TWISTED HOBBYS

Big Turbo Beaver

MOTOR: 1x 72g / 1000 to 1200kV Outrunner
ESC: 1x 30amp
SERVOS: 4x 14g / 2x 5g
PROP: 10x3.8 SF Prop
BATTERY: 3s / 1000-1350mAh

USA Distributor
Twisted Hobbys
www.twistedhobbys.com

RADIO: 4 to 7 channel
WINGSPAN: 43-1/2″
LENGTH: 39-3/8″
AUW: 630g (depends on equipment)

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

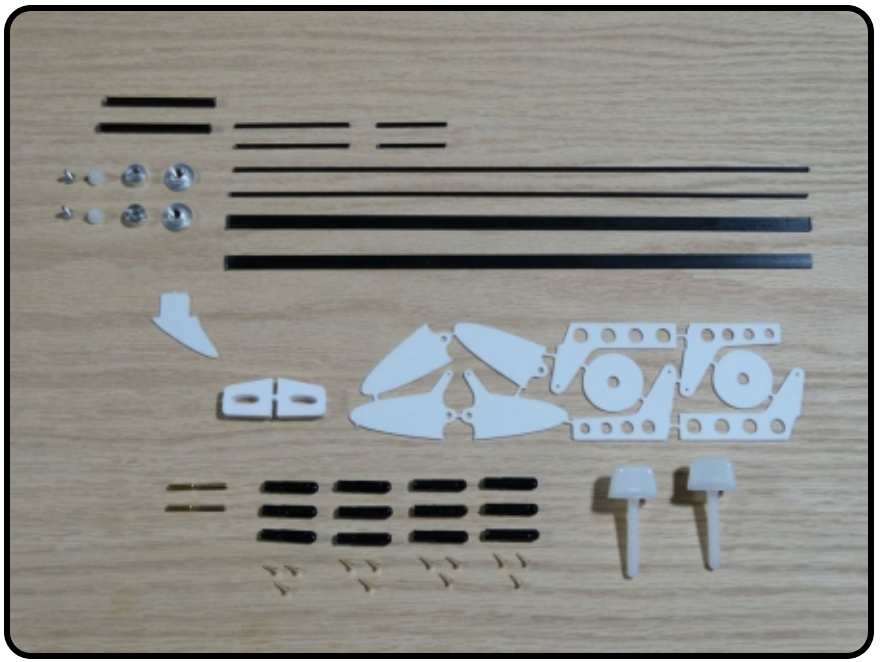
Wing, Tail Surfaces and Carbon Spars

Double check that you have all the above pictured items. The Carbon Bundle includes tail push rods and wing spars. Note - Some kits might have slight deviations from the above pictured items.

Fuselage Parts

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

KIT CONTENTS (CONT.)



Plywood, Foam and Hardware Kits

Double check that you have all the above pictured items. The Hardware kit items are detailed to the right. Note - Some kits might have slight deviations from the above pictured items.

Hardware Kit Detail

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

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.

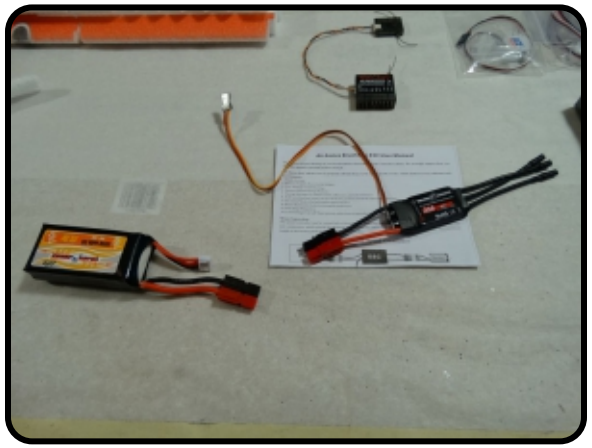
Welders glue is used for FOAM TO FOAM joints. Thin and Medium CA are used on the PLASTIC TO FOAM and CARBON TO FOAM joints. **When using the Welders glue for a butt joint, apply a thin film to each surface, allow to sit for approx five minutes and then assemble**. Note that this method will create a 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), a 3s/1300mAh battery and a fresh tube of Welders. Note - the Battery and Welders are NOT part of the power combo, everything else shown is.

Start the build by locating the two wing halves, the elevator and the rudder. Fold back as shown and weigh them down for about an hour. This will loosen up the hinge line and allow the surfaces to move much more freely. The wing hinge will be stiff... work it slowly so it doesn't tear

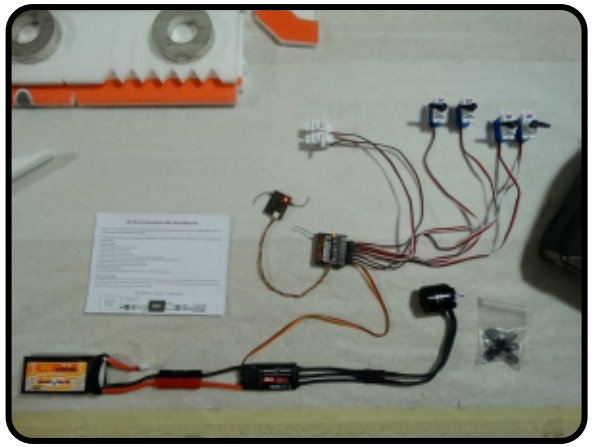
While the control surface are relaxing, gather up all your radio gear.

IT IS IMPERATIVE TO DO THE NEXT COUPLE STEPS PRIOR TO INSTALLATION!

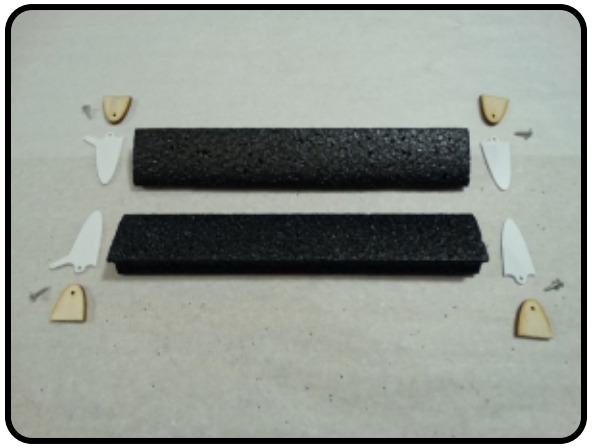


Attach connector to the ESC that matches the batteries you will use. Note - if using the recommended battery and ESC location you will need to make an extension. See page 37.

Plug everything in, bind the radio per mfg instructions and check that all the servos operate correctly and smoothly. Hang on to the motor near the wires, and test it's operation as well.

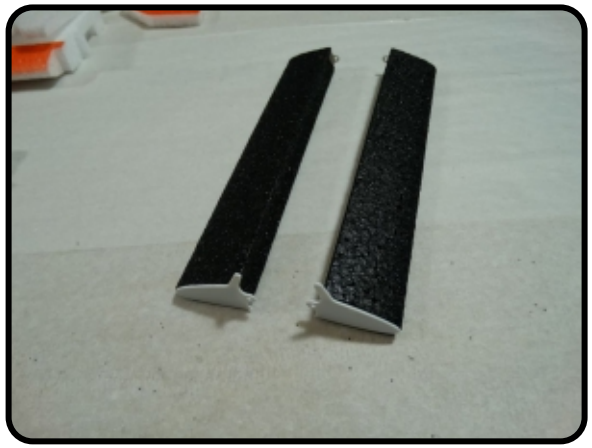


With many ESC's it is required to program throttle end points. Follow the mfg instructions for this operation and complete the process at this time.

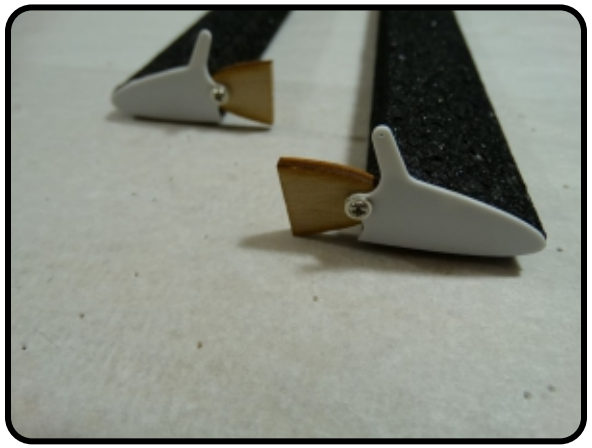


Locate the above items needed for the Lead Edge Flap (LEF) assemblies. Screws shown are the 4 tiny M2x5 screws that are located in the hardware bag.

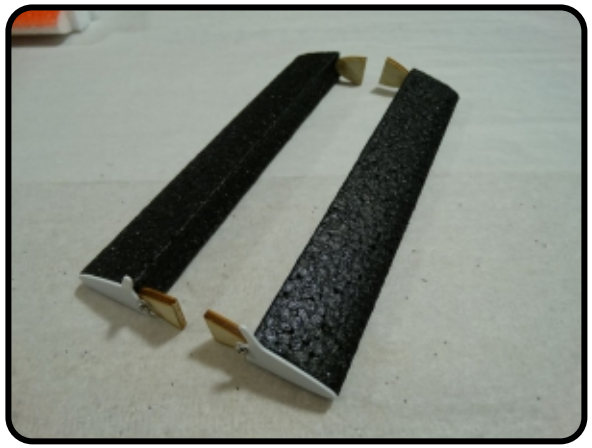
Using the "tack up" method apply a skim coat to the mating surfaces. Note - you have to build a Left and Right had version. Take this into account when applying the glue.



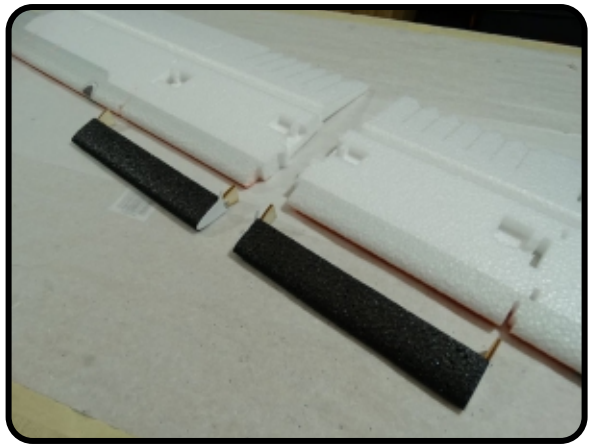
Attach the plastic pieces as shown, lining up their profiles with the profile of the LEF. Again, be sure and make a left and right version of these two pieces.



With the M2x5 screws, attach the wood pieces as shown. Note that they go on the INSIDE of the plastic pieces. The wood pieces must pivot, so do not over tighten the screws.

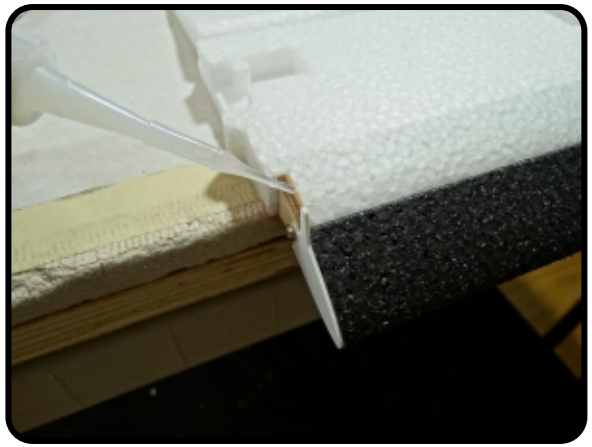


When completed you should have something that looks like the above parts.

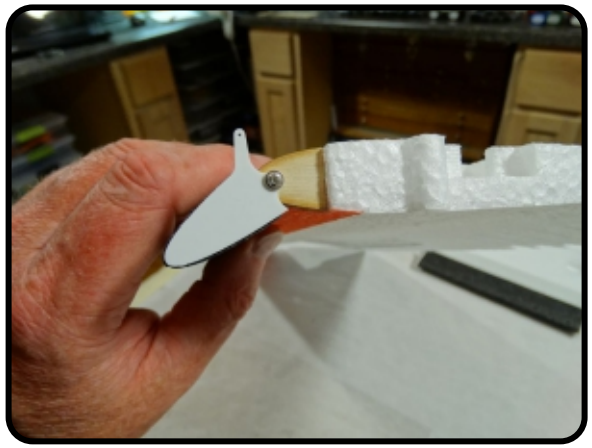


Test fit wood pieces of the LEFs into their respective slots in the wings leading edge. Note - the plastic piece with the horn is INBOARD and on the UNDER side of the wing.

Fully engage the wood pieces and make sure there is no binding of movement when exercising the LEF.



Using thin CA and kicker, glue the wood pieces of the LEF to the wing, be very careful that you do not get glue in the area that pivots.



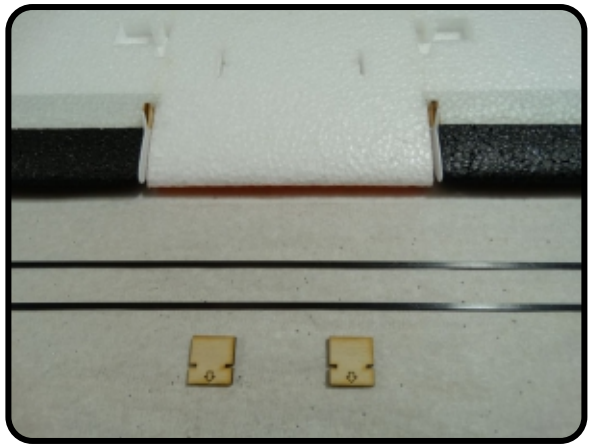
Make sure you have equal amounts of up and down movement as shown in this and the next picture.

Movement in the opposite direction should be approx equal to the movement in the previous picture. Note this does not have to be exact, just similar.

Apply a medium tack up coat to the mating surfaces of the items shown above. Note - the UNDERSIDE of all the pieces should be facing UP.

Once the glue has tacked up, join the pieces together making sure that the airfoil profiles align as perfectly as possible.

Installing the 1x3x980mm carbon spars in to the wing is next. Locate the spars, these should just have been loose in the box.



In addition to the spars you will need the above picture two items from one of the wood kits.

The wood pieces will install into the pre-cut slots pictured above. Welders should be used for this.

Apply a Wet coat of Welders to both sides of the part AND squeeze a little into the slot area. If possible keep the “notch” free of glue. Then slide the wood piece in, arrow pointing forward.

Slide the wood piece in until it is flush and wipe away any excess glue that squeezed out

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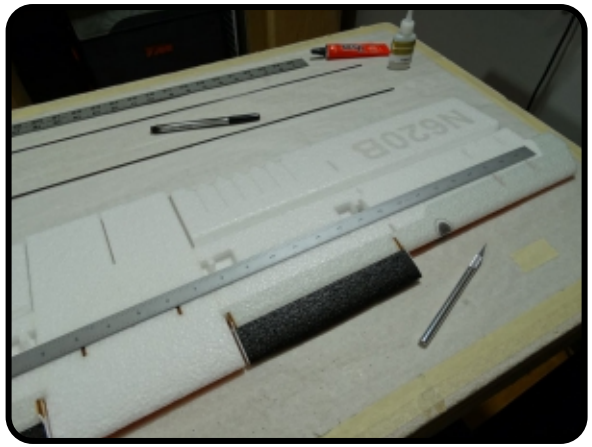
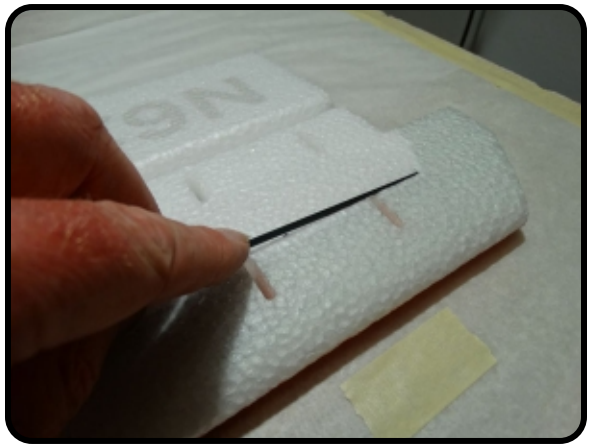


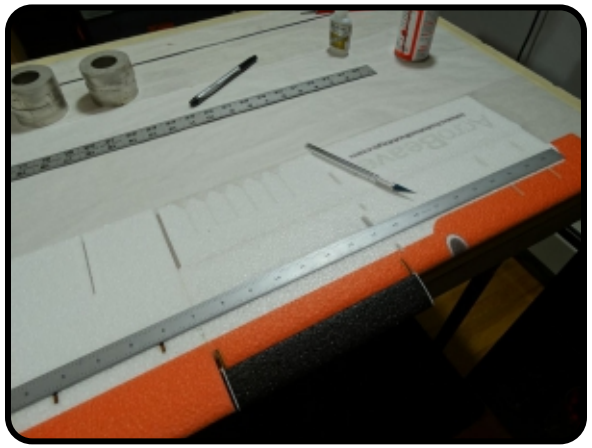
Next, cut a 3mm deep slit, centered and long enough to accommodate the carbon spar. Location front to back is determined by the relief cut in the small wood pieces just installed



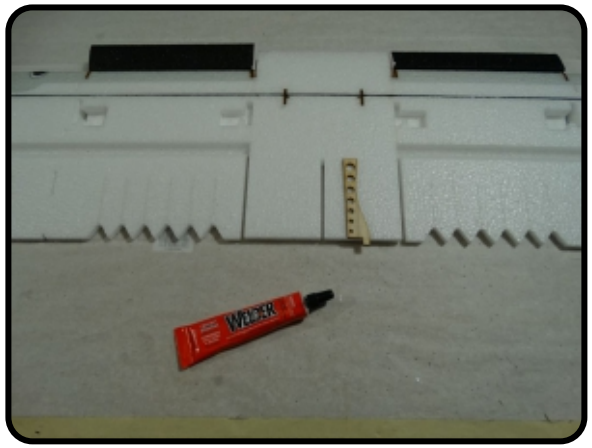
Install the spar DRY. Make sure that the slit you cut was “just” deep enough so that the spar when fully seated will be flush with the wings surface.

Once the whole length of the spar is install, it should look similar to the above picture.

Once you are happy with the depth of the spar, wick in some thin CA for the entire length and hit with kicker.



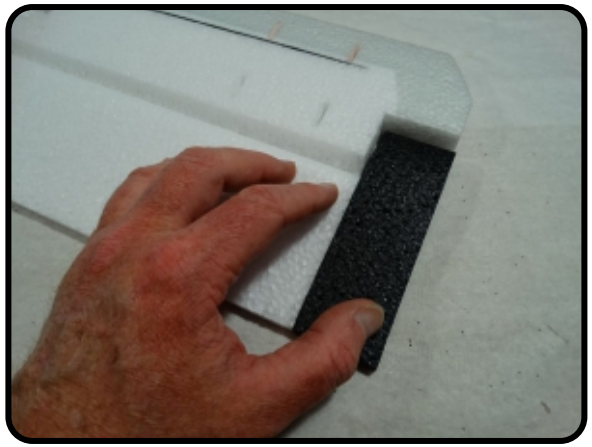
Flip the wing over and repeat the process on the top side.



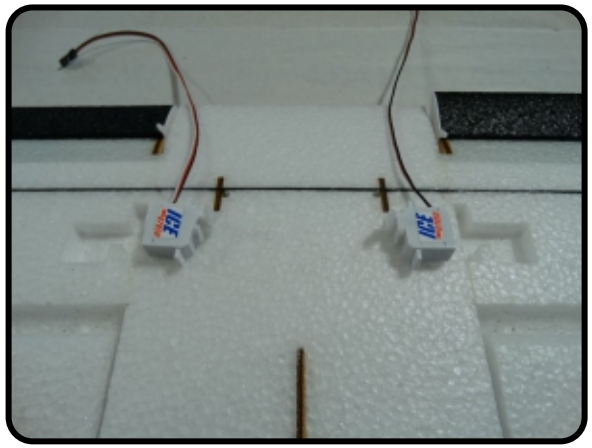
Locate the wood piece shown above and coat it with a medium amount of Welders and with the nozzle of the tube squeeze some Welders into the slot.

Install the piece as shown, from the under side. Make sure that fits flush on the top side, and flush everywhere on the bottom except where it gets wider for the hook.

Grab the black two counter balance pieces that glue onto the end of the ailerons. Coat the them mating surfaces with a film of Welders and let tack up.



Once the Welders has tacked up, bring the two pieces together. Align them on a flat surface and use the trailing edges as reference.



Locate the servos that will be used for the LEF's. Depending on the size servo, you may or may not need to adjust the size of the cut out.

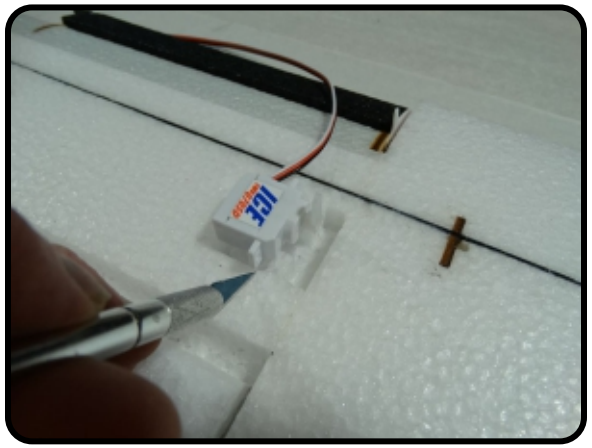
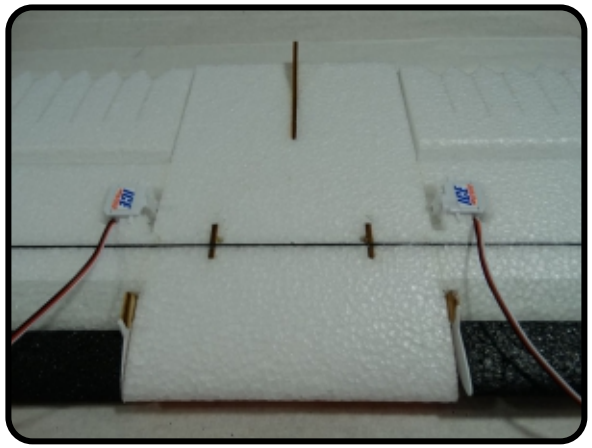
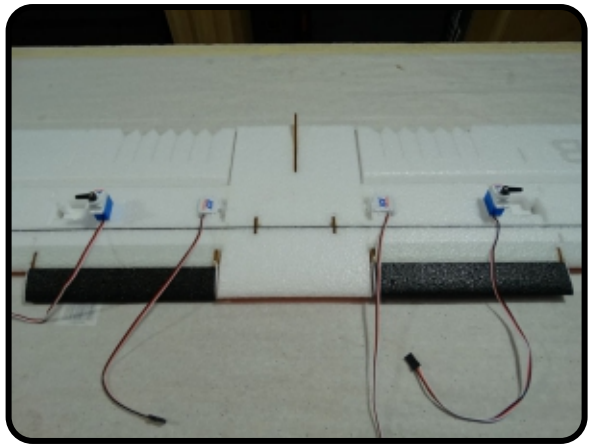


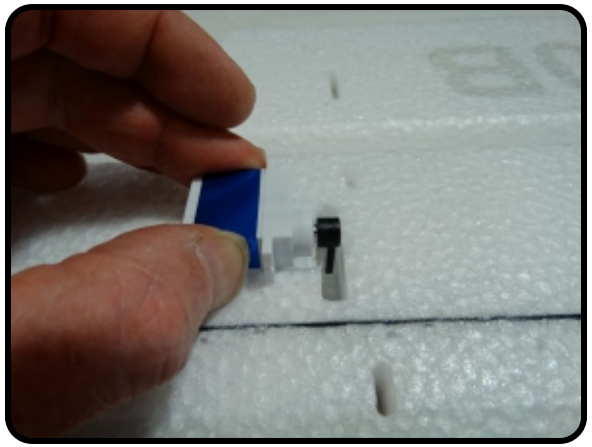
Figure out where the slits need to go for the ears of the servo, and adjust the size of the pocket if necessary. Make sure that the output arm of the servo lines up with the horn of the LEF



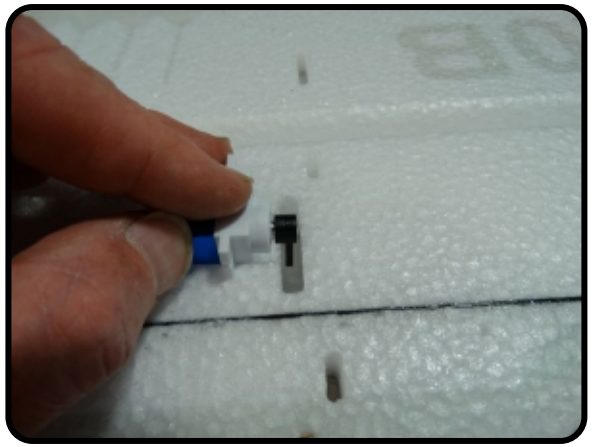
Repeat for the other side. Some servos may stick up a little from the surface of the wing, this is fine.



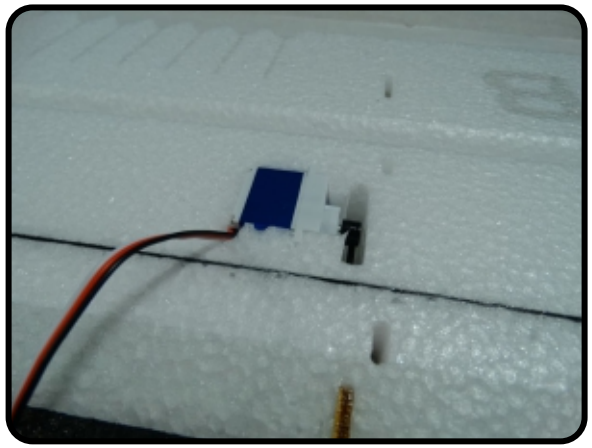
Locate the servos that will be used for the ailerons. As with the LEF's, the size of servo being used will determine if there needs to be any trimming of the pre-cut pocket.



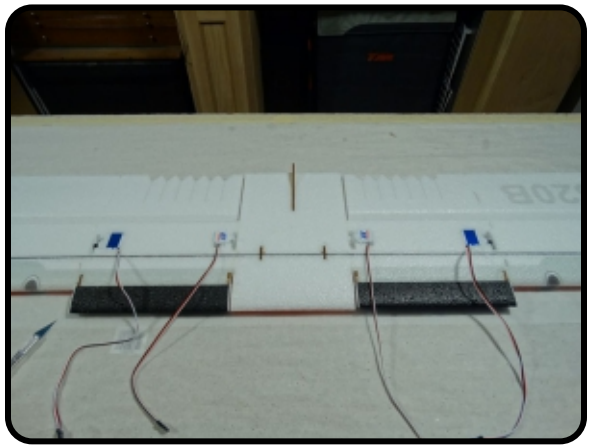
Locate the slits for the servo tabs by lining up the output shaft/horn with the center of the slot in the wing as shown above.



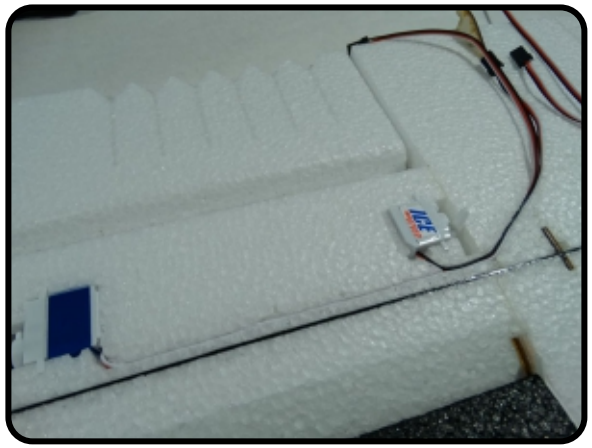
Press the servo into position.



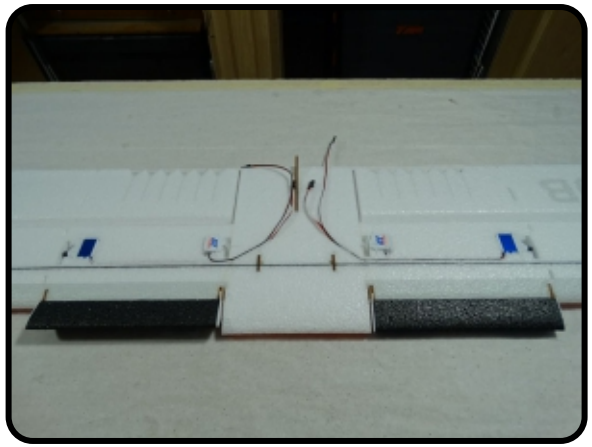
Aileron servo installed. Repeat for the other side.



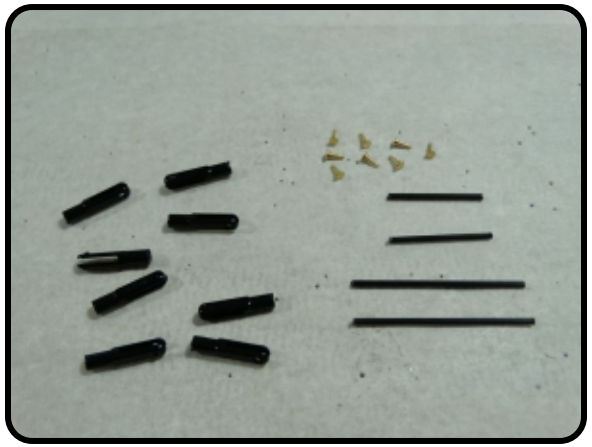
Now you can route the wires towards the cabin area. Route in such a way that the left over wire will be the longest in the general area where you plan to locate the receiver.



In this build the position of the Receiver has been determine to be near the tailing edge of the wing, in the cabin area, this will minimize the potential need for extensions.

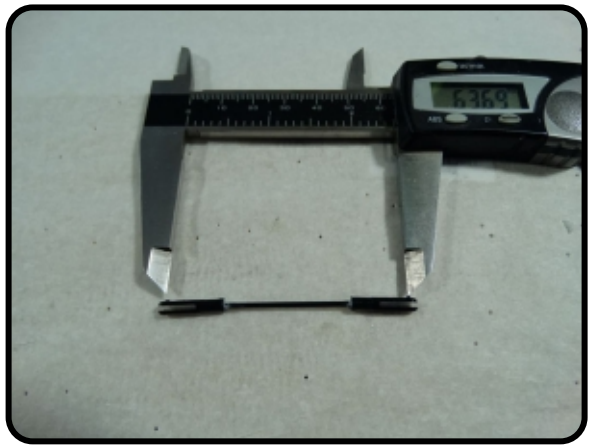


Repeat for the other side, keep the slits you cut to a minimum depth, all that is needed is just enough to bury the servo wire.

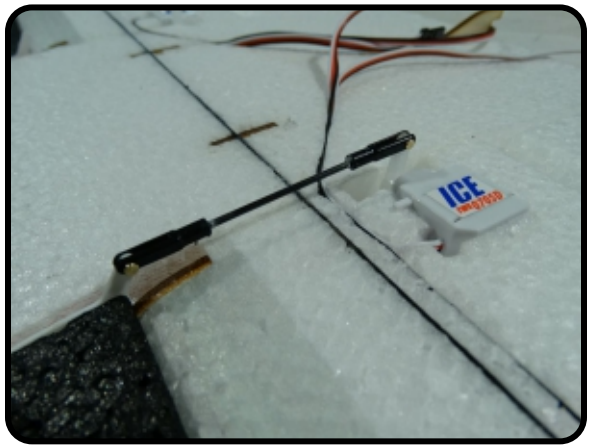


Locate the clevis and rods as shown. The shorter rods are 1.5mm dia x 25mm long and the longer rods are 1.5mm x 45mm. Note these dimensions may vary some from kit to kit.

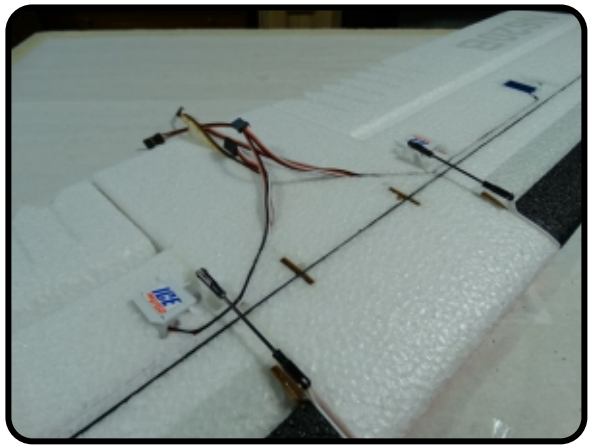
With the servo electronically center and the LEF in it's neutral position, measure the distance from hole to hole of the horns.



Duplicate the dimension in the holes spacing of the clevises. Use medium CA to secure the rod to the clevis. Do one end first than measure again. Make sure the orientation is correct.



Attach the control rod between the servo and the LEF. If it is slightly off center, this can be adjusted with sub-trim later when setting up the radio program.



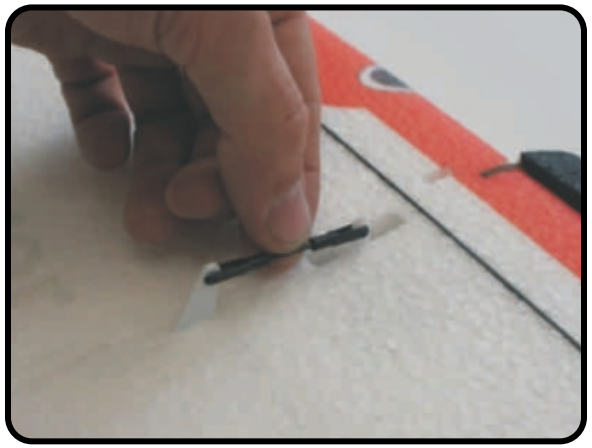
Repeat for the other side.

Next cut a slot in the wing for the aileron control horn. Use a square to get the slot in line with the servo arm. Cut the slot so that the clevis hole in the horn will be on the hinge line.

Put a skim coat of Welders on the base of the horn, and squeeze some into the slot with the nozzle of the tube. Install the horn while the glue is wet and position the horn as needed.

With the control surface and servo both in neutral positions, measure from hole to hole like was done with the LEF.

Position the holes in clevises as you did with the LEF and secure them to the rod with medium CA. Make sure that the orientation is correct.



Connect the control rod to the servo and aileron control horn as shown. If any adjustments are needed they can be done later with subtrim.

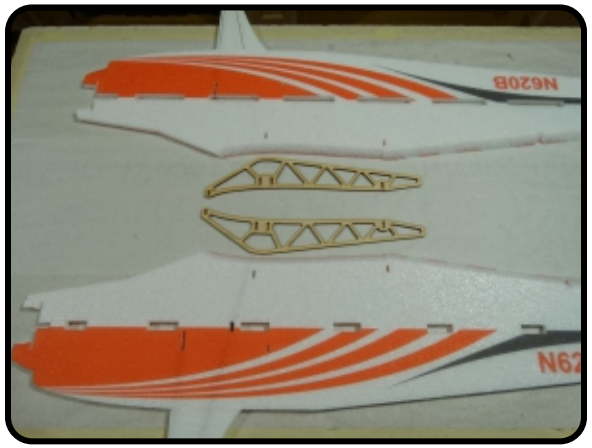
Repeat the process for the other side. This completes the Wing building, it can be set aside for now and work on the fuselage can begin.

Now that the Wing is complete the fuselage is next. Using the tack up method, attach the landing gear fairings as shown with the slots lining up between the two pieces

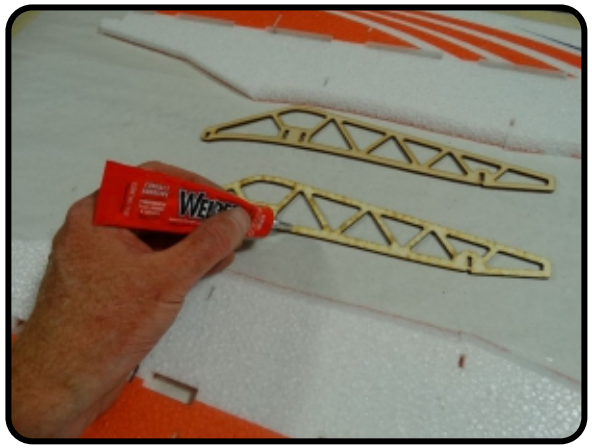
Locate two of the 1x5x300 carbon strips and one of the 1x5x200 carbon strip. Make sure the slot in the foam is deep enough to receive each of the strips.

With the nozzle of the Welder's tube, squeeze a small bead of glue into the respect slots and install the strips as shown while the glue is wet. Note - One of the long ones is left out for now.

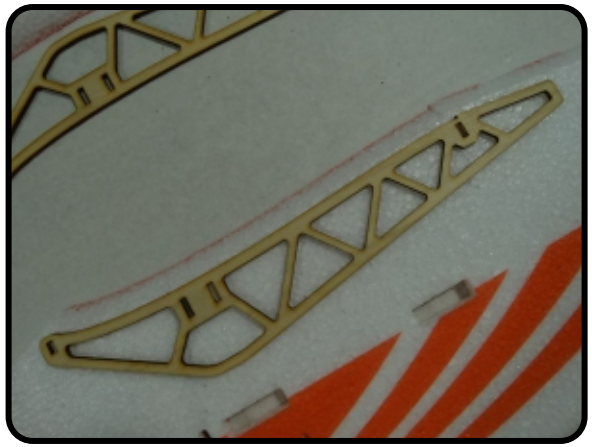
Use stick pins or weights to hold everything flat while the glue dries.



Once the glue dries from the previous step, flip both pieces over and locate the above pictured wood doublers.

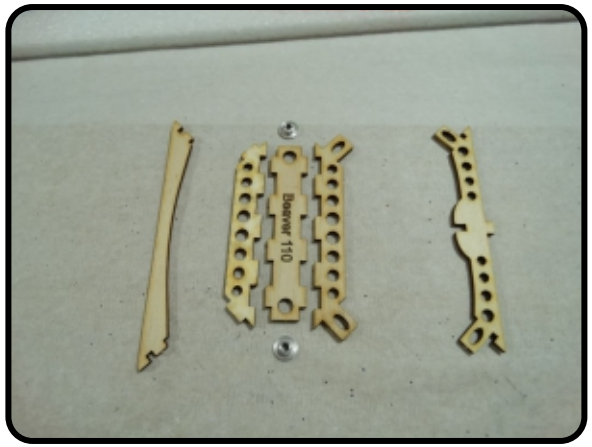


Apply a medium bead of Welders on all areas of the wood's back side.

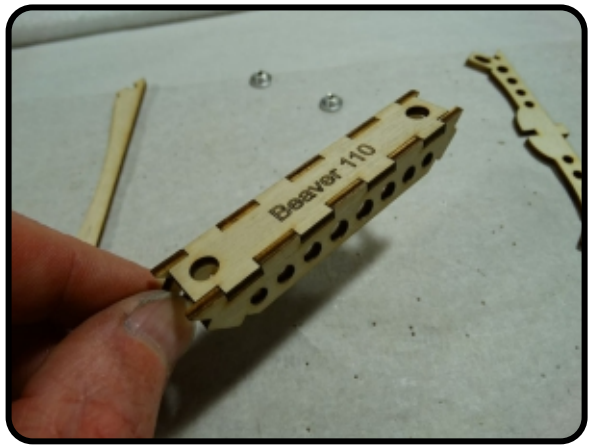


While the glue is wet, attach the doubler as shown above. Note there are two different slots in the foam and the doubler that need to line up. Slide the wood around until the slots match up.

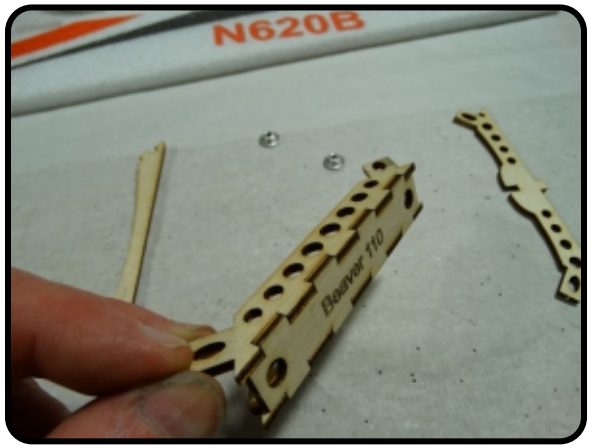
Repeat for the other side and with stick pins or weights, let the glue dry before moving these pieces around. It is important to make a left and right, and that the wood is on the sides shown.



Locate the above pictured wood items and the two small alum threaded insert nuts.



Fit the three center bridge pieces together as shown above. It may be necessary to sand of file on the mating area.



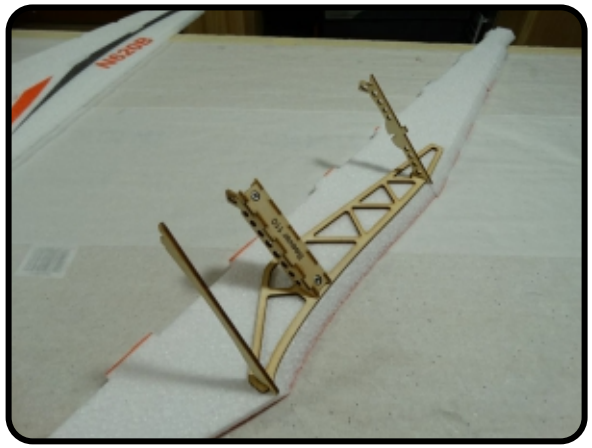
Make sure the orientation of the three parts is as shown in this picture and the previous one

With thin CA and kicker, glue the three pieces together.

With a little dap of Welders attach the nut insert as shown. Keep the threaded area free of glue.

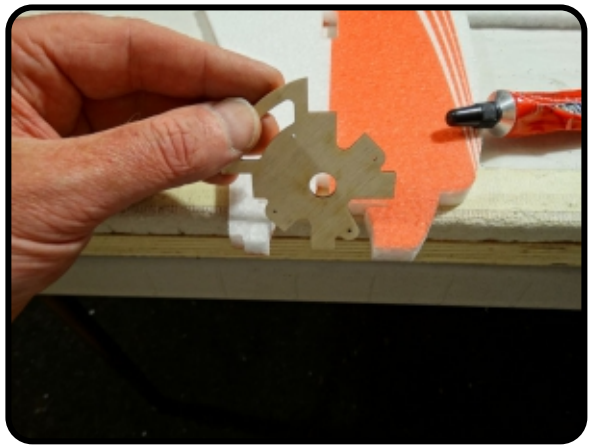
Repeat the process for the second nut insert

Locate the body half shown above and split it in the tabbed area. Using the small points in the foam as a guide to where the center of the tab is.



Install the cross members now in to the slots of the part that was just seperated. Note - this is a dry fit... NO glue at this time.

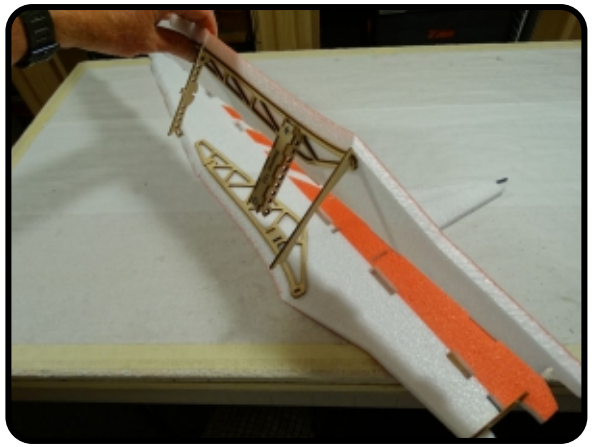
Find the motor mount in the wood kit and remove it. Note - production kits will have two different hole patterns to accommodate different style motor mounts.



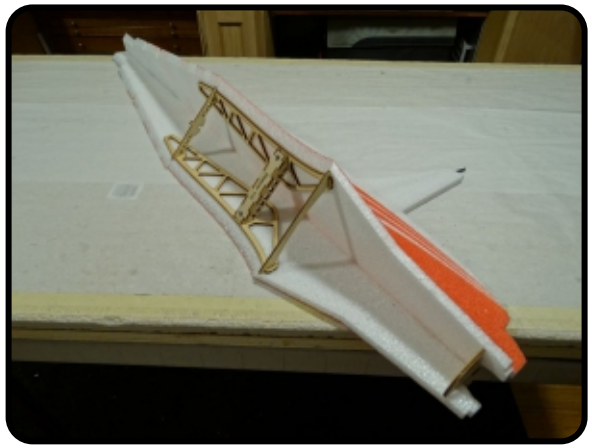
In the fuselage half that is whole, install the motor mount as shown using the Wet Welders method... laser etched rectangles facing rearward.

Make sure and get glue in all the contact areas. Wipe away any excess that squeezes out.

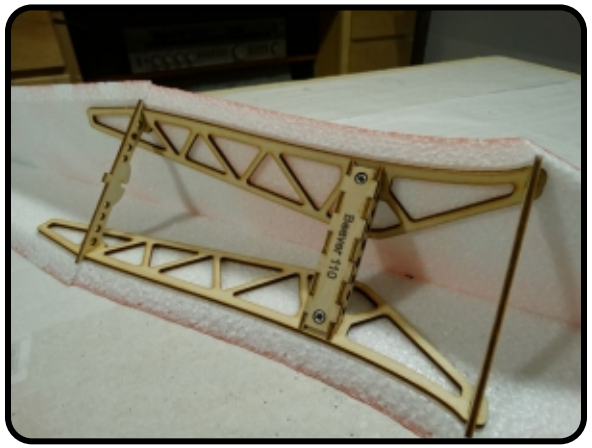
Again... Using the Wet Welders method apply Welders to all the FOAM areas where the two up portions of the fuselage joint together. Do not put any glue on any of the wood pieces yet.



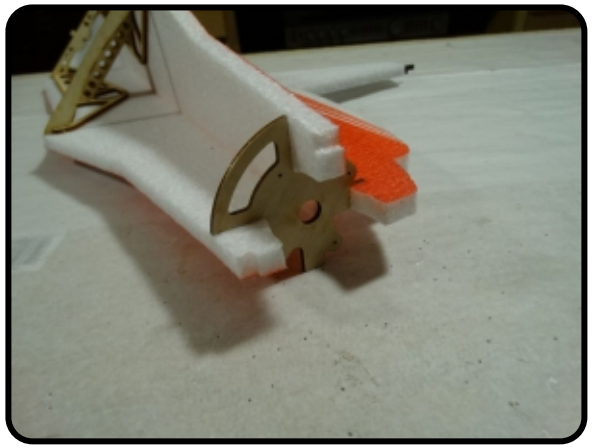
Carefully bring the two pieces together, making sure that the slots in the foam and the slots in the wood pieces are all lining up. Don't forget to put glue in the motor mount area.



Make sure all the contact area are fully engaged. Check the motor mount area to ensure that the tabs of the mount are centered in their respective foam slots.

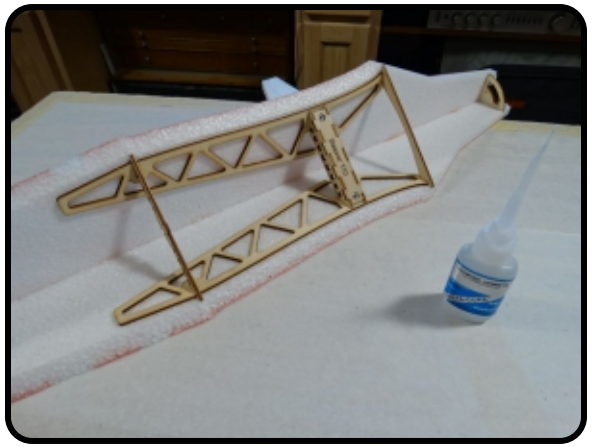


There should still be NO glue on the wood areas shown above, but it is necessary to make sure that all the tabs are fully engaged and sitting flush in their slots



Wipe away any excess glue and double check all the joints.

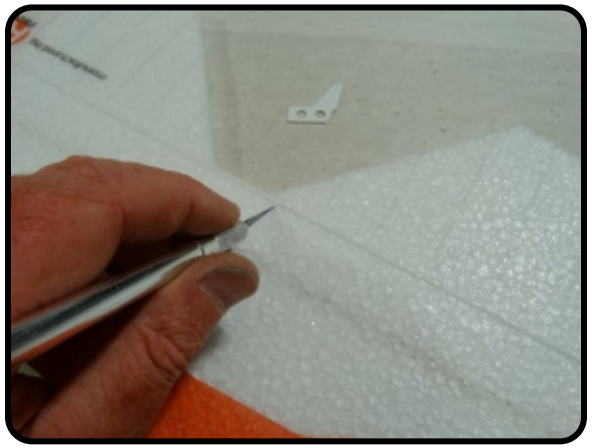
With a Builder Square, check several spots along the length of the fuselage for squareness.



Now... that all the foam pieces are glued and square, use thin CA and secure the tabbed and slotted wood areas shown above

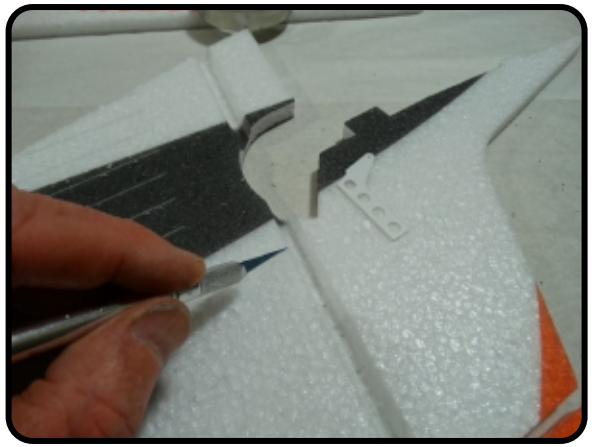
Let all this dry for a little while, use weights to keep everything flat and true while the glue dries.

Locate the Elevator, 1x3x330mm Carbon Spar and horn. Note some kits will have the spar installed from the top, others from the bottom. It does not matter just use the pre cut slot

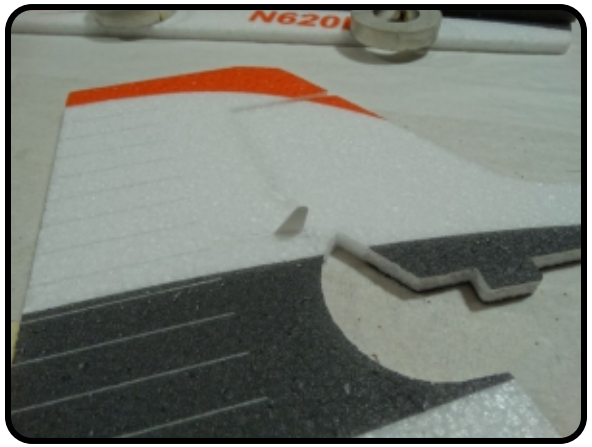


Make sure that the Elevator horn slot is deep enough to accommodate the base of the horn. In some cases it will need to be made a little deeper. HORN INSTALLS FROM THE TOP SIDE.

Make sure the spar is flush with the elevator surface and position the horn so that the hole is over the hinge line. Once everything is in place, secure with thin CA and kicker



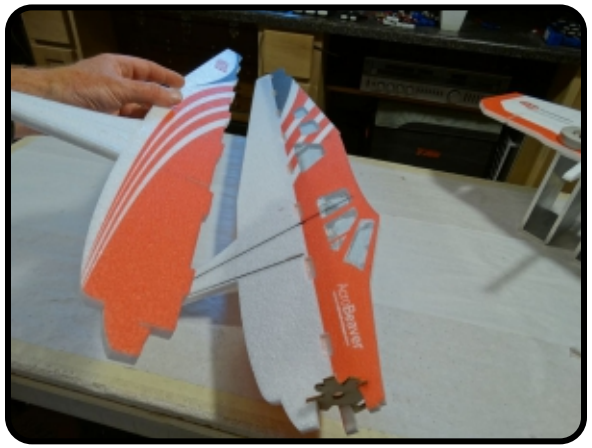
Repeat the process for the Rudder Horn. Above the slit is being cut thru to allow for the fitment of the horn.



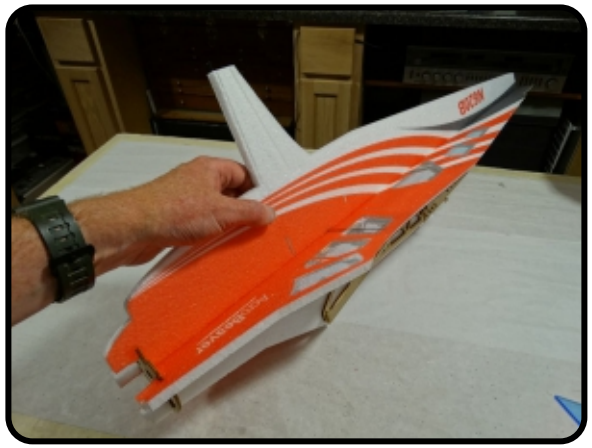
Horn installs from the side shown above, make sure the hole in the horn is directly above the hinge line.

Next, assemble the elevator and rudder together using the Wet Welders Method.

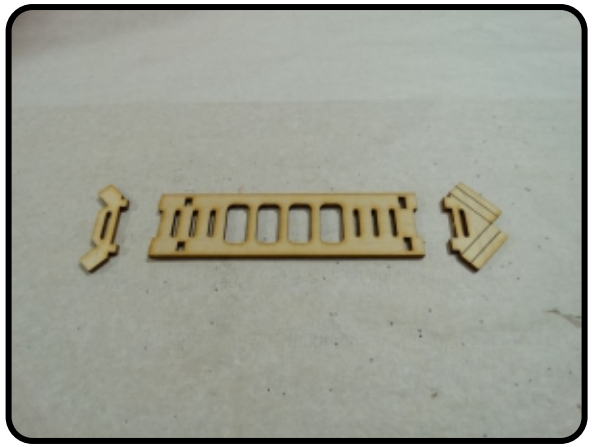
Stick the two pieces together. Make sure they are fully engaged and perpendicular to each other. Set aside in a safe place to dry.



While the tail section is drying, the lower right side of the fuselage can be attached. Use the Wet Welders Method. Make sure and get glue in all the tabs, slots and motor mount areas.



Fit the together as shown above, check that the two pieces are square to each other and that tabs and slots are fully engaged. Let dry for an hour or so before handling.



Locate the wood parts shown above. These are the parts for the battery tray and will be assembled onto belly of the fuselage. Sand lightly if needed to get the parts to fit together.

Squeeze some Welders into the two rearward slots as shown above.

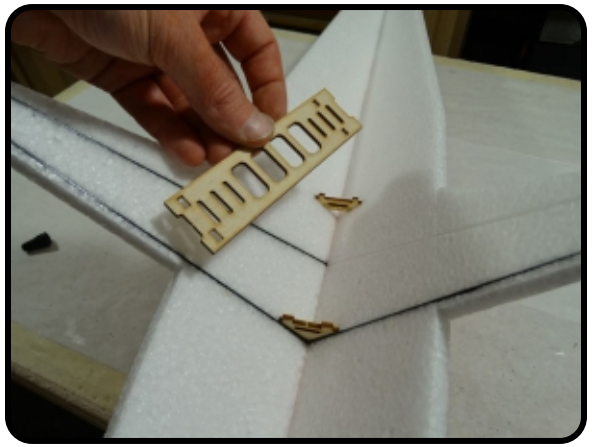
Slide the SMALLER of the two pieces into the rearward foam slots, one side at a time as pictured above.

Once one side is in it's slot the other one can be inserted

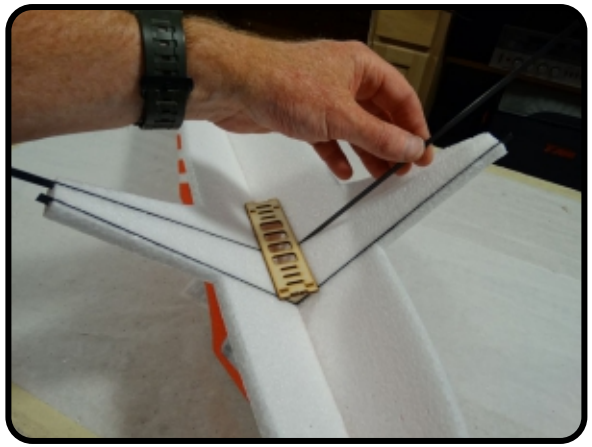
Repeat the process for the larger part and the foreward two holes. Again, Welders into the slots.

And then one side of the part at a time into the slots. Note, the laser engraved areas should be facing forward and line up with the carbon landing gear spars.

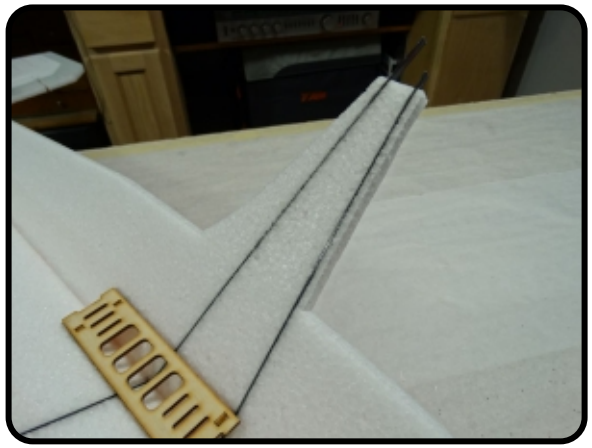
Finished view of the two little bulkheads in place and ready to ready to receive the main tray



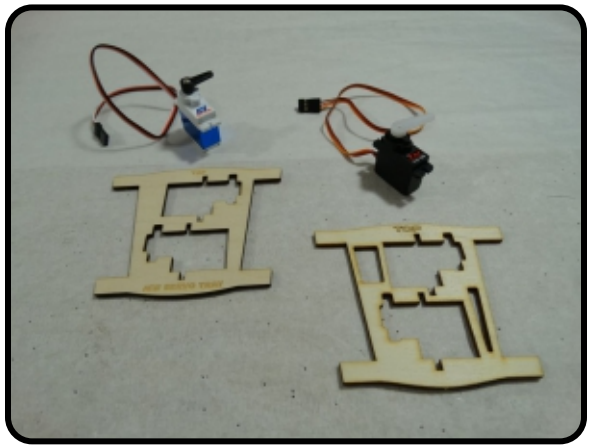
Put some Welders on the tab and slot areas of the main tray and little bulkheads and fit the them all together.



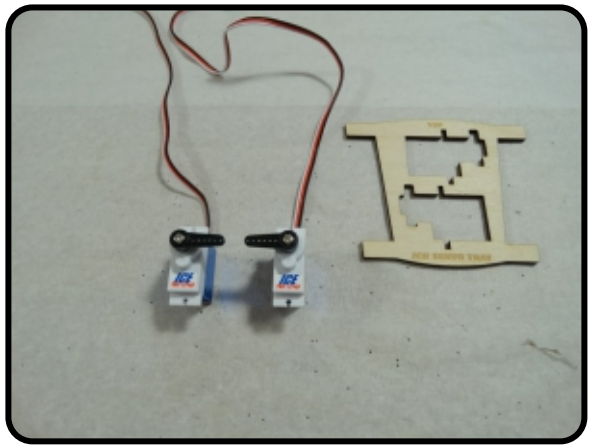
Now is the time to install the remaining 1x5x300mm carbon spar. It will slide in to the existing slot. it may be necessary to clean some glue out in the joint areas. Test fit first.



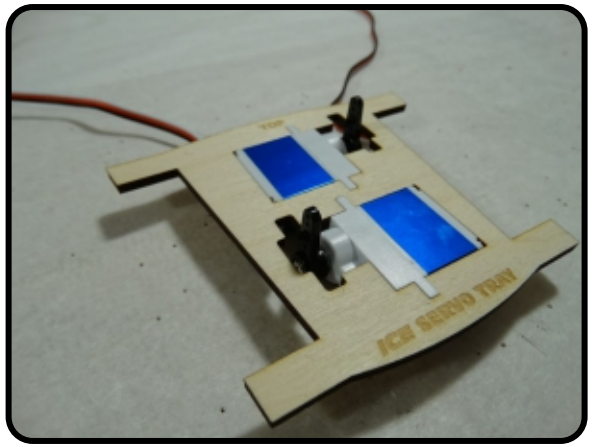
Once happy with the fit-up, remove the spar, squeeze some Welders into the slot and slide the rod back in. Wipe away any extra glue. Set a side to dry for a bit.



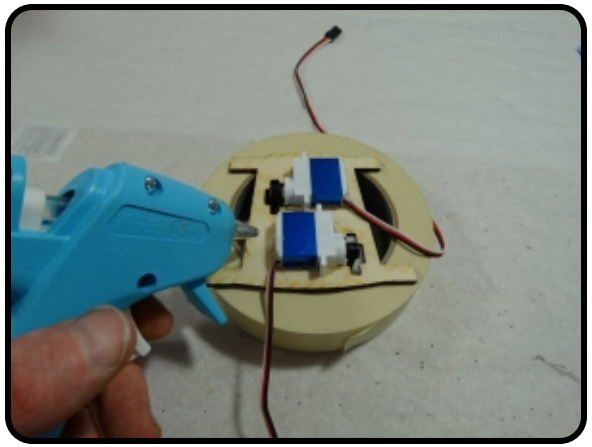
Next up is the tail servos. There are two different servo trays included with the kit. Pick the one that best fits your servos.



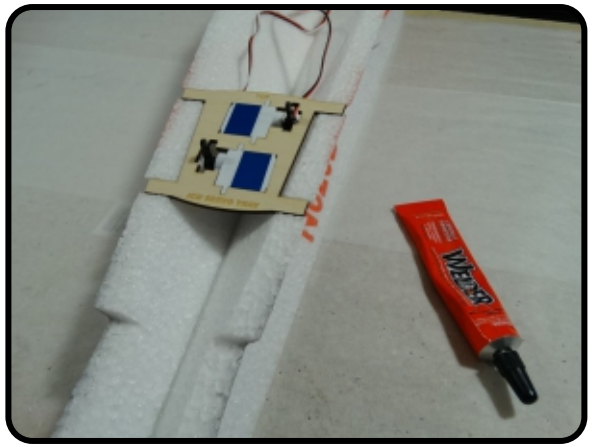
This build uses the Twisted Hobbys' power combo, so the ICE Servo Tray is a prefect fit for the servos in the that combo.



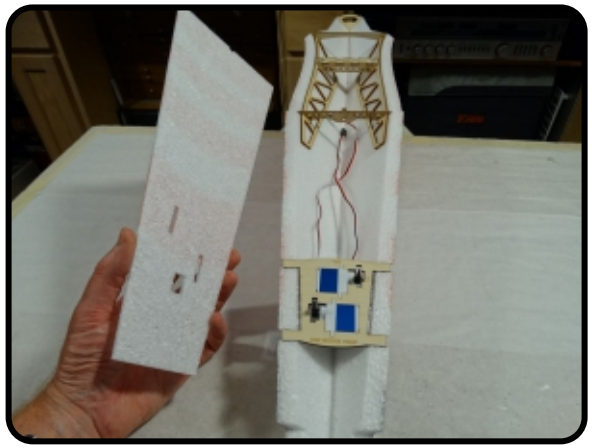
Make sure the servos are electronically centered, the horns are facing as shown, and that the servo bodies are flush with the servo tray.



From the UNDERSIDE apply a bead of low temp hot around the area were the servo and wood meet. Using hot glue will make it easier to fish the servos out in the future if necessary.



Using the Wet Welders Method, mount the servo tray to the provided notches. Once attached everything should be flush.



Test fit the rear fuselage cover, then with the tack up Welders method, attach to the fuselage. DO NOT put any glue on or around the servos themselves.

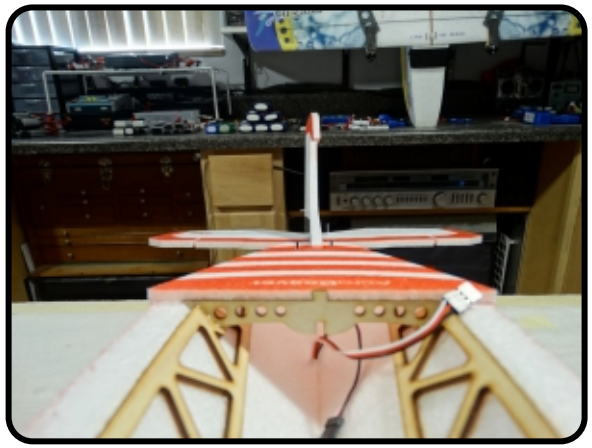
Make sure the edges line up on both sides…

… and that towards the front the little notch is engaged…

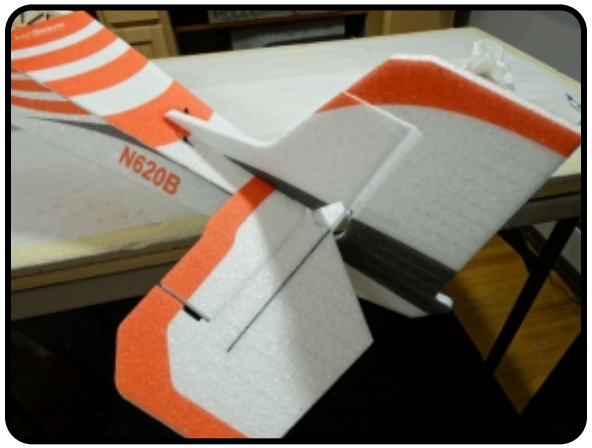
…. as well as the servo horns being centered in the provided slots towards the rear.

Attaching the tail assembly is next. Test fit, make a note of all the contact areas and attach using the Wet Welders method.

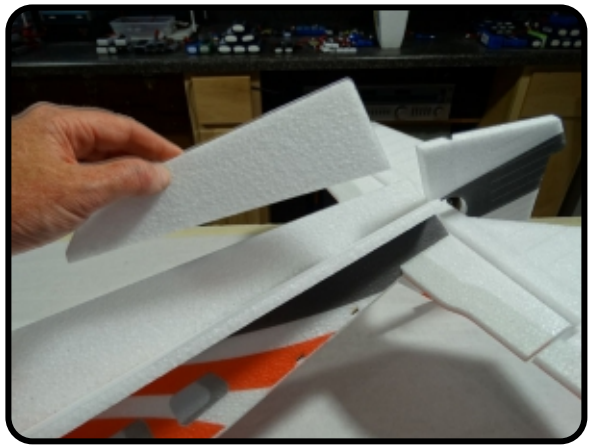
Make sure all tab and slot in the front engages and that the elevator is sitting flush with it's mating area on the fuselage.



Once everything is determined to be engaged and in proper position, check from the front to verify that things are also square and true to the fuselage.

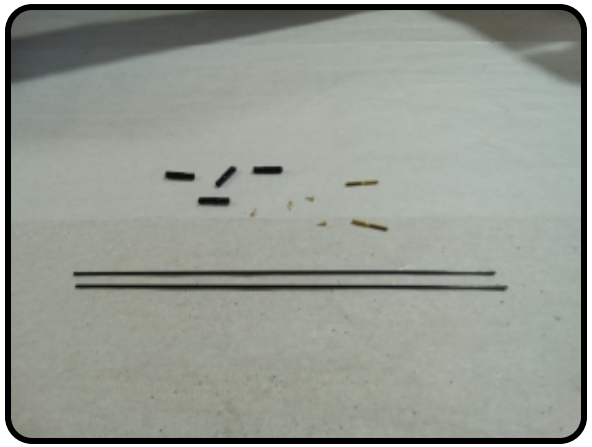


Let this dry for a little while before handling.



Using the Wet Welders method, attach the lower rudder fin.

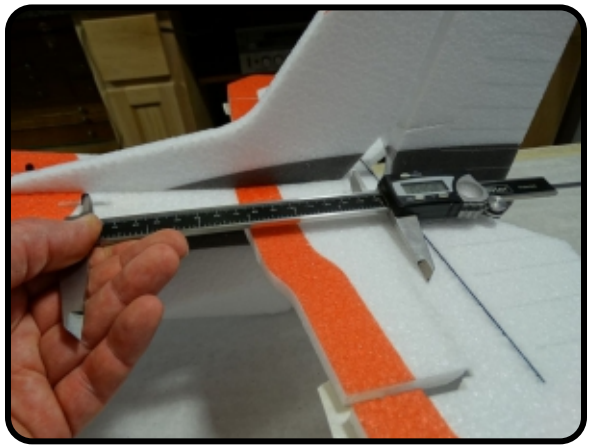
It should line up with the lower rudder towards the back and then saddle itself in the “X” from there forward.



Tail push rods are next... locate the 1.5x200mm round rods, the threaded ends, clevises and brass pins.

Attach the threaded ends to one end of EACH push rod with thin CA.

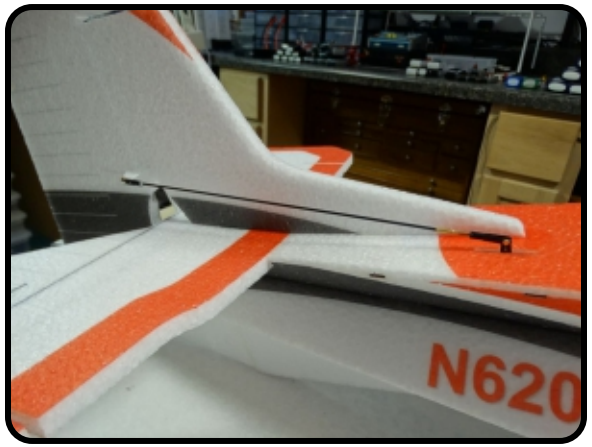
Thread the clevises on far enough so that there is only about 3/16” of thread showing. This will give a little adjustment in either direction if needed later.



With the servo centered and the elevator in the neutral position, measure from hole to hole.

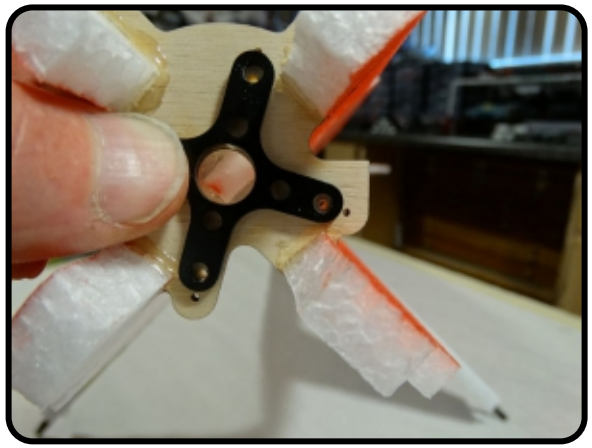
With the dimension just taken, remove enough of the control rod so that you can match that dimension hole to hole with the clevis-control rod assembly. Attach the clevis with med. CA.

Install the control rod on to the servo and elevator control horns. With the servo electronically centered, adjust the threaded end if needed to get the elevator perfectly neutral



Repeat the process for the rudder.

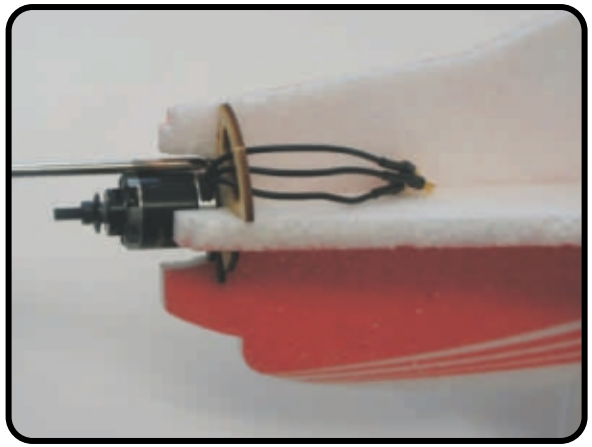
Round up your motor, the hardware it came with and the ESC that will be used.



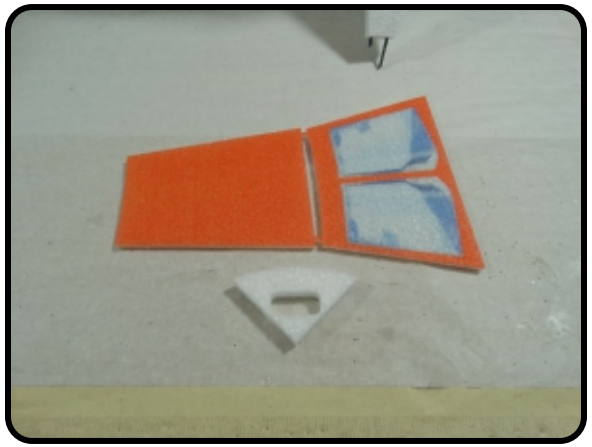
Check that the X mount with you motor will line up with one of the hole patterns of the motor mount.

Attach the X mount to the motor with the small countersunk screws that came with the motor. Use thread locker.

Attach the front prop hub, also with the screws that came with the motor, and also with thread locker.



Mount the motor to the nose of the aircraft. If your motor did not come with mounting screws, large head servo screws can be used.



Front cowling and windscreen are the next items to attach.

Start with the pie shaped part. It's exact position is centered on the area where the cowling and windscreen meet up.

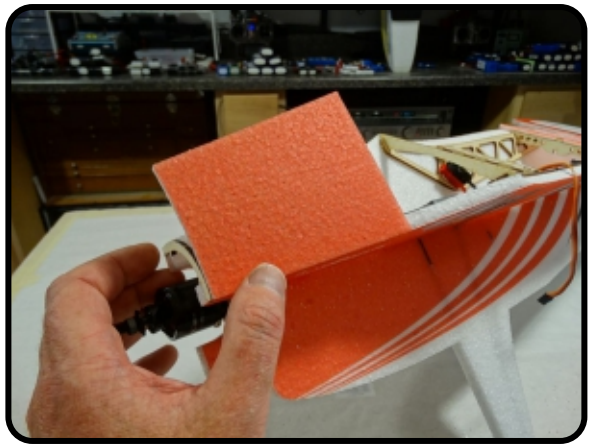
Using the Wet Welders Method, install the cowling bulkhead as shown. Check the position with the cowling and windscreen. It should support the edges of both equally.

Install the front cowling ring using the Wet Welders method.

Hold everything in position for a couple minutes or use tape to keep it all in place while the glue sets up.

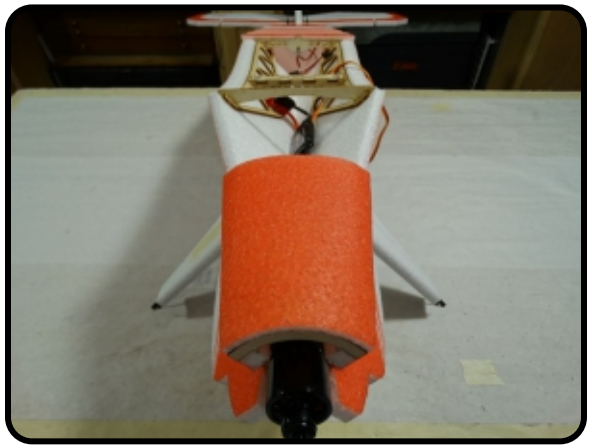
Nose of aircraft ready for the cowling.

Attach your ESC to the motor, check motor direction. Cowling will be attached using the tack up method. Apply a skim coat to the mating surfaces.



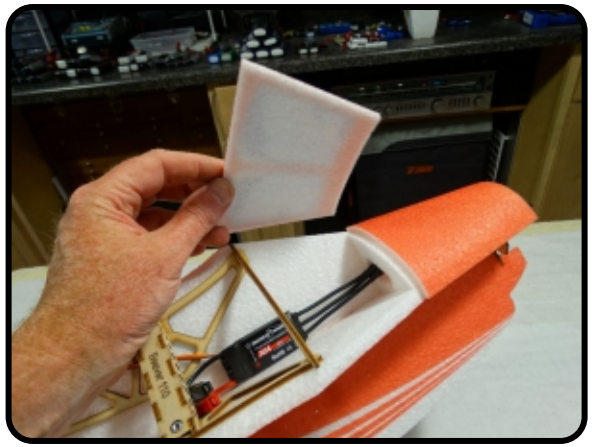
Let the glue tack up, then join the pieces, starting on one edge as shown and wrapping around. This is where the Welders Tack Up Method really shines.

Make sure that firm pressure is applied to all the contact areas to ensure a robust bond.

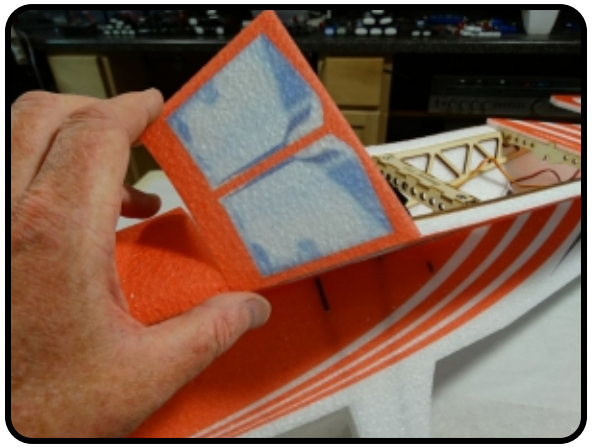


Finished front cowling.

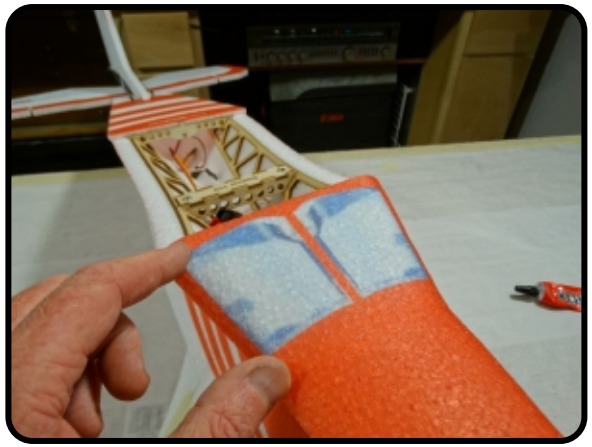
There should still be a little lip just behind the cowling, this is where the lower part of the windscreen will meet up.



As with cowling, the Welders Tack up method is perfect for this application. Apply a skim coat to all the mating surfaces

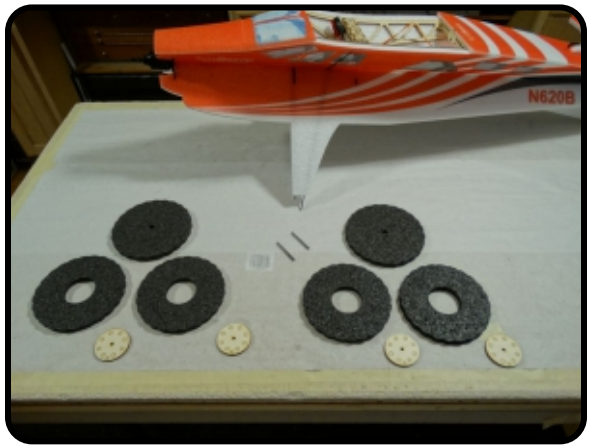


Once the glue has tacked, start from the edge as shown



Wrap all the way around and apply firm pressure everywhere to secure the bond.

Check that where the leading edge of the wing will be that the windscreen is nice and flush as well as firmly glued.



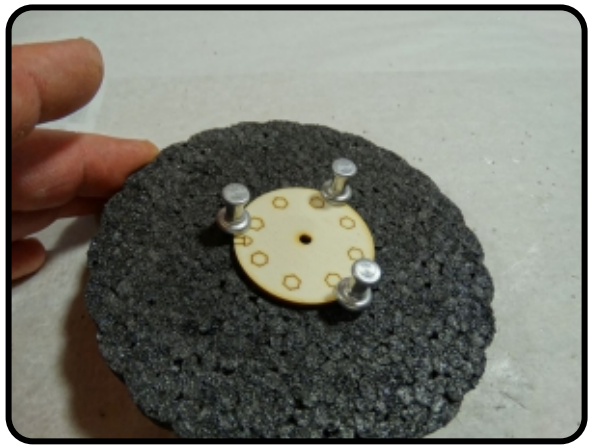
Tundra Wheels are next on the agenda, round up all the parts pictured above.

Medium CA or Welders Wet method can be used for the wheels. Welders Wet method will allow for finer adjustment in regard to the concentricity between the inner and outer hubs.

Apply Medium CA to the back side of one of the wheel hubs

Spray the center tire section with kicker.

Join the two pieces together, use the center holes of each piece for location.



Flip the part over and with some stick pins poke thru to the other side to help locate the hub on the other side.

Here you can see the pin sticking through.

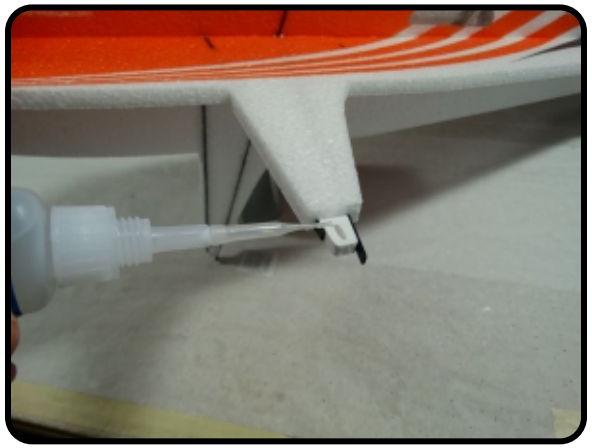
Apply Medium CA and Kicker as was done with the other side, to attach this hub. Use the pins for location.

Next attach the outer donuts. Medium CA (or Welders if you prefer) to the part shown...

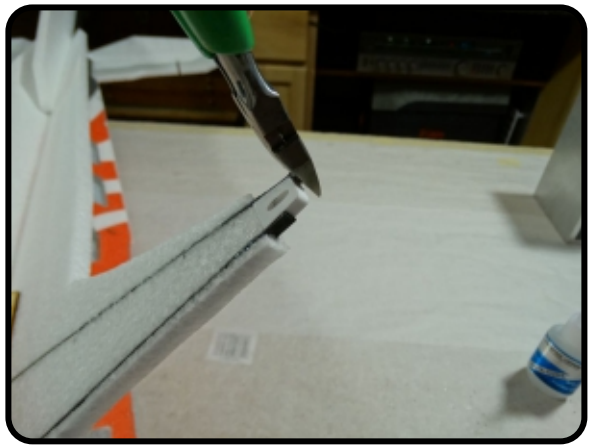
... and kicker to the donut. Press the two pieces together. Start in the center to make sure the donut hole goes all the way around the wood hub, then press the rest of the area flat.

Repeat the process until you have two complete wheels built.

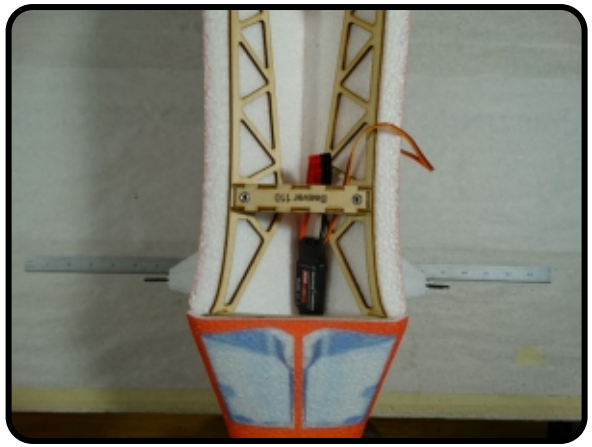
Wheel axles and mounting system is next. Welders or CA can be used, CA is the recommend process. You will also need some sewing thread. Kevlar or other stuff can be used but not needed.



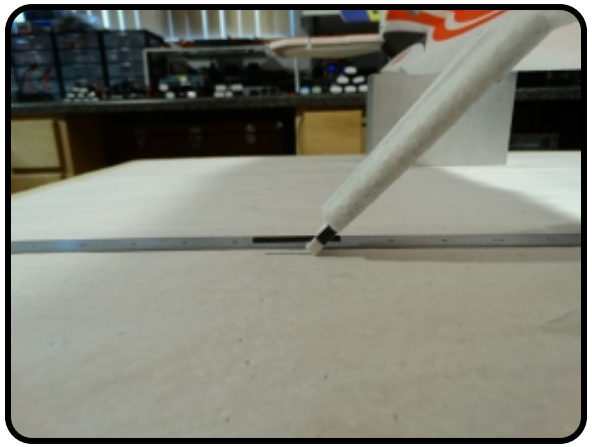
Insert the small white axle holder between the protruding landing gear spars and secure with thin CA.



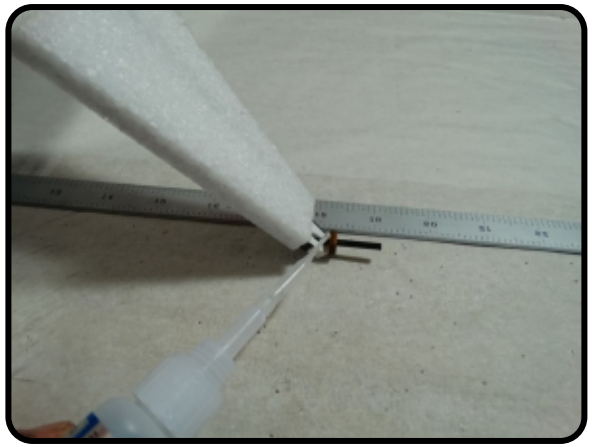
With a pair of flush cutter, remove the extra length of the landing gear spars. Repeat for the other side.



Install the stub axles thru the oval shaped holes of the axle holders. from the top view make sure they are parallel to each other and perpendicular to the direction of flight.

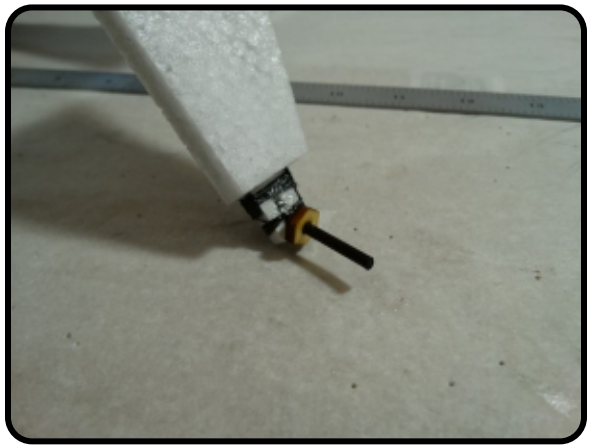


From the front view, the stub axles should be parallel to the ground. Note that the stub axles stick thru about 3/16” or so, apply a small drop of CA to hold it’s position.

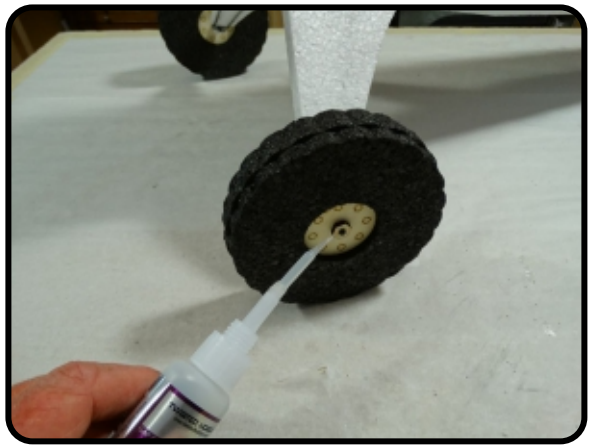


Slide one of the small wood nut shaped parts onto the stub axle as far as it will go, make sure it is square to the axle, then secure with a couple drops of medium CA from the back side.

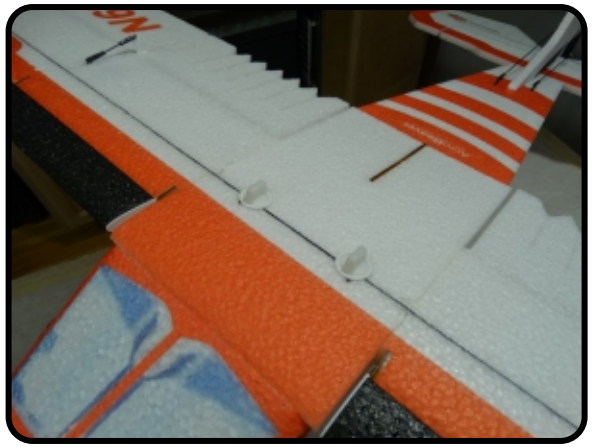
Cut off 18 inches of thread.



Wrap the thread all around and in every different direction. The objective is to provide as much support to all the pieces as possible. Soak with Medium CA and hit with Kicker.



Slide on one of the wheels and another wood nut. The nut can be secured with a drop of medium CA or Welders, just make sure the wheel still spins. Repeat for the other side.



Find the large white wing washers from the plastic kit, put a little Welders on the under side and attach the wing with the wing nuts. Note the washers should only be glued to the wing.

Locate the thin black piece of EPP that has all the assorted SFG's.

Cut them all out in prep for assembly onto the airframe.

Split the Two SFGs as shown above. CA or Welders can be used to attach these pieces.

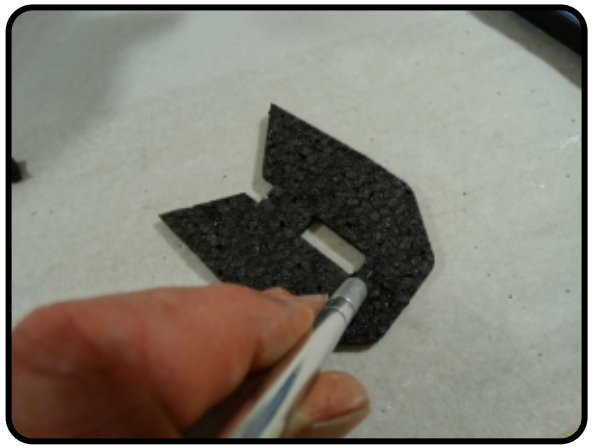
Take the piece shaped like above (there should be two of these) and install it into the slots from the leading edge that are closest to the aileron servo.

The one that was just split, installs onto the aileron control surface, just behind the SFG that was just installed.

Next take the one shaped like pictured above (there should be 4 of these) and install in the position one set of slots in from the wing tip.

Take the other part shaped like the one just installed and put it in the slots closest to the wing tip.

Elevator SFG is pictured above, it installs on the inside of the counter balance part of the elevator.



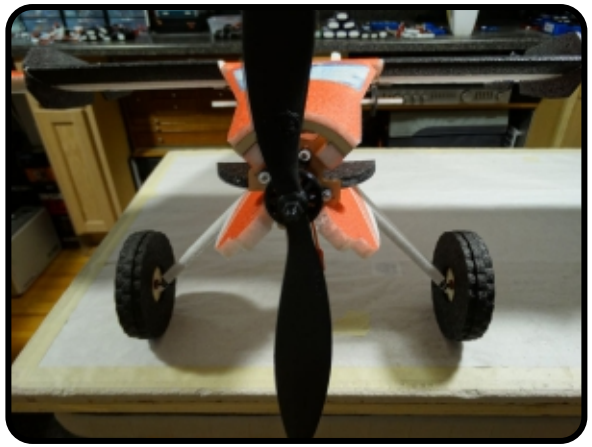
Notch in the Elevator SFG on early kits will need to be enlarged approx 1/4” towards the front in order to fit on to the tab on the Elevator.

Attach as shown.

Find the plastic tail skid piece. Cut a slot for it approx in the location shown. Squeeze some Welders into the slit and install the skid.

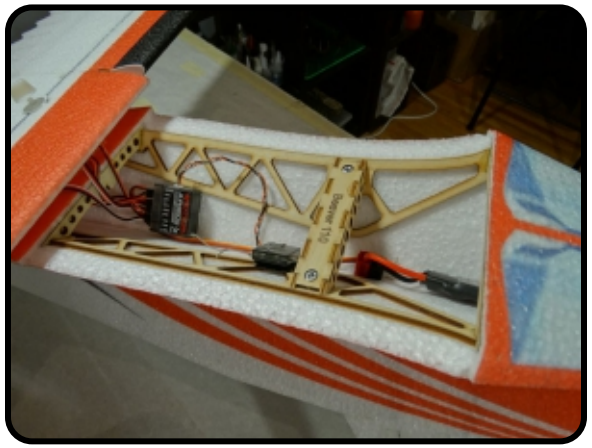
Attach the antennalizer, directly over the wood piece at the trailing edge of the wing. Use the Welders Tack up method to attach this part.

Last piece to glue on is the Turbo Exhaust Stacks, one on each side, use the engrave rectangle on the back of the motor mount to help with location. Welders or CA can be used.



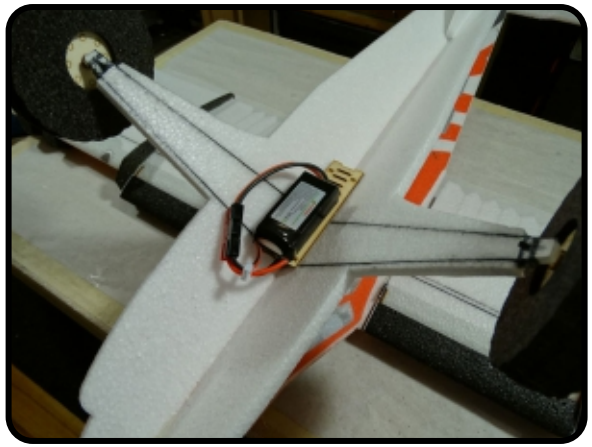
Repeat for the other side.

That finishes the airframe. Double check that everything is attached as shown above and that you have used all the parts in the box.



Route the ESC power wire down thru the cabin floor, install your receiver and make all the connections. Depending on your install you may need two short servo extensions

Depending on how you locate your ESC, you may or may not need an extension for the battery. Extra long one shown above.



Approximate battery location for CG. For extreme 3D flying use a strap in additon to the velcro patch to secure the battery.

Program all the features/mixes you want and set the control throws per the setup chart on the following page. For a DX9 SPM file, see the RC Groups Thread for this model.

About Leading Edge Flaps

Unlike Leading Edge "Slats", that are designed to promote airflow over the top of the wing, Leading Edge "Flaps" are control surfaces on the front of the wing. They provide for increased roll authority especially at slow stalled speeds, increased wing angle of attack for those ultra short takeoffs and for harriers they provide even greater drag that promotes better handling by increasing the power setting, as well as ensuring the wing is completely stalled reducing the amount of rudder input required to eliminate wing rock.

CENTER OF GRAVITY

C.G. - 295mm 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: Up 45 deg Dn 30 deg
Rudder: +/- 40 deg
Elevator: +/- 45 deg
Expo to suit

Beginner & Sport
Ailerons: Up 25 deg Dn 15 deg
Rudder: +/- 20 deg
Elevator: +/- 25 deg
Expo to suit

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 indoor flying and will be right at home in the local gymnasium or other similar sized venue.

Storage

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

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

NOTES AND S/U SHEET

Setup Sheet

Transmitter - Receiver -

Model

Weight - g oz

CG Point - mm from wing leading edge

timer - min

Travels and Exponential

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

Electronic Components

Aileron Servo -

Rudder Servo -

Elevator Servo -

Battery -

motor -

ESC -

Propeller -

TIPS AND TRICKS

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

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

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

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

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

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

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

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

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

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

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

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

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

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