan to use. (e.g. Video transmitter, Camera, Receiver). We recommend laying out all the parts on your plane first to allow you to get the plane to balance on its centre of gravity which is 140mm from the nose.

## Step 13

Install your electronics. When setting up your throws for your elevons we recommend about 1.5 inches total throw from highest to lowest point. Using 35% expo and setting dual rates is up to personal preference.

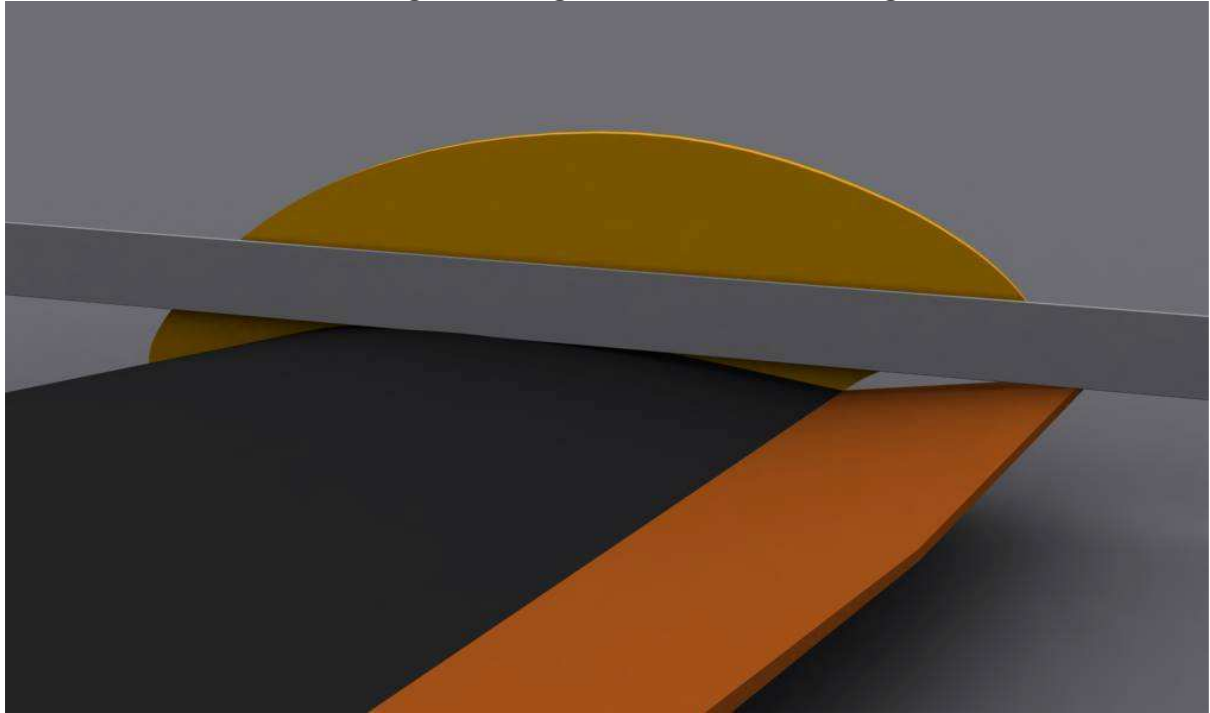
## Step 14

One of the unique features of the TBRC Reflex is its winglets. Their unique design and positioning will improve airflow around the wingtips and create less drag leading to you flying faster and longer. When gluing the winglets onto the wing tips be sure to line up the bottom corner of the winglet, with the bottom corner of the wingtip. Indicated by figure a. below. Mount the winglet horizontally. Use the flutes in the Coroplast as a guide. It is also time to secure your bay cover. Clear packing tape as a hinge and a thin Velcro strip works well secure it in place (may require trimming to fit properly).



## Step15

Prior to your first flight make sure you have about 5mm 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 Reflex 38 ready for flight. Make sure you balance your plane on your cg mark, 140mm from the nose, and you'll have a good time. Good luck on your maiden flight.

Thank you again for purchasing a TBRC Wing.



TBRC WINGS [www.tbrcwings.com](http://www.tbrcwings.com)