THRUST VECTORING HARDWARE AND LANDING GEAR INCLUDED!

TWISTED HOBBYS





Edge 540 v3

Extra 330

MOTOR: 1x 40 to 80 Watt Outrunner
ESC: 1x 10-12 amp
SERVOS: 2x 4g to 6g - 1x 8g to 11g
PROP: 1x 8 inch
BATTERY: 2s 250mAh to 450mAh

USA Distributor

Twisted Hobbys

www.twistedhobbys.com

RADIO: 4 channel
WINGSPAN: 33″
LENGTH: 35.5″
AUW: 150 to 170 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

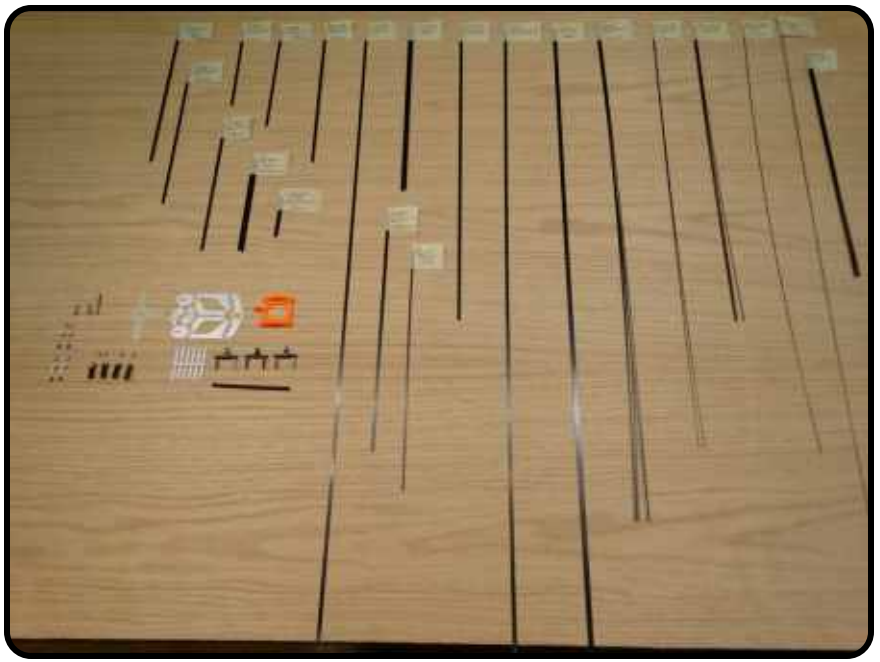
Double check that you have all the above pictured items. Note -
Some kits might have slight deviations from the above pictured items.

A DETAILED BOM IS INCLUDE AT THE END OF THIS MANUAL

KIT CONTENTS (cont.)



Tail Surfaces & Carbon Bundle



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.

It is recommended that you identify and label all the carbon pieces as shown above right. There is a Detailed Bill of Material at the end of this manual that can be used to do this.

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.

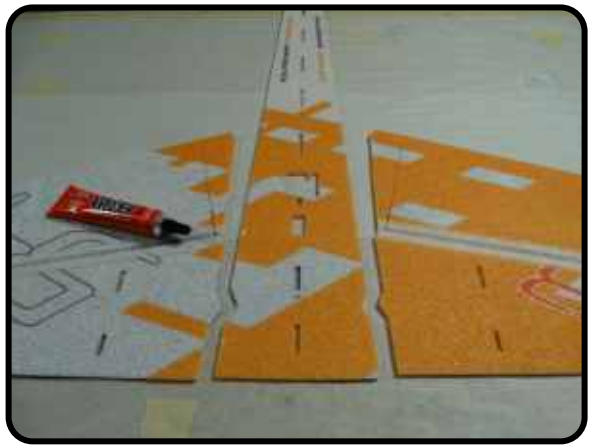
Welders glue is used for FOAM TO FOAM joints. Thin and Medium CA are used on the PLASTIC TO FOAM and CARBON TO FOAM joints. **When using the Welders glue for a butt joint, apply a thin film to each surface, allow to sit for approx five minutes and then assemble**. Note that this method will create a 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 Battery and Receiver are NOT part of the power combo, everything else shown is.



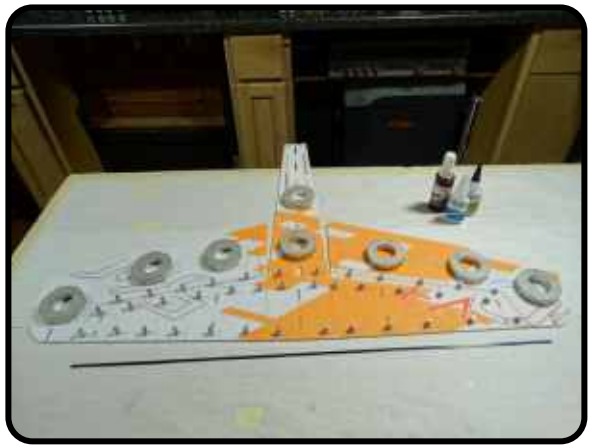
Start the build by locating the two wings, the elevator and the rudder. Fold back as shown and weigh them down for about an hour to loosen up the hinge area. Now is also a great time to setup your radio and to test that all your electronics are functioning properly.



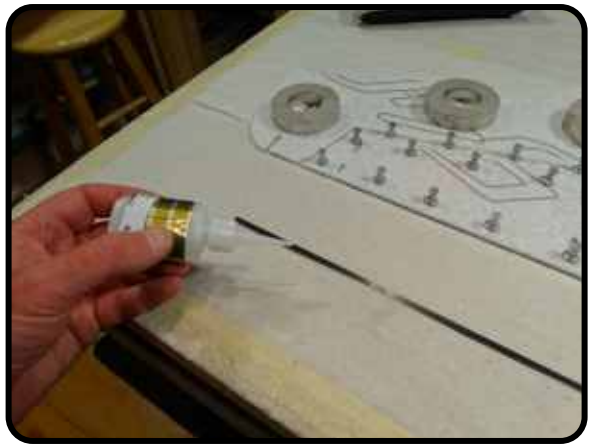
Locate the two wing halves and the horizontal fuselage section as pictured above. Tack up Method will be used to attach these pieces. Apply a skim coat of Welders to each part in the joint.



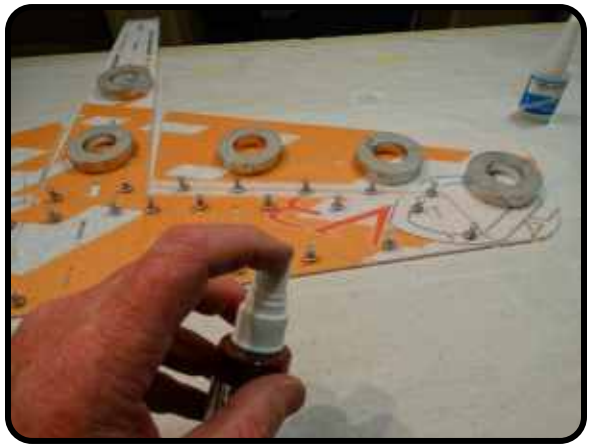
Once the Welders has tacked up, usually about 5 to 10 minutes, bring the two pieces together and press firmly to get a good strong bond. Do this for both wing halves.



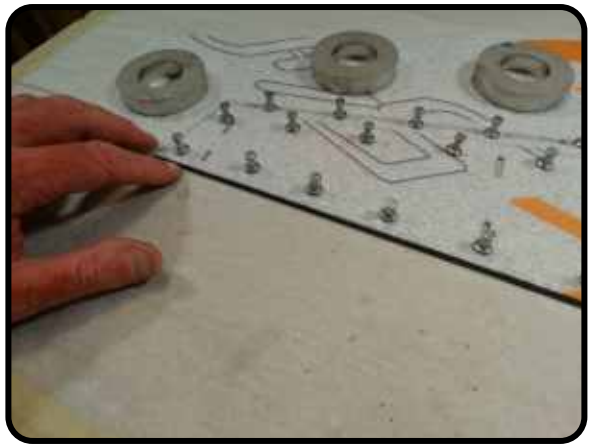
Locate the Wing Spar - Leading Edge Carbon strip, 0.5 x 4.0 x 670 mm. It is important when attaching this that the wing/fuselage be flat. Use weights and/or stick pins as shown above.



Apply Med. CA to one side of the Spar....



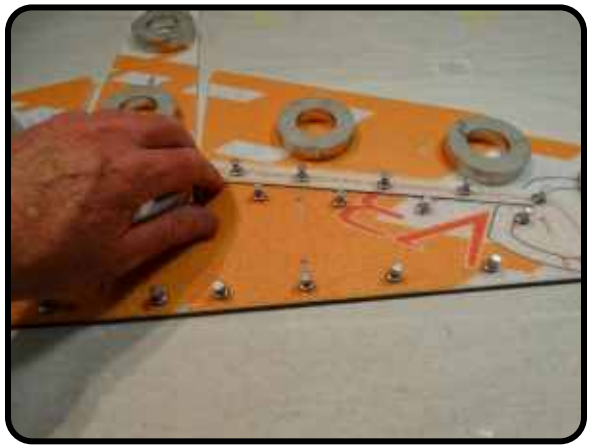
... and CA Kicker to the mating surface of the wing.



While holding the edge of the spar flush with the table, bring it into contact with the leading edge of the wing. Make sure and center between the aileron counter balance reliefs.



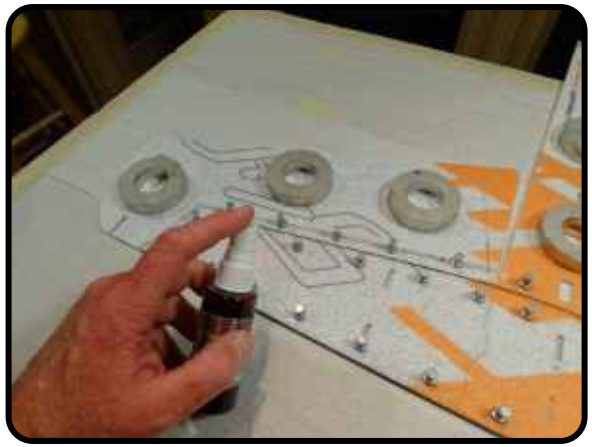
Rear Wing Spar is next, make sure that the slot in the area where the wing attaches is free of glue.



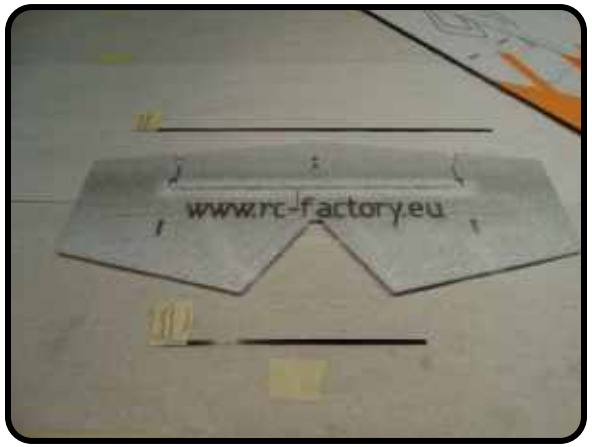
Locate the 0.5 x 3.0 x 600 mm spar and fit into the slot. Make sure that it sits flush over the entire length and that the wing is flat.



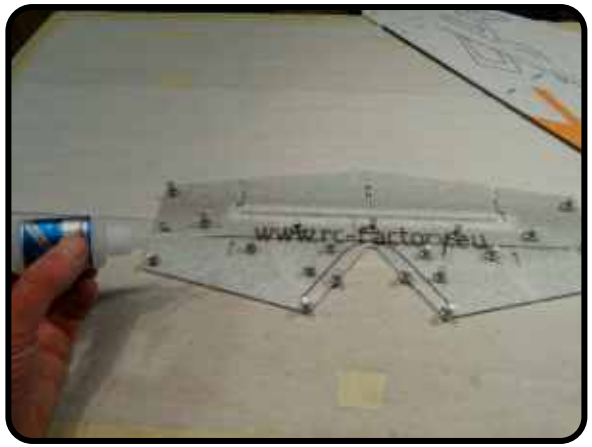
Apply thin CA and let it wick into the area around the spar.



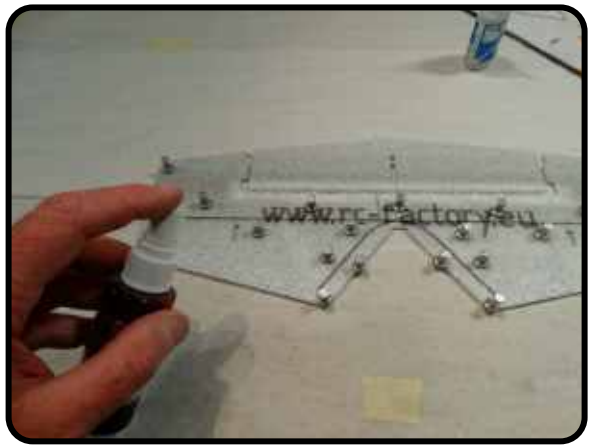
Spray the area with Kicker.



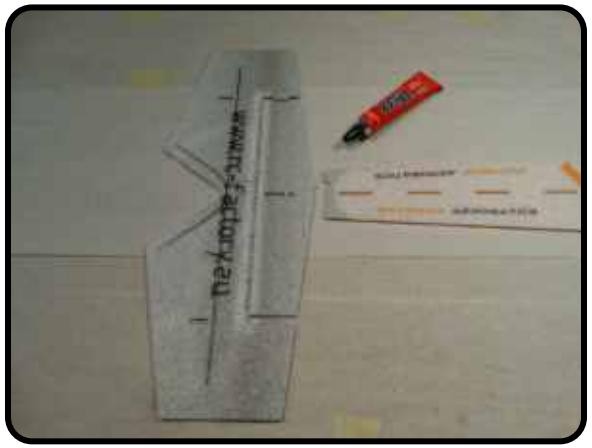
Next up is the Elevator reinforcements, locate the 0.2x3.0x165mm and the 0.5x3.0x330mm rectangles as pictured above.



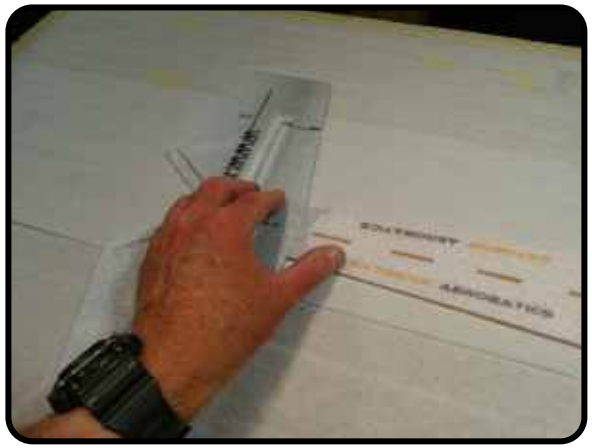
Install the spars as shown above, the 165mm long piece goes into the “V” shaped slot and the 330mm long piece is the main horizontal elevator spar. Make sure they are flush and apply CA.



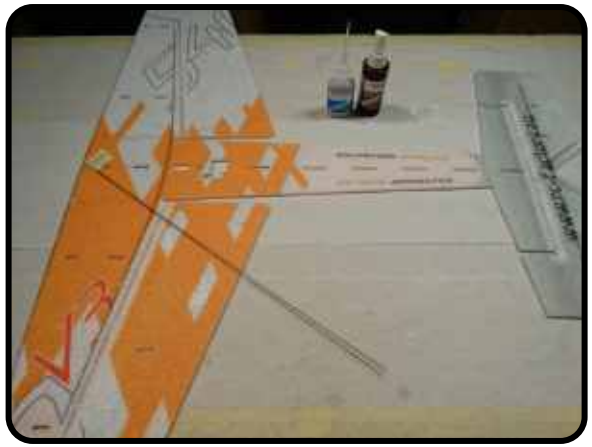
Spray with Kicker, make sure everything is nice and flat.



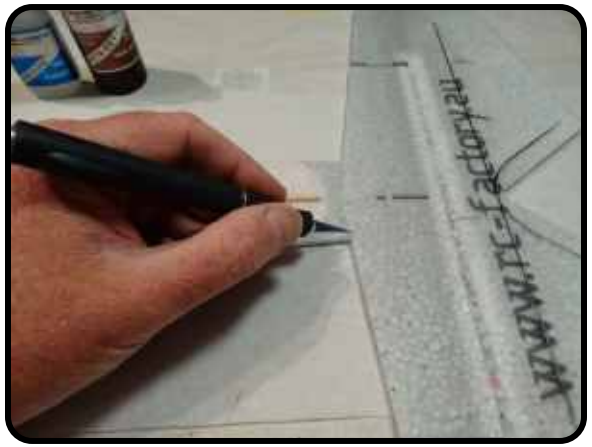
Using the tack up method, apply a skim coat of Welders to the mating surfaces between the elevator and horizontal fuselage section.



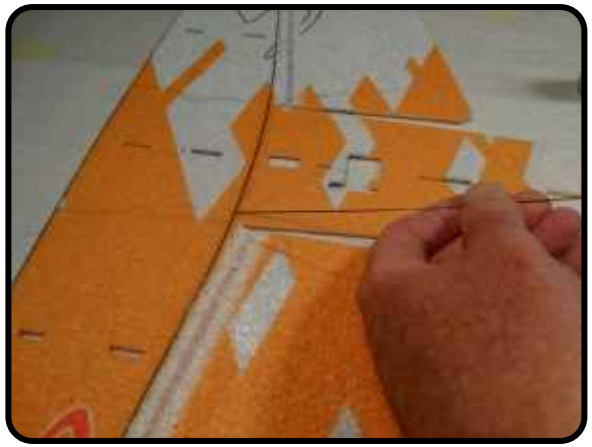
Once the glue has tacked up, bring the piece together. Use the rounded notch to aid in alignment.



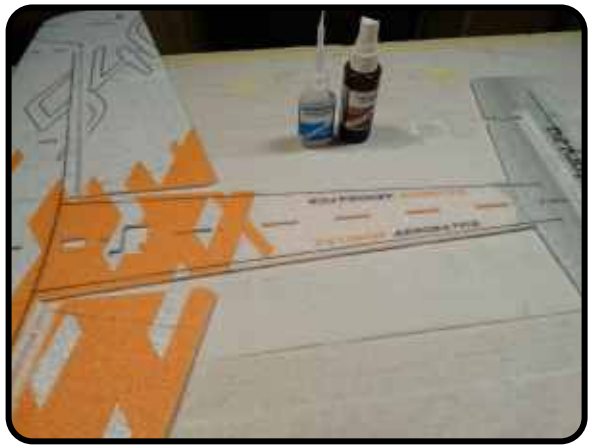
Locate the two 0.8x440 mm long carbon rounds.



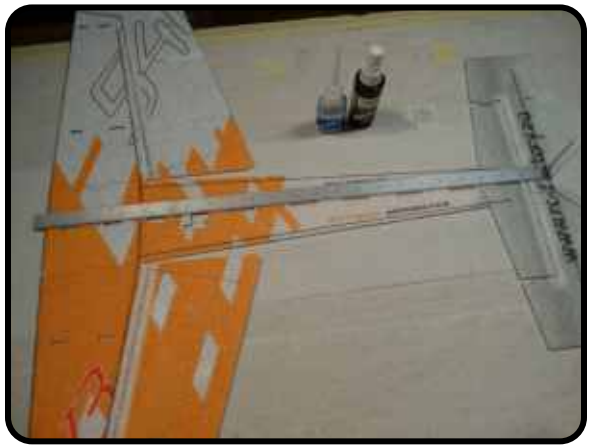
These will be installed into the slit the runs the length of the fuselage on the underside, make sure the slit is free of glue where the elevator attaches



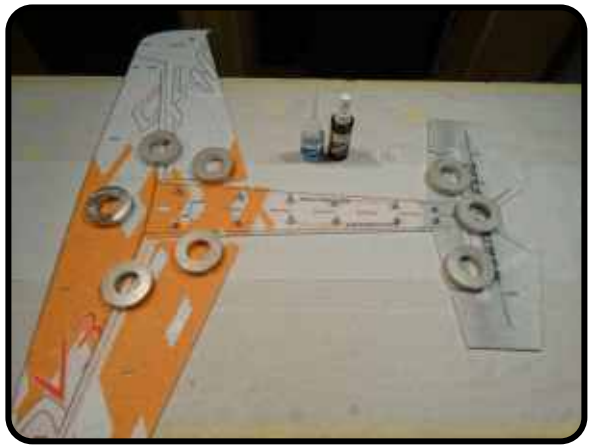
Install the end of the round rod up against the backside of the rear wing spar, and them lay down into the slot over the rest of the length.



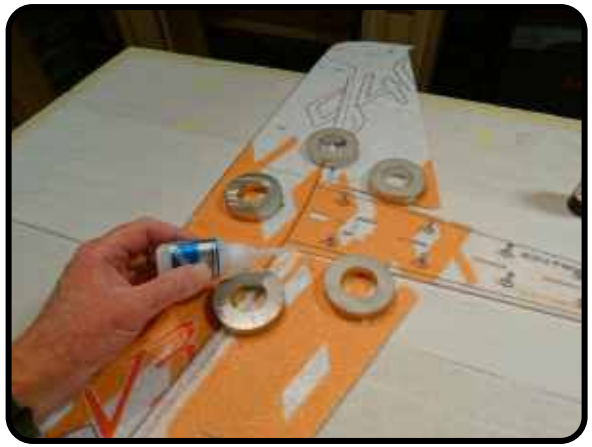
Repeat for the other edges as well. Note that the rod should be flush to the surface of the foam.



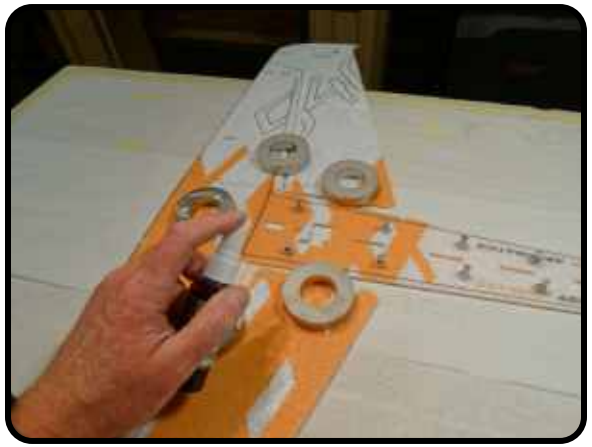
There is the possibility that the rods can cause distortion over the length of the fuselage when installed, use a straight edge and the slots in the foam to verify that everything is straight.



Before apply glue, it is also important that the assembly be flat. Use weights and/or stick pins to hold everything flat.



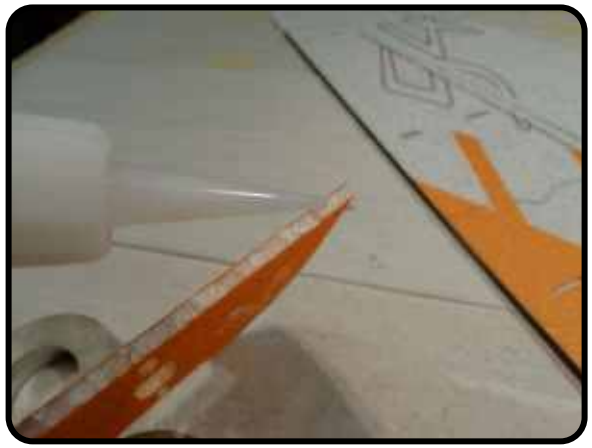
Apply thin CA to the length of each rod and allow it to wick in.



Hit with kicker and verity that there is a good solid bond, if there are loose areas simply add a little more CA and Kicker.



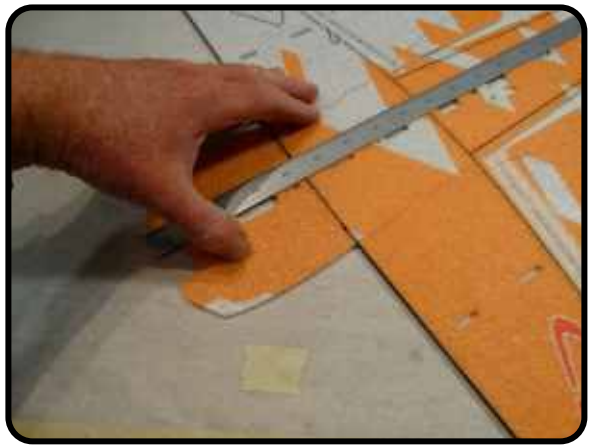
Horizontal fuselage nose section is next. Note that we are working from the bottom side. The bottom side of the nose is the side WITHOUT the “text” printing.



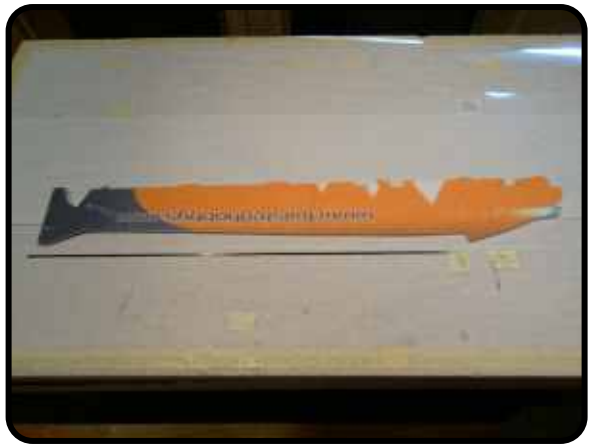
Apply a bead of Medium CA to the edge of the nose piece that contacts the leading edge of the wing as shown above.



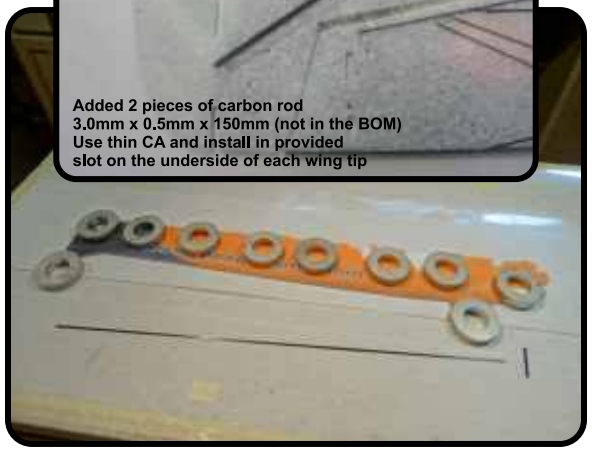
Spray Activator (Kicker) to the mating surface of the wing's leading edge.



Using a straight edge and the tab cutouts as a guide for alignment, bring the two pieces together. Make sure also that both pieces are flat on the workbench.



Fuselage re-enforcements are next, locate the 3.0x0.2x585.0 and 4.0x0.5x40.0 millimeter carbon pieces, there should be one piece of each.



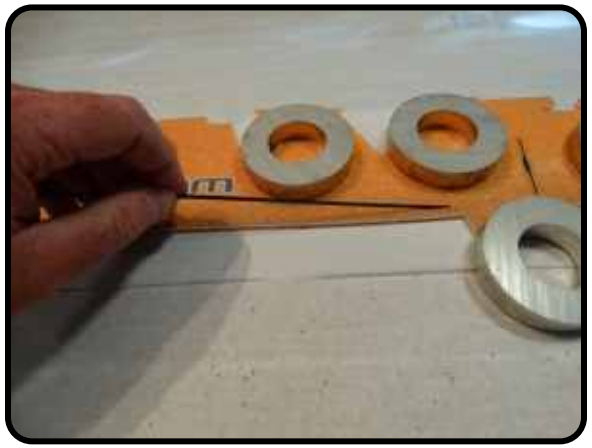
It is important that the fuselage piece be flat for this process, weigh down or secure with stick pins to the work surface.



Start with the smaller piece and install it into the slot as shown above.



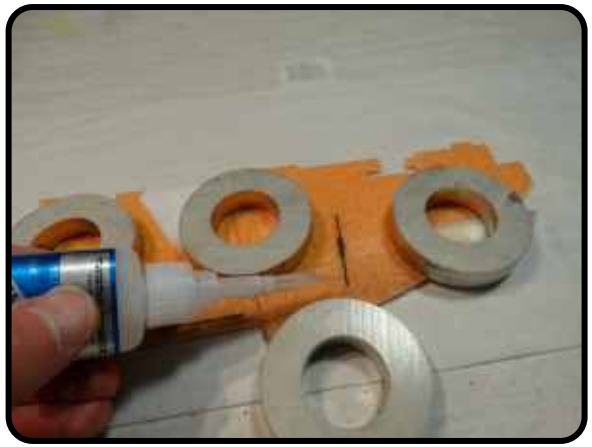
Close up of the smaller piece installed. Make sure that the carbon is flush with the foam, and that the foam is nice and flat. NO GLUE yet at this time



Lay the longer piece into it's designated slot. NOTE - is will stick out approx 1/2inch beyond the end of the tail of this piece



As with the shorter piece, make sure the longer piece is flush and that the fuselage piece is flat on the work surface.



Apply Thin CA to the ENDS ONLY of the shorter piece as shown above. Keep the wider center section free of glue, the landing gear struts will install thru here at a later step.



Apply Thin CA to the length of the longer carbon strip. Make sure that a little gets on both sides of carbon.



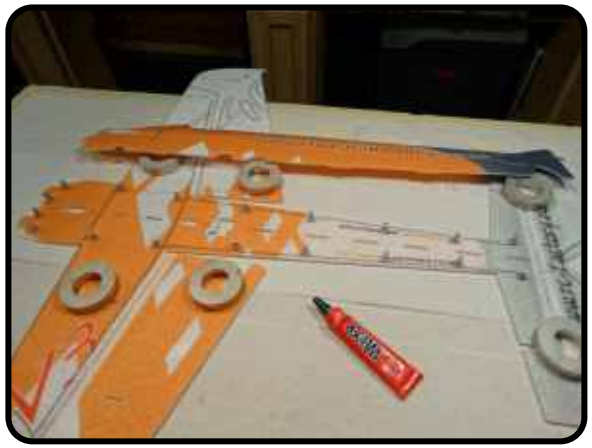
Hit both pieces with Kicker, keeping in mind that everything needs to stay flat and the carbon should be flush.



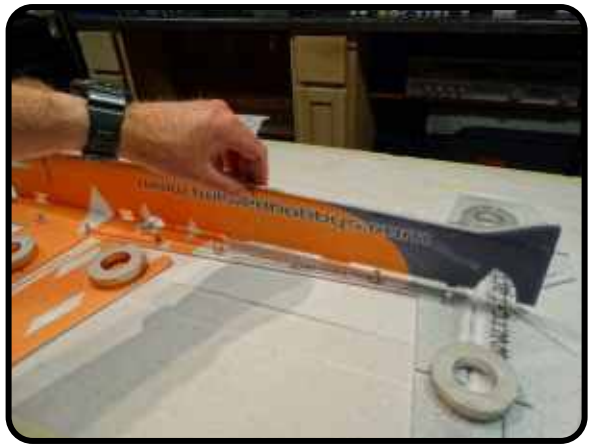
After you hit it with Kicker, make sure that there is a good bond. If it pulls away in some spots, add a drop or two more of CA and set with kicker.



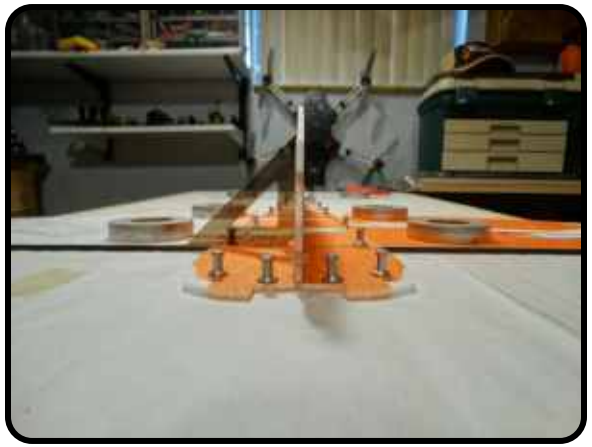
Next the lower vertical fuselage part will be assembled to the Wing and Elevator sub assembly.



The step will be done with Welders, and the pieces will be installed while the glue is WET. Weigh down or secure with stick pins as shown and apply a bead of Welders to all mating areas.



While the glue is wet, bring the two pieces together. Make sure the tabs and slots of the two pieces are fully engaged, flush and square.



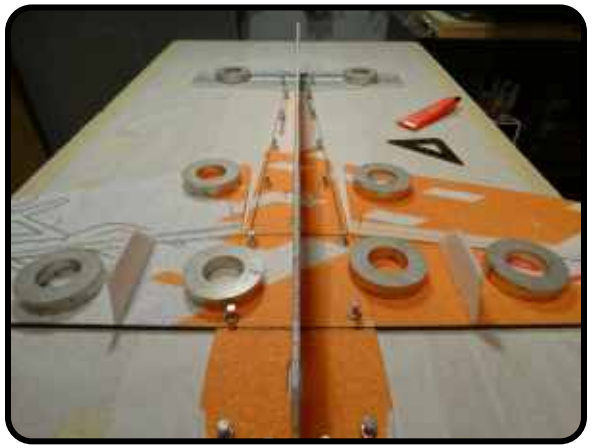
Sight down from the end of the assembly, use a small square to verify and adjust as need to make sure it is all true and square.



Truss braces on the under side of the Wing can be installed next. Note that they are NOT symmetrical, and the tabs are “keyed” to help with proper orientation. Install with Welders Glue.



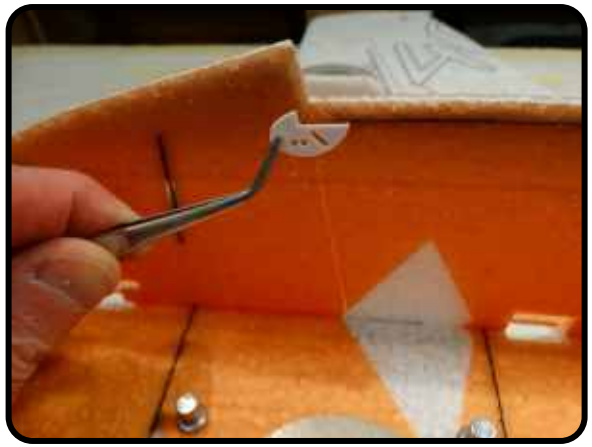
Install one on each side as shown, make sure they are fully engaged into their respective slots.



Check them from the front, make sure they are square.



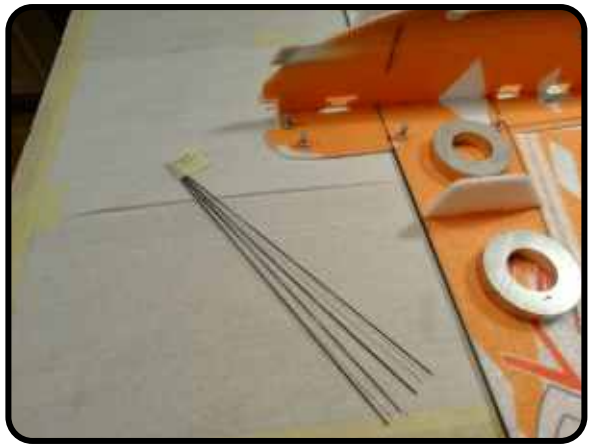
Locate the little plastic pieces pictured above. They will be installed with the Welders Tack Up Method.



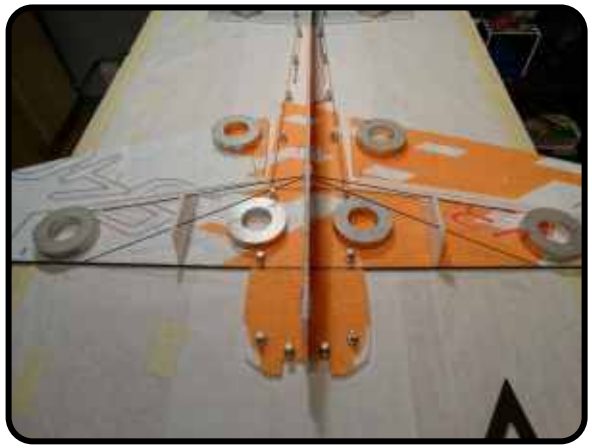
Coat the back side of the plastic piece with a skim coat of Welders, avoiding build up of glue in the holes as much as possible. Also coat the mating foam area with a skim coat of Welders.



Once the glue has tacked up, about 5 or 10 minutes, attach the plastic to the fuselage as shown. Use the Notch in both pieces for alignment.



Locate the 4 round carbon rods that are 1.2mm dia x 250mm long.



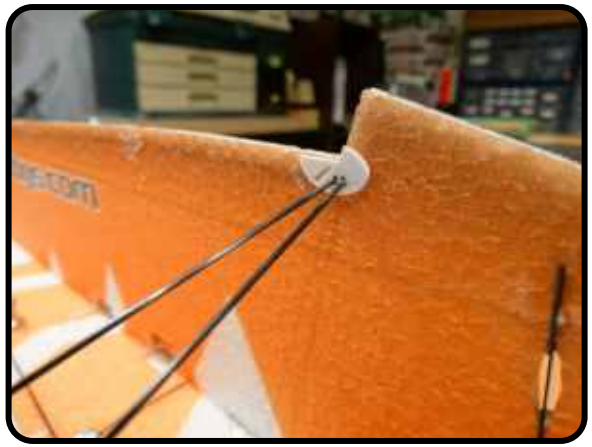
NOTE - Do not use any glue until the step that calls for it. The object will be for the rods to be installed as shown above. Start by making sure the wing is flat...



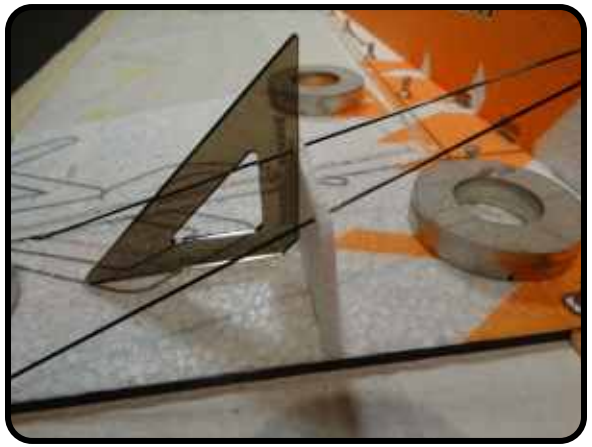
... insert one end of the rods into the small slits in the wing located approx where shown above, then....



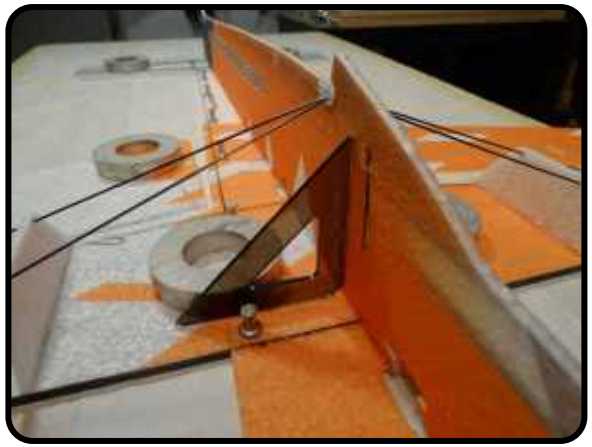
.... route them thru the slits in the truss brace. They will fit down into the slit about 1/8 inch.



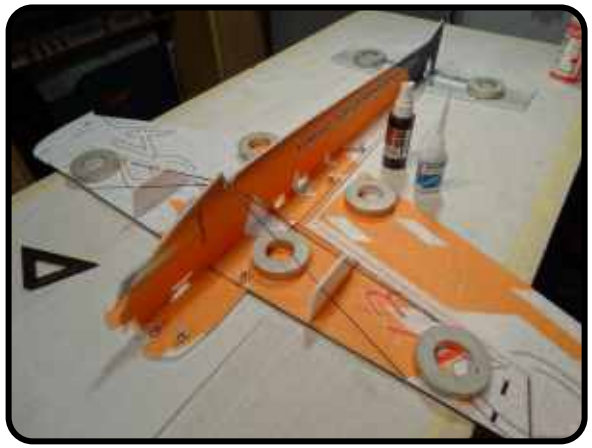
The last ends of the two pieces should engage the small plastic doubler, into the smaller two holes as pictured above. Note - still NO glue



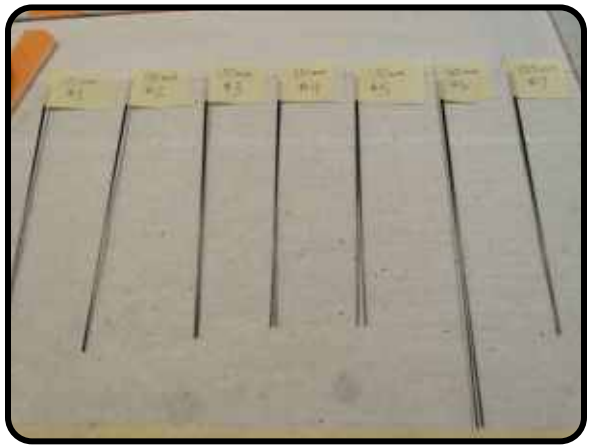
Adjust the free side of the truss where the rods pass thru so that it is square with the wing.



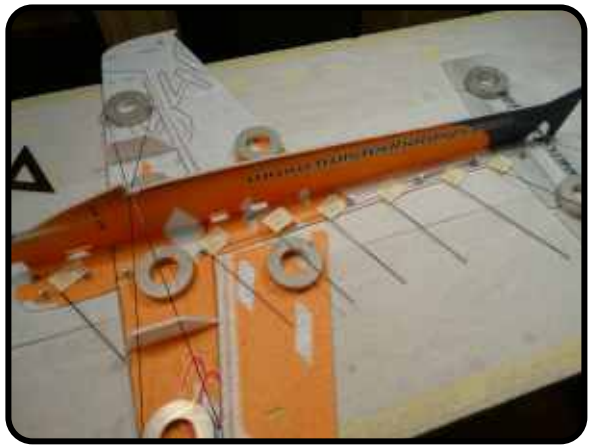
Also adjust the bottom of the fuselage to be square as well. Trimming of the rods should not be necessary... just adjust the depth of the end into the foam to get the square position.



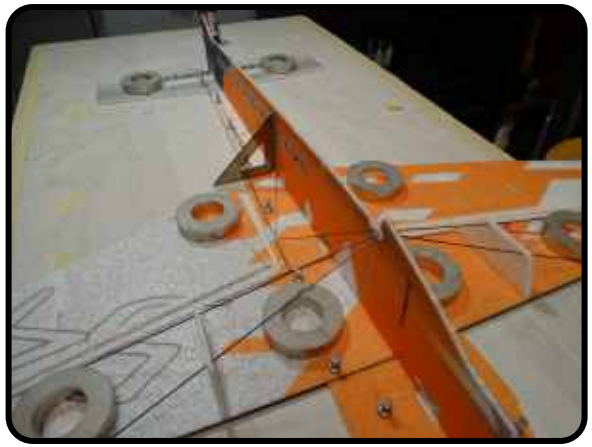
Position the carbon rods for the other wing... and then at each of the points where the carbon and foam meet, put a drop or two of thin CA and set with Kicker.



Locate the carbon rods that are labeled #2 thru #7... see the end of this manual for the lengths of each piece.



The rods are positioned in order, #2 to #7, with #2 starting directly behind the wing braces and progressing towards the elevator in sequential order.



Start with the #2 rods and work towards the tail DRY FITTING so that the lower fuselage part is square. Use the small slits in the foam to position the rod ends.



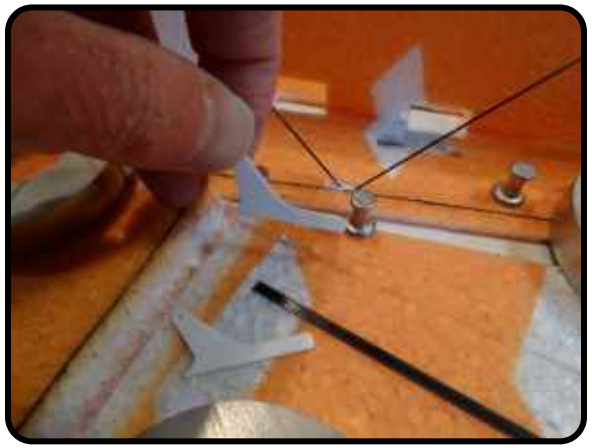
Also sight down from the nose and verify that the edge of the bottom fuselage part is not wavy.



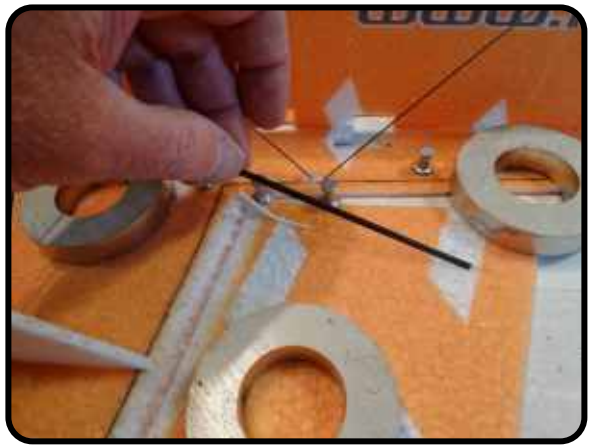
Once you are satisfied with the fitment, add a drop or two of thin CA to all the ends and set with Kicker.



Locate the two 3.0 x 0.5 x 100 mm rectangles and the aileron control horns.



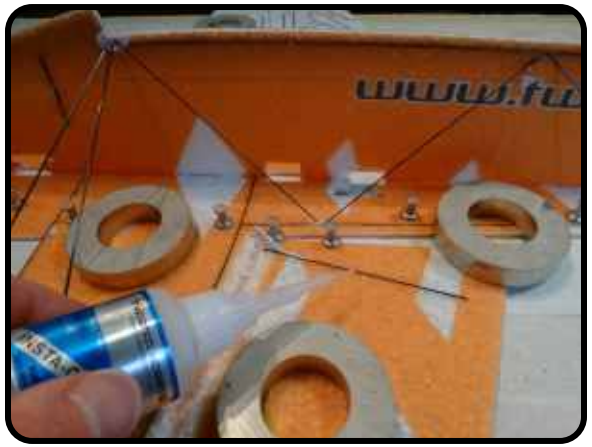
Install the horn into the slotted area that is a little wider. Make sure the hole of the horn is over the center of the hinge line.



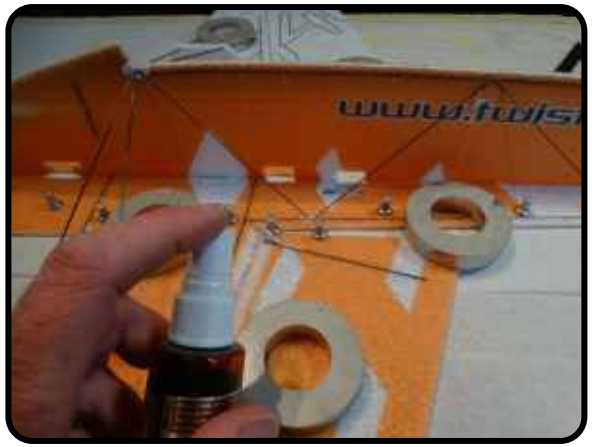
Install the carbon rectangle into the long part of the slot in the aileron, next to the horn.



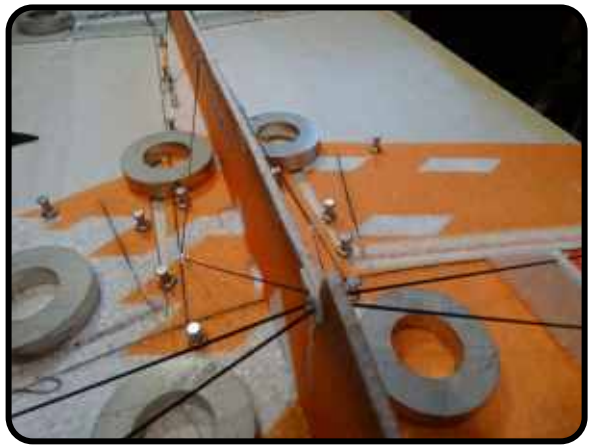
Double check that the hole in the horn is over the hinge line, and that the spar is flush with the foam.



Make sure everything is nice and flat.. Apply thin CA to the horn and carbon rectangle.



Hit with kicker.



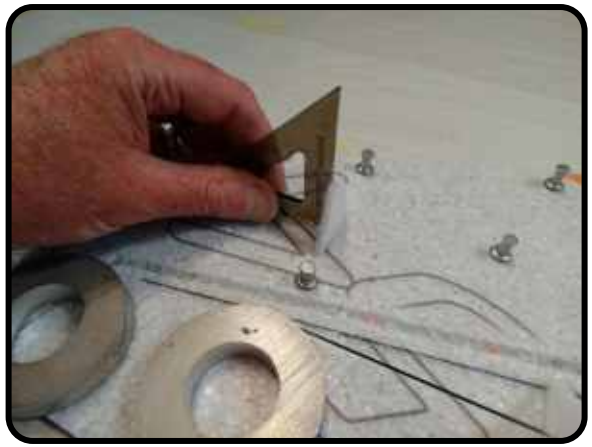
Repeat for the other aileron.



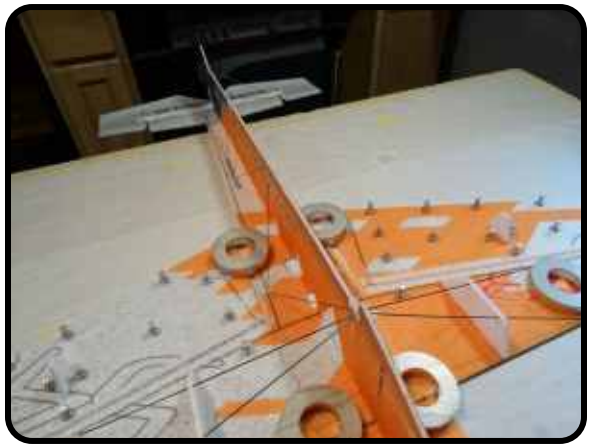
Next is the trussing for the aileron. Locate the 4 carbon rods that are 0.8 dia x 330 mm long, and the two foam center support pieces.



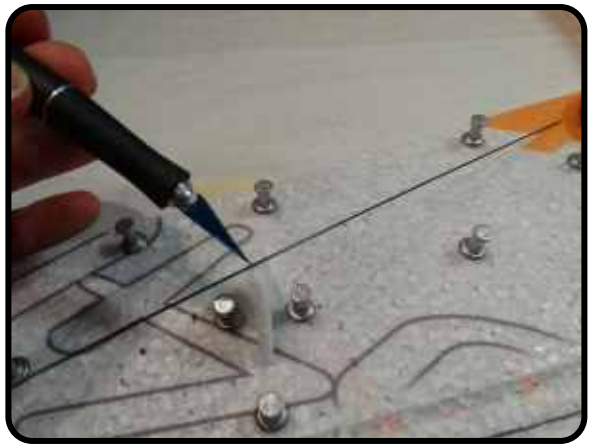
Using the Wet Welders Method, install the center support into it's respective slots located in the aileron control surface.



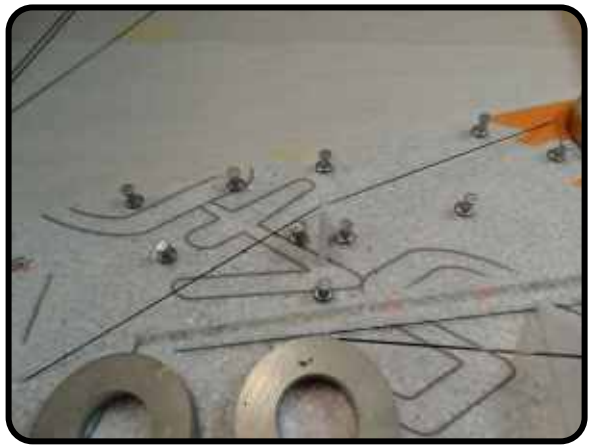
Once installed into the slots, make sure it is square.



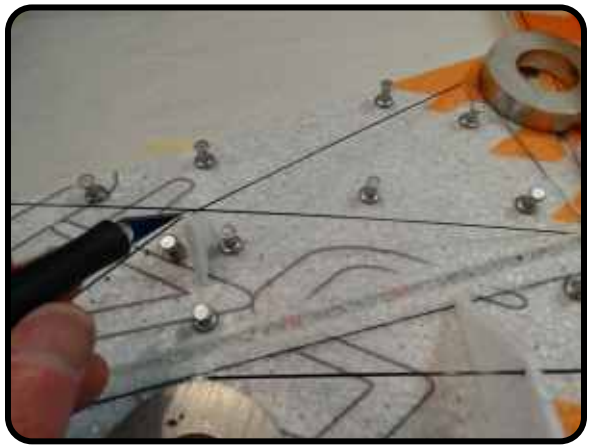
Repeat for the other side.



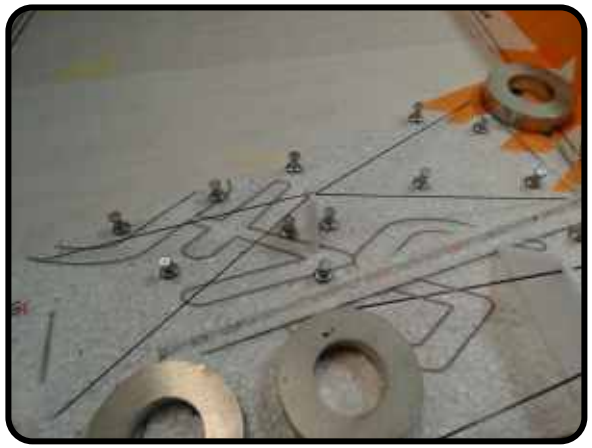
Locate one end of the rod into the inboard slit, near the trailing edge of the aileron. Next make note of where the rod crosses the center support, as indicated above, and cut the rod.



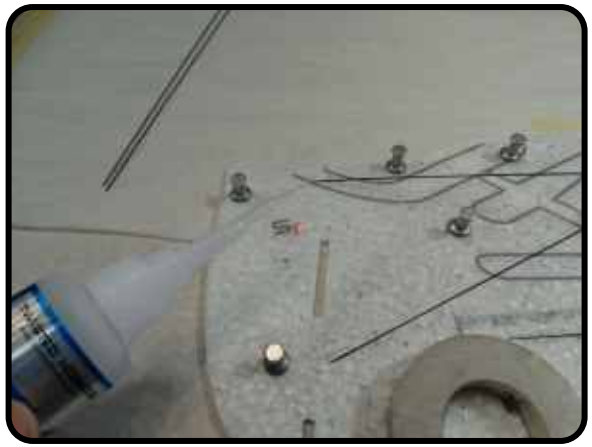
Once the rod is split, locate the opposite end of the rod in the forward slit near the wing tip



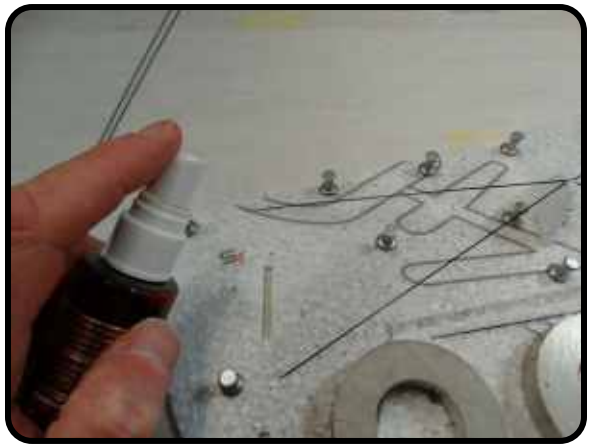
Repeat for the other rod.



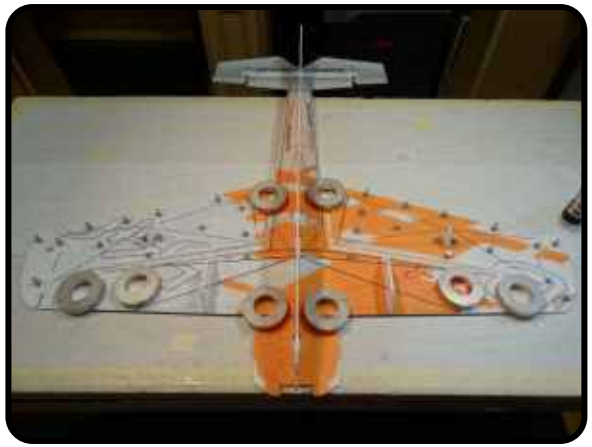
All truss rods shown in position. Make sure the aileron is flat on the work surface and that the center support is still square.



Once happy with the location and flatness of everything, glue the ends and center area with CA.



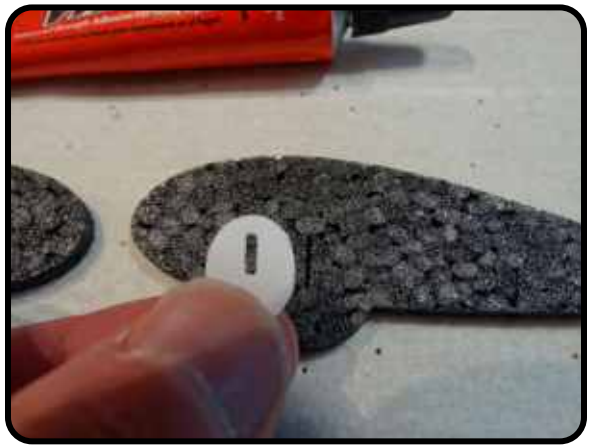
Apply Kicker to all the joint



Repeat for the other side.



Locate the wheel pants and small plastic stiffeners as shown above. Note that it is necessary to build a left and right hand assembly.



Apply a thin coat of Welders to the back side of the part as pictured above. Note that the slot is nearer to the top edge.



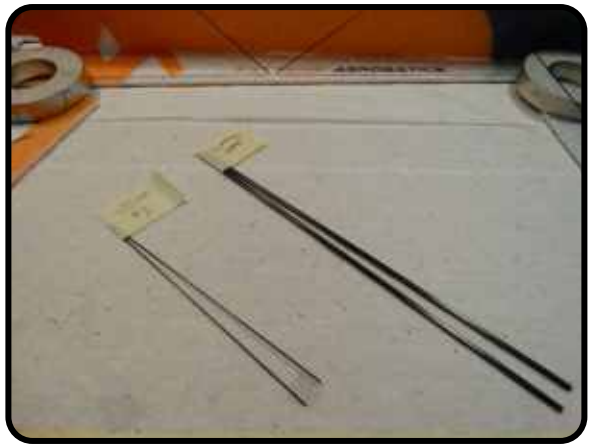
Apply to the wheel pant, align the top of the slot in the plastic part to the top of the slot in the wheel pant. Repeat for the other side, remember to make a left and right assembly.



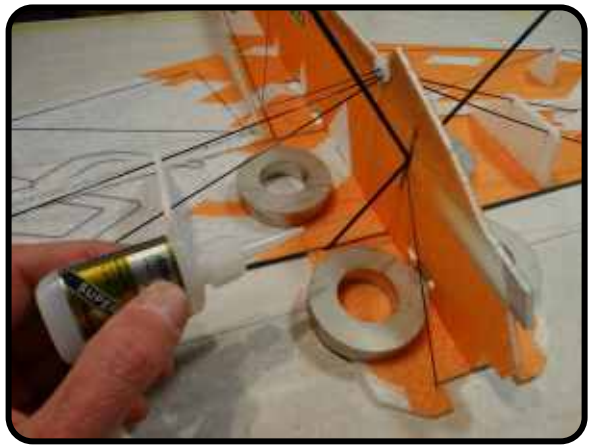
- Thrust Vectoring Only -
Locate the two ball links, mating screws and motor mount. Note the screws for the ball links are the ones with the straight slotted heads.



- Thrust Vectoring Only -
Attach the links to the holes as shown above and make sure that the flange side of the ball is toward the inside.



Locate the two carbon landing gear pieces, 1.5 x 2.5 x 200mm and the two pieces of truss #1- 125mm long, carbon rods.



Locate the four pieces as shown. Use medium CA where the struts cross thru the fuselage. Wrapped with thread for extra strength. No glue yet on the end of the truss closest to the motor mount.



Apply a wet coat of Welders to the three legs of the mount that it attaches to. Note if not doing a Thrust Vectoring build, the motor mount will not have the ball links attached



Attach the mount as shown.



Flip the airframe over and, also with Welders, secure the front ends of the #1 rods to their respective notches in the motor mount.



Locate the wheel pants that were assembled earlier.



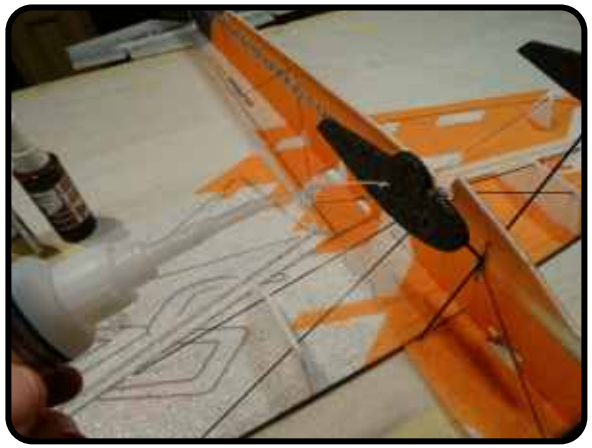
Press the wheel pant on to the end of the strut as shown.. not glue just yet.



Align the wheel pant so that it is parallel with the direction of flight.



Install the other wheel pant, make sure it is parallel to direction of flight as well. From the side, make sure that both wheel pants are aligned to each other.



Put a drop of thin CA at the end of the strut, right where it comes thru the wheel pant.



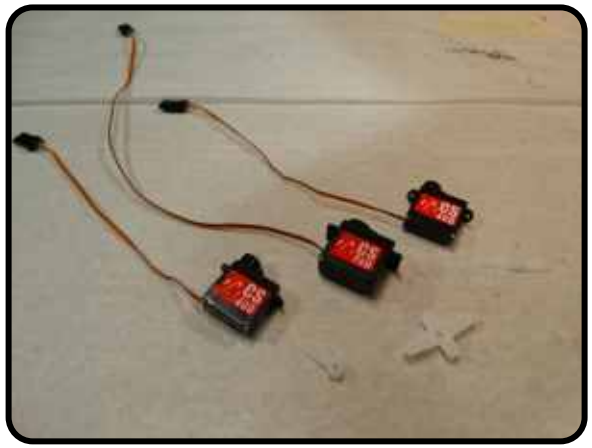
Set with Kicker.



With Medium CA, and from the inside of the wheel pant, fill the slot where the strut attaches with glue.



Set with Kicker. Repeat with the other side.



Now it time to mount the servos. Also, find the horns (or similar) horns from the respective hardware pack that look like the one above. If not already tested, do so now before installation.



Start with the Aileron Servo and install as shown. Note that the output shaft is towards the rear of the aircraft, this is different from most Twisted Hobbys/RCF planes.



Stick the servo into the slot until flanges contact the fuselage. Also, route the servo lead thru the hole as well, and off to the side that you plan to install the receiver on.



Install the rudder and elevator servos into their slots.



Once all the servo are in their positions, secure them into position with some small beads of low temp hot glue.



All servo installed and glued into place. Note the arm are not yet installed, this will be done in a later step.



Locate the top horizontal fuselage piece and the black canopy piece. These two piece can be joined together with the Tack Up Method. Apply a thin skim coat to both pieces.



Once the Welders' has tacked up, bring the two pieces together. Note that the slit for the carbon from both pieces should line up as shown.



Once the canopy is attached, the upper fuselage can be glued to the rest of the airframe. Use the Wet method, apply Welders' to all the mating surfaces, including the back of the motor mount.



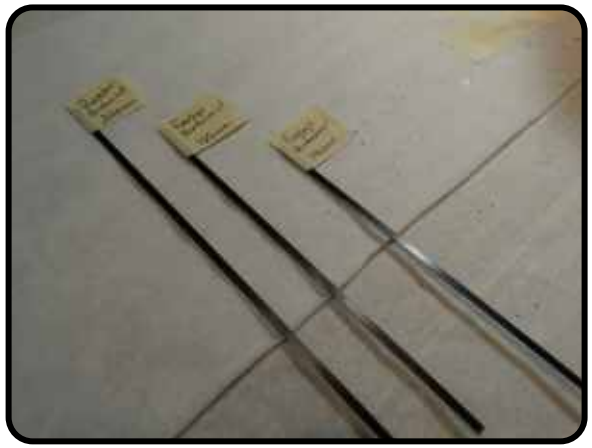
Engage all the tab and slots. Press firmly along the length of the fuselage to make sure all areas are fully seated.



Note that there is a small area behind the elevator that should mate up as well.



Check that the top piece is square and straight. Tweak if necessary to make it true.



Locate the three carbon rectangles shown above. They are all 3x0.5 with lengths of 140mm, 165mm and 220mm long.



The 140mm long piece installs near the front of the canopy and the 165mm piece towards the rear of the canopy. The 220mm piece in the rudder.



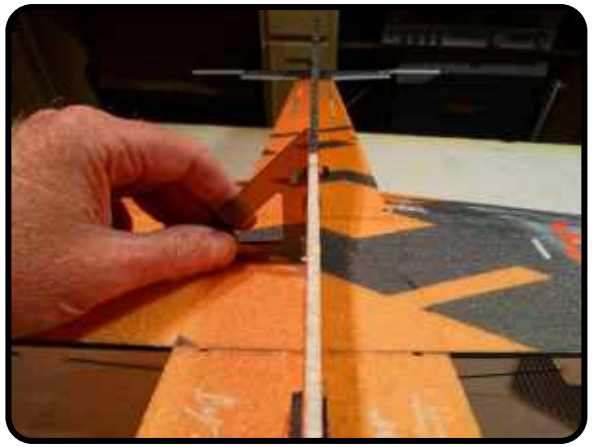
Starting with the 140mm long piece, slide it into the slot as shown. Note it may be necessary to clean a little glue out of the slot where the fuselage pieces meet up.



Make sure the rectangle fits all the way thru the fuselage and that it is flush to the surface of the foam.



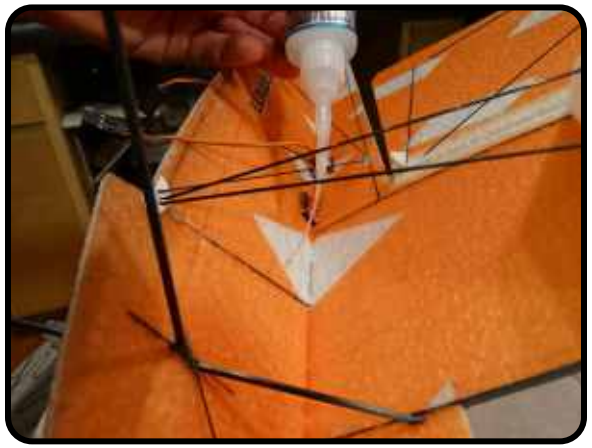
Double check the area under the wing as well. The rectangle should be flush with the foam both above and below the wing.



Before gluing the rectangle, make sure that fuselage is square in the area where the spare is being installed.



Apply some thin CA, and let it wick into and around the rectangle. Make sure to not upset the squareness of the upper fuselage piece.



Repeat the previous step for the area where the rectangle is under the wing. Hit with Kicker once the whole length has been CA'd



Install the 165mm long piece as was just done with the forward piece.



Make sure the rectangle is flush with the foam, check for squareness, apply CA and set with Kicker.



The last and third piece, 220mm long is for stiffening the rudder. Note that it will bow slightly once installed into it's slit, and there should be a short piece that extends beyond the end.



Make sure that the rectangle is flush with the foam as with the other rectangles. The rectangle should be sticking out about 1/2" from the tail as shown above.



Secure the rectangle with some thin CA and Kicker.



Locate the 3x0.2x100 and the 3x0.2x125 rectangles. They will locate into the rudder approx where shown. Shorter one nearer the top of the rudder.



Secure the rudder into a flat position, install the rectangles into their respective slots. Glue with thin CA and set with Kicker.



Glue the rudder on using the Tack Up Method. Apply a thin coat of Welders to the mating foam surface. NO GLUE on the spars or their slots at this time.



Once the Welders' has tacked up, join the rudder to the fuselage.



Now, with the tip of the Welders' nozzle, squeeze some glue into the area of the spars that were left previously glue free. Note - Thin CA and Kicker could also be used for this step.



Locate the two horns pictured above. These are the control horns for the tail control surfaces.



Squeeze some glue into the slit for the elevator.



Coat the base of one of the horns on both sides with a thin coat of Welders.



Install the horn into the slot, make sure it is flush with both sides, and that the hole is directly above the hinge line.



Same process for the rudder control horn. Note that it installs from the LEFT side of the aircraft.



Squeeze some Welders' into the slot.



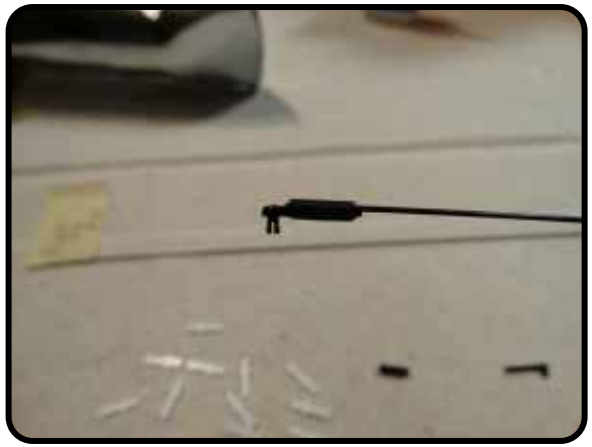
Apply a skim coat to both side of the base of the horn, like was done with the elevator control horn.



Slide the horn into its slot. Make sure it is flush to both the near and far side foam surfaces. The hole in the horn should be directly above the hinge line. Wipe away any extra glue.



Constructing the control rods is next. Locate the two 0.8mm dia rods. The elevator rod is 440mm long and the rudder rod 560mm long. Also find the guides, snap links and shrink tubing.



If your shrink tubing is not already cut, make some 1/4” long pieces from the stock length. Slide a piece onto the end of the elevator rod and position a snap link as shown.



Make sure the rod is in the saddle of the snap link and, shrink the tubing. Use caution, the snap links have a very low melting temperature.



Apply a drop of thin CA to the end of the tubing as shown above. Keep CA out of the “snap” area, CA should wick under the tubing. Hit with kicker. Repeat for the rudder rod.



Building the servo control arms is next. The adjustable links are used on this end. Locate the pieces as shown. Note that it is the little screws with the phillips head used here.



Install the adjustable link into the end hole as shown above and to the right. Locate a small slotted screw and ball link as shown above left. Flange side of the bass ball is the mounting surface.



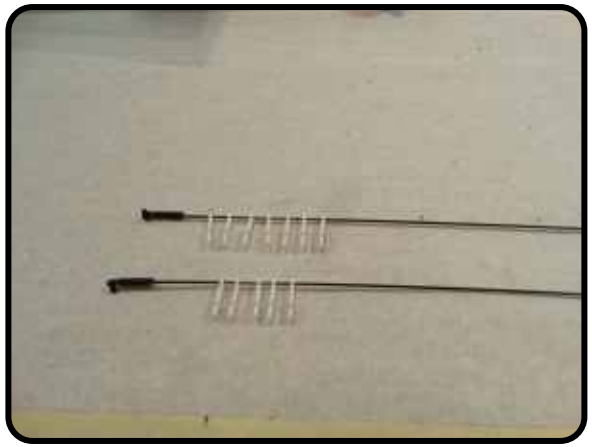
Drill the hole out if needed for the screw and attach the ball link. Use a little thread locker. Also, attach the adjustable link for the elevator servo horn as shown above the right.



With the nose of the aircraft to the left install the rudder servo horn as shown with the adjustable link on the nearside. Make sure the servo is electronically centered



Switch to the other side of the aircraft, nose to the right now, and install the elevator servo horn. Note that the adjustable link should be on the top side. Servo needs to be centered.



Slide seven of the rod guides onto the rudder rod and five guides onto the elevator rod.



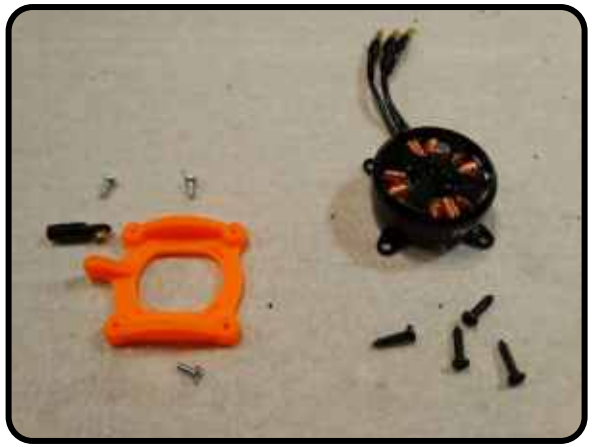
Slide the end of the elevator rod (the shorter one) thru the adjustable link, then snap the snap link into the elevator control horn. Locate all the guides into their precut holes.



Align all the guides so that the rod is straight. Apply a drop of thin CA at the base of each guide and set with Kicker.



Repeat the process for the rudder control rod.



- THRUST VECTORING STEP -
Locate all the items for the thrust vectoring mount, the motor and it's screws. If not installing the TV mount skip the next several steps



- THRUST VECTORING STEP -
With some needle nose, remove the brass balls from the ball links attached to the motor mount.



- THRUST VECTORING STEP -
Mount the motor, upper and lower balls and the ball link as shown.



- THRUST VECTORING STEP -
Remove the plastic part of the ball link. Should come off pretty easy, just twist it a little with your fingers.



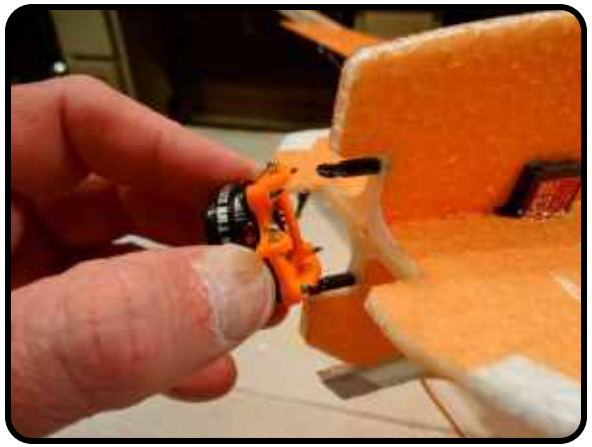
- THRUST VECTORING STEP -
Detail view from the back side of the mount. Note - screws used are the slotted ones and balls install with their flanges to the mounting surface.



- THRUST VECTORING STEP -
Detail view from the front side. Study this and the previous picture to make sure you have everything install correctly.



- THRUST VECTORING STEP -
Pry the plastic part of the ball link on the rudder servo arm off like what was done with the one on the motor mount.



- THRUST VECTORING STEP -
Now take the motor/mount assembly and snap the upper and lower balls back into place.



- THRUST VECTORING STEP -
All that should be needed is a little pressure with your finger tips to pop them back into their sockets.



- THRUST VECTORING STEP -
Locate the 1.5mm dia x 210mm long rod, the threaded end and the two plastic links that were just snapped off of their brass balls.



- THRUST VECTORING STEP -
Thread the plastic link onto the threaded end, leave approx. 3/16" of the threads showing.



- THRUST VECTORING STEP -
Install the end of the rod into the barrel end of the threaded fitting. With the rod fully engaged, apply a drop of thin CA and kicker to secure the two parts.



- THRUST VECTORING STEP -
Remove the slotted area of the fuselage pictured above. It is partially cut already, just remove the connecting tabs.



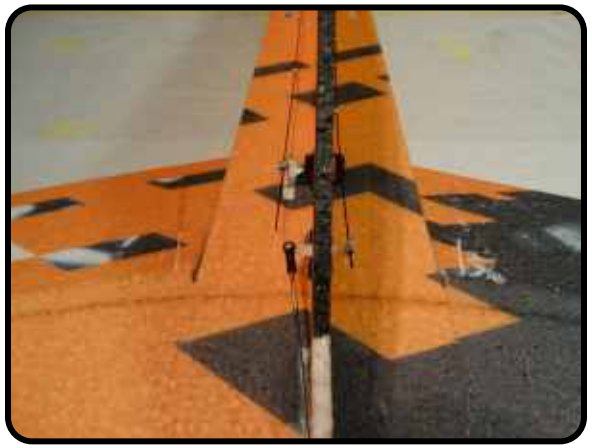
- THRUST VECTORING STEP -
Slide the rod thru the slot from the side shown, the end that was just glued on will attach back onto the ball on the servo horn.



- THRUST VECTORING STEP -
Stick it all the way thru, and snap the link back onto it's ball. The embossed writing on the link should be facing away from the horn as it is snapped on.



- THRUST VECTORING STEP -
With the servo and mount centered, slide the mount side link on & measure from ball center to link center how much the rod need to be shortened.



- THRUST VECTORING STEP -
In this case per the previous step, the rod needs to be .145" shorter. Cut off that much and double check. Use thin CA and Kicker to attach the ball link.



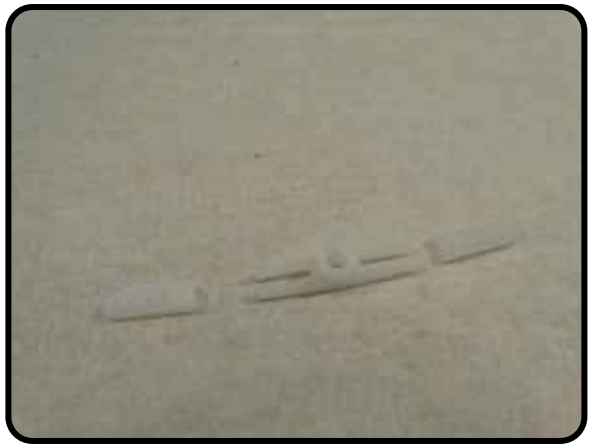
- THRUST VECTORING STEP -
Snap the motor mount side on and check that with the servo centered, that the motor is perpendicular. Adjust threaded end some if needed.



Center the elevator servo and the rudder. Lighly tighten the screw for the quik link and snip off any extra rod. Leave about 1/4" extra.



Locate all the items above to build the aileron differential horn and control rods. The rods are the two pieces that are 1.5mm dia x 170mm long.



Start the process by shortening the stock servo horn as shown above, this is just so that it does not stick out past the sides of the differential horn that is going to be glued to it.



Mount the differencial arm, from the UNDERSIDE of the stock servo arm. Use Welders' for the bond. Wrap with thread for more strength if desired, Welders' alone is usually enough.



Let the horn set over night, then attach the quik links as shown, and attach the snap links as shown with the same process as was used with the tail control rods.



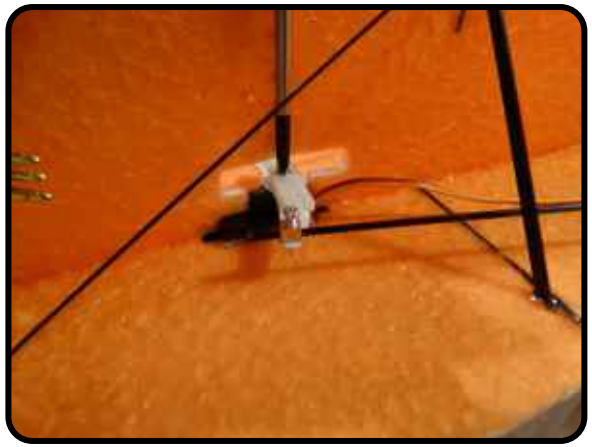
Install the snap link into the aileron control horn hole as pictured.



Now deflect the aileron a little so that the other end of the control rod can be fed thru the hole in the quik link.



Center the servo and aileron control surface, then lightly tighten the set screw of the quik link. Repeat the process for the other side.



Now is also a great time to install the servo arm retaining screw if not already done.



Repeat the process for the other wing, both top and bottom.



Mount your receiver and esc on the underside of the fuselage, leave a little slack in the esc wires to allow for the pivoting of the Thrust Vectoring motor mount.



Finish up the program in your radio, ie, set the sub-trims so all surfaces are neutral. Set the Servo End Points, Dual Rates and Expo to suit. See the Control Throws Section for guidelines.

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.



Locate all the black SFG pieces pictured above.



Start with the one that is unique, and split it as shown.



Test fit it into the slots on the rudder. Sometimes a little trimming is needed. Once happy with the fit use either CA or Welders to attach the piece.



Next locate the two pieces pictured above, these are for the elevator. Split both pieces as shown.



Test fit and check that the tabs and slots align. In some cases a little trimming will be needed.



Slide the SFG on as shown and engage it into its respective slots.



Elevator SFG installed, if the fit up is good, secure with either CA or Welders



Repeat the process for the other side of the elevator. Make sure they are both straight and square.



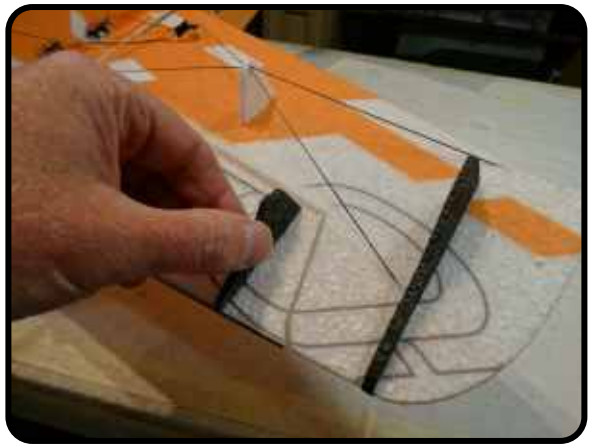
Main wing SFGs are next split the two largest ones and cut the small ones completely in half as pictured above.



Fit them into their slots in the wing, note that the larger one is outboard. Make sure they are square.



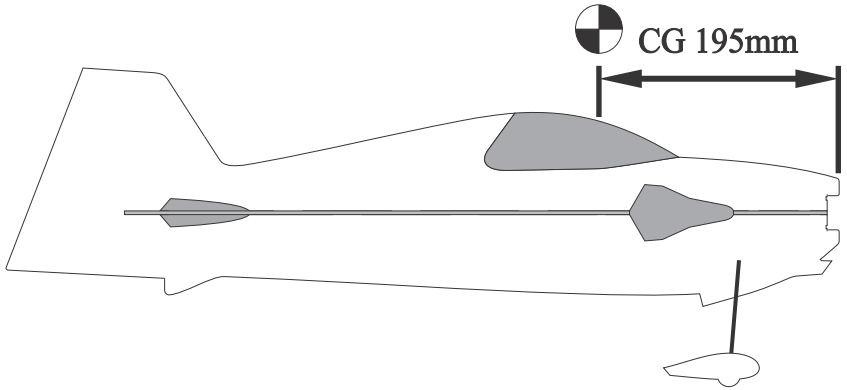
Secure them both with CA or Welders.



Flip the airframe over the do the bottom side. Glue with CA or Welders.

CENTER OF GRAVITY

C.G. - 195mm 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: +/- 50 deg
Rudder: +/- 45 deg
Elevator: +/- 60 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 -

Weight - g oz

CG Point - mm from wing leading edge

Model

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 - Edge 540 v3 SuperLITE

Qty	Description	material type	Size	Package	notes
1	Fuselage - Lower Vertical	EPP	n/a	Box	
1	Fuselage - Upper Vertical	EPP	n/a	Box	
1	Fuselage - Horizontal Front	EPP	n/a	Box	
1	Fuselage - Horizontal Rear	EPP	n/a	Box	
1	Fuselage - Canopy	EPP	n/a	Box	
1	Wing - Left	EPP	n/a	Box	
1	Wing - Right	EPP	n/a	Box	
1	Elevator	EPP	n/a	Box	
1	Rudder	EPP	n/a	Box	
2	Wing Strut Brace	EPP	n/a	Box	
2	Aileron Strut Brace	EPP	n/a	Box	
2	Wheel / Wheel Pant	EPP	n/a	Box	
2	SFG - Outboard Wing	EPP	n/a	SFG Kit	
2	SFG - InBoard Wing	EPP	n/a	SFG Kit	
2	SFG - Elevator	EPP	n/a	SFG Kit	
1	SFG - Rudder	EPP	n/a	SFG Kit	
1	Rudder Push Rod	0.8mm Dia Rod	560mm / 22.0 inches Long	Carbon Bundle	
1	Elevator Push Rod	0.8mm Dia Rod	440mm / 17.3 inches Long	Carbon Bundle	
4	Aileron Strut	0.8mm Dia Rod	330mm / 13.0 inches Long	Carbon Bundle	
2	Fuselage Reinforcement	0.8mm Dia Rod	440mm / 17.3 inches Long	Carbon Bundle	
5	Fuselage Reinforcement - Trussing	0.8mm Dia Rod	500mm / 19.7 inches Long	Carbon Bundle	
1	Wing Spar - Leading Edge	0.5mm x 4.0mm Rec	670mm / 26.4 inches Long	Carbon Bundle	
1	Wing Reinforcement - Rear Spar	0.5mm x 3.0mm Rec	600mm / 23.6 inches Long	Carbon Bundle	
1	Elevator Reinforcement	0.5mm x 3.0mm Rec	330mm / 13.0 inches Long	Carbon Bundle	
2	Landing Gear	1.5mm x 2.5mm Rec	200mm / 7.9 inches Long	Carbon Bundle	
1	Fuselage Reinforcement	0.2mm x 3.0mm Rec	585mm / 23.0 inches Long	Carbon Bundle	
1	Rudder Reinforcement	0.2mm x 3.0mm Rec	220mm / 8.7 inches Long	Carbon Bundle	
1	Thrust Vector Push Rod	1.5mm Dia Rod	210mm / 8.3 inches Long	Carbon Bundle	
4	Wing Strut	1.2mm Dia Rod	250mm / 9.8 inches Long	Carbon Bundle	
1	Rudder Reinforcement	0.2mm x 3.0mm Rec	100mm / 3.9 inches Long	Accessory Pack	
1	Rudder Reinforcement	0.2mm x 3.0mm Rec	125mm / 4.9 inches Long	Accessory Pack	
2	Aileron Horn Reinforcement	0.5mm x 3.0mm Rec	100mm / 3.9 inches Long	Accessory Pack	
1	Fuselage Reinforcement	0.5mm x 3.0mm Rec	140mm / 5.5 inches Long	Accessory Pack	
1	Fuselage Reinforcement	0.5mm x 3.0mm Rec	165mm / 6.5 inches Long	Accessory Pack	
1	Elevator Reinforcement	0.2mm x 3.0mm Rec	165mm / 6.5 inches Long	Accessory Pack	
2	Aileron Push Rod	1.0mm Dia Rod	170mm / 6.6 inches Long	Accessory Pack	
1	Landing Gear Reinforcement	0.5mm x 4.0mm Rec	40mm / 1.6 inches Long	Accessory Pack	
1	Heat Shrink Tubing	3.0mm Dia	65mm / 2.6 inches Long	Accessory Pack	
4	Adjustable Link Body	Steel	n/a	Accessory Pack	
4	Adjustable Link Screw (philips head)	Steel	n/a	Accessory Pack	
4	Adjustable Link Quicklock Washer	Steel	n/a	Accessory Pack	
1	Motor Mount	G10	n/a	Accessory Pack	
1	Thrust Vectoring Motor Mount	Plastic	n/a	Accessory Pack	
4	Ball Link with Brass Threaded Balls	Nylon / Brass	n/a	Accessory Pack	
4	Ball Link Screws (slotted head)	Steel	n/a	Accessory Pack	
2	Long Screw for Thrust Mount	Steel	M2 x 8mm	Accessory Pack	
1	Brass Threaded Rod End (for TV)	Brass	1.0mm Diameter	Accessory Pack	
12	Push Rod Guides	Plastic	n/a	Accessory Pack	
6	Snap Link Ends	Plastic	n/a	Accessory Pack	
1	Aileron Differencial Horn	Plastic	Plastic Horn Kit	Accessory Pack	
1	Elevator Control Horn	Plastic	Plastic Horn Kit	Accessory Pack	
1	Rudder Control Horn	Plastic	Plastic Horn Kit	Accessory Pack	
2	Aileron Control Horn	Plastic	Plastic Horn Kit	Accessory Pack	
2	Fuselage Double for Wing Struts	Plastic	Plastic Horn Kit	Accessory Pack	
2	Landing Gear Doublers	Plastic	Plastic Horn Kit	Accessory Pack	

Fuselage Trussing Detail:

#1 - 125mm / 4.92in
#2 - 140mm / 5.51in
#3 - 135mm / 5.31in
#4 - 130mm / 5.12in
#5 - 130mm / 5.12in
#6 - 165mm / 6.50in
#7 - 135mm / 5.31in