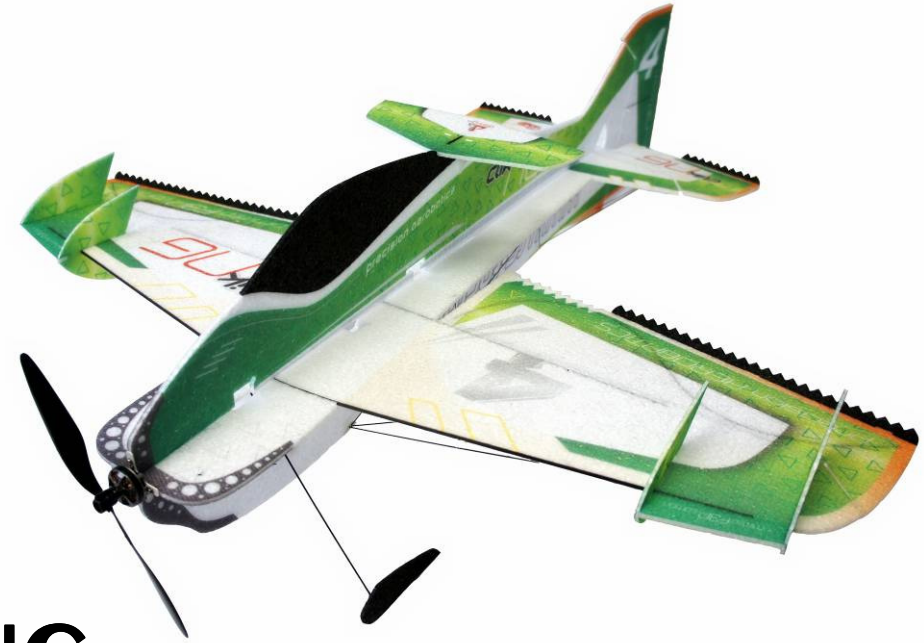


clik NG

MOTOR: 14 to 19g / 40 to 60w outrunner
ESC: 6 to 12 amp
SERVOS: 2x 4-6g / 1x 8-11g
PROP: 2s/9x4.7 or 3s/8x4.3 prop
BATTERY: 2s 250-360mAh LiPo

USA Distributor

Twisted Hobbys

www.twistedhobbys.com

RADIO: min. 4 channel
WINGSPAN: 33 inches
LENGTH: 37 inches
AUW: 120 to 130 grams
BARE AIRFRAME: 65 grams

TABLE OF CONTENTS

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!

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.

KIT CONTENTS

PARTS LIST

IMPORTANT NOTE - READ BEFORE STARTING YOUR BUILD

When your kit arrives check that everything has arrived safely. Verify all the included parts and hardware items. If you have also purchased a power combo kit or other electronics, now is also the time to verify that all the components are functioning properly. Any bowed foam pieces can be straighten by laying them out overnight on a flat surface.

Kit Contents

- ✓ Vert Fuselage
- ✓ Horz Fuselage
- ✓ Wings
- ✓ Wing Tip Tabs
- ✓ 4x SFG's
- ✓ 4x Air Brakes
- ✓ Elevator
- ✓ Rudder
- ✓ 2x Wheel Pants
- ✓ T-Canalyser
- ✓ Plastic Horn Kit

Carbon Rounds and Strips

2x ● 0.8mm x 500mm (tail pushrods)
1x ■ 3mm x 0.5mm x 680mm (wing spar)
1x ■ 3mm x 0.5mm x 500mm (wing stiffener)
4x ● 1mm x 250 (wing strut)
2x ■ 3mm x 0.2mm x 440mm (aile stiffener)
2x ■ 3mm x 0.2mm x 330mm (elev stiffener)
2x ● 1.5mm x 220mm (landing gear)
7x ● 0.8mm x 500mm (fuselage trussing)
2x ● 1.0mm x 200mm (aileron pushrods)

Accessory Pack

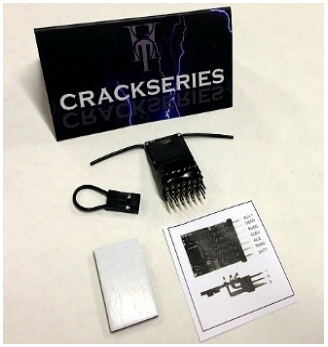
1x ■ 3mm x 0.2mm x 75mm (rudder stiffener)
2x ■ 3mm x 0.2mm x 150mm (fuse stiffener)
2x ● 1.5mm x 15mm (wheel axles)

6x Snap Links
4x Adjustable Link
1x Rod Guide Set
1x Shrink tubing
1x LG Parts

KEY ● = ROUND ■ = RECTANGLE

OPTIONAL PARTS

14g 1620 kV Crack Series Motor
6A TH-CS ESC
(2) CS-40D Digital Nano Servos
CS-70D Digital Micro Servo
8x4.0 GWS DD Prop



Specifications

6 Channel / DSM2 / 2.4GHZ
25mm X 19mm X 11mm
Weight: 3.0g / Input: 3.5–9.6V
Bind plug included

Blenderm tape is one of the best know tapes used for hinging and repairing your Depron or Epp models. Each roll consists of 1/2" wide x 4m in length

CA and Kicker

Various thickness CA glues
and
Activator available from
Twisted Hobbys'

Perfect choice for building and repairing your Twisted Hobbys EPP planes! This is the only adhesive you will ever need. Welder virtually bonds anything to anything! Clear, heavy-duty, flexible and water-proof when dry. Use indoors or out. (1) 1 oz tube

Note: many of these "optional parts" shown or similar items, may be available from the Twisted Hobbys' web store.

TOOLS & 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 & Medium CA**
- **CA Applicator Tips**
- **Activator**

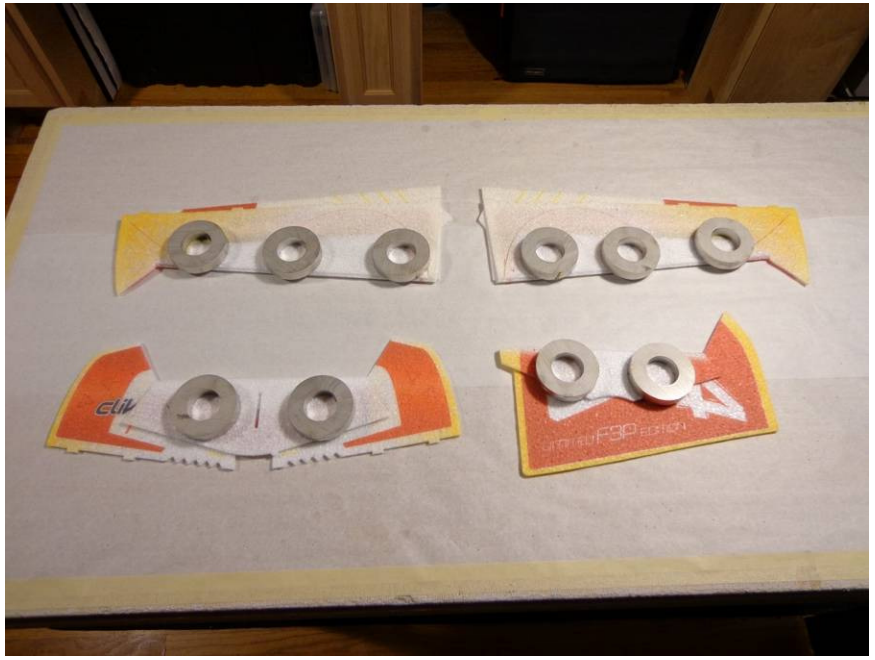
THE BUILD

CONSTRUCTION METHODS:

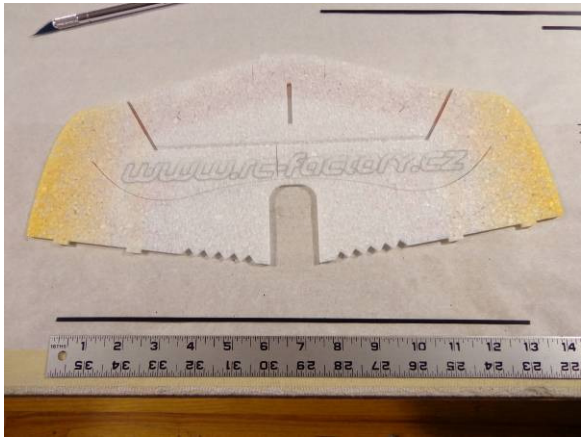
Building surface should be at least 2ft x 4ft and flat. Weights or some small heavy objects will be handy for holding things in place during the time glue is setting.

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.

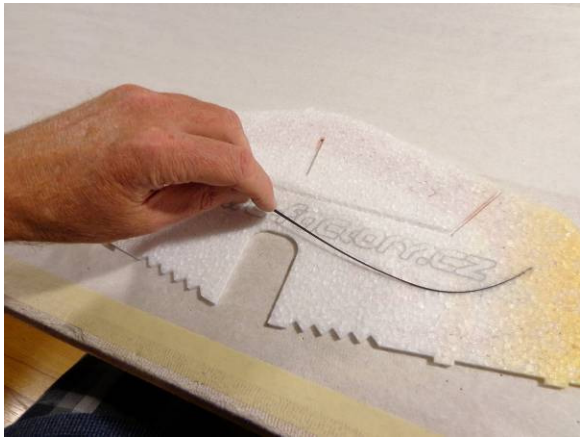
Start the process of building by locating the pictured parts so that their hinged surfaces can be loosened up



Fould all the Control Surface back onto themselves as shown. Note that on the Aileron there is a slit very near where the hinge is... MAKE SURE THAT YOU FOLD ON THE HINGE LINE AND NOT THE SLIT

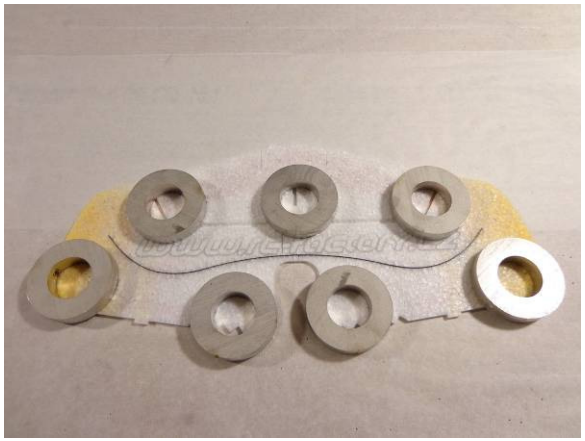


Locate the thin rectange that is 3mm x 0.2mm x 330mm (approx 13 inches)



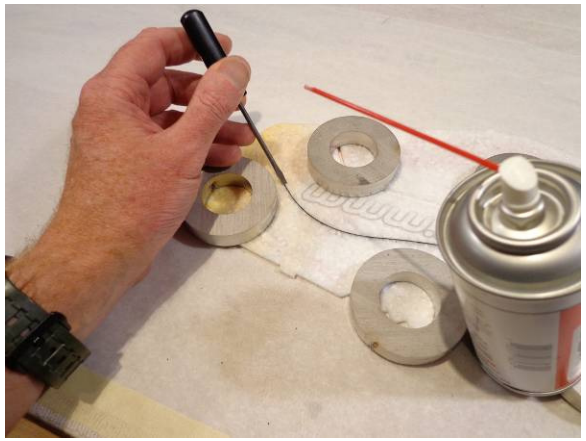
Test fit the strip into the precut curved slot, it should fill the slot from end to end

Make sure that the strip is flush to the surface of the elevator over the entire length



Before applying the CA, make sure everything is contrained in a flat position

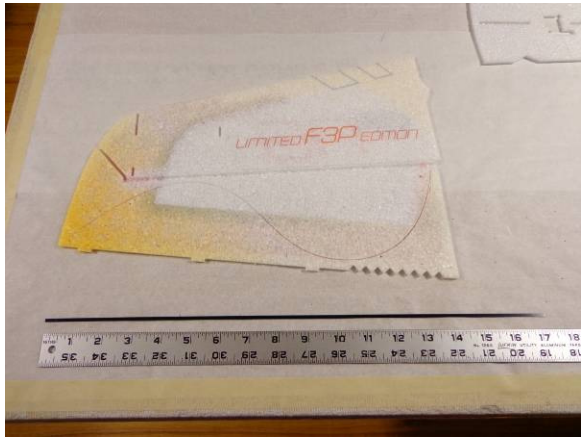
Apply thin CA and let it wick in around the strip



As you hit the area with Kicker, hold the strip down, sometimes it will rise out of the slot as the Kicker is curing the CA

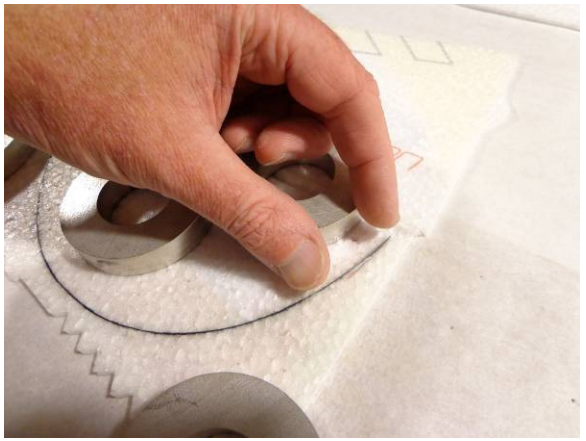
Use Welders and the tack up method (thin coat on each mating surface and let dry for approx 5 minutes) to attach the elevator

Once the Welders has tacked up, bring the two parts together making sure to keep the surfaces flush

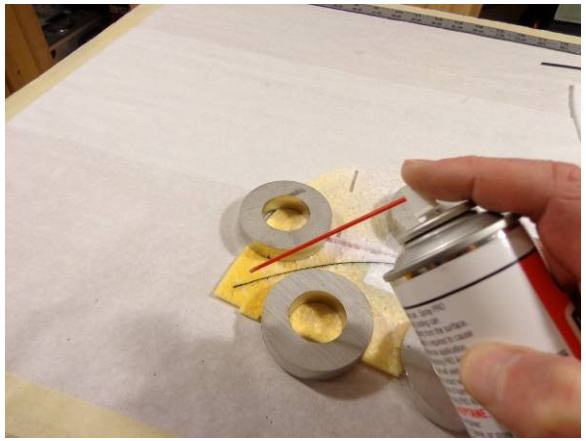


Locate the 3mm x 0.5mm x 500mm strip (approx 17in long)

Constrain everything flat and lay the strip into the pre-cut slot and **except as noted in the next picture**, apply CA like was done with the elevator



Do not put any CA at the end where the control horn will go



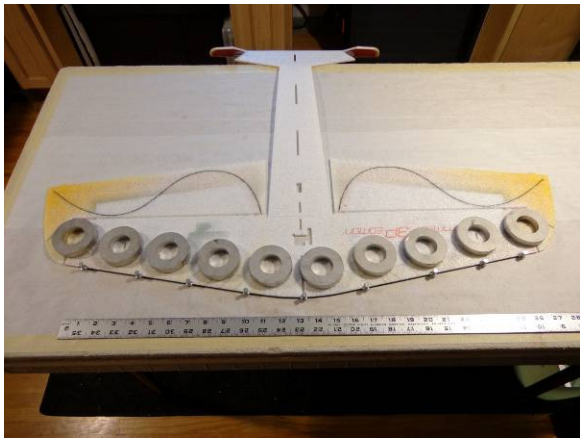
Apply Kicker and make sure the strip does not rise out of its slot as the Kicker is applied

Repeat the process with the other wing

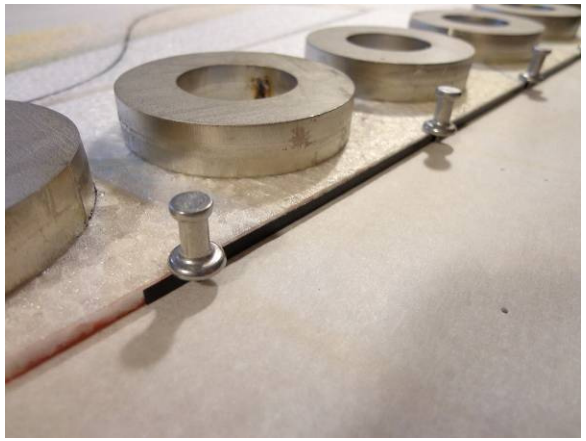
Prepare the wings to be attached with the tack up method

Once the glue has tacked up, bring the pieces together

Wings attached and ready to attach the 3mm x 0.5mm x 680mm strip to the leading edge

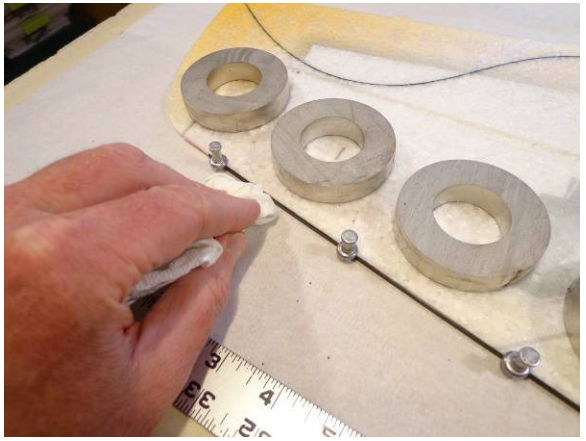


Dry fit and hold everything in place. Weights and stick pins can be used to keep everything in position

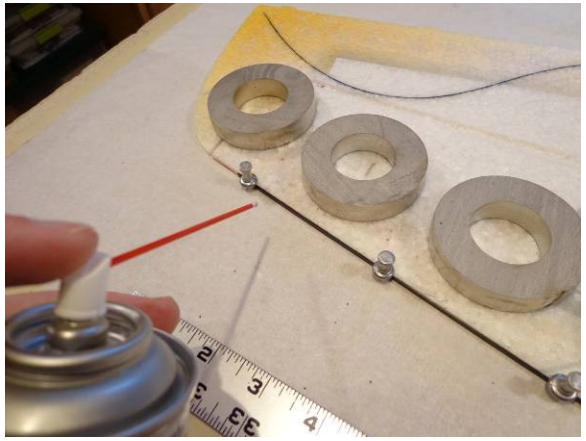


Close up of how the weights and stick pins are used to hold the strip firmly against the leading edge of the wing

Apply CA to the edge of the strip so that it wicks in **behind** the strip

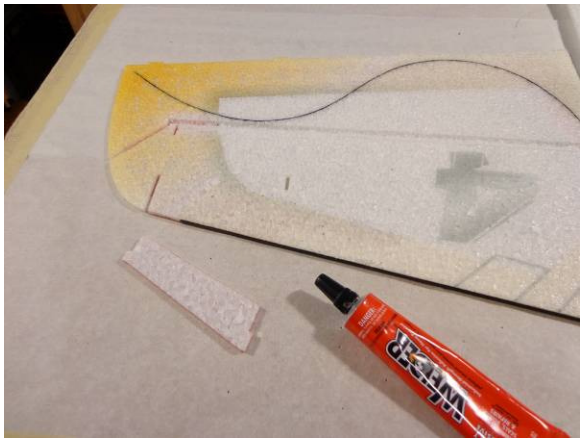


Wipe away any extra

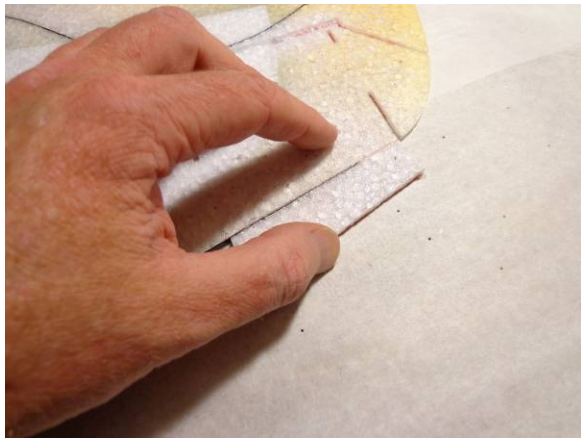


Apply Kicker

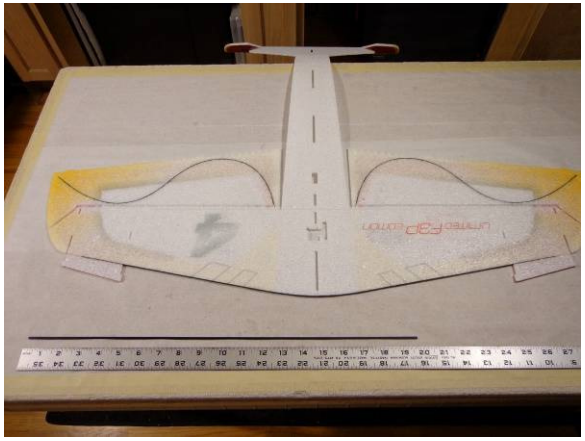
Leading edge strip installed, weights and pins taked away



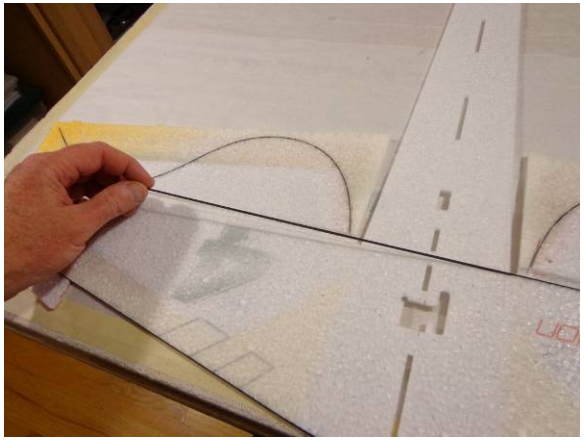
Use Welders and the tack up method to attach the leading edge extenders



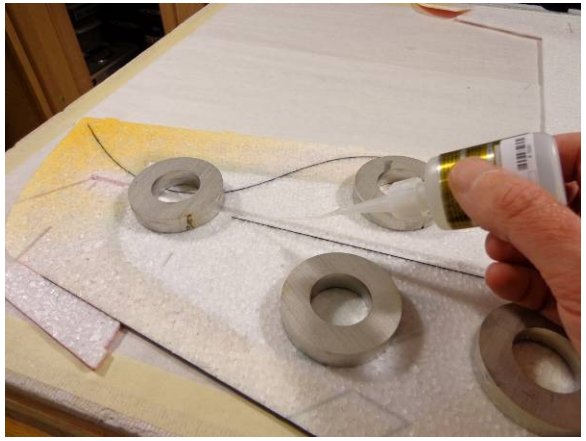
Assemble the two parts once the glue has tacked. Note that they are notched for the leading edge strip. Repeat for the other side



Locate the 3mm x 0.5mm x 500mm (approx 20in long) spar



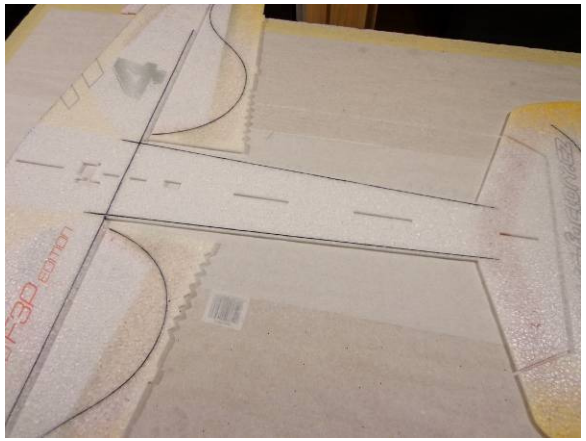
Lay the spar into the slot just forward of the aileron hinge bevel



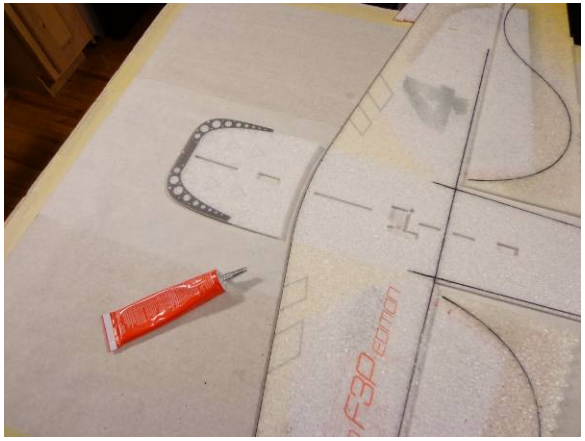
Apply thin CA and hit with Kicker

Locate the two round 0.8mm dia x 500mm pieces

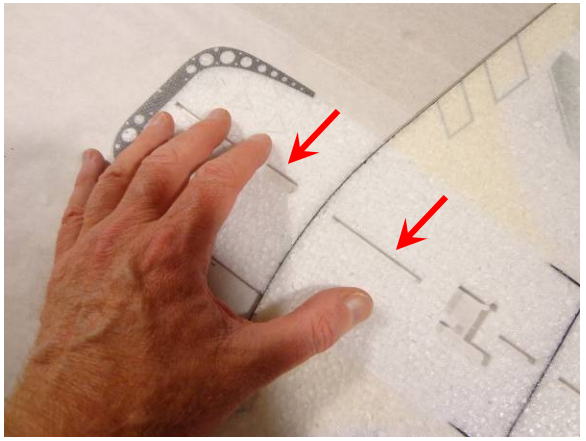
Cut them to length and fit into the precut slot. Make sure all the fuselage slots are still in line with each other. They will raise up slightly where passing over the wing spar



Apply thin CA and Kicker

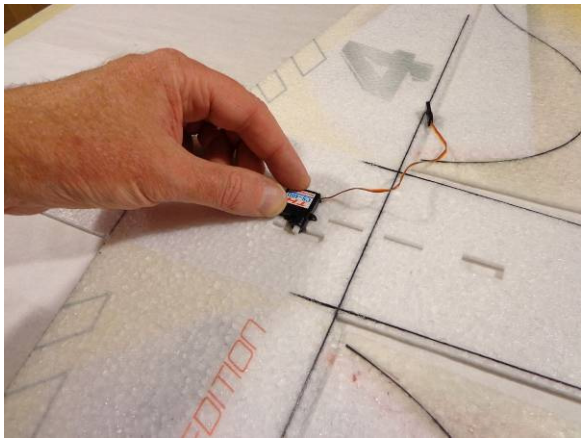


Attach the nose section using the Welders tack up method



Once the glue has tacked up bring the parts together, make sure the slots in each section are in line

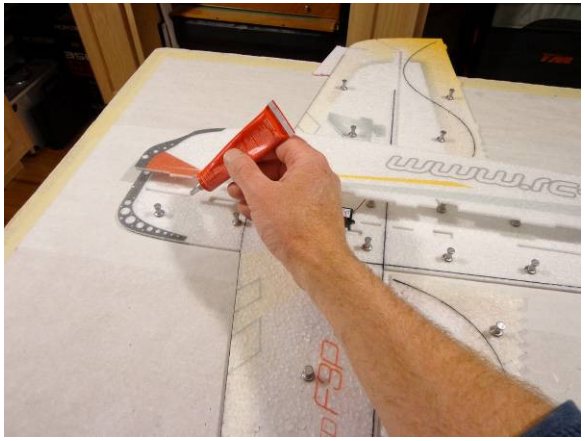
If you have not already done it, make a new program on your radio and check functionally of all the electronics



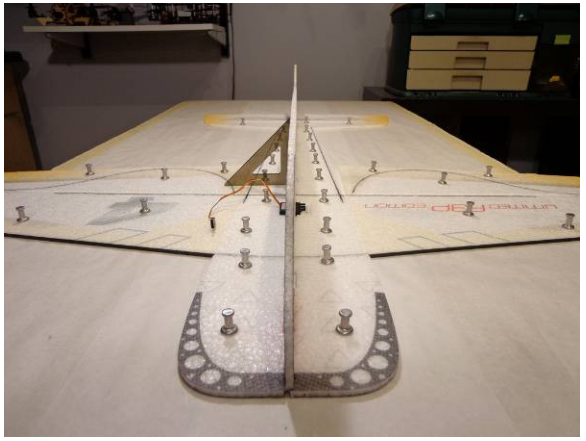
Install the elecator servo as shown

Test fit the lower fueselage section

Make a note of how it all goes together and the areas that should remain glue free

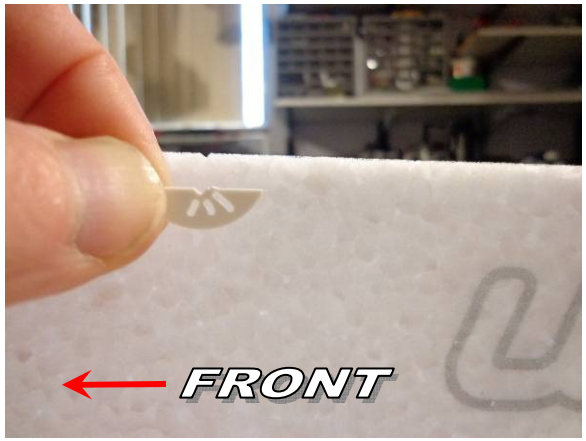


Remove the fuselage section and lay down a medium bead of Welders where the two parts will meet. Install while the glue is still wet



Before the glue has a chance to set, tweak the lower fuselage so that it is square. Let glue dry over night if possible

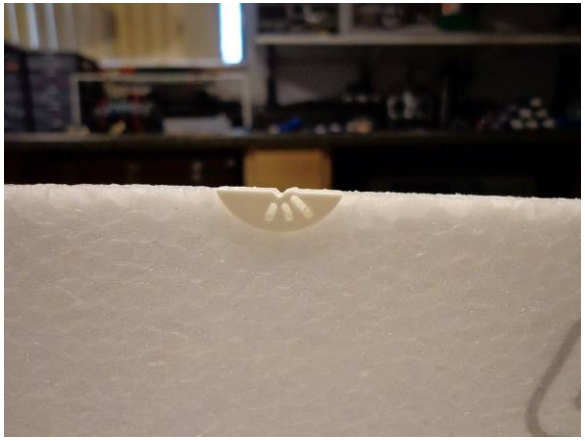
Locate the small plastics parts tree



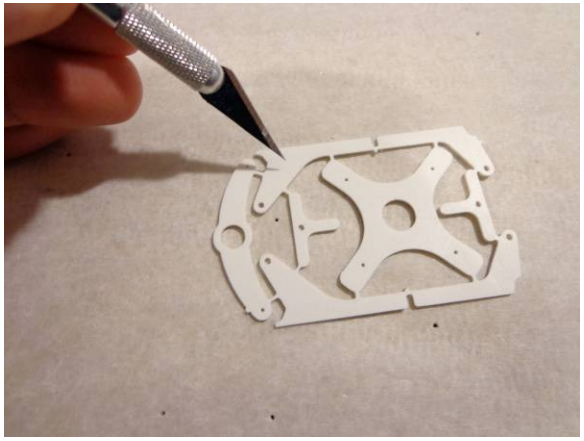
Remove the little half moon shaped doublers. Front of the aircraft is to the left, and there is a small "V" notch to line up the doublers with

Tack up method will be used... apply a thin coat of Welders to one side, make sure and to make a Left and Right

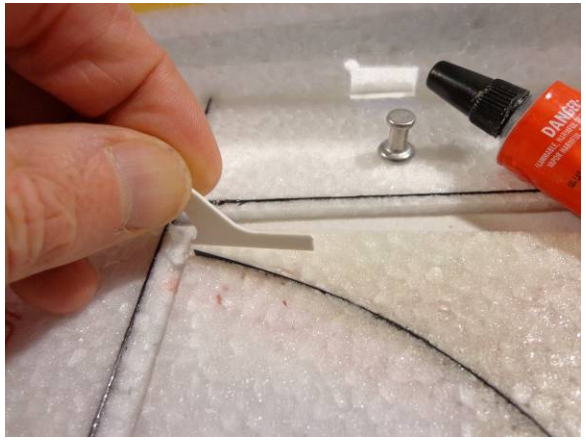
Apply a thin coar of Welders to the mating area on the fuselage



Once the glue has tacked up install as shown, again, nose of the airframe is to the left, and use the notches for alignment

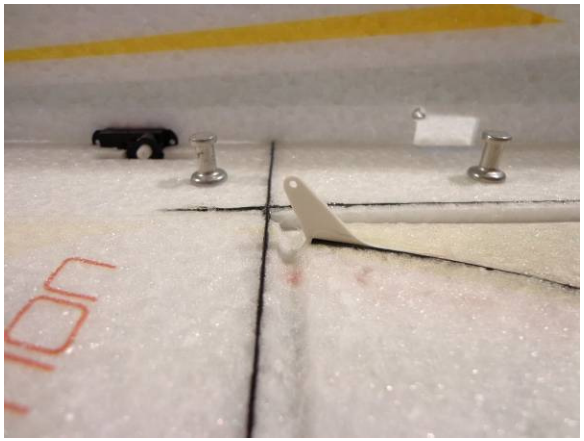


Remove the aileron control horns from the small plastic tree. The aileron horns are the larger ones and are the same configuration

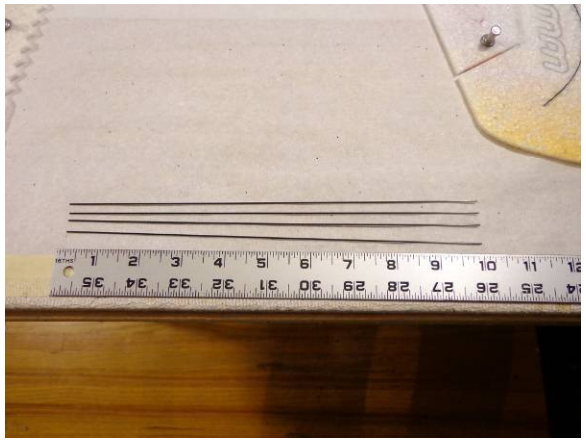


Dry fit into the slot, right next to the end of the carbon strip. Note this is the area that was left free of glue earlier in the build

Remove the horn, squeeze glue into the slot, also squeeze glue into the area that was left free of glue



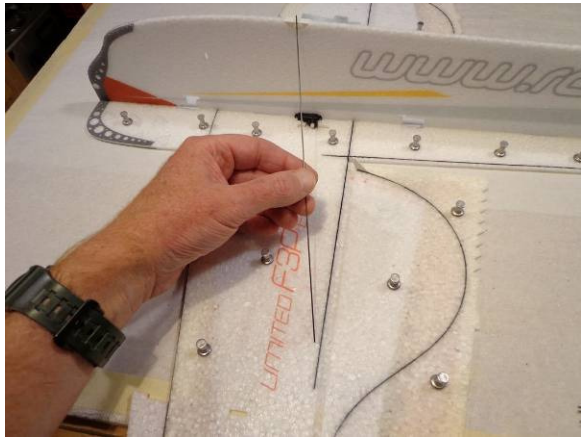
Install the horn. Perfect placement of the horn is such that the hole in the horn is directly above the hinge pivot point



Locate the 4 carbon rods that are 1mm x 250mm (approx 10in long), these are the wing braces

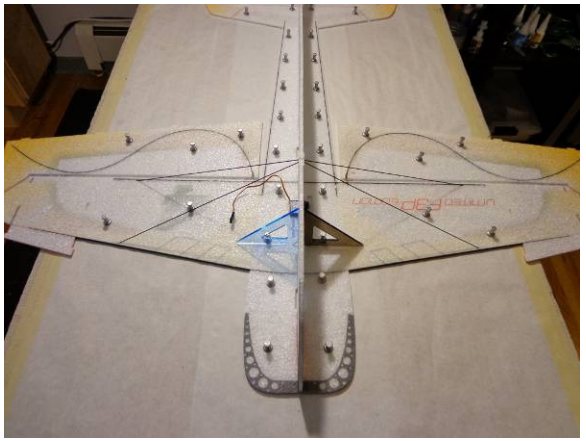
Dry fit the brace into the front hole in the little half moon doubler and the small slot in the foam near the leading edge

Rod shown here installed into the slot near the leading edge

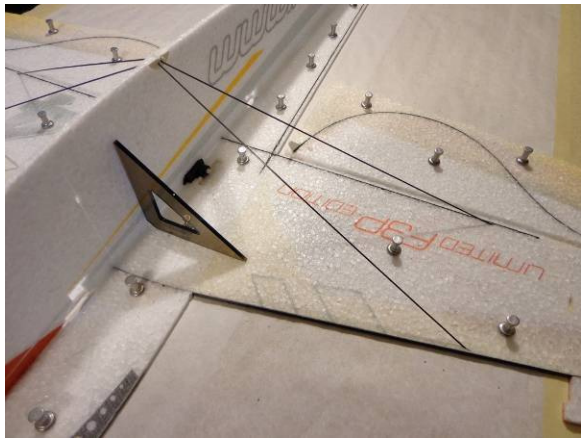


Do the same for the rearward rod...

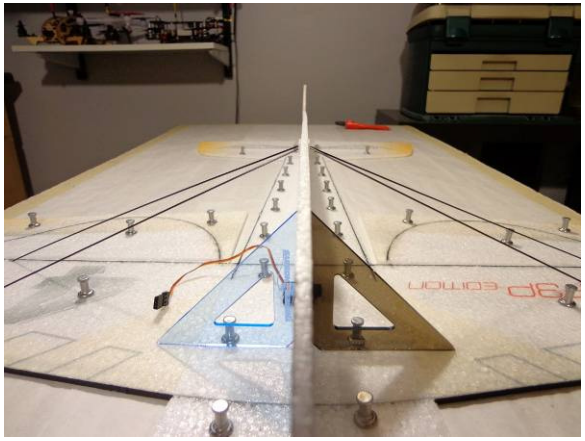
... noting that it also has a slot cut for it as well. It is near the aileron hinge, just in front of the wing spar as shown



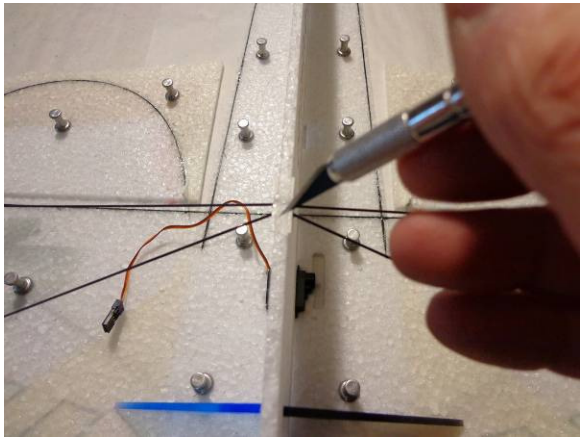
Dry fit all four rods as shown. Adjust them in their slots so that the fuselage is square



Double check squareness

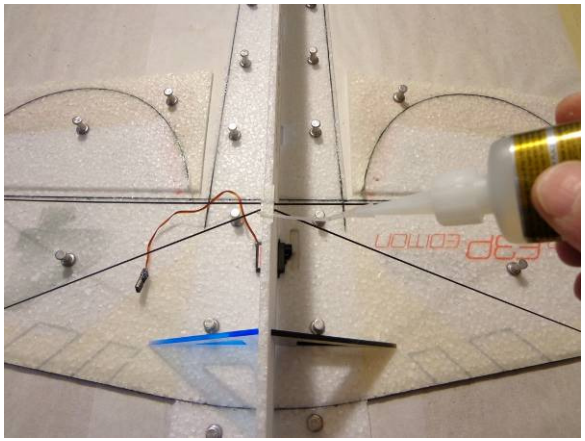


Sight down the length of the fuselage to ensure that as well as square, that is is also straight and true

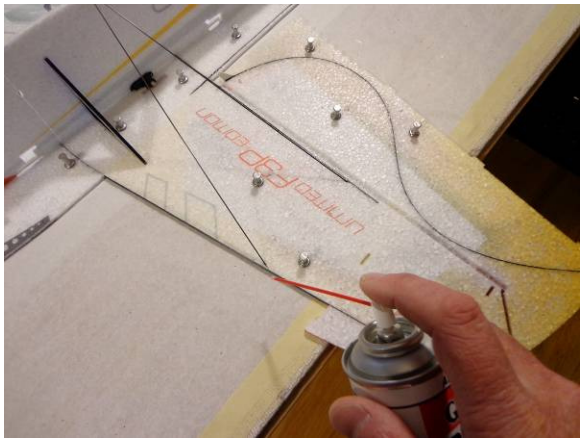


Cut three or four little slits in the area shown, just above were the rods are inside the foam, these slits will allow the CA to wick down into the area where all the ends meet up

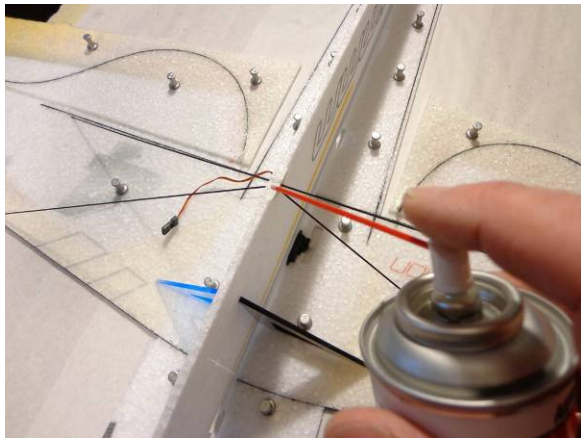
Apply a drop of thin CA to the four points on the Wing



Apply three or four good size drops of CA in the area of the slits and let it wick in



Hit the Wing points with Kicker…



… as well as the center brace area

With 5 of the 0.8 x 500mm rounds make the following length pieces.

#1 - 2 pieces 142mm long

#2 - 2 piceces135mm long

#3 - 2 pieces 134mm long

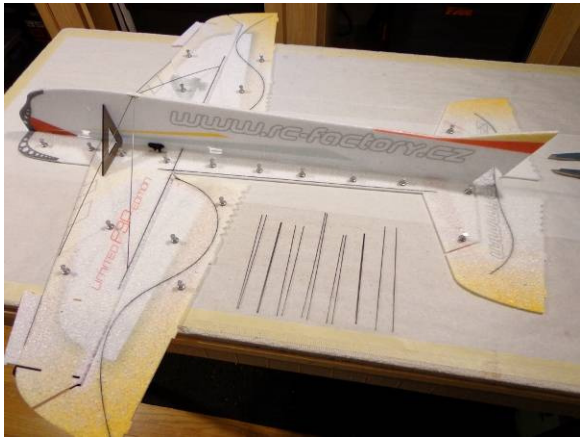
#4 - 2 pieces 128mm long

#5 - 2 pieces 159mm long

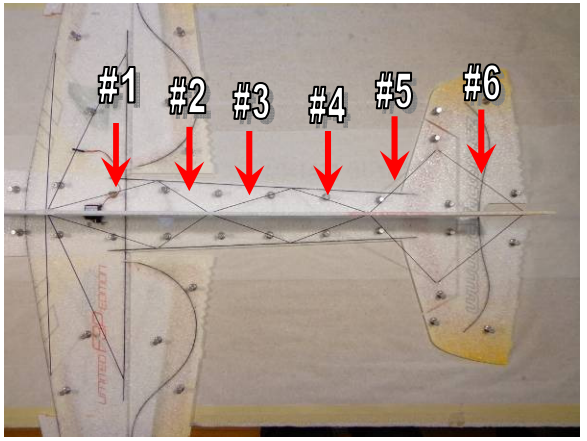
#6 - 1 piece 149mm long

#7 - 1 piece 150mm long

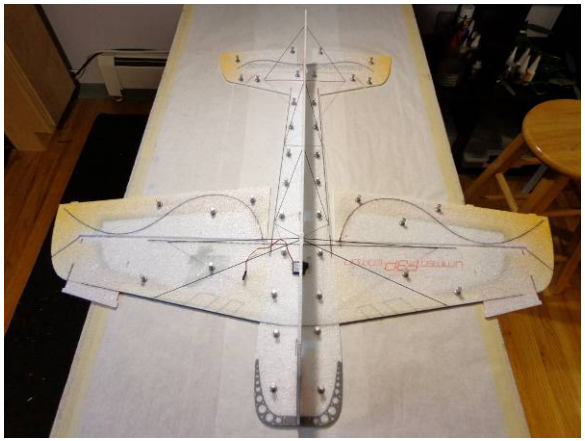
#8 - 2 pieces 130mm long



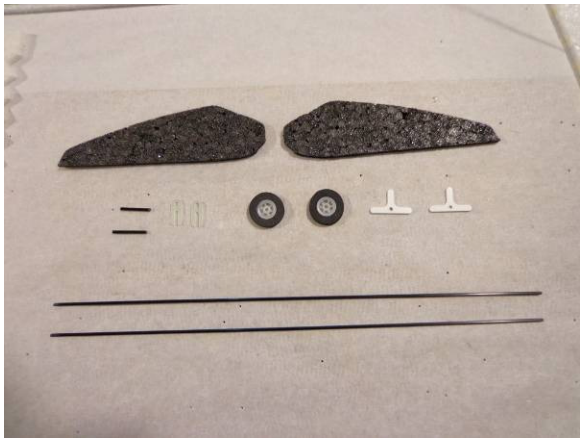
All the rods cut to length, note that there is enough stock to do 2 pieces of either #6 or #7, this is not needed but will give the rudder extra support



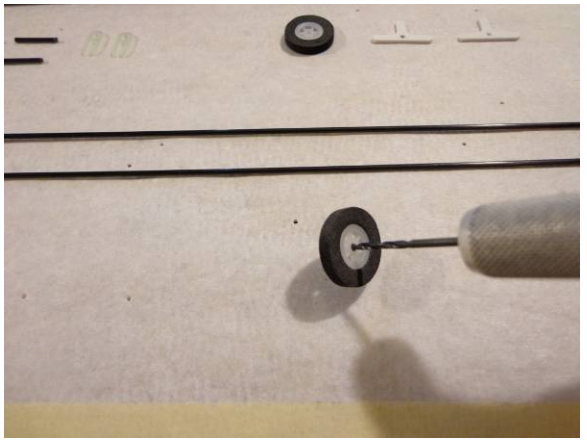
Starting from just behind the wing struts braces... dry fit all the 0.8mm rounds in the order of 1 thru 6 from left to right. Note that there are tiny slots cut to receive the ends of the rods at each location



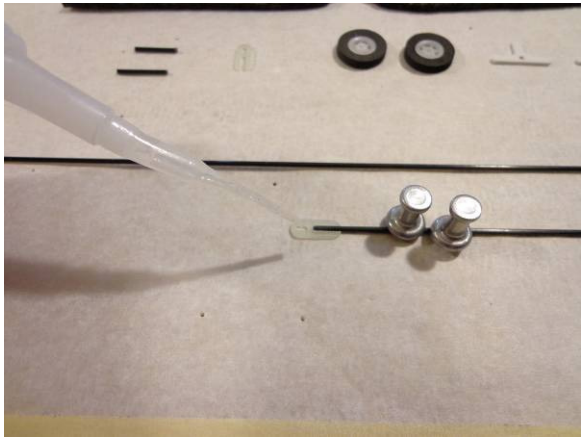
Once everything is in position, square, straight and true, put a drop of thin CA on each rod end and hit with Kicker. Watch for drips on the horizontal surfaces, have a paper towel ready



Locate all the parts for the Landing Gear



Enlarge the hole in the wheel to 1/16" diameter



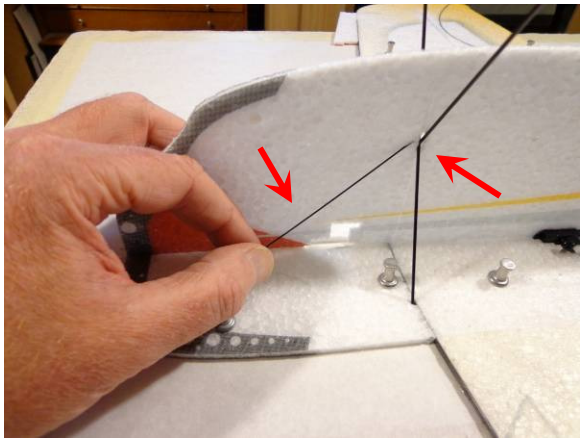
With medium CA and Kicker, attach the flat axle holder to the end of each landing gear strut (the round carbon pieces that are 1.5mm x 220mm)

With the tack up method, attach the small "T" shaped doublers as shown. Make sure to build a left and right

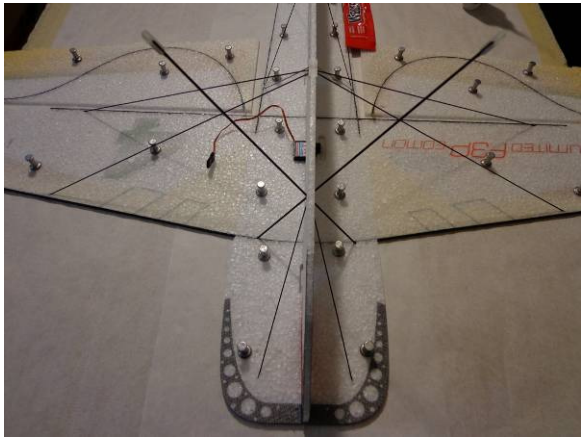
Add a drop of medium CA into the round hole

Insert the axle and hit with Kicker

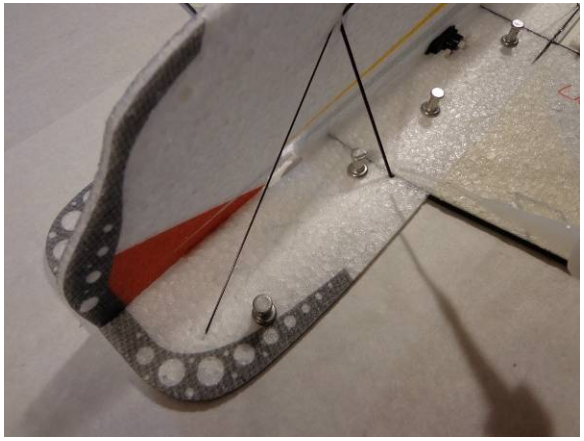
Install the wheels and set aside for now



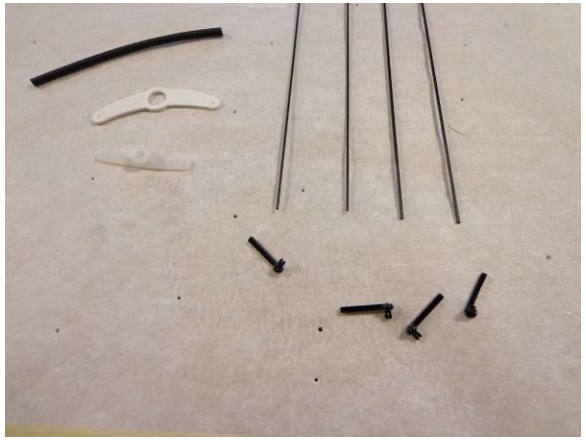
Insert/dry fit the landing gear struts thru as shown, crossing thru the fuselage at the cut out, and position the front bracing (pieces #8) as pictured above



Once again make sure everything is nice a square

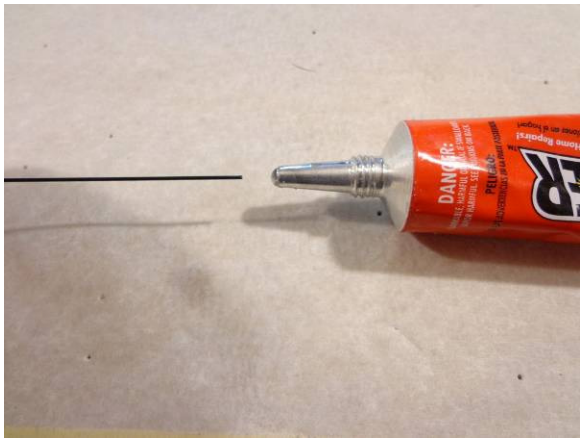


Glue the front brace at both ends and the struts at the horizontal fuselage ONLY. Leave the area where the struts pass thru the vertical fuselage piece free of glue for now



Round up all the pieces to build the aileron differential horn and the control rod ends

With Welders, install the aileron differencial horn as shown on the BACK side of the double ended stock servo horn. Wrap with string if you want, but it is plenty storng with out. Let Dry

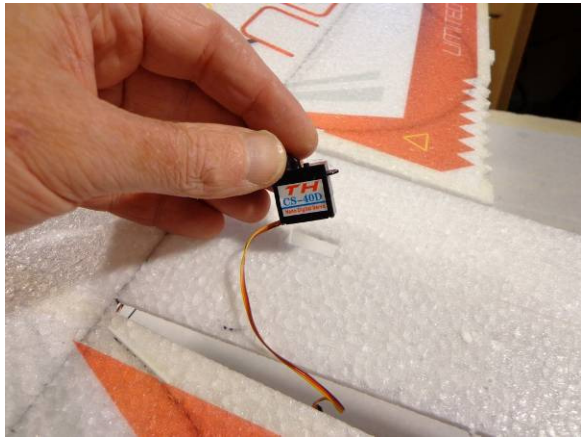


Dunk one end of the control rod into the tube of Welders approx 1/2" to nicely coat the end of the rod with glue

Attach the snap link to the rod Note that the snap link has a little saddle area that is meant to receive the rod. Repeat for all four control rods and set aside to dry for 24 hours

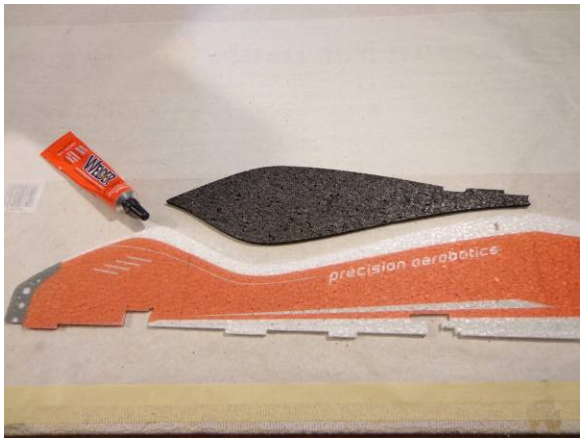
Now you can remove the fuselage from the work bench, test fit the aileron servo. Note that the output shaft is to the rear of the airplane

Fully seat the servo into it's position. No glue at this time. Depending on the servo being used, enlarging the hole may be needed.

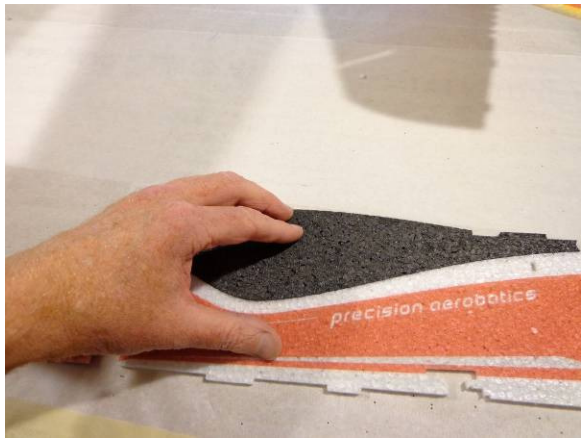


Fit the rudder servo into it's position. Power Set servos fit perfectly, other servos may require some trimming of the foam

The flanges of the rudder servo should be fully seated as shown. No glue at this time



Use the tack up method to attach the canopy to the upper fuselage section

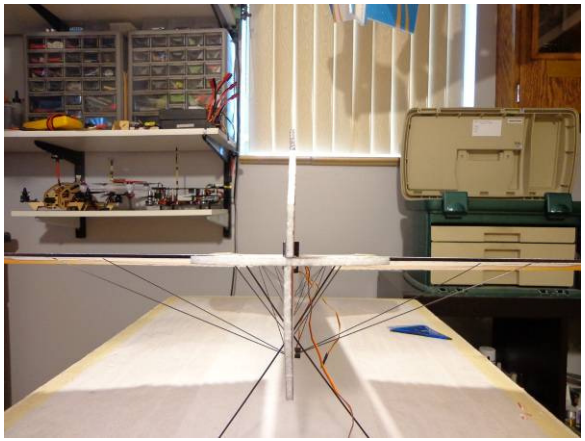


Once the glue has tacked up, bring the two pieces together

Test fit the upper fuselage section to the airframe, depending on the servos used, there may be some trimming needed for a good fit

Look everything over closely and make sure the fit up is nice and flush at all the mating surfaces

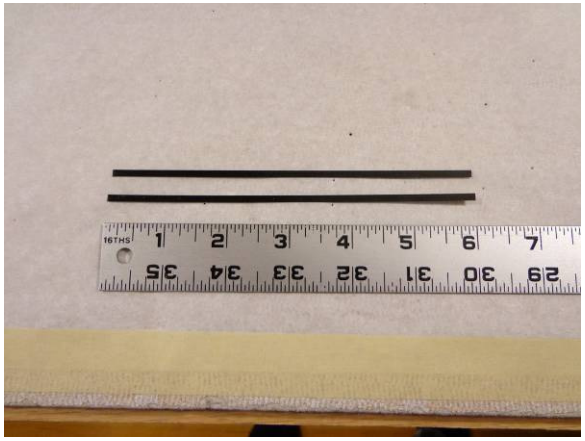
Remove the upper fueslage and lay down a medium bead of Welders to entire length of the mating area



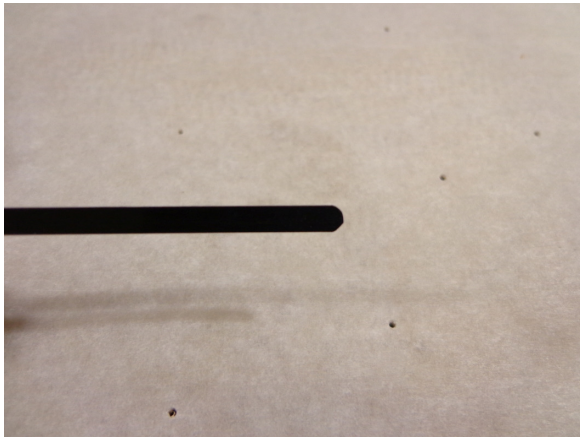
Bring the pieces together right away. Fully engage the tabs, make sure there is good fit up everwhere and that everytthing is square

Check and re-check from every angle for squareness

Set this aside and let dry for a couple hours



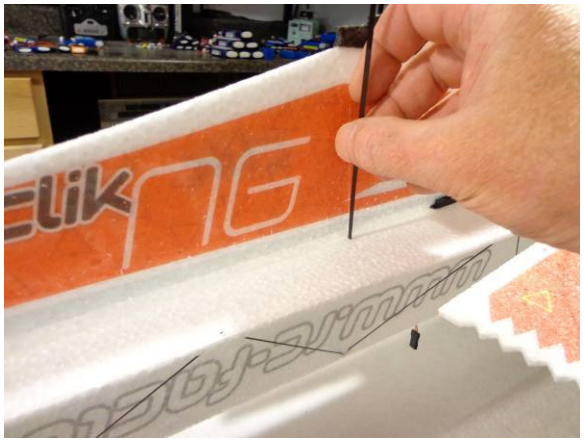
Locate the two thin rectangles from the hardware bag that are approx 6in long



Round off the ends as shown

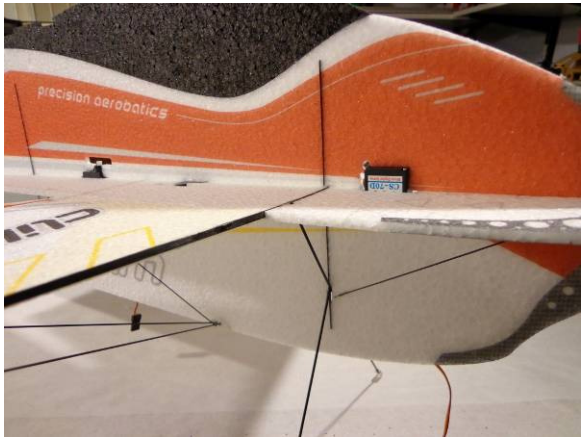
Locate the two slots on the right side of the fuselage… one slot is by the landing gear struts the other is right behind the canopy area

You will need to open up the slot a little in the area where the fuselage pieces meet, there is probably glue in that area from when the two pieces were assembled

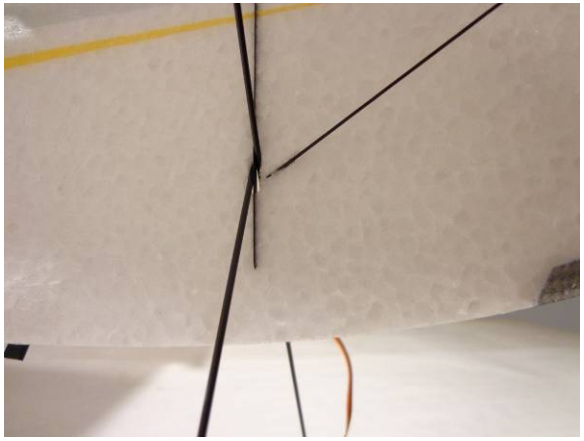


Slide the spar in as shown

Dry fit as shown, make sure that it is flush with the surface of the vertical fuselage

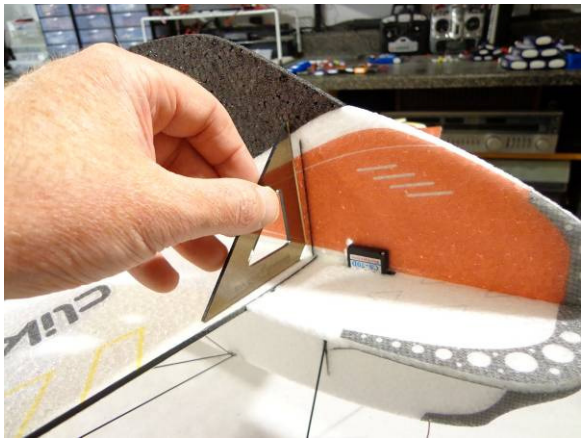


Repeat the dry fit process for the front spar. Note that the front spar should past between the landing gear struts as shown in the next step

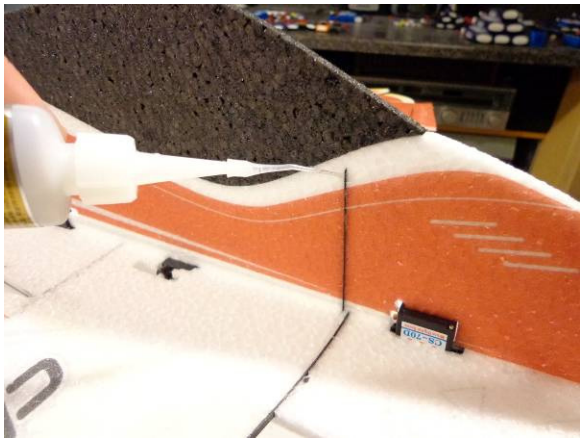


Vertical strip should pass BETWEEN the two landing gear struts

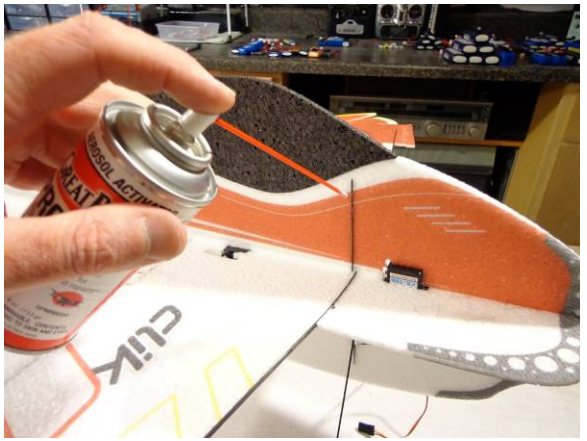
Make sure everything is nice and square



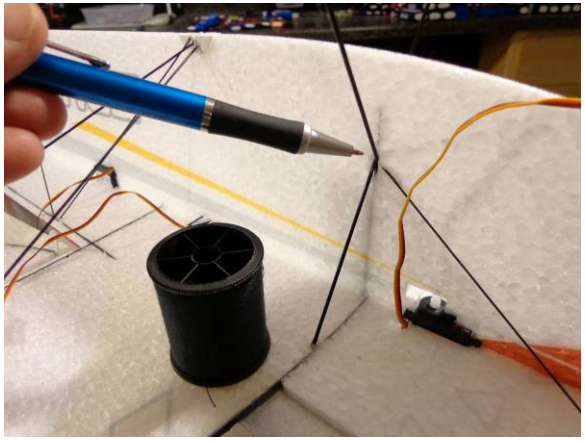
Check the front area as well



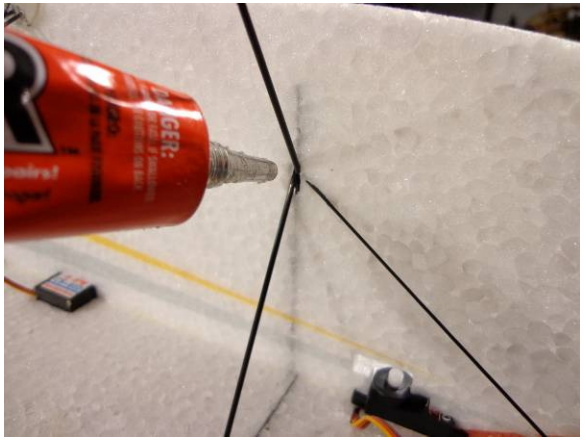
Once satisfied with the squareness, apply CA.....
IMPORTANT - Keep the area where this piece and the landing gear struts all intersect free of glue



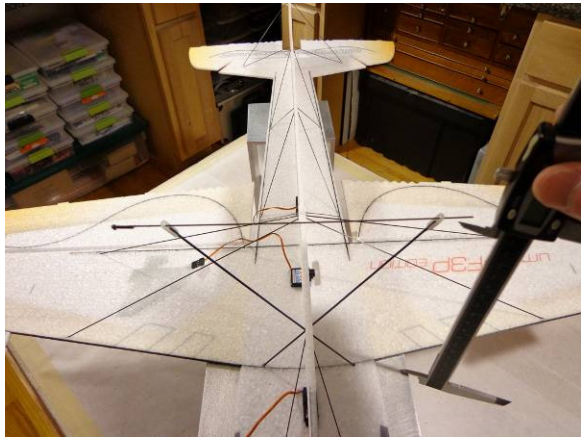
... and then hit with Kicker



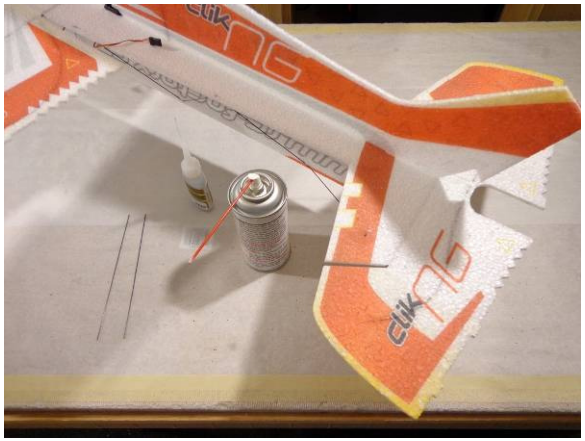
OPTION #1
Wrap the intersection of the spar that was just installed and the landing gear struts with thread, level the gear then glue with medium CA and Kicker



OPTION #2
With the tip of the Welders tube, squeeze some glue into and all around the intersection of the three pieces...



... stick one of the aileron push rods thru the axle holes and use as a guide to measure against to ensure that the struts are even. Let the Welders dry over night if possible



Install the rudder bracing (#7)... note only one side requires a brace, if wanting to do both sides, you will need to make the second piece from your own stock

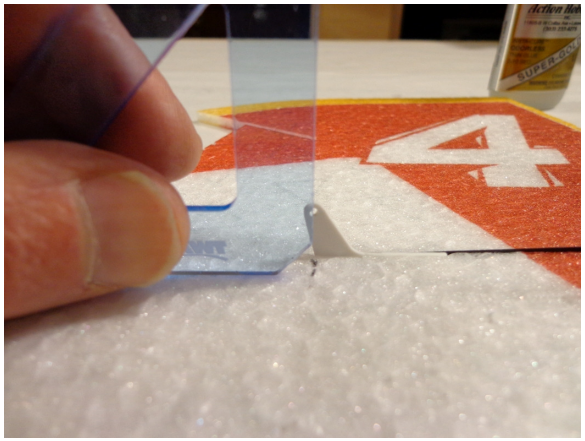
Dry fit/locate the brace(s) in the provided slots

Make sure it is all square, thin CA and hit with Kicker

In prep for installing the rudder horn, bend the rudder to extreme position and mark with a fine tip Sharpe at the intersection as shown

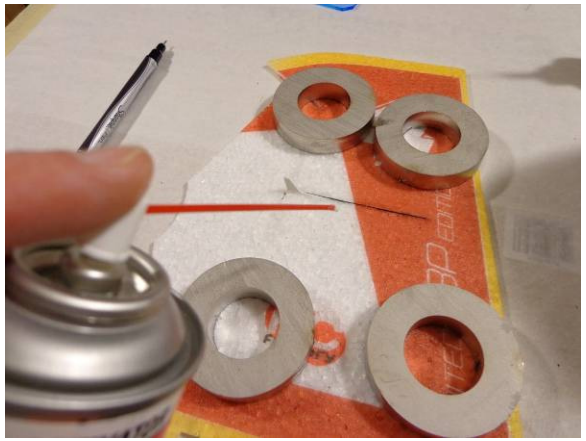
Locate the thin spar (approx 3in long from the hardware pack) and the horn as shown

Dry fit the two pieces



Locate the hole of the horn directly above the Sharpe line

Hold everything down flat and apply thin CA...



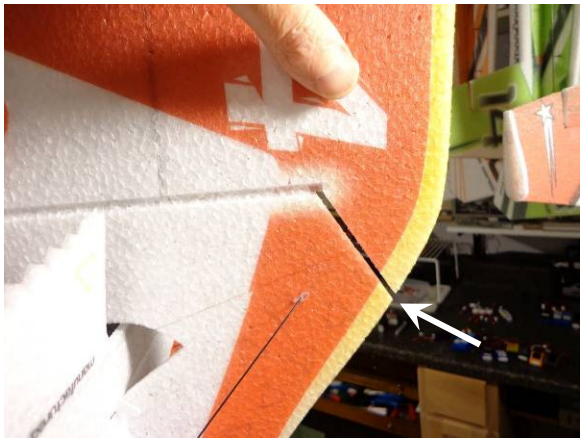
.... and Kicker

Repeat the Sharpe line process with the elevator and dry fit the elevator horn

Apply thin CA and Kicker

Test fit the Rudder as shown. Standing the airframe up on it's nose will make aligning everything a little easier once the Welders is applied

Tack up method should be used to join the rudder to the fuselage

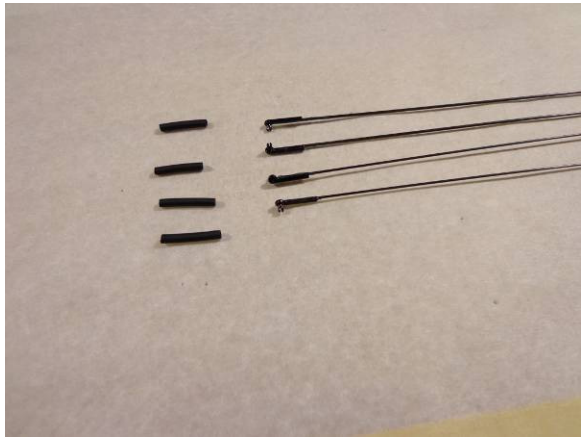


Once the Welders is tacked up, bring the two pieces together, use the clearance slot at the top of the rudder as a guide to locate properly

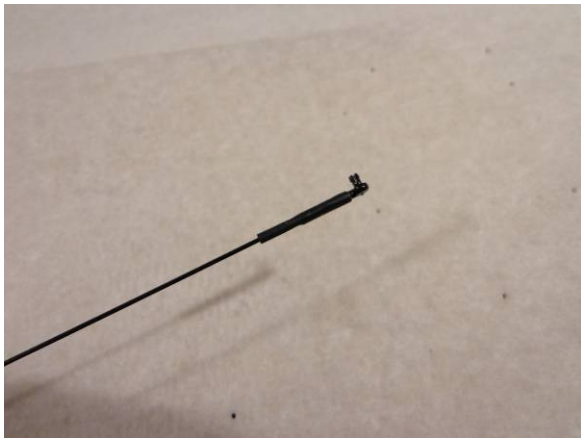
Once in position, firmly press together along the entire joint

Make sure it all went together nice and square…

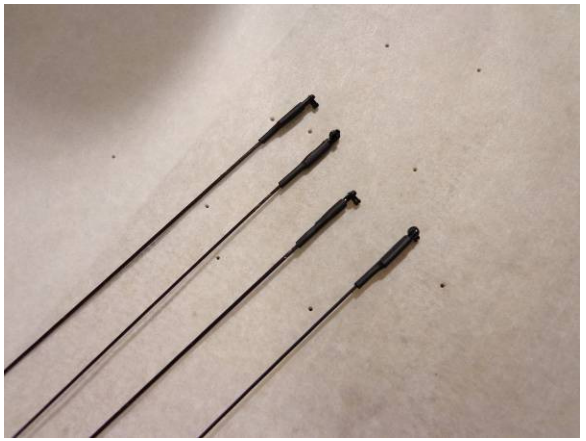
… check it from all angles



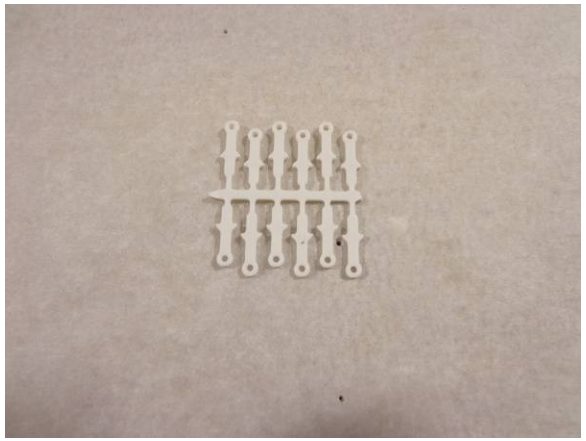
Locate the push rods that were built in an earlier step… they should have had time to cure for 24hrs by now, if wanting you can install the shrink tubing, but this is not needed….



…. when using Welders. It does provide a nice clean look though. NOTE - DO NOT use a lighter to shrink the tube, it will melt the link, use a heat gun on low setting



Repeat for all four ends



Locate the push rod guides and clip them all free of the mfg tree

Slide 6 of each on to the two longer push rods as pictured above

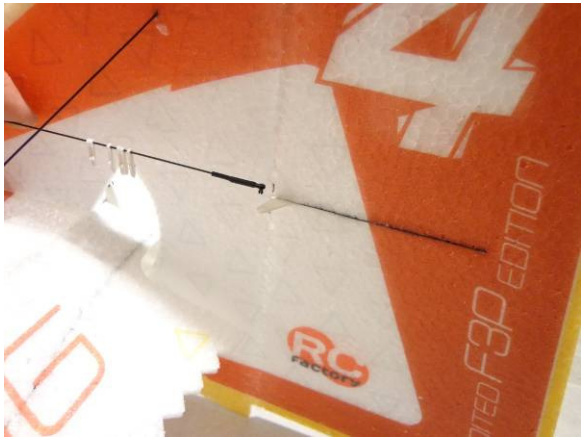
Position the snap link end of the push rod as shown....

... and snap into the hole

Dry fit the ends of the guides into the pre-cut holes. Use a small flashlight to help locate the holes.

Position them so that they are all straight and in a row as shown.

Once satisfied, put a drop of thin CA at the base of each guide and hit with Kicker



Repeat the process with the rudder pushrod, for best alignment snap in from the top

Snap link installed. Do the guides like you did with the elevator push rod

Locate the four trailing edge air-brake pieces as shown

Lay down a thin bead of Welders along the center of the air-brake

Install WET, using the tabs to help with location...

... make sure that it is fully seated against the trailing edge as shown

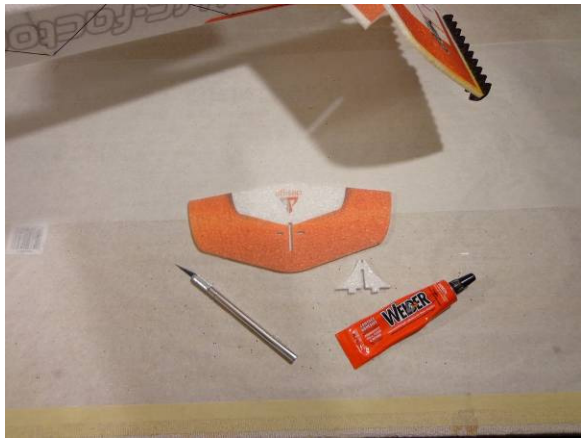
Check to make sure that it is square and straight

Locate the 4 Side Force Generators and cut them free of each other

NOTE - The larger one will install in the outer most position. They are "keyed" so they will only go together one way

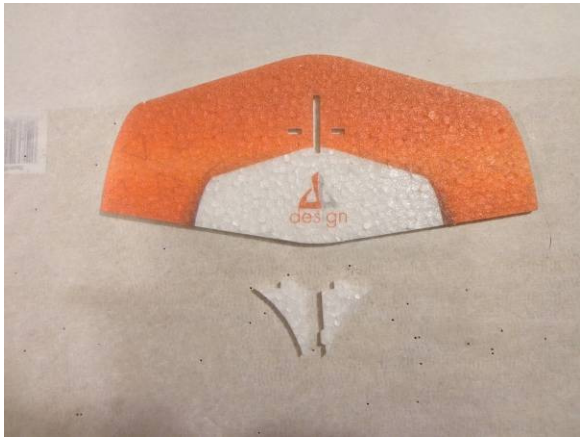
Use Welders wet method and mount as shown

Make sure they are fully seated and square to the wing. Repeat for the other side

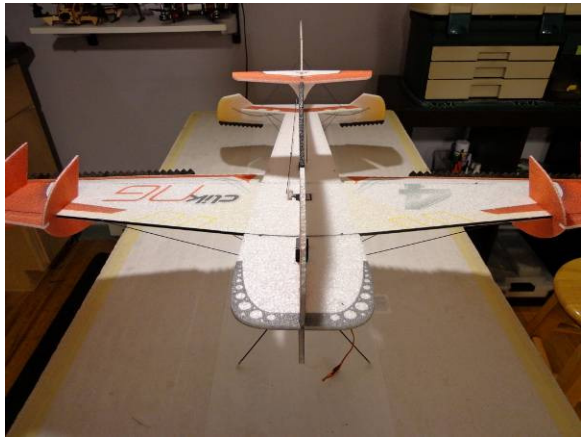


Locate the parts for the T-Canalizer

Apply a bead of Welders to the top of the canopy as shown where it will mount

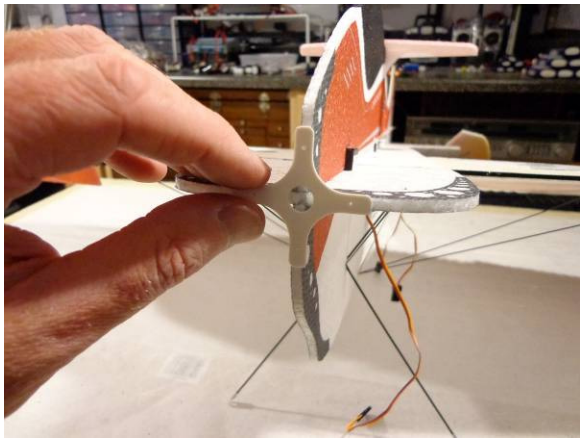


Split the little gussets pieces down the middle



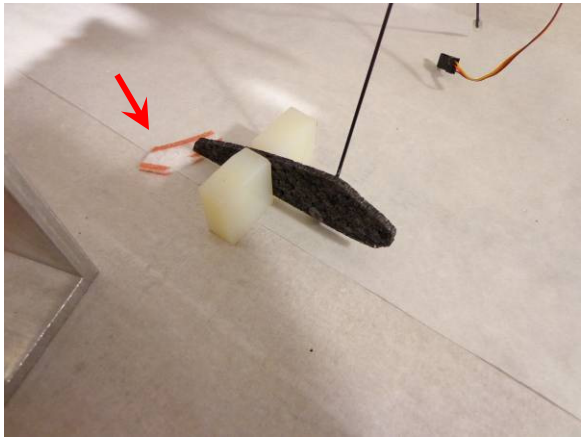
Install the T-Canalizer while the glue is still wet

Motor mount is next… Tack Up method will be used. Apply a medium film of Welders to both surfaces

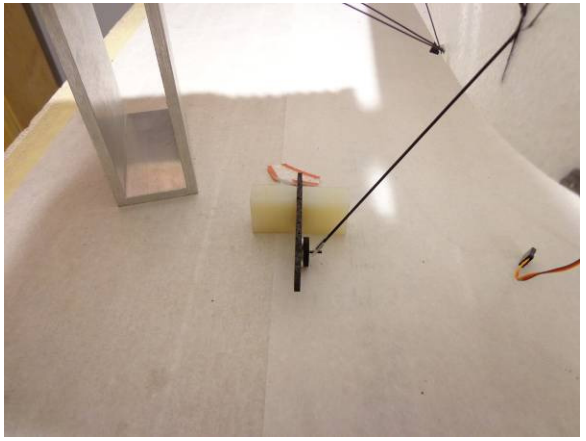


Once the glue has tacked up, attach the two pieces, making sure they are located properly and fully seated to each other

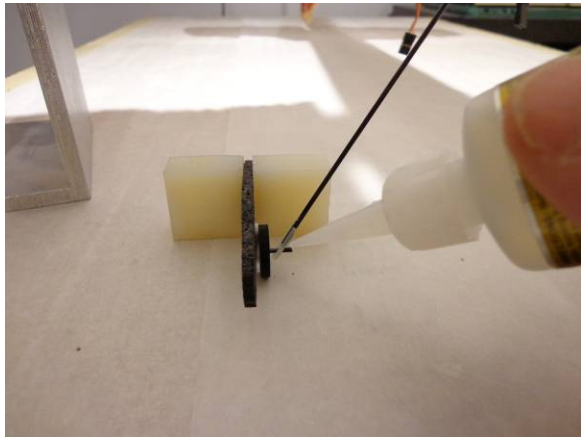
Install the wheels and pants. Brace up the entire airframe so that when you slide the axles into the slot on the strut they are level and so that the wheel pants are perpendiular to the bench



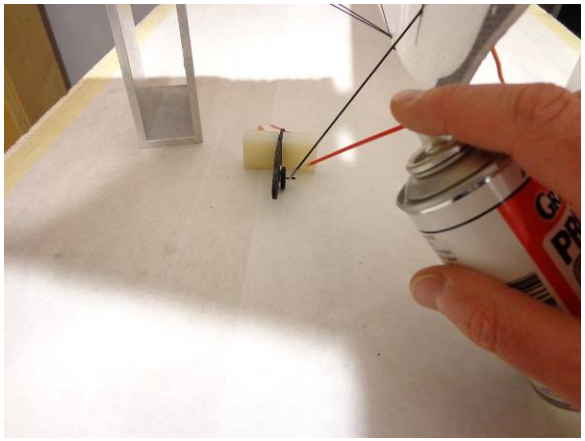
Use some small blocks or other similar item to hold the wheel/pant assy in position, also a scrap of foam is used to locate the trailing edge of the wheel pant slightly above the work surface



Adjust everything so that it is all square and perpendicular

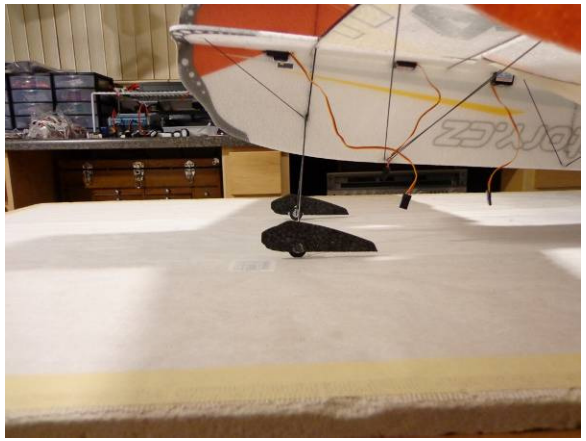


Once satisfied, apply some medium CA...



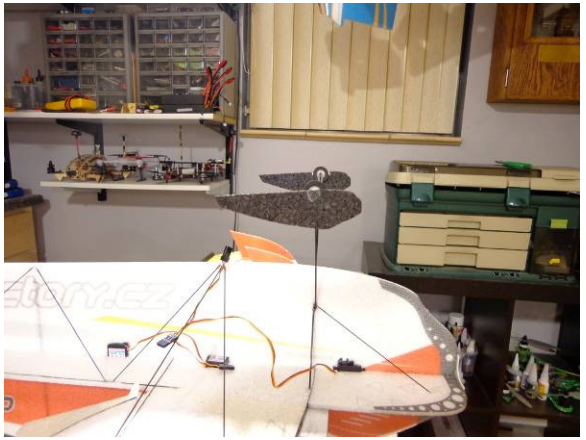
.... and Kicker

Repeat for the other side

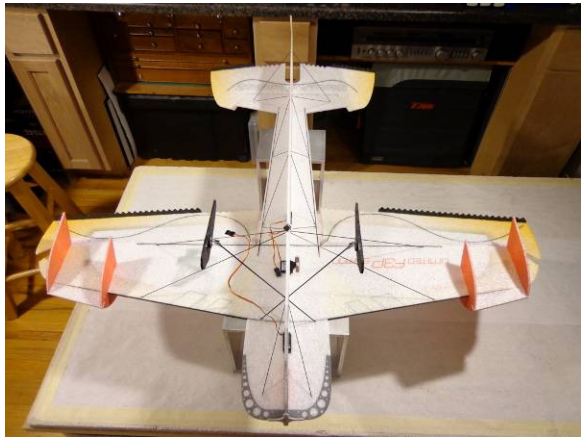


Double check that they are even with each other from the side view...

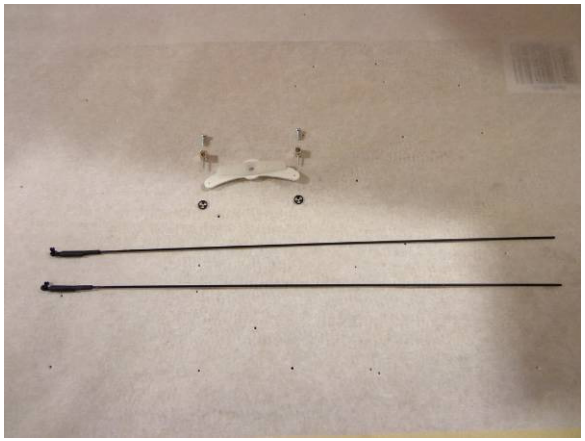
... and that they are in line with the direction of flight



Flip the airframe upside down and add a little more medium CA and Kicker to the axles areas

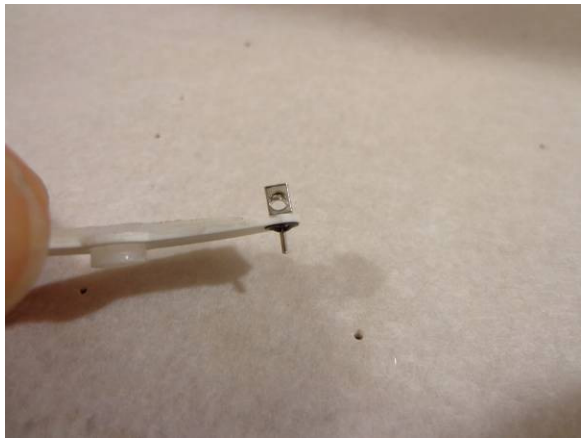


Leave the plane on it's back for the next step. Some large blocks or soft drink cans can be used to hold the plane in this position

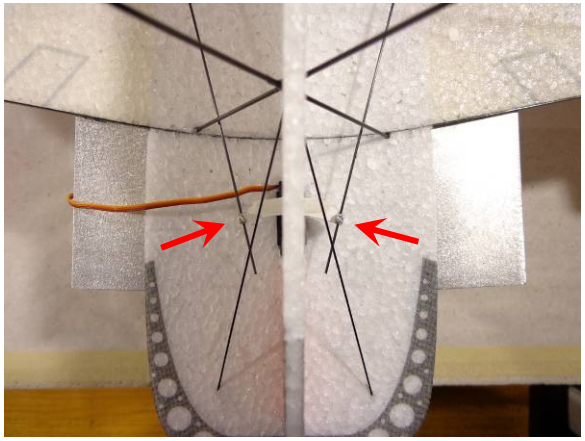


Locate the two aileron push rods and the hardware items to complete the aileron differential horn assembly

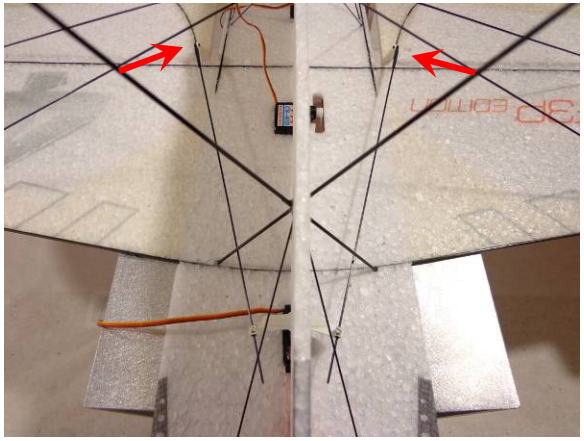
Assemble the adjustable link blocks as shown



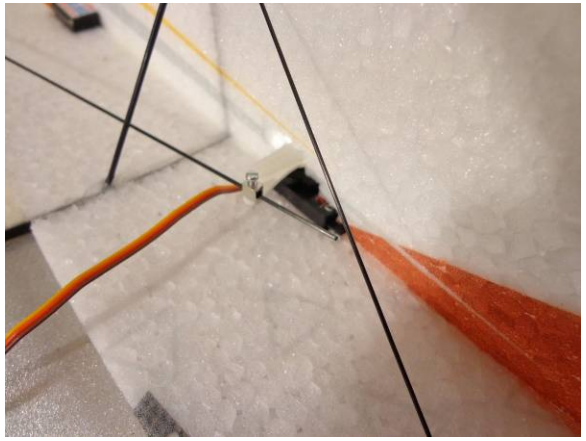
Keeper pushes onto the pin of the block with the cupped surface as shown



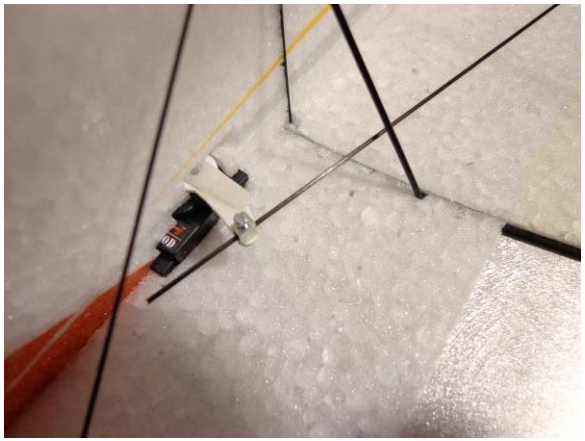
Slide the control rods thru the adjustable blocks as shown. Note that the rods should install under the struts as shown above



Install the snap links into the aileron horns...



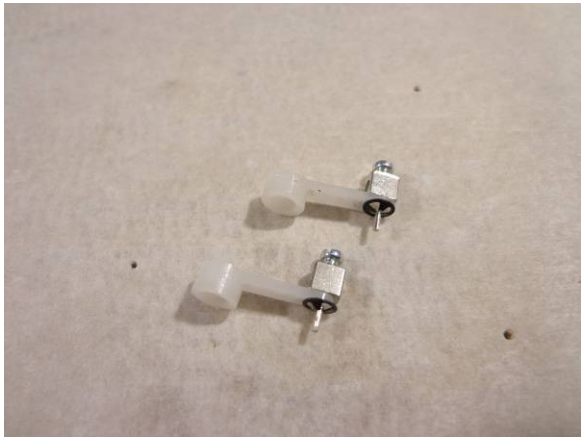
... make sure the servo is centered, and that the aileron control surface with the fuselage then snug up the set screw. DO NOT OVER TIGHTEN



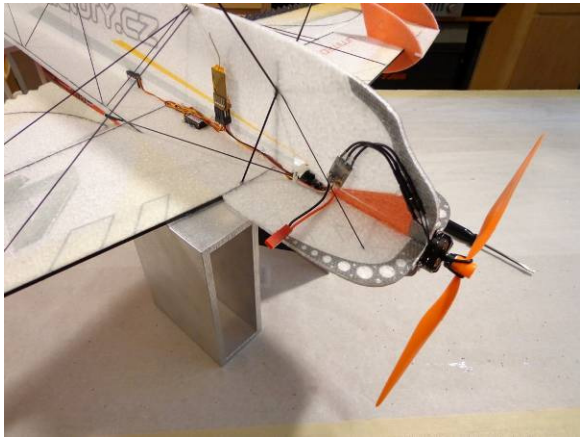
Repeat for the other side, and if not already done, install the screw to hold the servo arm on

Locate your motor and the mounting hardware

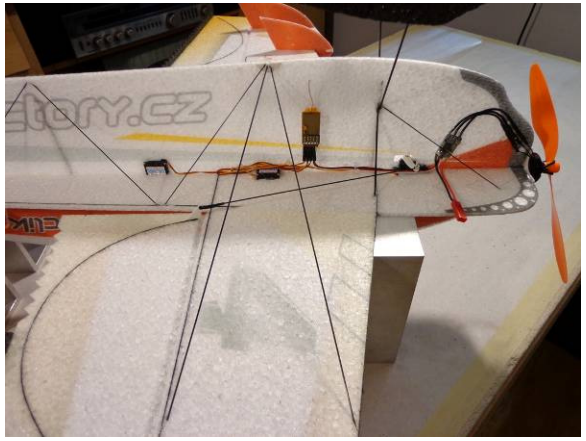
Mount the motor to the firewall... position so the wires are on the side of the fuselage that you will install the ESC on



Prepare the tail servo arms as shown. Note - with the Twisted Hobbys' CS40 servos, the horns ARE long enough for the control throws needed for this plane



Locate electronc approx as shown. Try and locate items as far forward as possible



Close up of installed electronics

Look every thing over. Make sure all the control horns are 90 degrees to the servos, that all control surfaces are centered and that the motor spins in the proper direction

Verify that all control surface move in the proper direction

Adjust aileron control throws to +/- 45 degrees

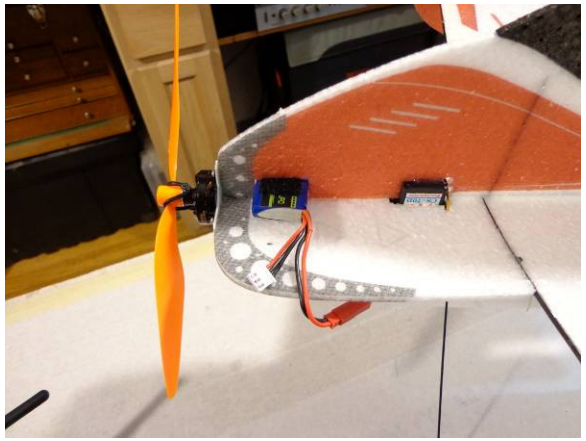
Adjust elevator control throws to +/- 45 degrees

Adjust rudder control throws to +/- 45 degrees

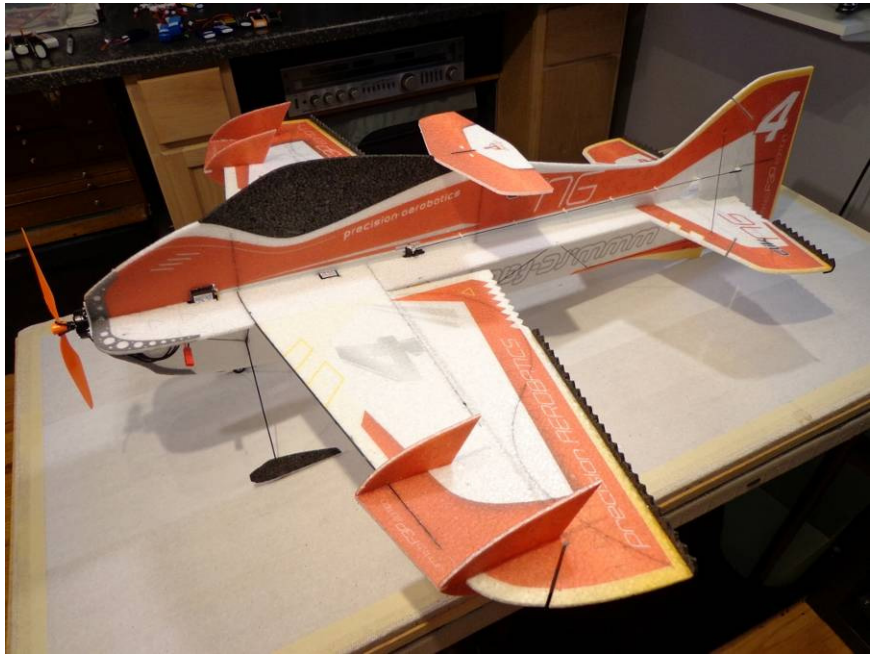
Program in approx 60% expo on the ailerons and 40% expo on the rudder and elevator

Control throws and expos can be adjusted to suit flying style and the size of the space being flown in

Locate the battery so that the CG is 245mm from the nose of the aircraft. Cut a hole or attach with Velcro if wanting to experiment with the CG point



Battery shown in position. Lining the edges of the cut out with a thin film of Welders (and allowing to dry) will make a sticky surface to help keep the battery in position



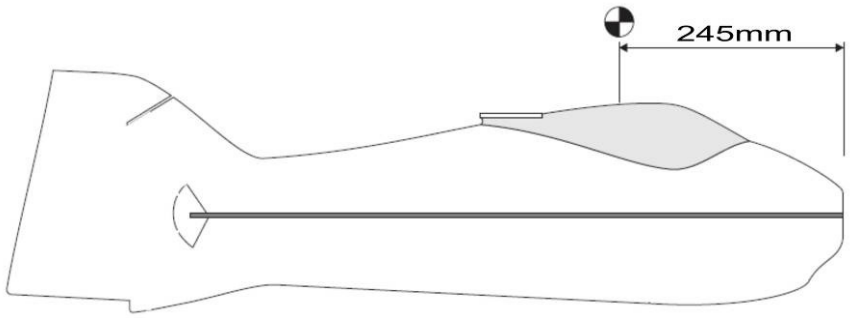
This completes the build. The design intent of this plane is for indoor F3P and Precision Pattern style flying. Although more durable that it's Depron counter parts it is not as durable as the standard 32" Twisted Hobbys' foam planes, so some care should be taken in storage, transport and flying activities.

Another really good source of information for this and other Twisted Hobbys' planes is RCGroups.

The link for this plane, the Clik NG is - www.rcgroups.com/forums/showthread.php?t=2263105

CENTER OF GRAVITY

CG - 245mm from the nose of aircraft



Locate all the electronics 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 F3P performance balance for level flight upright and inverted with no elevator input, also power off down line should be straight down without any pull or tuck

EXTREME & F3P SET UP PRECAUTIONS

In order to achieve the control throws as described for "Extreme & F3P", it is imperative that the control surface, 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

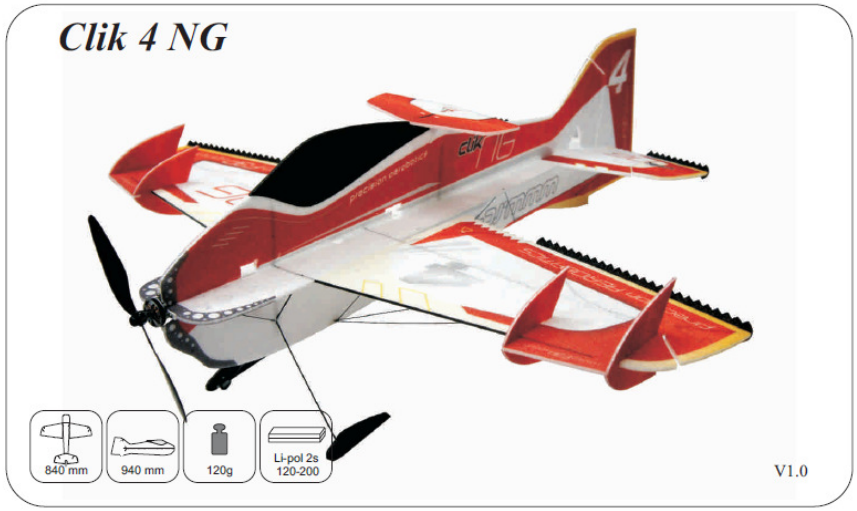
CONTROL THROWS

Extreme & F3P:

Ailerons - approx +/- 45 deg
Rudder - approx +/- 45 deg
Elevator - approx +/- 45 deg
Expo to suit

Beginner & Sport:

Ailerons - approx +/- 20 deg
Rudder - approx +/- 20 deg
Elevator - approx +/- 20 deg
Expo to suit



PRE-FLIGHT & TESTING

Preflight 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.

Flight Testing

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 F3P 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 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 & 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.