VELOXITY

MANUFACTURED BY RC FACTORY

TWISTED HOBBYS

A CODY WOJCIK DESIGN

MOTOR: 1x 100g / 1050kV Outrunner
ESC: 1x 45 amp
SERVOS: 4x 14g
PROP: 1x 12x6e
BATTERY: 3s 1500mAh to 2200mAh

USA Distributor
Twisted Hobbys
www.twistedhobbys.com

RADIO: 5 channel
WINGSPAN: 43″
LENGTH: 44″
AUW: 650-750 grams

SAFETY NOTES

- Before assembling and flying this model, read carefully any instructions and warnings of other manufacturers for all the products you installed or used on your model, especially radio equipment and power source.
- Check thoroughly before every flight that the airplanes' components are in good shape and functioning properly. If you find a fault do not fly the model until you have corrected the problem.
- Radio interference caused by unknown sources can occur at any time without notice. In such a case, your model will be uncontrollable and completely unpredictable. Make sure to perform a range check before every flight. If you detect a control problem or interference during a flight, immediately land the model to prevent a potential accident.
- Youngsters should only be allowed to assemble and fly these models under the instruction and supervision of an experienced adult.
- Do not operate this model in a confined area.
- Do not stand in line with, or in front of a spinning propeller and never touch it with any object.

IMPORTANT: PRIOR TO ANY ASSEMBLY

Please Note: after removing kit from shipping box, lay each piece flat on a hard surface, this will allow the airframe to straighten out if lightly bent from shipping. Do not worry since EPP is very pliable and can be bent back if out of shape.

TWISTED HOBBYS

Website: www.twistedhobbys.com – email: sales@twistedhobbys.com

Thank you for your purchasing a Twisted Hobbys' model. Please read through the entire manual before beginning to build this model. If you have any questions please contact us at the above indicated email address.

WARNING INFORMATION

This R/C Aircraft is not a toy! Read and understand the entire manual before assembly. If misused, it can cause serious bodily harm and property damage. Fly only in open areas, and AMA (*Academy of Model Aeronautics*) approved flying sites. Do not over look the warnings and instructions enclosed or those provided by other manufactures' products. If you are not an experienced pilot and airplane modeler you must use the help of an experienced pilot or an authorized flight instructor for the building and flying of this model aircraft.

These instructions are suggestions only on how to assemble this model. There are other ways and methods to do so. Twisted Hobbys has no control over the final assembly, the materials and accessories used when assembling this kit, or the manner in which the assembled model, installed radio gear and electronic parts are used and maintained. Thus, no liability is assumed or accepted for any damage resulting from the use of the assembled model aircraft or from this instruction manual including but not limited to direct, indirect, incidental, special, and consequential damages. By the act of using this user-assembled product, the user accepts all resulting liability. In no event shall Twisted Hobbys' liability exceed the original purchase price of the kit.

SHIPPING DAMAGE

Twisted Hobbys checks each plane before shipping to ensure that each kit is in fine condition. We have no bearing on the condition of any component parts damaged by use, modification, or assembly of the model. Inspect the components of this kit upon receipt. If you find any parts damaged or missing, contact Twisted Hobbys immediately. We will not accept the return or replacement of parts on which assembly work has already begun. Twisted Hobbys reserves the right to change this warranty at anytime without notice.

OUR MISSION

To provide the best products and service to our customers at the lowest prices possible. We take great pride in our company, our commitment to customer service and in the products we sell. Our online store is designed to provide you with a safe and secure environment to browse our product catalog.

Thank you for shopping with Twisted Hobbys!

KIT CONTENTS

Wing Parts

Fuselage Parts

Double check that you have all the above pictured items. Note -
Some kits might have slight deviations from the above pictured items.

A DETAILED BOM IS INCLUDED AT THE END OF THIS MANUAL

KIT CONTENTS (cont.)

Tail Surfaces & Landing Gear

Hardware Kit & Carbon Detail

Double check that you have all the above pictured items. Note -
Some kits might have slight deviations from the above pictured items.

A DETAILED BOM IS INCLUDED AT THE END OF THIS MANUAL

TOOL AND ADHESIVES NEEDED

Tools shown and listed are suggestions only. Depending on your building technique you may not need everything indicated – and/or – you may find that other tools available to yourself may be of benefit to your Build.

It is also recommended that you have a flat building surface, one that will accept stick pins and push pins. An Acrostic Ceiling panel from your local hardware store fits this bill nicely, and will lay flat on your work table. Over size / long push pins are available at your local craft store. These two items are by no means required, but will aid in the building process, and can be used for future projects

- **Lighter**
- **Small Drill Bits**
- **Tape Measure and Ruler**
- **Black Sewing Thread**
- **Welders Glue**
- **Hobby Knife w/new Blade**
- **Needle Nose Pliers**
- **Wire Cutters**
- **Low Temp Hot Glue Gun**
- **Course Sand Paper**
- **Scissors**
- **Small Phillips Screw Driver**
- **Thin and Medium CA**
- **CA Applicator Tips**
- **Activator**

THE BUILD

CONSTRUCTION METHODS:

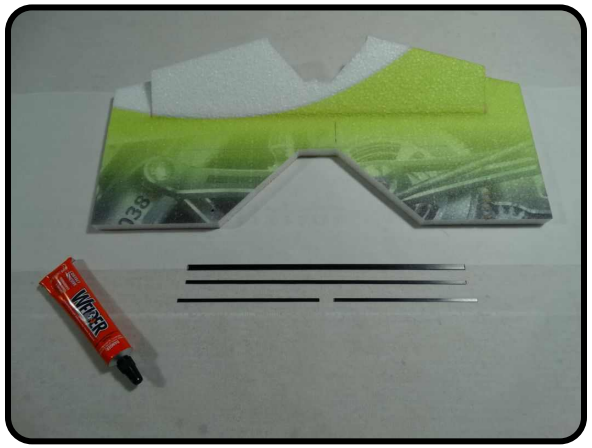
Building surface should be at least 2ft x 4ft and flat. Weights or some small heavy objects will be handy for holding things in place during the time glue is setting.

Welders glue is used for FOAM TO FOAM joints. Thin and Medium CA can be used on the PLASTIC TO FOAM and CARBON TO FOAM joints. **When using the Welders glue for a butt joint, apply a thin film to each surface, allow to sit for approx five minutes and then assemble**. Note that this method will create a nearly instant bond, so locate carefully when bringing the two pieces together. **If alignment is necessary or a slip joint, do not allow the glue to tack up**, simple apply and join immediately, you will have several minutes to locate the two parts before the glue sets up. In most cases the parts being glued can be handled with care in 30 minutes, full cure is approx 24 hours.

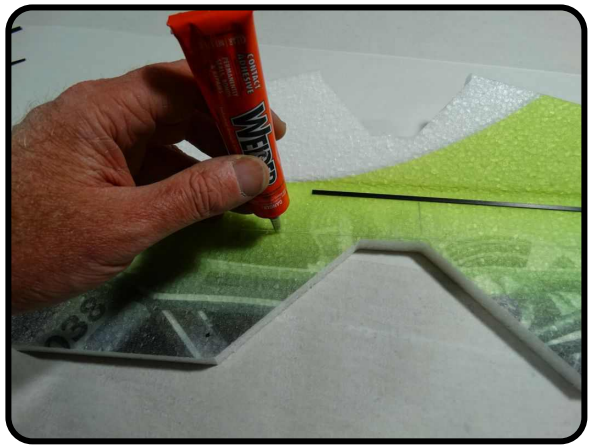
The above picture items will be needed to finish the model. A power combo (Twisted Hobbys' Combo pictured above), and a battery. Note - the Welders and Receiver are NOT part of the power combo, everything else shown is.

Start the build by locating the two wings, the elevator and the rudder. Fold back as shown and weigh them down for about an hour to loosen up the hinge area. Now is also a great time to setup your radio and to test that all your electronics are functioning properly.

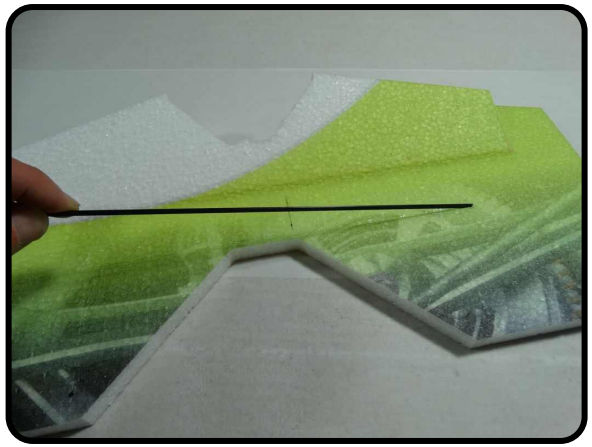
Welders, Foam-Tac or CA can be used as the primary method of joining the parts. This Build will use Welders for all joints unless called out otherwise. Two to three tubes of Welders are needed.



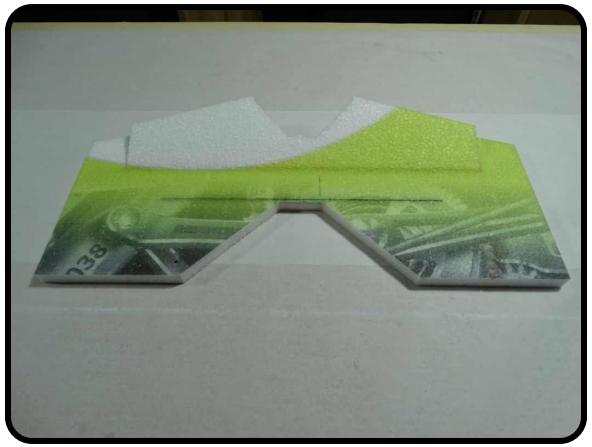
After the hinged parts have sat folded back for an hour or so, assembly can start. Locate the elevator, 5x1x250 spar, 3x1x250 spar and 2 of the 3x1x100 spars (or 1 of 3x1x200).



Start from the top side and with the 3x1x250 spar. With the tip of the Welders' nozzle, squeeze glue into the pre-cut slot.

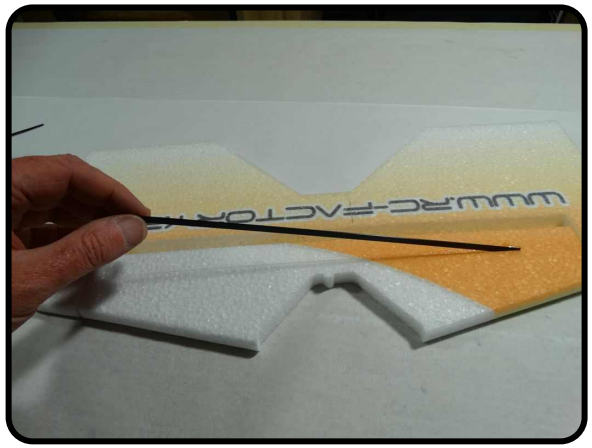


Lay the carbon spar into the slot.

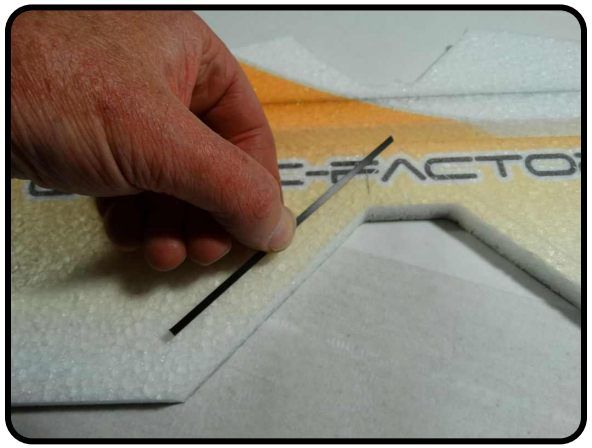


Make sure the spar is fully seated and flush as shown, wipe away any glue that squished out.

Flip the elevator over to the bottom side and fill the long slit with glue like was done on the top side.

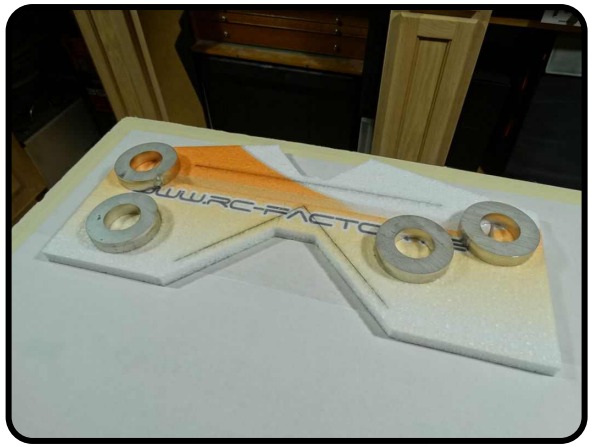


Install the 5x1x250 spar into the slot. Make sure it is flush and wipe away any extra glue.



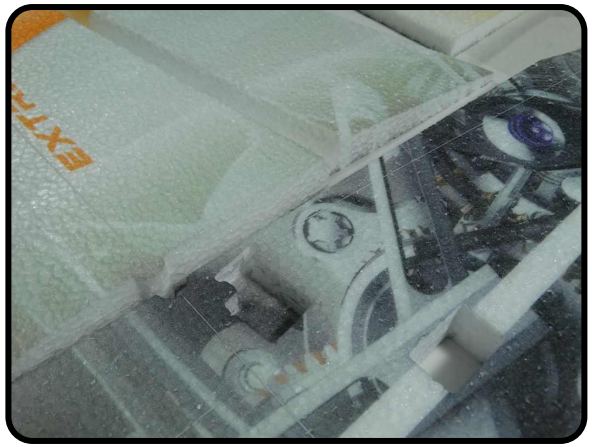
Next is the two pieces that install as pictured above. Some kits have 2 pieces 3x1x100, some have 1 piece 3x1x200. If your kit has the 200mm long piece, cut it in half.

Fill both slits with Welders.

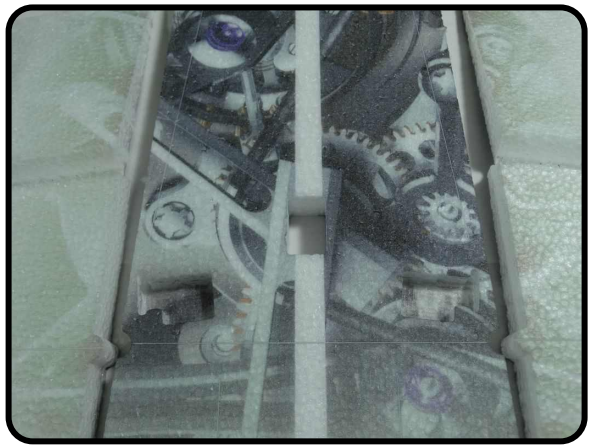


Install the 2 spars, again making sure they are flush and wipe away any extra glue. Set aside for now with some weights to hold it flat while the glue dries.

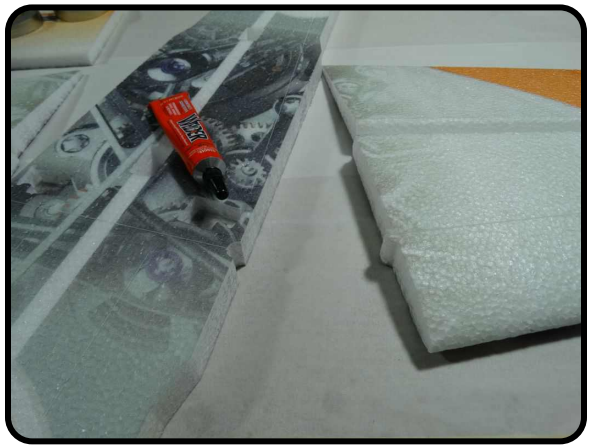
Wings are joined together next. Note that the bottom of the fuselage (side with the servo cut outs) and the bottom of the wings should be facing UP.



Note that there is a small round nub, and a pre-cut slot. these should line up. Test fit to verify.



Do this for both sides. Double check that you are working with the BOTTOMS of all three parts facing UP.



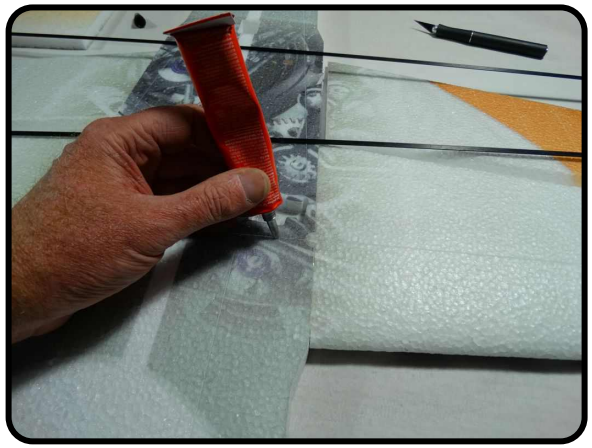
The “Tack Up” method will be used to join the wings to the fuselage. Apply a medium bead of welders to the wing. Bring the two parts together to transfer the glue, then separate immediately.

Make sure that during the “transfering” of glue process that an even coat is on both mating surfaces. Let set for about 5 minutes. Then join the pieces making sure to apply pressure....

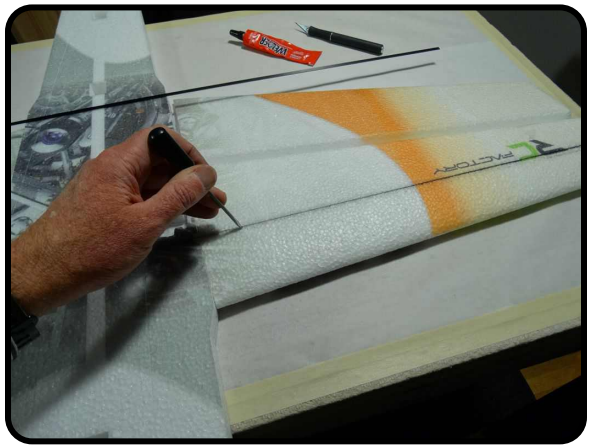
.... to the work surface in the area of the slit for the spar. This will ensure that the leading and trailing edges will locate at the center of the fuselage. Repeat for the other wing.

Main spars are next, there is one for the top and one for the bottom, they are both 5x1x1000.

Make sure the slit is clear where the wing and fuselage meet. Test fit the spar to make sure it sits flush to the surface of the wing.



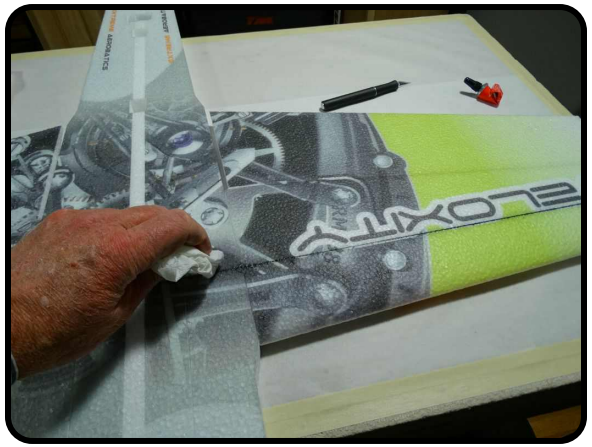
With the nozzle of the Welders' tube, squeeze some glue into the precut slot.



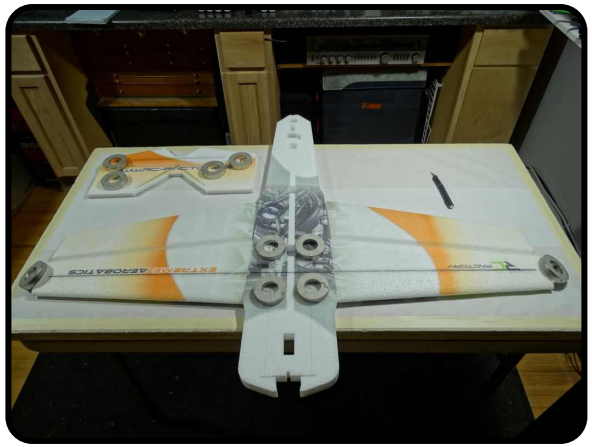
Install the spar, make sure that it is fully seated and flush to a little below the surface of the wing

Wipe away any extra glue. Note - just pass over once with a paper towel, wiping a second or third time will mess up the printing on the foam.

Flip the assmebly over and repeat for the top side spar. Fill the slit with glue, and install the 1000mm long spar.



Wipe away any extra glue, again.... just one pass to preserve the integrity of the printed graphics

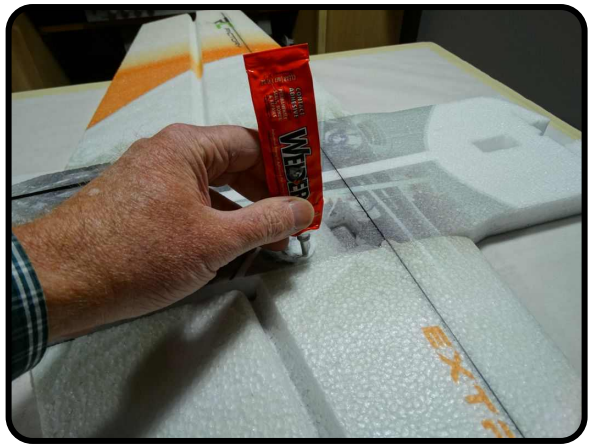


Flip back over so that the under side is facing up. Weigh down with some heavy objects as shown and let this thoroughly dry before handling again.

With under side of the fuselage and the underside of the elevator facing up, glue the two pieces together. The elevator is “keyed” to help with correct orientation.

Make sure the two pieces are fully seated to each other. If so, squareness should be really close, double check with a tape measure by measuring from elevator tips to the wing tips.

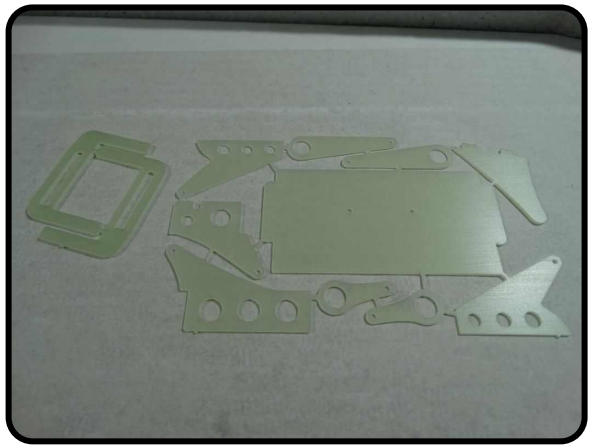
Once the previous step has dried, prepare to install the fuselage stiffeners. Locate the two pieces of 3x1x550 carbon spars.



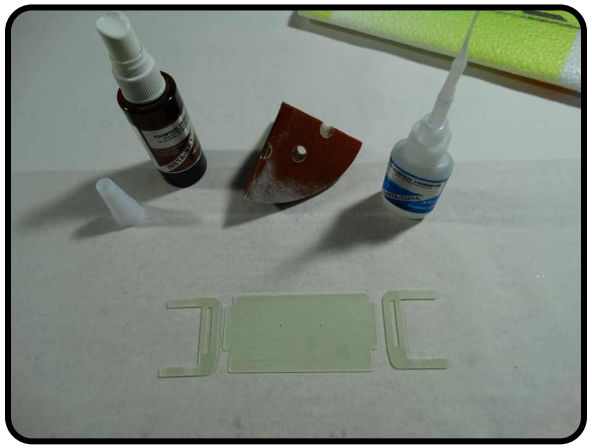
Squeeze some Welders into the designated slot.

Install the spar and wipe away any extra glue. Repeat for the second spar.

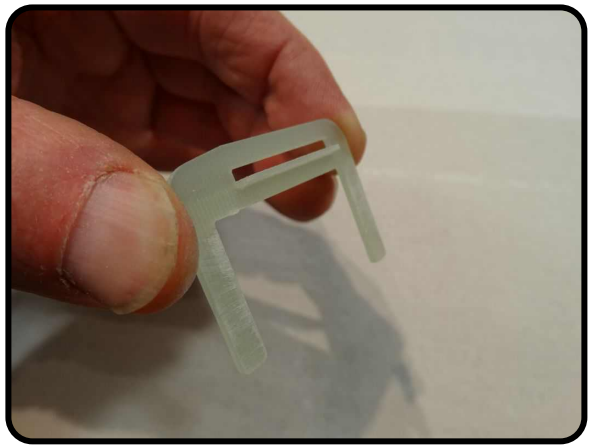
Let this dry a little while before handling. Weigh everything down to ensure that the assembly dries in a nice and flat condition.



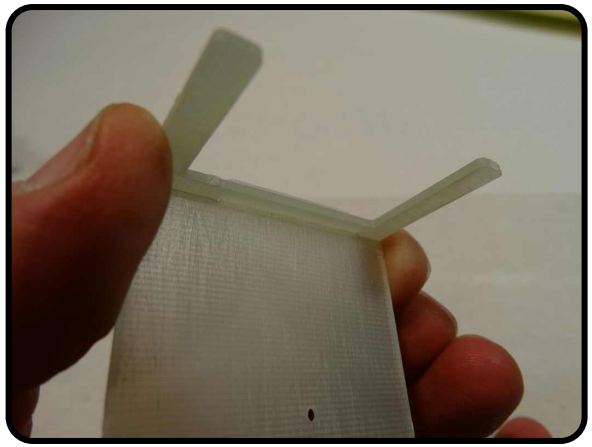
While the previous step is drying, locate the fiber glass parts tree.



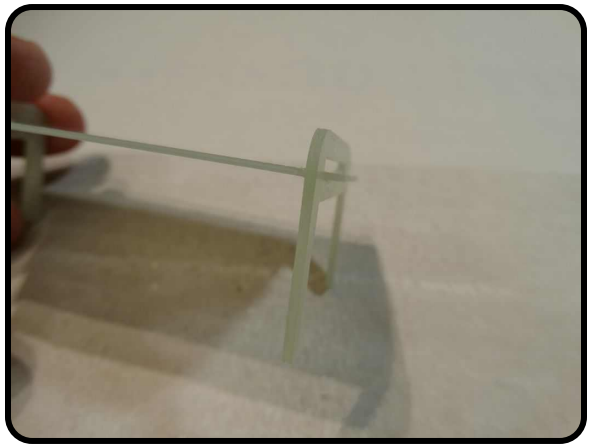
Break out the 3 landing gear base parts as pictured above. Roughen up the legs of the two side pieces and one complete side of the center piece.



Take a close look at the the next three pictures to get the right orientation of the parts. Hold with your finger tips and apply a little thin CA and hit with Kicker

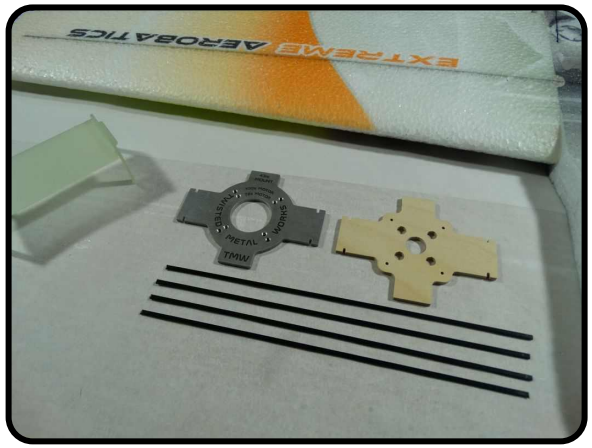


Under side of the assembly. Note that it is the near side of the center piece that is roughed up.

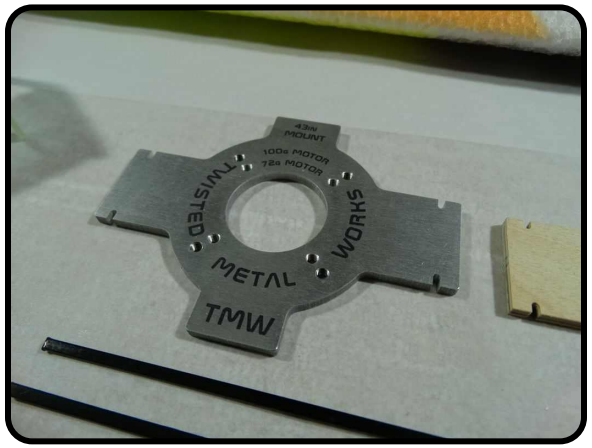


Make sure it is all realitevly square. Once one of the side pieces is attached, repeat for the other side. Note orientation is critical, make sure you have matched these pictures.

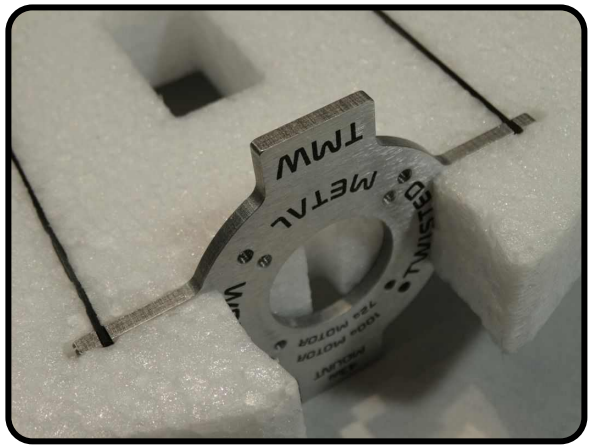
Finished assembly, note the glue joint does not have to be super robust, but good enough to hold things together during assembly into the fuselage.



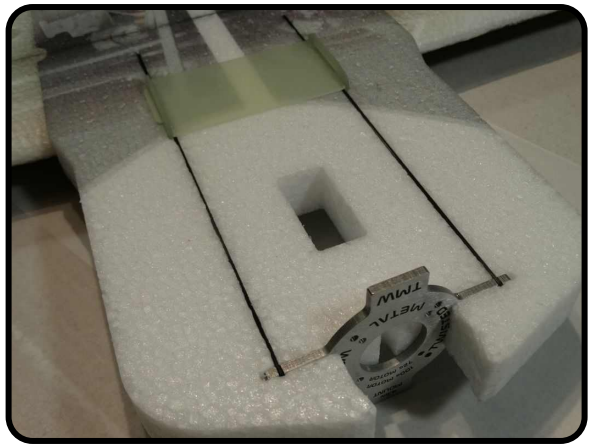
Firewall and associated carbon stiffener spars are next. Locate the motor mount and four 2.5x1.5x200 carbon rectangles. Note the metal mount to the left is an Optional Upgrade part.



This build will be done with the Optional Upgrade Motor Mount pictured above, the stock wood one will install in the exact same manner.

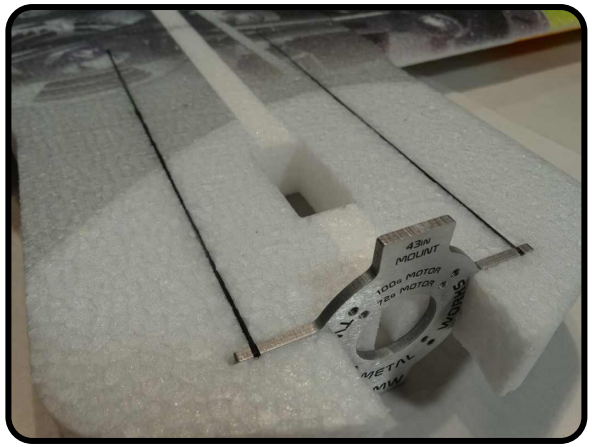


- TEST FIT -
This and the next three pictures show test fitting of the motor mount, the carbon rectangle stiffeners and the landing gear platform.



- TEST FIT -
Install the motor mount, align the notches with the foam slits and install the carbon spar so they capture the notches in the mount as shown.

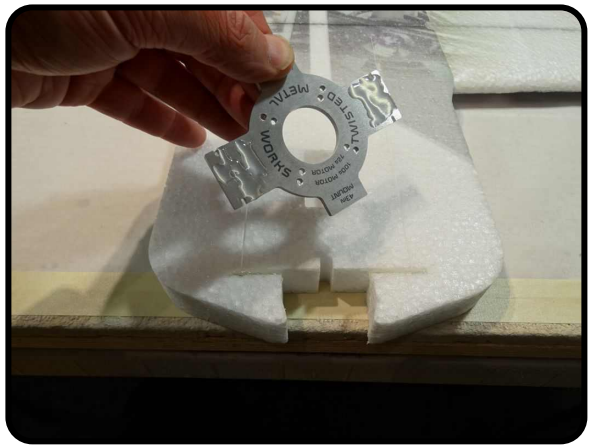
- TEST FIT -
Insert the LG platform into it's respective holes. Note that you will have to remove a little foam near the carbon rectangle in order for it to set flush.



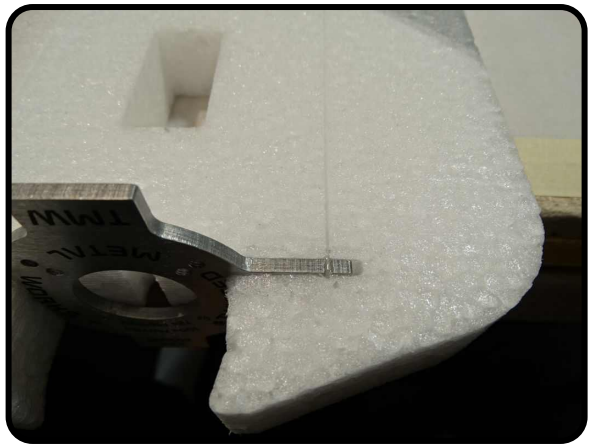
- TEST FIT -
Flip the fuselage over and test fit the final two carbon rectangle. They too should capture the notches in the motor mount.

Once you are happy with the fitment and understand how all the part are installed, remove them all and prepare to re-assembly with glue

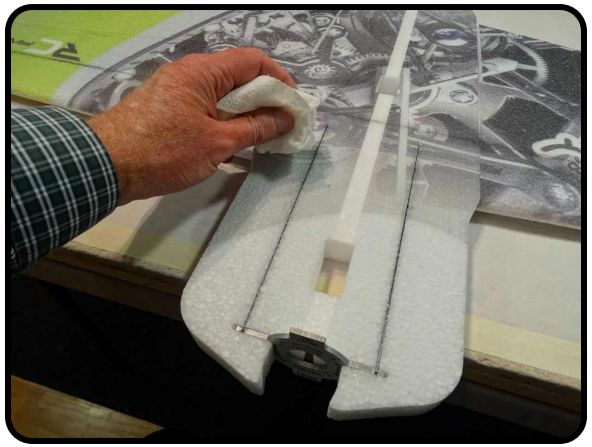
Start by attaching the motor mount. Put some glue into both the left and right slots as shown.



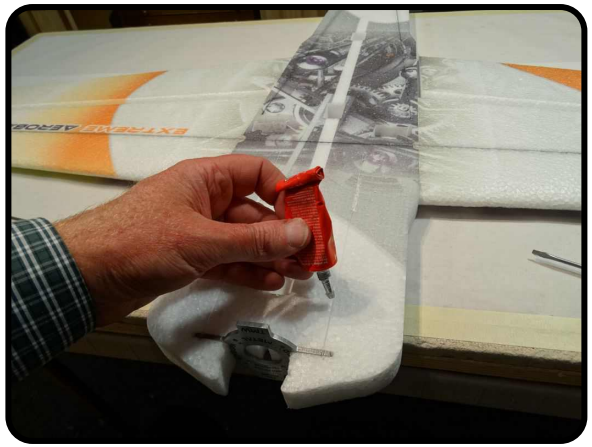
Apply some Welders to the horizontal tabs, front and back as shown.



Slide the mount into position, working it a little from side to side to get good glue distribution. Make sure the slots and motor mount notch line up.



Install the TOP SIDE rectangles by squeezing glue into the slit and pressing them in, make sure they engage the motor mount and wipe away any excess glue.

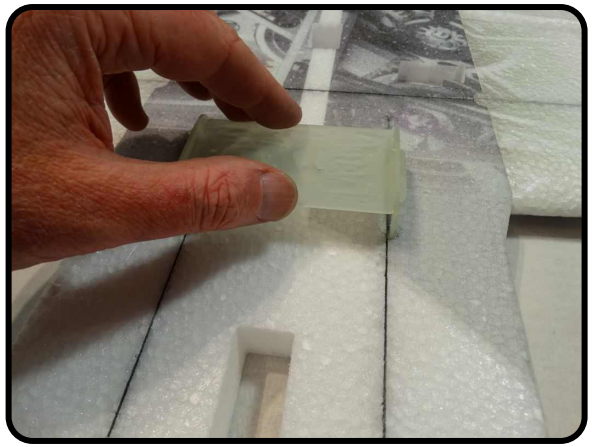


Flip the airframe over now so the BOTTOM SIDE is facing up. Squeeze some Welders into both to the slits.

Install the rectangles like was done on the top, and again making sure that they engage the notches in the motor mount

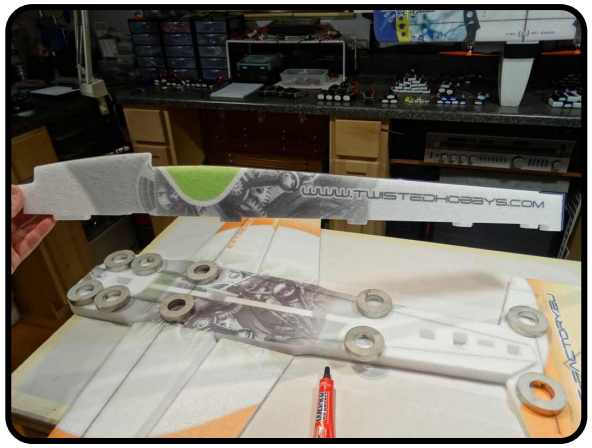
Apply a medium coat of Welders to the under side of the LG Platform.

Squeeze some glue into each of the four holes where the tabs will insert.



Slide the LG Platform into position. Applying enough pressure to ensure that the glue is evenly dispersed. Wipe away any extra glue.

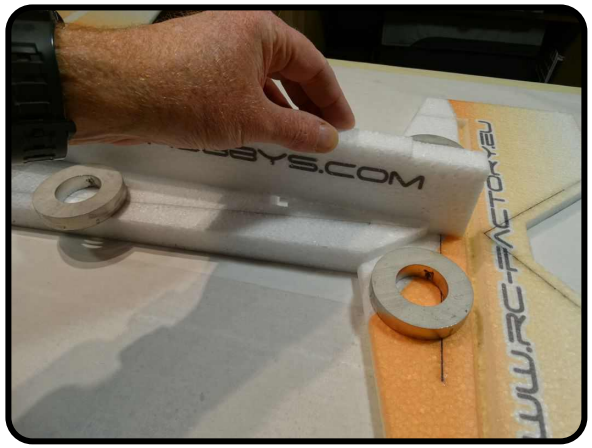
Apply some weights to the whole thing and let it set like this until the glue has dried. Note a piece of tape is being used to keep the front tabs of the nose in contact with the motor mount.



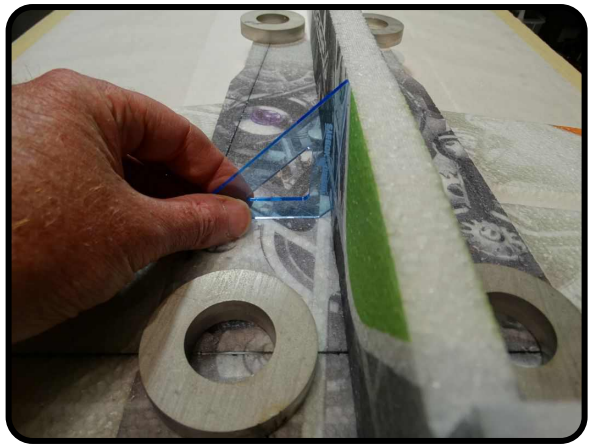
Once the previous step has dried, it is time to attach the lower horizontal fuselage piece. Test fit, then apply glue. Note - avoid glue in the areas noted in the next two pictures.

Avoid glue in the area where the carbon landing gear struts will pass.

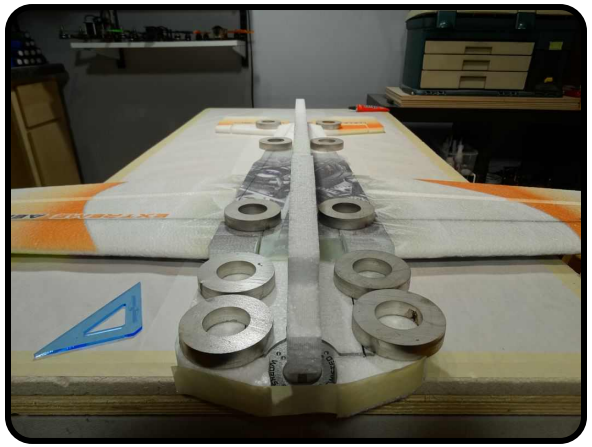
Avoid glue in the area where the elevator and rudder servos install.



With the main part of the assembly nice and flat on your work surface, press the lower horizontal into all it's tabbed areas, don't forget to put glue on the motor mount tab and slot as well.



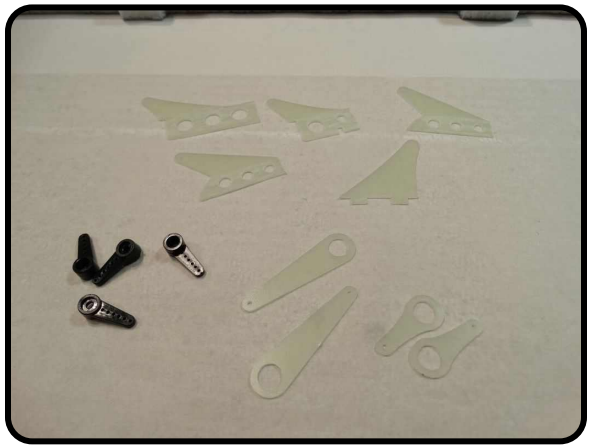
Once it is all pressed together, wipe away any extra glue and check for squareness along the length of the fuselage. With the thickness of the foam it should be pretty square on it's own.



Once happy with the squareness and fit of the glue joint... weight everything down to ensure it will dry nice and flat.

While the previous step is drying, attach the canopy to the upper vertical fuselage section. Tack up Method can be used for this step.

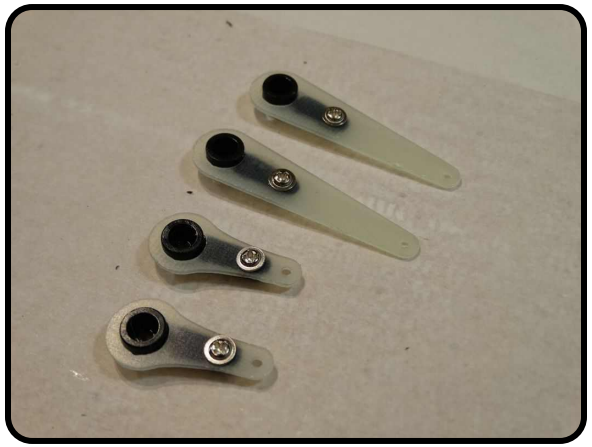
Once the glue has tacked up, bring the two piece togehter.



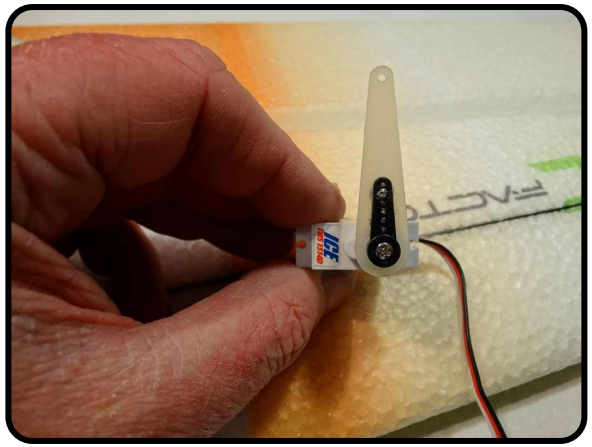
Locate all the items pictured above. Deburr the break out tabs and roughen up the bases of the horns and tail skid.

Enlarge the second in servo horn hole to .060” diameter and match drill a .080” dia hole in the fiberglass servo extension arm. Repeat this for all four arms. Get 4 screws from the servo bags.

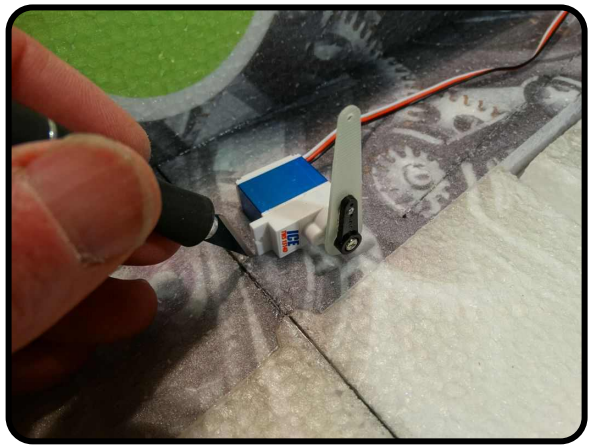
Put a little dab of Welders on the under side of the stock arms and then fasten the extensions with the screws aquired from the servo bags. Snip off the extra length with some flush cutters



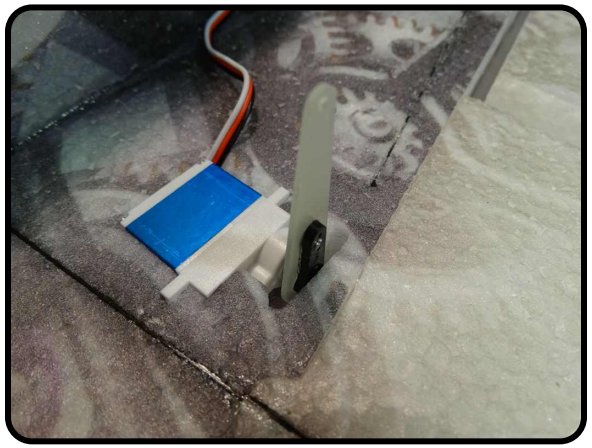
Other side of the finished horns.



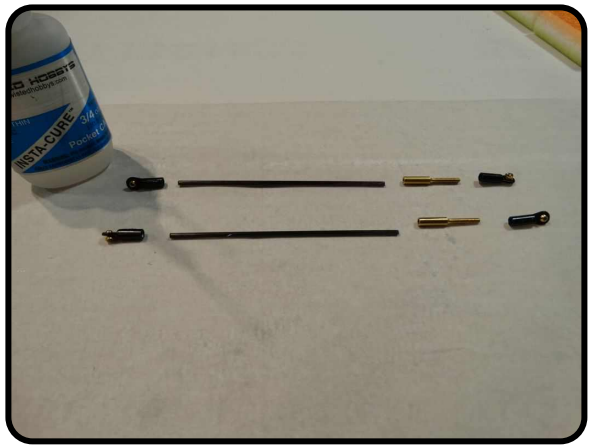
Make sure you servo is electronically centered, and attach the horns as need for each servo. Right aileron servo is shown above, and will be the subject of the next couple pictures / steps.



All the servo cut outs need to have slits added for the servo tangs. Position the servo directly over the hole and make a slit in the foam where the tang needs to insert. Do this for both tangs.



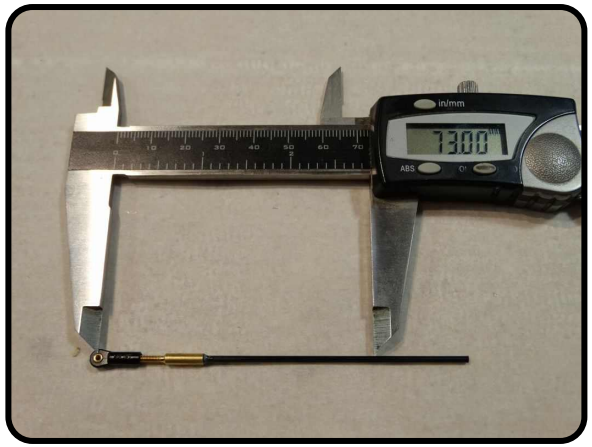
Press the servo in, making sure it goes all the way flush. It may be necessary to make a little relief in the foam for the servo cable. No Glue yet. It will need to be remove in a couple steps.



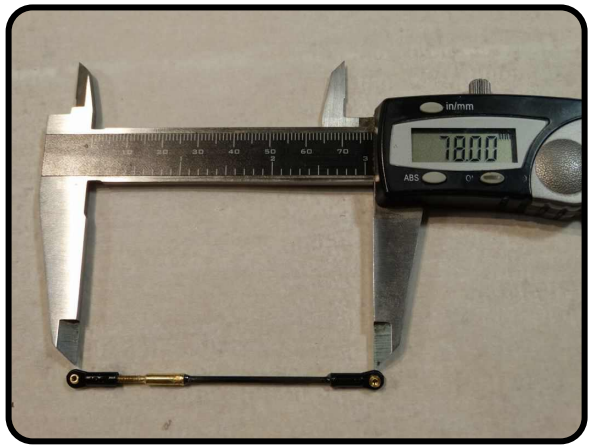
Locate the two shortest 1.8mm dia carbon rods (they may be a little longer), 2 brass ferrules and 4 ball links. Thin CA will be used for assembly.

Slide a ferrule onto one end of the carbon rod make sure it is fully engaged, then apply a drop of CA to the open end and let it wick in. Set with Kicker

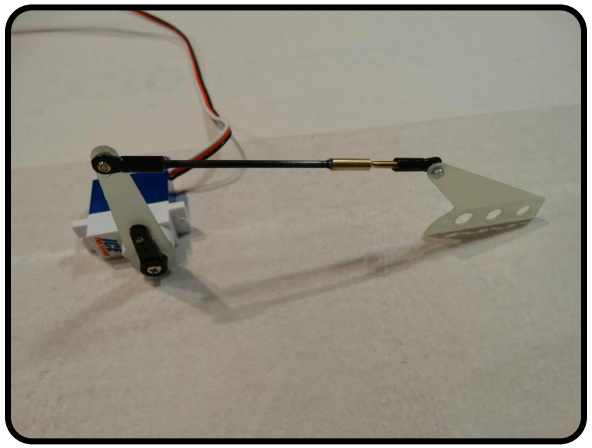
Thread the ball link onto the ferrule until there is approx 6.5mm between the shoulder of the ferrule and the open end of the ball link.



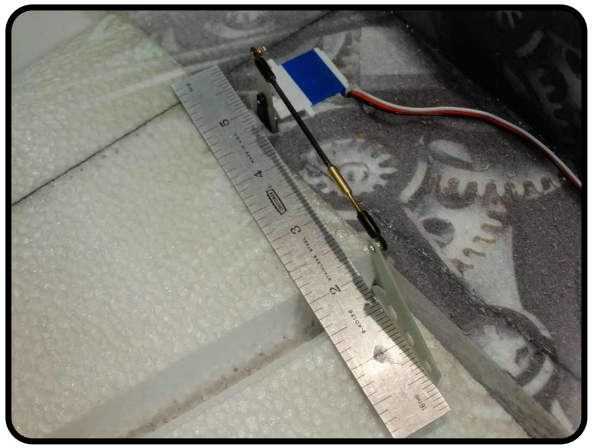
From the CENTER of the hole of the bass ball in the ball link, measure off 73mm and cut the rod. Use a rolling action with a hobby knife to score the rod, then snap apart at that position.



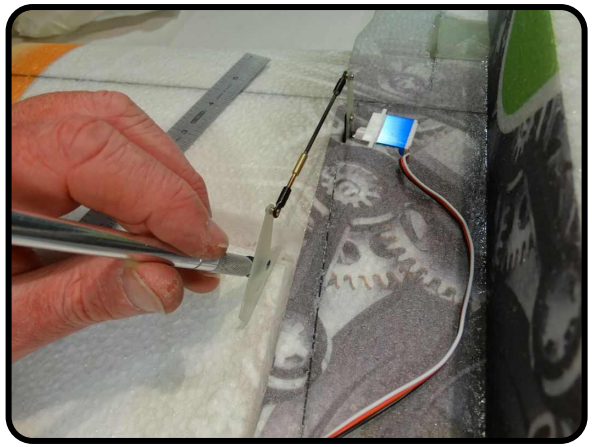
Install on of the other ball links onto the free end of the rod. The rod may need to be sanded a little. 78mm from hole to hole is the goal. Attach with CA and Kick.



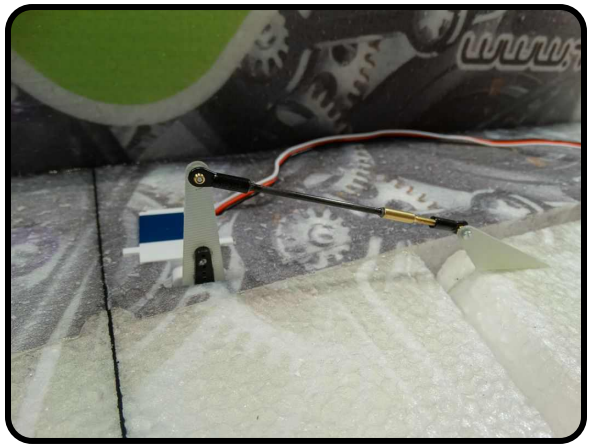
Attach the control rod to the servo and aileron control horn as shown above. Use a little thread locker on the threads. Make sure and install from the sides shown above.



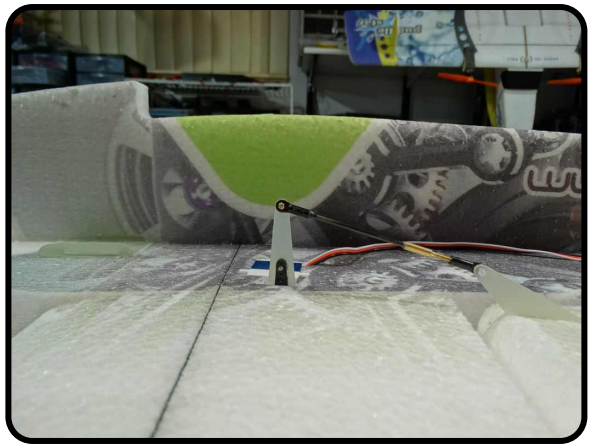
Press the servo back into is pocket, and with a straight edge, align the base of the control horn with the angle of the servo.



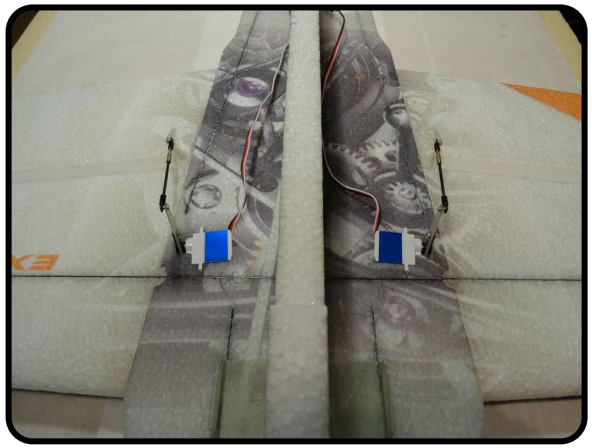
Make a slit for the horn. It should be deep enough so the corn at the back of the horn is flush with the foam and the front of the horn matches the profile of the hinged area.



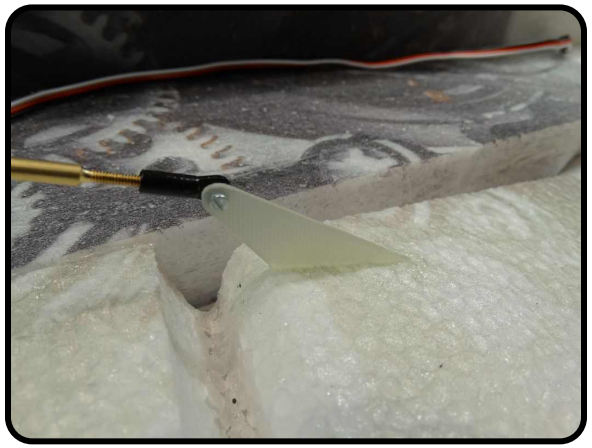
With everything in position, the assembly should look like the picture above. Note that the servo horn is 90 degrees to the servo and not the rod.



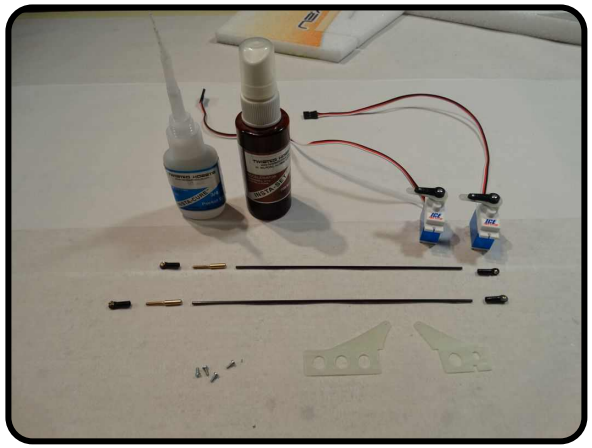
Once you are happy with everything, install the servo with a medium dab of low temp hot glue at the bottom of the pocket, and the horn with Welders into the slit that was cut.



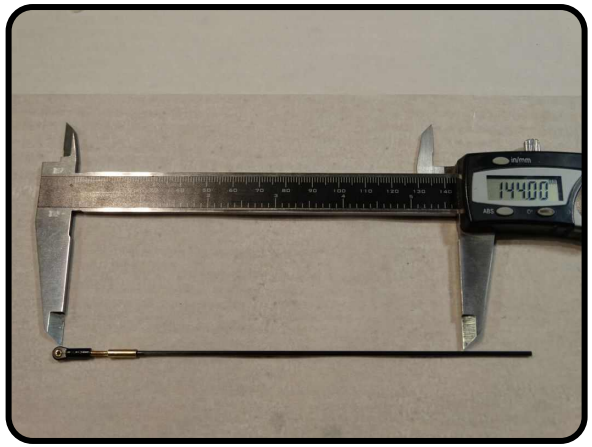
Repeat the entire process with the left aileron servo.



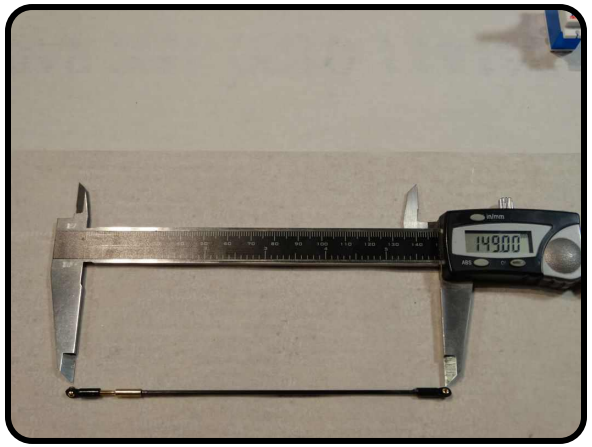
As with the right side, make sure and when gluing in the aileron control horn that the profile of the horn matches the profile of the hinge cut shape.



Tail control rods are next, locate the remaining two 1.8mm dia carbon rods, 2 ferrules, 4 ball links and the control surface horns pictured above. Install the servo horns as shown.

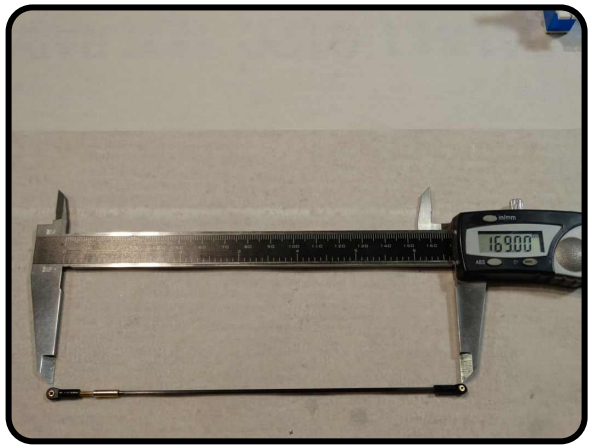


Starting with the shorter rod, install a brass end and ball link as was done with the aileron control rod, and cut to 144mm from the center of the hole in the brass ball to the end.

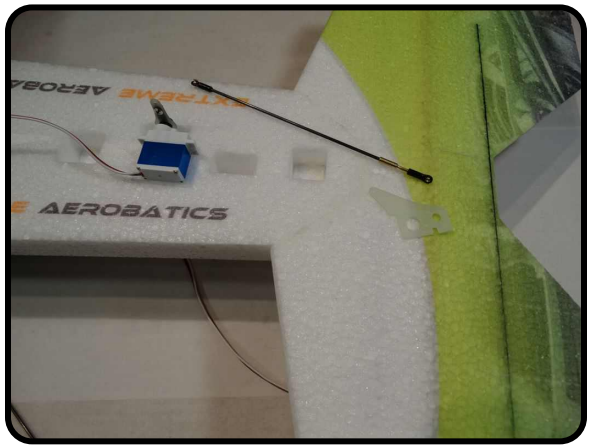


Attach a ball link to the free end, again sanding a little to get the link to slide on far enough so that you get 149mm form center of hole to center of hole. Glue with thin CA and Kicker

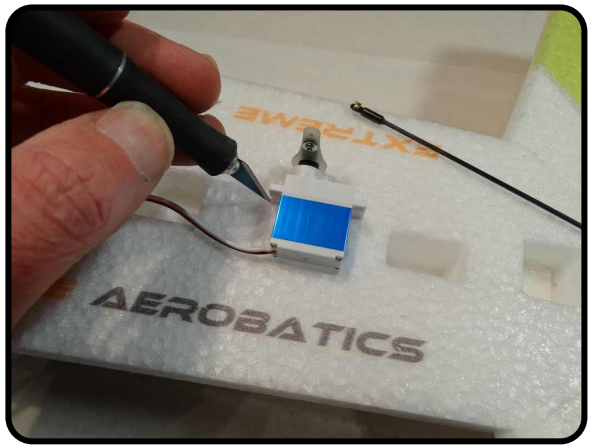
Repeat the previous two steps with the longer rod, and cut to length from the center of the ball to 164mm long.



Attach a ball link to the free end, again sanding a little to get the link to slide on far enough so that you get 169mm form center of hole to center of hole. Glue with thin CA and Kicker

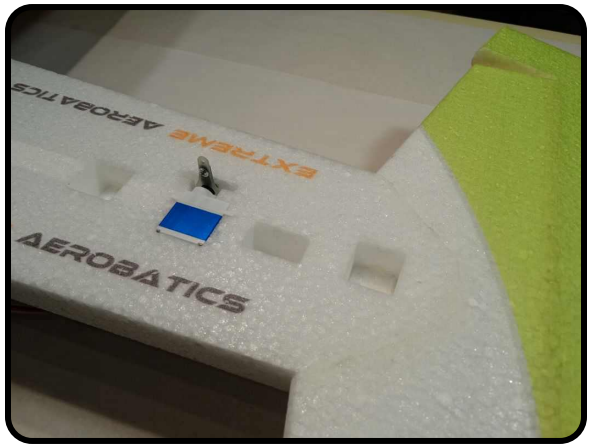


Prepare to install the Elevator servo, control horn and control rod. The elevator road is the short of the two that were just built. Make sure the servo is electronically centered.

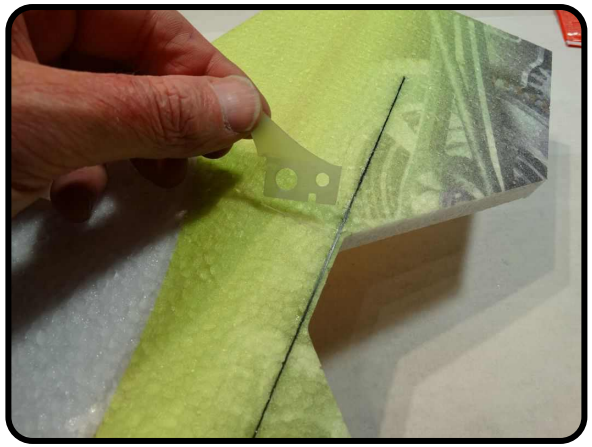


Cut slits for the servo tabs like what was done with the aileron servos, and test fit to make sure it will sit flush with the near surface.

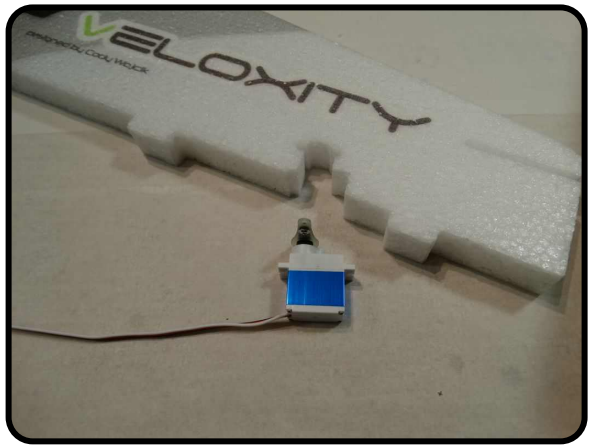
Apply a little low temp hot glue to the sides of the hole and install the servo. Servo lead should stick thru underneath, install the servo quicky, the hot glue sets fast.



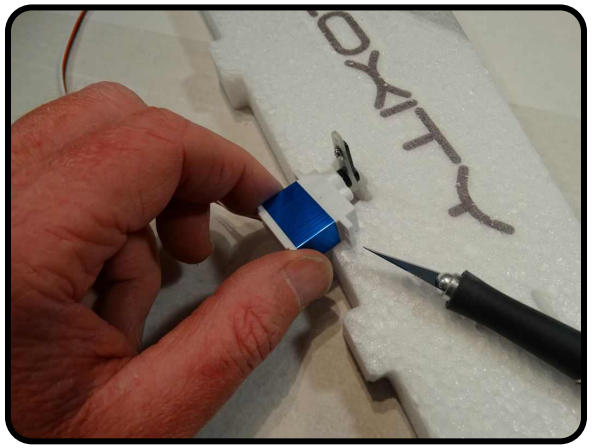
Once glued and installed, should look like the above picture.



Now install the elevator control horn. Note that the notch is to clear the spar that was installed on the underside. Test fit and clean out the pre-cut slot if needed and install with Welders.

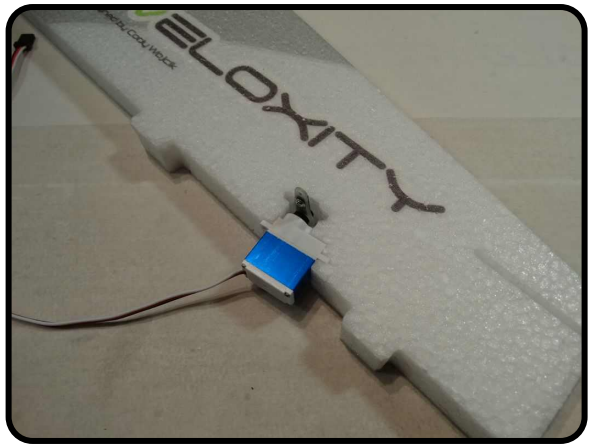


Locate the Rudder servo and the upper vertical fuselage section.



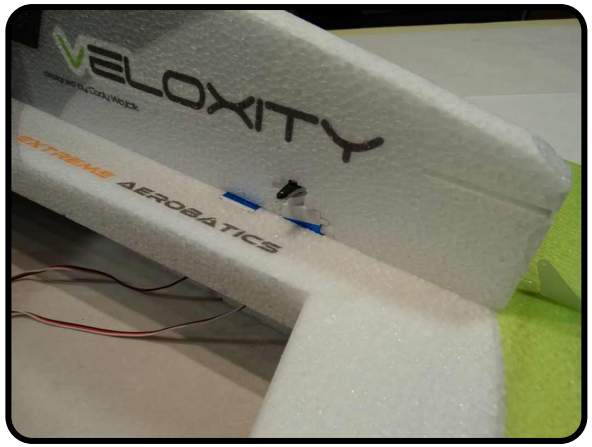
Again, cut a slit for the servo tang. For this servo, only the rear tang needs a slit. Test fit and remove.

Put a little hot glue on the edges of the cut out.



Install the servo... quickly, so that it is flush with the near surface shown.

Test fit the top fuselage section. Make sure and feed the rudder servo lead thru to the same side as was done with the elevator servo lead.



Also look to make sure all the tabs of the fuselage are able to fully engage, especially around the servo area in the back, and the motor mount area at the nose of the aircraft.

Once you are happy with the fitment, apply glue to all surfaces, tabs and slots.

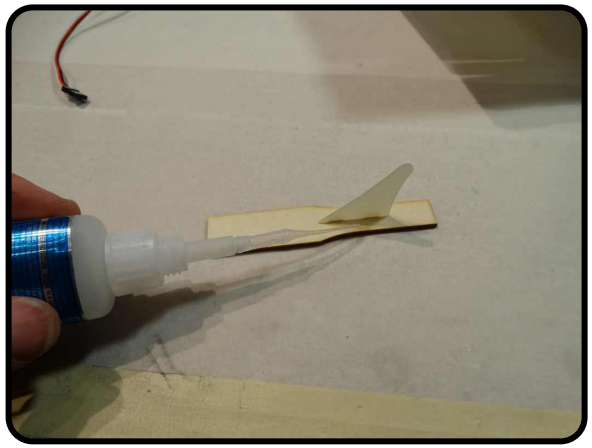
Join the two pieces together, make sure to feed the rudder servo wire thru the correct side like in the test fit.

Firmly press up and down the length of the upper fuselage piece to ensure the two pieces are fully seated to each other. Do this a couple times.

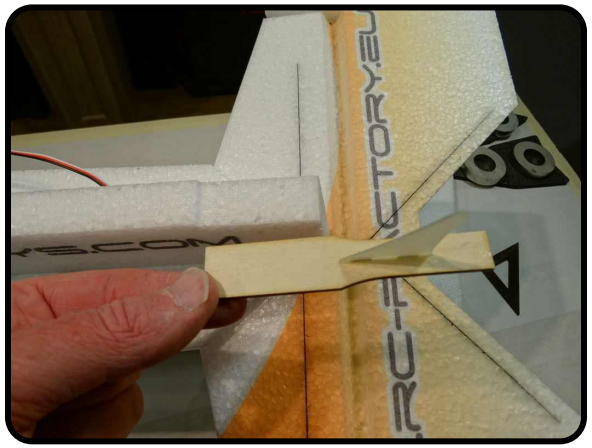
Put some tape around the nose so that the front tabbed pieces are pull back towards the motor mount a little. Don't over do it… just enough so all the surface are firm against each other.

Wipe away any extra glue and check along the length for squareness. As with the bottom, it should naturally be really close if not right. Tweak a little if needed.

Locate the wood piece with the two small slots and the tail skid as pictured above.

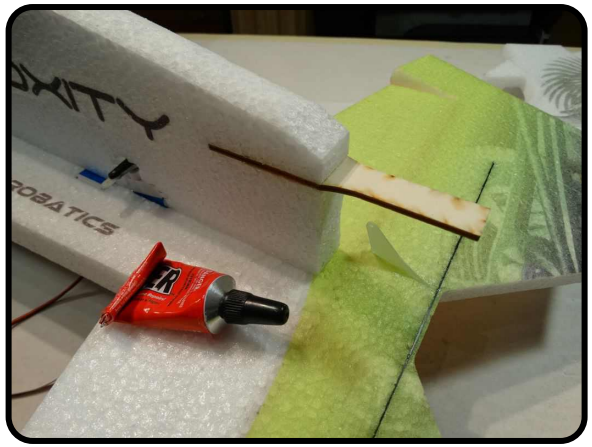


With a little bit of thin CA and Kicker, join the two piece together in the orientation shown.

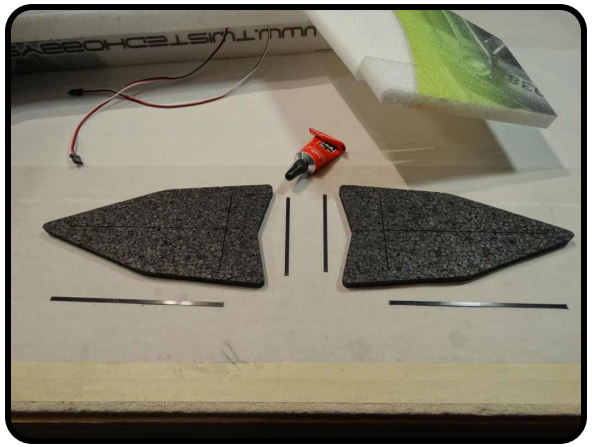


Tack up Method will be used to join the tail skid assembly to it's spot on the end of the airframe. Apply a medium skim coat to the mating areas of each part and let set for about 5 minutes.

Once the Welders has tacked up join the two pieces as shown



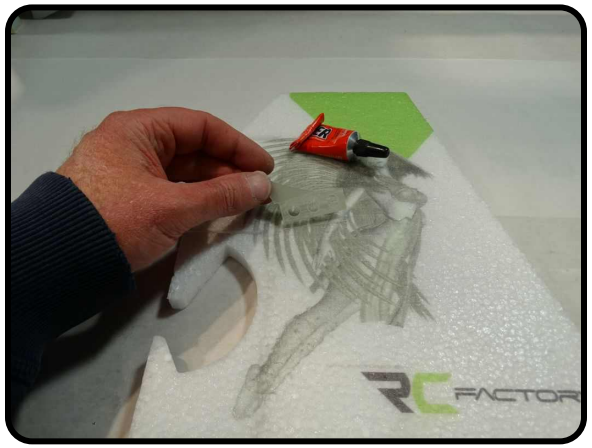
Locate the other, similarily shaped wood piece and install it as shown. Install this piece with the glue wet. Make sure that it is in alignment with the fuselage.



Locate the SFG's, two carbon 3x0.5x75 and two carbon 3x0.5x125 as pictured above. Test fit the carbon rectangles into the pre-cut slots.

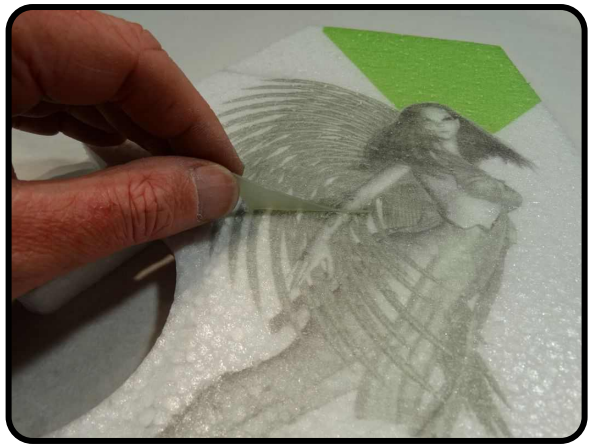
After verifying fit, remove the carbon rectangles and squeeze a little Welders into the slots.

Install the carbon rectangles back into their slots, make sure they are flush and wipe away any extra glue. Set aside on a flat surface to dry.



Locate the rudder and its control surface horn. Note that it is installed from the side shown. Test fit.

Squeeze some Welders into the control horn slot and apply a skim coat of Welders to the base of the horn.



Install the horn into the slot and wipe away any extra glue.

Once the wood pieces for the rudder are dry, the rudder can be installed. Apply some glue and join the two pieces.

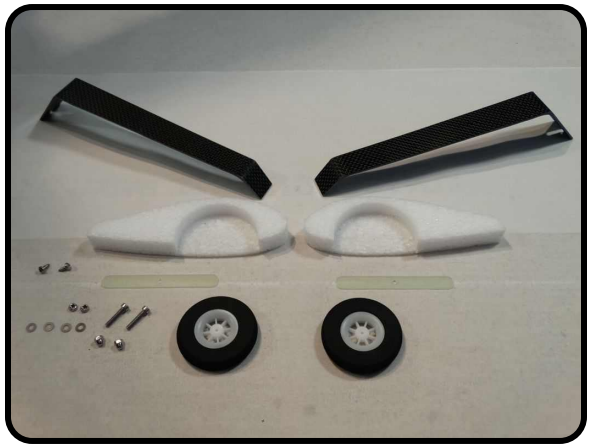
Make sure the rudder aligns with the wood pieces and that it is straight and true with the main part of the fuselage.

Now is a good time to apply a bead of low temp hot glue to any places where the servos meet the foam.

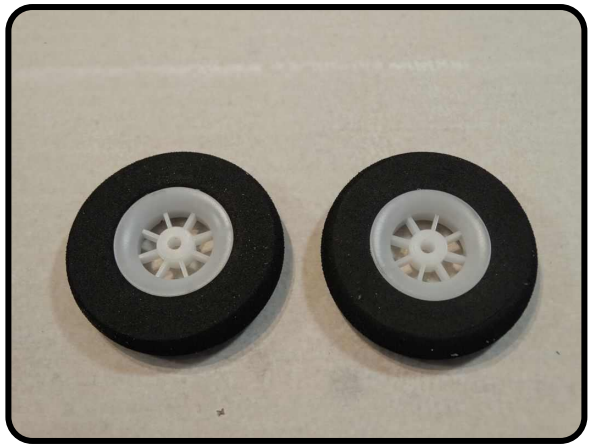
Get the tail control rods that were built in an earlier step and the remaining four little slotted head screws

Install the elevator control rod as shown. Note that the ball links have a flat flanged side, this is the side that mates with the horns. Apply a little thread locker and install the screws.

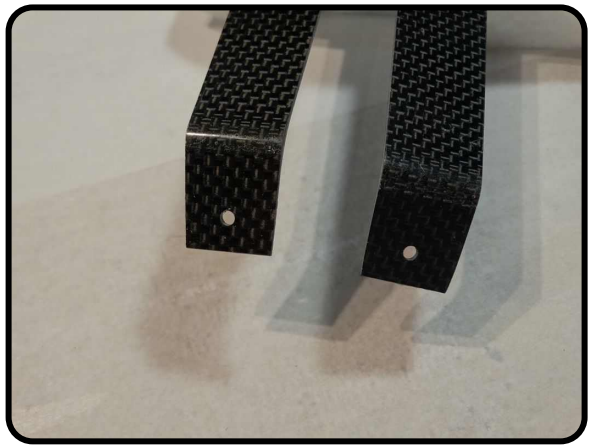
Repeat the process for the rudder control rod. With the servos centered, fine adjustment can be made from the threaded end ball link to get the control surfaces perfectly positioned.



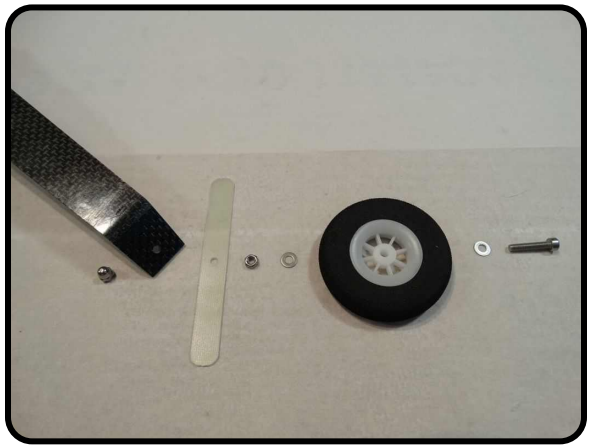
Landing gear will be assembled next, locate all the items pictured above.



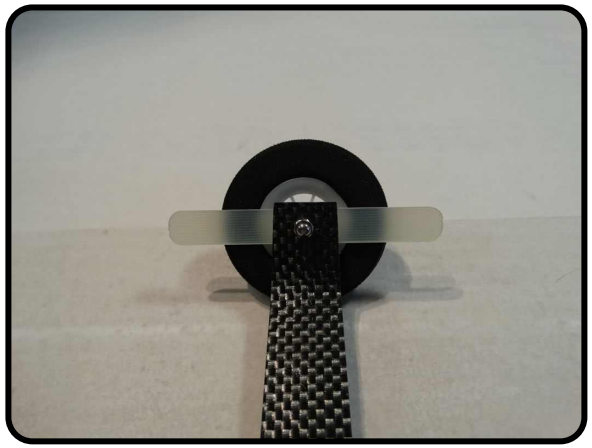
Drill the hubs of the wheels out to .125”, using a drill press is recommended to ensure that the hole stays true to the axis of rotation.



Drill .112” (3mm) dia holes in the landing gear as shown. Note the location is not super critical, just locate approx as shown and make them similar to each other



Order of assembly as pictured above, starting from right to left. Long screw, washer, wheel, washer, hex nut, pant bracket, strut, acorn nut

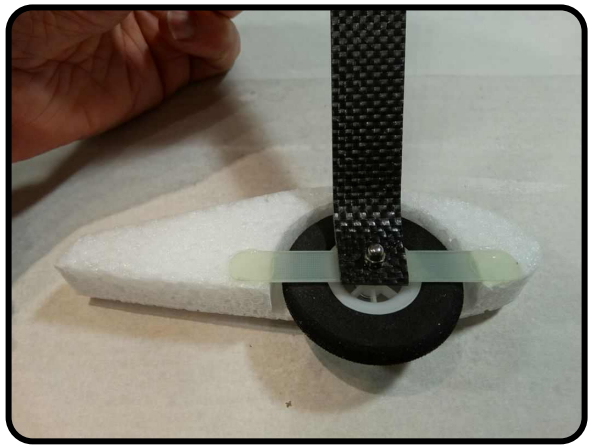


Adjust the hex nut on the inside of the wheel hub so there is minimal clearance and the wheel can still spin. Use a dab of Welders to lock it position. then finish assembling the items

Once all the items are attached, check that the wheel still spins freely and that the pant bracket is perpendicular to the landing gear strut. Repeat the previous steps for the other strut.

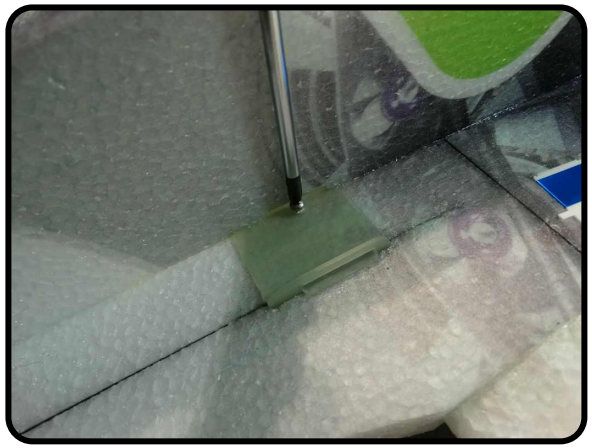
With some course sand paper, roughen up the areas where the foam pants and pant bracket will be joined together.

Medium CA will be use to join these pieces. Apply a dab of CA to the ends of the pant bracket, then spray the mating foam area with Kicker.



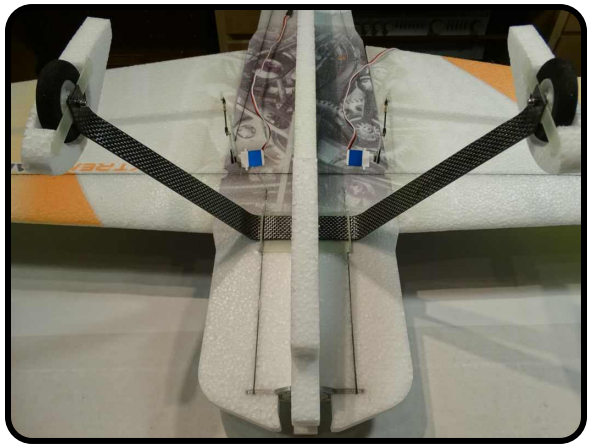
Immediately join the to pieces together. Make sure that when contact is made that you are in the correct position, the bond will be instant.

Repeat for the other side. You should end up with a left and right as pictured above.



Locate the two shorter self tapping screws. Tap the screw into the LG base plate. Work it in slowly, do a half turn or so, reverse, thread back in a little more, etc until fully seated.

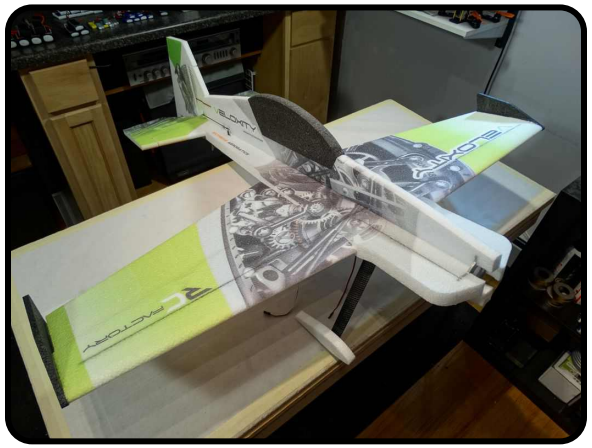
Back the screw out about 2 or 3 three turns so that it clears the thickness of the LG strut. Install the strut and tighten the screw.



Repeat for the other side. If necessary loosen the screws and adjust from side to side to get the LG even and re-tighten.

SFG's will be joined to the end of the wings with the Tack Up Method. Apply a skim coat of Welders to both mating surfaces. Note that the carbon slits face inward.

Once the Welders has tacked up, join the two piece together as shown.



Repeat for the other side.

Locate the motor you will be using and its mounting hardware. For the Upgrade mount, four 3mm allen head cap screws, for the wood mount, the four longer self tapping screws

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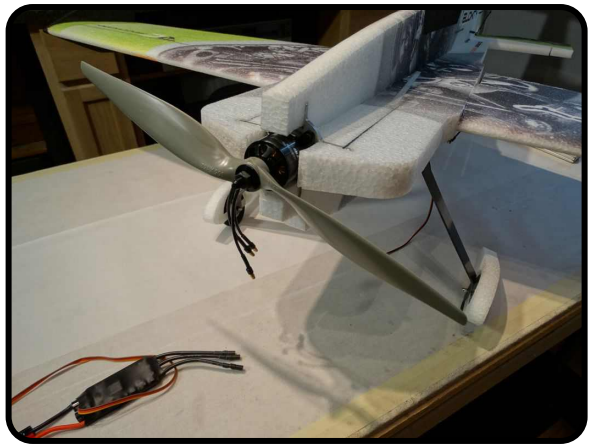
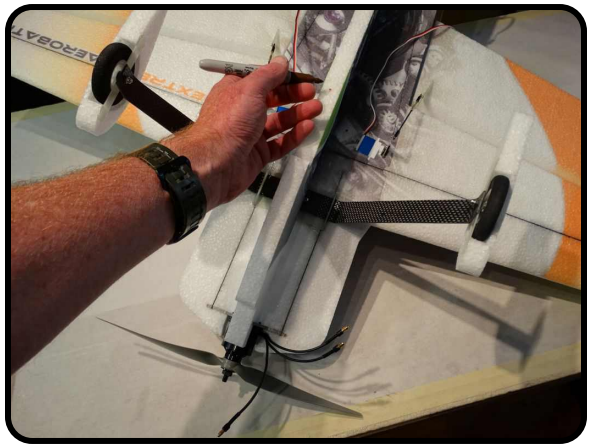


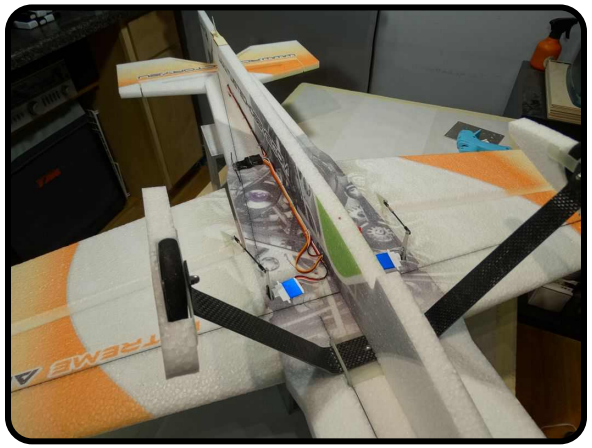
Install the motor with the wires off to the side in which the ESC will be mounted.



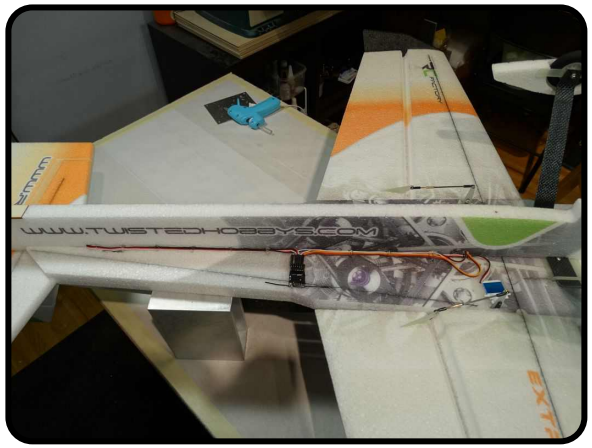
Make a part on the fuselage 275mm back from the nose for the CG point.

Play with the locations of your electronics to best achieve the CG point that was just marked.

Once you have determined the general location for all the components, stick them down with some low temp hot glue.



Under side showing one way to locate the electronics.



With the Twisted Hobbys Power Combo, the servos have extra long leads, so extensions are not needed. Note the location of the Crack Receiver.

Add a 1.5” length of Blenderm to the extreme ends of all the hinge lines. Apply a thin patch of Welders under where the Blenderm will go. Doing this will strengthen the hinges

Balance the props you will be using. With the 100g TMW motor, a s12x6e prop can be used.

Check all your directions and throws. With the included extensions you should be right at 100% Travel on the Servo setup for all channels.

Install a fancy prop nut if you have one, charge up some batteries and head out to your favorite flying site for some fun..!!

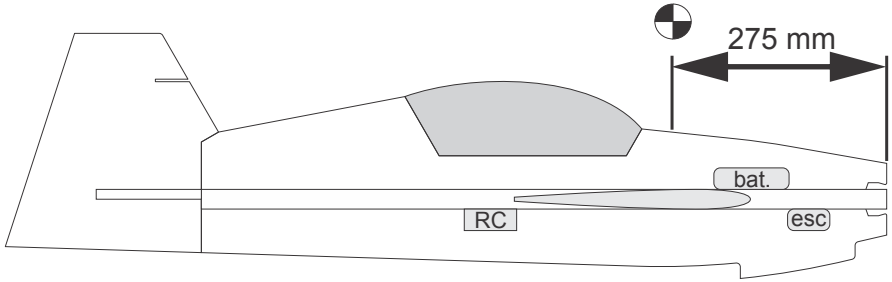
This completes the build, it's design and construction should give you many hours of flying enjoyment. This airplane will serve you well, whether you are relatively new to 3D flying or are a seasoned veteran.

Please visit www.TwistedHobbys.com for other accessories and aircraft.

There are several online resources and forums for this model as well. It is suggested that you visit the RC Groups Thread for this model for additional information, it is a great resource for questions and insight to this aircraft.

CENTER OF GRAVITY

C.G. - 275mm from nose of aircraft



Locate all the electronic to achieve indicated CG point. Use Velcro for initial flights for battery mounting and experiment with it's position until you have determined the best spot for your flying style. For best 3D performance, balance for level flight upright and inverted with little to no elevator input. Also power off down line should be straight down without any pull or tuck.

CONTROL THROWS

Extreme & 3D
Ailerons: +/- 40 deg
Rudder: +/- 45 deg
Elevator: +/- 50 deg
Expo to suit (40% to 60%)

Beginner & Sport
Ailerons: +/- 20 deg
Rudder: +/- 20 deg
Elevator: +/- 20 deg
Expo to suit (15% to 30%)

In order to achieve the control throws as described for "Extreme and 3D", it is imperative that the control surfaces, linkages, rod ends, etc, all move freely over the entire range, including range end points.

Failure to do so will result in damage to either the servos or mechanical components

PRE-FLIGHT & TESTING

Prefight Checks

Motor: Should run smoothly at all stick positions, and transition smoothly from low to high RPM. If the motor is turning backwards, reverse two of the three wires between the motor and ESC. Check that the screws holding the motor to the airframe are tight and secure.

Flight Controls: Set all to neutral or level positions with sticks in the neutral positions. Ensure that all controls and linkages move freely. Double check that all hinged areas are free from rips or tears. Verify proper control surface directions. Right Roll is – right aileron up, left aileron down, Left Roll is left aileron up and right aileron down.

Batteries: Should be fully charged prior to each flight. Watch transmitter battery level and follow manufactures recommendations. Motor battery should not be drained any further than recommended by the manufacture, use a timer to prevent an over discharged condition.

Radio: All trims should be set to neutral and throttle in the low position. Check that rate switches and mixes are set properly.

Range Check: With and without the motor running per radio manufactures instructions. If there is insufficient range or significant reduction with the motor running, resolve and re-test before flying.

Prefight Checks

The first flights should be done with the CG at the recommended position, and reduced control rates until comfortable with your handling of the aircraft. As your experience with the aircraft grows experiment with different CG points and control rates. After all flights, check the aircraft over for damage and/or other items that may adversely affect flight performance.

This Extreme 3D Plane is a full performance aircraft and will provide hours of entertainment, including the occasional crash. If, as the result of a crash, the foam tears, simply glue with Welders or CA. Many pilots prefer Welders because it remains flexible after drying. CA however, is more suited for the “quick” repair.

This aircraft can be flown indoors or outdoors. It is however designed specifically for indoor flying and will be right at home in the local gymnasium or other similar sized venue.

Storage

This EPP plane should be stored resting it's landing gear or hung from the prop. Storing in other fashions that put stress on the airframe could cause the airframe to distort. Storage in a hot car could also cause damage.

Be safe and enjoy, thank you again for purchasing a Twisted Hobbys' Product!

NOTES AND S/U SHEET

Setup Sheet

Transmitter - Receiver -

Model

Weight - g oz

CG Point - mm from wing leading edge

timer - min

Travels and Exponential

	low rate	high / 3D
right aileron up -		
right aileron down -		
left aileron up -		
left aileron down -		
aileron expo -		
rudder right -		
rudder left -		
rudder expo -		
elevator up -		
elevator down -		
elevator expo -		

Electronic Components

Aileron Servo -

Rudder Servo -

Elevator Servo -

Battery -

motor -

ESC -

Propeller -

TIPS AND TRICKS

A good building surface is –drop ceiling“ panel from a local hardware store on a nice flat board

Use parchment paper between the areas being glued and your work surface

Heavy flat objects (like books, batteries, etc.) could be used to hold everything flat

When resetting your radio, start with all the ATV‘s or throw volumes at 100%.

Make sure you have set the direction of the servos correctly before attempting to trim for zero position.

If possible try the servo horns in different locations to determine which position will require the least amount of sub trim.

Installing the servo horns in their final location and attaching quick links to the servos may make servo installation much easier later.

On the Orange Rx, the negative pin is the one closest to the flat side of the circuit board.

Keep a good supply of sharp knife blades handy when building a foamie airplane.

Use low temp hot glue for gluing electronics, this will allow for easy removal later if necessary. The low temp hot glue can be “released” by painting” the glue bead with an alcohol soaked cotton swab a couple times.

A business card with the corners clipped off can be used as a small square.

Allowing the Welders glue to set for five minutes before assembly will shorten the tack up time, just be sure if doing it this way that you get the parts into position quickly, as the glue will start to bond on contact. Any joints that you feel are going to require adjustment, it is best to assembly the pieces while the glue is wet. The Green (high tack) masking tape works the best when used to clamp things together on an EPP foam airplane.

When gluing the rudder to the fuselage, stick pins could be used to hold in position if wanting to handle the airframe before it is completely dry

A rotary tool with a cutting wheel could be used to produce grooves in fiber glass parts instead of coarse sand paper. Use a hatch pattern. This creates more bonding area for the glue.

Bill of Materials - Veloxity - 43" 3D Airplane

Qty	Description	material type	Size	Package	where first used
1	Fuselage - Lower Vertical	EPP	n/a	Box	page 16 / picture 6
1	Fuselage - Upper Vertical	EPP	n/a	Box	page 17 / picture 6
1	Fuselage - Horizontal	EPP	n/a	Box	page 9 / picture 5
1	Fuselage - Canopy	EPP	n/a	Box	page 17 / picture 6
1	Wing - Right	EPP	n/a	Box	page 9 / picture 5
1	Wing - Left	EPP	n/a	Box	page 9 / picture 5
2	Side Force Generator	EPP	n/a	Box	page 25 / picture 5
1	Elevator	EPP	n/a	Box	page 8 / picture 2
1	Rudder	EPP	n/a	Box	page 26 / picture 2
2	Wheel Pant	EPP	n/a	Box	page 27 / picture 5
2	Wheels - 2 inch	EPP	n/a	Box	page 27 / picture 5
2	Landing Gear Strut	EPP	n/a	Box	page 27 / picture 5
8	Ball Links	Plastic / Brass	n/a	Accessory Pack	page 19 / picture 3
8	1.5mm x 4mm Screws	Steel	n/a	Accessory Pack	page 20 / picture 2
4	Threaded Rod End	Brass	n/a	Accessory Pack	page 19 / picture 3
2	3mm x 16mm Cap Screw	Steel	n/a	Accessory Pack	page 27 / picture 5
2	3mm Hex Nut	Steel	n/a	Accessory Pack	page 27 / picture 5
4	3mm Flat Washer	Steel	n/a	Accessory Pack	page 27 / picture 5
2	3mm Acron Nut	Steel	n/a	Accessory Pack	page 27 / picture 5
4	3mm x 9mm Self Tapping Screw	Steel	n/a	Accessory Pack	page 30 / picture 3
2	3mm x 6mm Self Tapping Screw	Steel	n/a	Accessory Pack	page 27 / picture 5
1	Motor Mount	Wood	n/a	Accessory Pack	page 14 / picture 1
1	Upper Rudder Support	Wood	n/a	Accessory Pack	page 25 / picture 4
1	Lower Rudder Support	Wood	n/a	Accessory Pack	page 24 / picture 6
2	Landing Gear Side Supports	G-10	n/a	Accessory Pack	page 13 / picture 2
2	Wheel Pant Mount Bar	G-10	n/a	Accessory Pack	page 27 / picture 5
1	Landing Gear Plate	G-10	n/a	Accessory Pack	page 13 / picture 2
2	Short Servo Arm Extension	G-10	n/a	Accessory Pack	page 18 / picture 2
2	Long Servo Arm Extension	G-10	n/a	Accessory Pack	page 18 / picture 2
1	Tail Skid	G-10	n/a	Accessory Pack	page 18 / picture 2
2	Aileron Control Horn	G-10	n/a	Accessory Pack	page 18 / picture 2
1	Rudder Control Horn	G-10	n/a	Accessory Pack	page 18 / picture 2
1	Elevator Control Horn	G-10	n/a	Accessory Pack	page 18 / picture 2
2	Aileron Control Rod	1.75mm Dia rod	80mm Long	Carbon Parts	page 19 / picture 3
1	Elevator Control Rod	1.75mm Dia rod	150mm Long	Carbon Parts	page 21 / picture 3
1	Rudder Control Rod	1.75mm Dia rod	175mm Long	Carbon Parts	page 21 / picture 3
2	SFG Stiffener - Short	0.5mm x 3.0mm Rec	75mm Long	Carbon Parts	page 25 / picture 5
2	SFG Stiffener - Long	0.5mm x 3.0mm Rec	125mm Long	Carbon Parts	page 25 / picture 5
4	Motor Mount / Nose Stiffener	1.5mm x 2.5mm	200mm Long	Carbon Parts	page 14 / picture 1
2	Elevator Stiffener	1.0mm x 3.0mm	100mm Long	Carbon Parts	page 8 / picture 2
1	Elevator Stiffener	1.0mm x 3.0mm	250mm Long	Carbon Parts	page 8 / picture 2
1	Elevator Stiffener	1.0mm x 5.0mm	250mm Long	Carbon Parts	page 8 / picture 2
2	Rear Fuselage Stiffener	1.0mm x 3.0mm	550mm Long	Carbon Parts	page 12 / picture 3
2	Wing Spar	1.0mm x 5.0mm	1000mm Long	Carbon Parts	page 10 / picture 5