

33" Extra 330 SC

Assembly Guide



Photo by: Eric Runfeldt (PrkFlyrRic)

Note: For tips, tricks, and important building techniques, please refer to our Build Videos located on the 3D Hobby Shop Website. The videos are located on the 33" Extra 330 SC product page in the 'Foamies' Category.

INTRODUCTION

Thank you for purchasing this 3DHobbyShop Foam RC aircraft kit. If you have any issues, questions, concerns or problems during assembly, please contact our technical support department online at: www.3dhobbyshop.com or 1-830-990-6978 10am-5pm Central M-F

We highly recommend visiting www.RCGroups.com for RC tips, tricks, and information.

IMPORTANT NOTE – We strive to provide the absolute best-quality foam aircraft on the planet. However, the ultimate success or failure of this aircraft is dependent upon proper assembly by you. This manual is sufficient if you have assembled foam aircraft before. If this is your first foam or 3D aircraft, please watch all of the build videos on the 33" Extra 330 SC product page on www.3dhobbyshop.com

SAFETY IN ASSEMBLY

During assembly of this aircraft, you will be asked to use sharp knives and hobby adhesives. Please follow all safety procedures recommended by the manufacturers of the products you use, and always follow these important guidelines:

ALWAYS protect your eyes when working with adhesives, knives, or tools, especially power tools.

Safety glasses are the best way to protect your eyes.

ALWAYS protect your body, especially your hands and fingers when using adhesives, knives, or tools, especially power tools. Do not cut toward exposed skin with hobby knives. Do not place hobby knives on tables or benches where they can roll off or be knocked off.

ALWAYS have a first-aid kit handy when working with adhesives, knives, or tools, especially power tools.

ALWAYS keep hobby equipment and supplies out of the reach of children.

SAFETY IN FLYING

SAFETY NOTICE: This is NOT a toy! It is a very high-performance RC airplane capable of extreme maneuvers. It should only be operated by a competent pilot in a safe area with proper supervision.

ONLY fly your aircraft in a safe, open area, away from spectators and vehicles—and where it is legal to fly. **NEVER** fly over an unsafe area, such as a road or street.

NEVER fly near overhead power or utility lines. If your airplane ever becomes stuck in a line or a tree, **DO NOT** attempt to retrieve it yourself. Contact authorities for assistance in retrieving your aircraft.

Power lines are DANGEROUS and falls from ladders and trees CAN KILL!

NEVER fly too close to yourself or spectators. Spinning propellers are DANGEROUS!

NEVER run your motor inside a house or building with the propeller attached – Remove the prop for safety.

ALWAYS fly within your control. Always follow manufacturer's instructions for your radio system.

ALWAYS obtain proper insurance before flying – contact the AMA at www.modelaircraft.org

TOOLS AND MATERIALS REQUIRED FOR ASSEMBLY

- Welders Adhesive - Available from 3D Hobby Shop or most large hardware stores.
- CA Adhesive – Medium CA, and Accelerator
- Hobby Knife with plenty of extra sharp blades
- Phillips Screwdriver, Pair of Small Pliers, Side Cutters
- Ruler and Scissors
- Heat gun or Lighter to shrink heat shrink tubing

ASSEMBLY INSTRUCTIONS

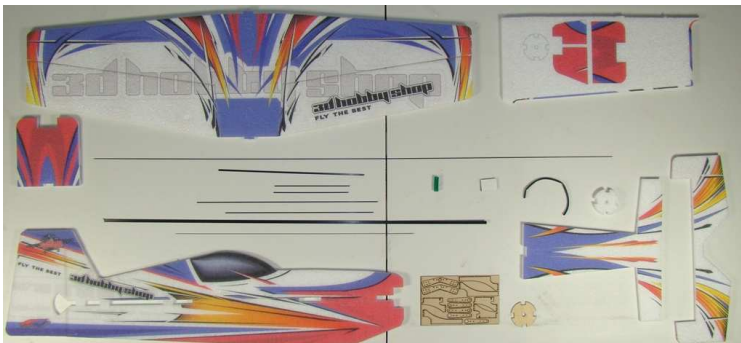
Read completely before starting assembly!

Unpack your airplane and examine the components. Check for damage of any kind. If you have damage, please contact 3DHobbyShop to discuss. Please also verify at this time that you also have all of the parts in the Kit Components section listed below. Note that we have included some extra hardware pieces in your kit. You should keep these as spare parts to repair your foamy in the future if necessary.

KIT COMPONENTS

All of the following parts are included with your 33" EPP Extra 330 SC Kit:

- 8x EPP Foam Pieces (1x of: Horizontal nose, Vertical Fuse Top, Vertical Fuse Bottom, Rudder, Wing, Horizontal Fuse, Elevator, Motor Mount)
- 1x 6mm Carbon Fiber Wing Spar
- 1x 3mm Carbon Fiber Stab Spar
- 1x Plywood Hardware Kit Sheet
- 3x Control Horns for Ailerons and Rudder
- 1x Control Horn for Elevator
- 1x Servo Horn for Aileron Servo
- 2x Servo Horn for Elevator and Rudder Servo
- 1x Plywood Motor Mount
- 1x 1m Carbon Fiber Rod (for bracing)
- 2x Carbon Fiber Rod for Aileron Push Rods
- 1x Carbon Fiber Rod for Rudder Push Rod
- 1x Carbon Fiber Rod for Elevator Push Rod
- 1x Metal Wire for Z-Bends
- 1x Strip of Heat Shrink for Push Rods
- 1x Strip of Elastic Tubing for Propeller Mounting



Required Electronics

Please take this time to gather and organize the electronics you will be using in your 33" Extra 330 SC.

The following electronics are required:

- Motor: 65-75 Watt Brushless Outrunner (Hacker A10-9L Recommended)
- ESC: 7-12A Brushless ESC (Hacker X-7 Pro ESC Recommended)
- Servos: 3x 14-17 oz/in torque (Hitec HS-45HB Recommended)
- Battery: 2s 300-650mAh LiPo
- Propeller: 8x4.3 GWS
- Other: 4ch Radio & Receiver (2.4 GHz 7ch Radio w/ Micro Receiver Recommended)

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Step A-01: Hinging Introduction

Hinging is one of the most important parts of assembly on an EPP Foamy, so it is very important to perform this step correctly. If performed incorrectly, your control surfaces may bind and not deflect properly. You will be using Welders Adhesive to hinge all of the control surfaces on your aircraft. Once dry, Welders Adhesive is flexible and will act as a non-binding hinge. Your EPP Foamy comes with pre-beveled control surfaces which are beveled at the factory for maximum deflection. You do not need to perform any additional cuts on any of the control surfaces.



On a flat surface, align the Elevator to the rear of the horizontal fuselage piece and secure the parts to your building table with the top of the pieces facing up. Heavy weights work well to keep the parts from moving once aligned.

Step A-02: Hinging - Applying Glue to Elevator Hinge

Apply a 1/8" bead of Welders Adhesive down the Elevator hinge line.



Step A-03: Hinging - Creating the Elevator Hinge

Spread the glue out with a used hobby-blade.



Step A-04: Hinging - Aileron Hinging

Repeat Steps A-01 through A-03 for both ailerons as shown



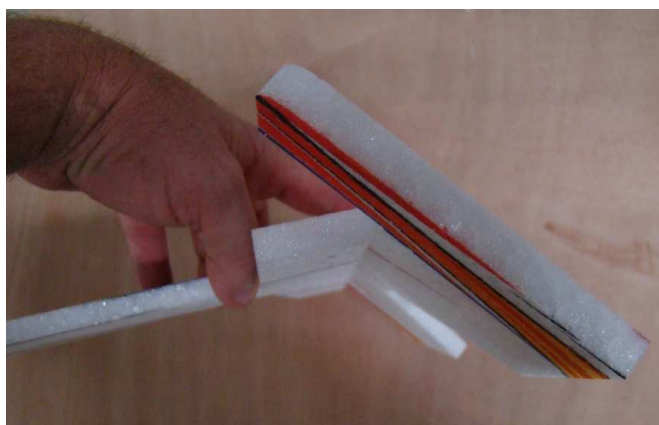
Step A-05: Hinging - Rudder Hinging (Top Half)

Repeat steps A-01 through A-03 for the TOP HALF of the rudder only
You will hinge the bottom half of the Rudder during a later part of the assembly.



Step A-06: Hinging - Completion

Once satisfied, let the Elevator, Ailerons, and Rudder hinges sit for approximately 1-2 hours to allow the glue to dry. Allowing the glue to cure is very important. You can damage your hinges if you start moving them before the glue is cured. The glue is dry when it is no longer sticky when you touch it. If hinged properly, all control surfaces will have at least 45 degrees of throw once hinged. You may notice that the hinges may be a bit stiff at first, but they will loosen up over time.



Builders Tip This type of hinging system works well because it is easily repairable. If a hinge joint ever breaks due to a crash, you can use this process to apply a new hinge over top of the old hinge, and be flying again in no time.

Step B-01: Horizontal Fuselage Assembly - Nose Piece

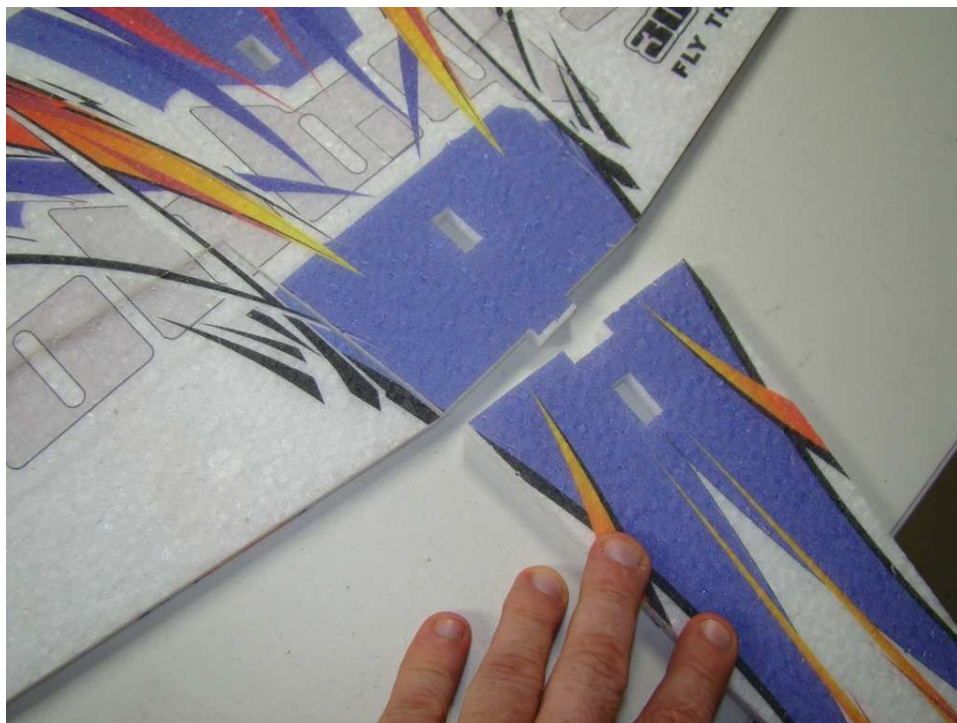
Your horizontal fuselage should now be in 3 pieces (The nose piece, a complete wing, and a rear horizontal fuselage with elevator). Using Welders Adhesive, glue these three pieces together.



Apply a bead of Welders Adhesive to the rear of the Horizontal Nose where it meets the front of the wing. Temporarily attach the Horizontal Nose to the Wing and remove. Let the Welders Adhesive set-up on both sides of the glue joint for 2-3 minutes. Once the glue has some time to set-up, permanently attach the horizontal nose to the front of the wing and lay down on a flat surface. Allow 1-2 hours dry time.

Step B-02: Horizontal Fuselage Assembly - Tail Section

Repeat Step B-01 to attach the rear horizontal fuselage to the wing. Once satisfied, leave sitting on a flat horizontal surface for 1-2 hours to dry.



Step B-03: Horizontal Fuselage Assembly - Wing Spar

The wing spar is installed on the bottom of the horizontal fuselage into a pre-cut slot. Start by removing the excess foam from the wing spar slot, and test fit the wing spar in place.



Rough up the sides of the carbon spars with a some sand paper or a sanding stick. Then, apply a bead of Welders Adhesive to each side of the wing spar and slide the wing spar in to the wing spar slot. Spread out the excess glue with a used razor blade in the same way you hinged the control surfaces. Once satisfied, spread a generous amount of glue around the ends of the wing spar. This will help prevent the wing spar from breaking out in a crash.

Step B-04: Horizontal Fuselage Assembly - Elevator Spar

Repeat Step B-03 to install the Elevator Spar into the pre-cut slot in the bottom of the elevator. Allow glue to dry for approximately 1-2 hours.



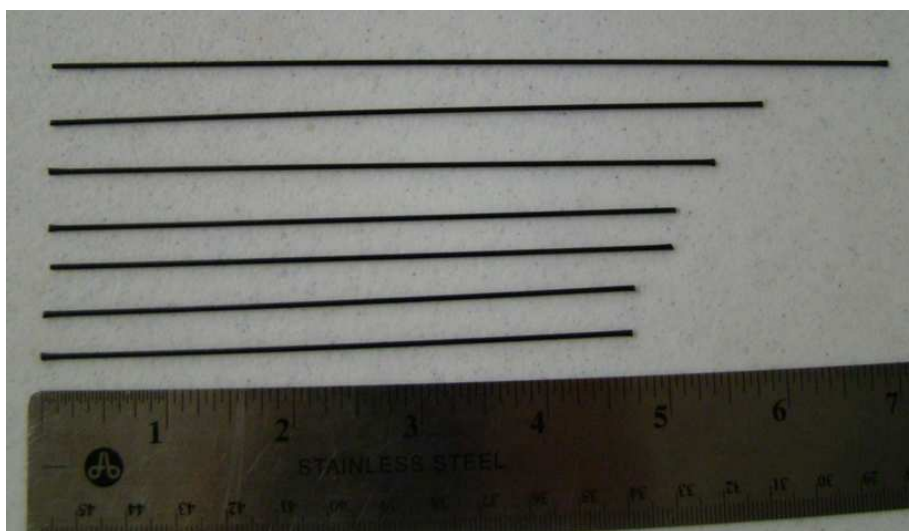
Step C-01: Lower Vertical Fuselage Assembly

Now, you will attach the lower half of the vertical fuselage to the horizontal fuselage. Apply a bead of Welders Adhesive to the Lower Vertical Fuselage where it meets the horizontal fuselage, and temporarily install. Remove the vertical fuselage and let the Welders Adhesive set-up on both sides of the glue joint for 2-3 minutes. Permanently attach the lower half of the Vertical Fuselage to the bottom of the Horizontal Fuselage, ensuring that the parts are perpendicular. Allow 1-2 hours to dry.



Step C-02: Lower Vertical Fuselage Assembly - Carbon Bracing

We have included a 1m long piece of Carbon Fiber Rod in your Foamy Kit for Fuselage Bracing.



Cut the long carbon rod into 7 pieces with the following lengths:

1x 7.25"

1x 6"

1x 5.5"

2x 5"

2x 4.75"

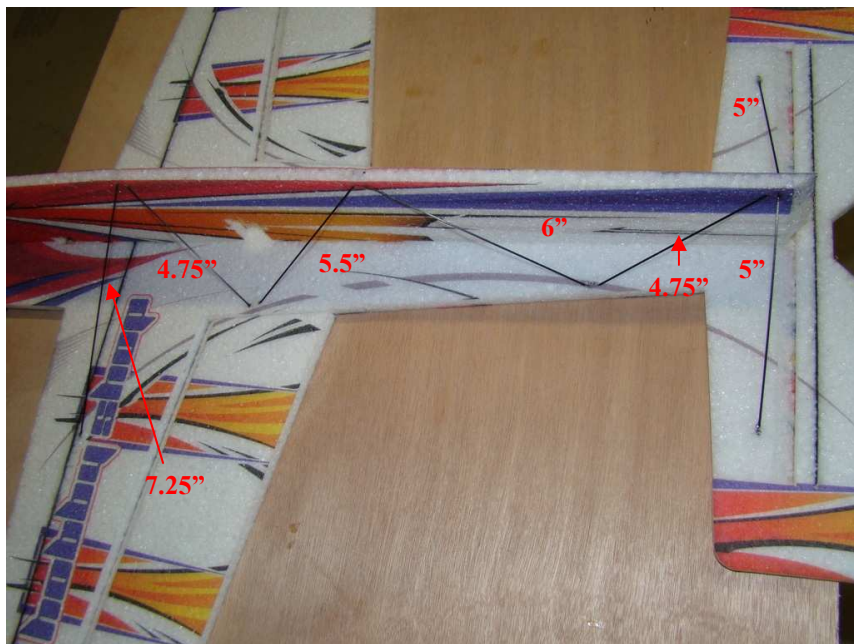
Step C-03: Lower Vertical Fuselage Assembly - Carbon Bracing

On the bottom of the horizontal fuselage and on the sides of the vertical fuselage, you will see some small dots along the edges. These small dots are where your carbon braces will attach. Set your fuselage upside down on a flat surface, and start by attaching the two 5" rods from the tips of the horizontal stabilizer to the bottom of the vertical fuselage. You do this by poking the carbon into the foam 1/16"



Step C-02: Lower Vertical Fuselage Assembly - Carbon Bracing

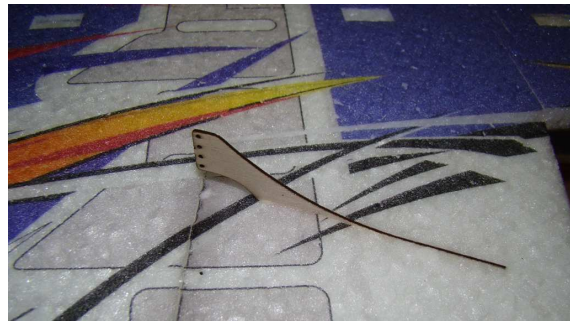
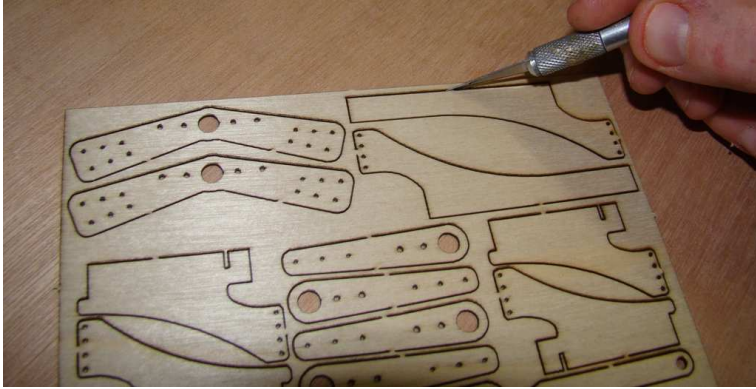
Follow step C-01 and install the rest of the carbon rod pieces you cut earlier. Once all pieces are in place, ensure that the vertical fuselage is still perpendicular to the horizontal fuselage, and then apply a generous dab of Welders Adhesive at each point where a carbon rod meets the fuselage. Allow to dry for 1-2 hours.



Step D-01: Control Horn Installation - Ailerons

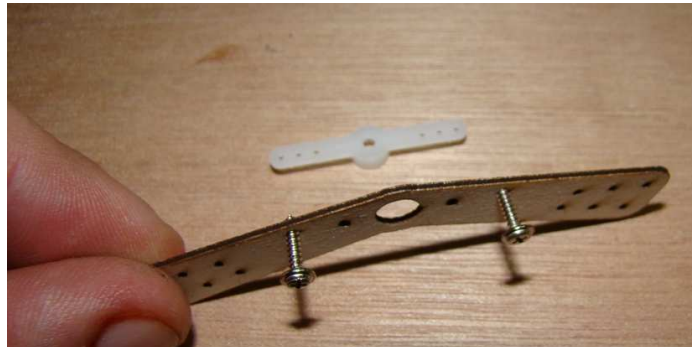
Start by removing the Aileron Control Horn from the supplied ply-wood hardware kit, and find the slot in the ailerons where the control horns will be installed. Control horns are installed in a similar fashion to the wing spar. Apply a bead of Welders Adhesive to each side of the bottom of the control horns, and insert into the Aileron Control horn slot on the TOP of the aileron. Spread out excess glue that squeezes out.

Install a control horn into both ailerons. Allow glue to dry for 1-2 hours.



Step D-02: Servo Installation - Ailerons

Remove the ply-wood aileron servo arm from the hardware sheet and attach to your servo's supplied plastic servo arm with the servo screws supplied with your servo. Once attached, you can clip off the end of the screws with a pair of side-cutters. Install the servo arm onto the servo.



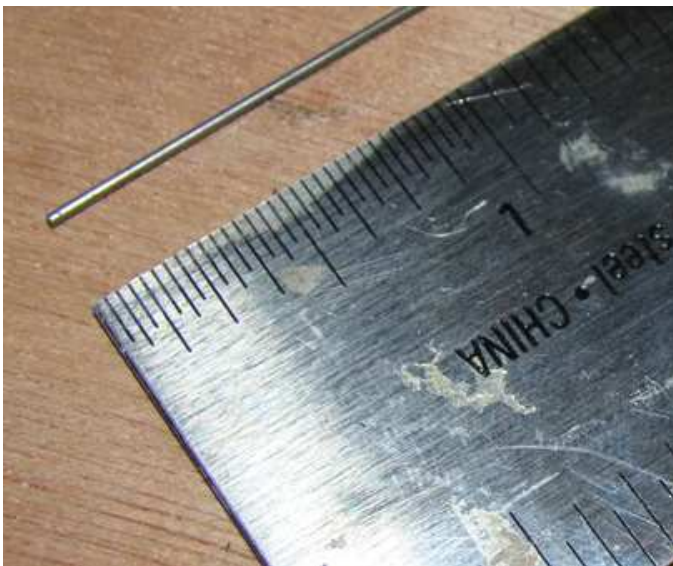
Step D-03: Servo Installation - Ailerons

Apply a generous amount of Welders Adhesive to the sides and bottom of the Aileron Servo, and slide it into the pre-cut slot in the TOP of the horizontal fuselage.



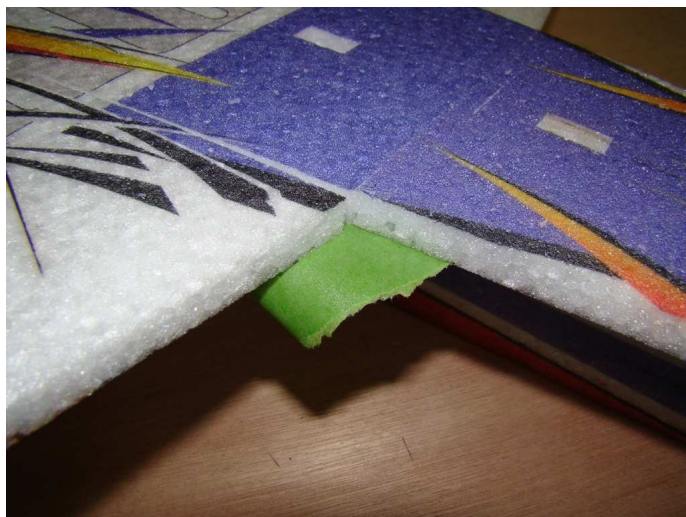
Step D-04: Servo Installation - Z-Bends

Using side-cutters, cut a 1.0" piece of piano wire off of the long piece of piano wire in your kit.
Using two pair of needle-nosed pliers, create a "Z" at one end of the 1.0" piece of wire.
You need a total of 4 of these 1.0" Z-bends for the Ailerons.



Step D-05: Servo Installation - Control Rods

Tape the ailerons to the horizontal fuselage so that they are parallel to the horizontal fuselage.
Cut a V-shape out of a piece of scrap ply-wood or card-stock.
This piece will be used to protect the foamy in the next step.



Step D-06: Servo Installation - Control Rods

Cut two pieces of heat shrink tubing that are approximately 1" in length. Slide these onto the carbon fiber Aileron control rods. Install one of the Z-bends into an aileron control horn and another into the same side of the servo arm. (See Setup Sheet at end of Manual for the recommended holes to use)
Put the carbon rod in place, and slide the heat shrink over the Z-bends to hold the carbon rod in place.



Step D-07: Servo Installation - Control Rods

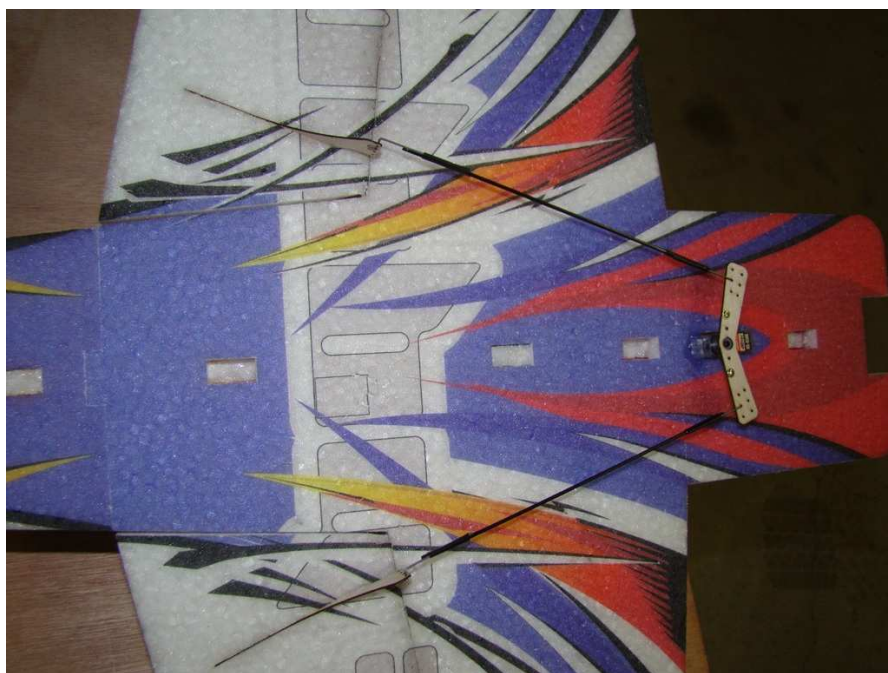
Center the servo, and verify again that the aileron is parallel to the horizontal fuselage, and then slide the V-shaped protector that you made earlier around the control horn and use a heat gun or lighter to shrink the heat-shrink tubing around the carbon rod and Z-bend on both ends.

Repeat this process for the other aileron.



Step D-08: Servo Installation - Control Rods

Once you have shrunk the tubing on both ailerons, adjust the length of the control rods as needed (by sliding the z-bends forward and backward) until the ailerons are centered and are both parallel to the horizontal fuselage. Once satisfied, apply some Medium CA where the Z-bends are touching the carbon rod, and allow to cure. This will lock the Z-bends in place and prevent them from moving anymore.



Step D-09: Top Vertical Fuselage Installation

Repeat step C-01 to install the top of the vertical fuselage onto the horizontal fuselage. Once installed, ensure the elevator is still able to achieve 45degrees of throw. If it cannot, trim any excess foam necessary to achieve maximum throw.



Step D-10: Top Vertical Fuselage Installation - Hinging Rudder Bottom

Repeat step A-01 through A-03 and hinge the bottom half of the rudder. Using a piece of tape on the opposite side of the hinge line will help hold the rudder hinge together.



Step D-11: Top Vertical Fuselage Installation - Motor Mount

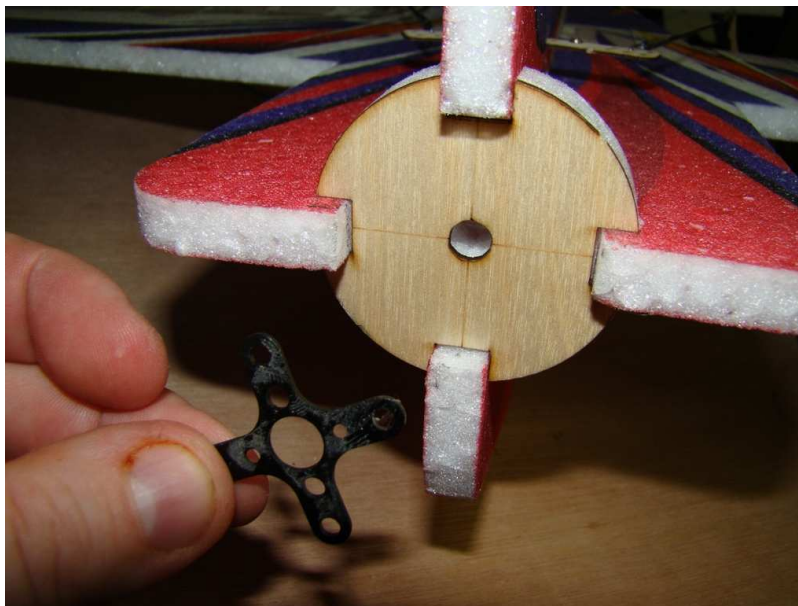
Repeat step C-01 to install the foam part of the motor mount onto the fuselage. Glue should be applied everywhere that the foam motor mount will touch the horizontal and vertical fuselages.



Step D-12: Top Vertical Fuselage Installation - Motor Mount (OPTIONAL)

This step is optional. If you are installing the Hacker A10-9L motor with the fiberglass x-mount, please skip ahead to Step E-01. For all motors that have a bolt-on x-mount, you need to follow this step.

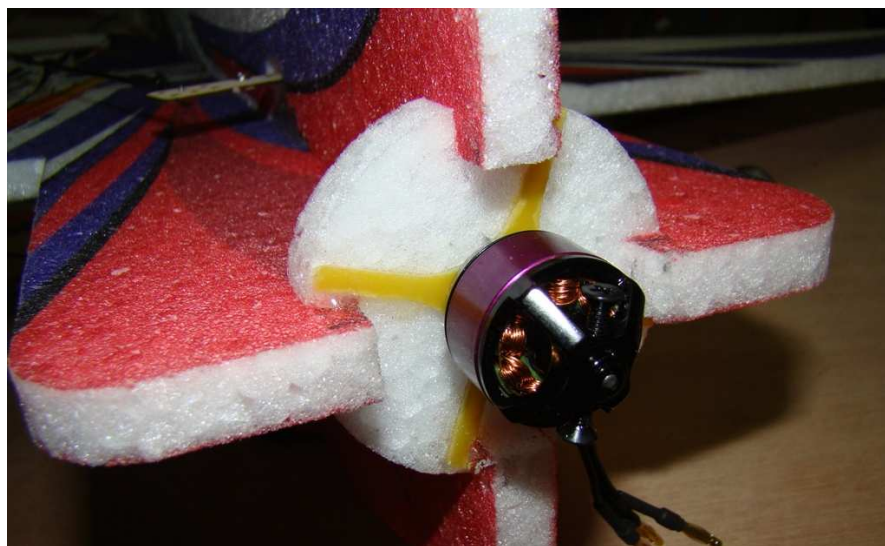
Apply a generous amount of welders adhesive to the back of the ply-wood motor mount piece included in your kit. Temporarily install the ply-wood motor mount to the front of the foam motor mount. Remove and let the glue set up for 3-5 minutes. Permanently install the ply motor mount piece and allow to dry.



Step E-01: Electronics Installation - Motor

To install any bolt-on motor, simply install the X-mount to the back of your motor, center it on the ply-wood motor mount installed in step D-10, and screw in place with small wood screws.

To install the recommended Hacker A10-9L, first install the phenolic x-mount to the motor. Then, using Welders Adhesive, apply a bead of welders glue on each leg of the x-mount, and temporarily install to the foam ply-pieces and remove. Allow the glue to cure for 3-5 minutes and then permanently install, ensuring that the motor is centered on the motor mount. Allow to cure for 20-30 minutes.



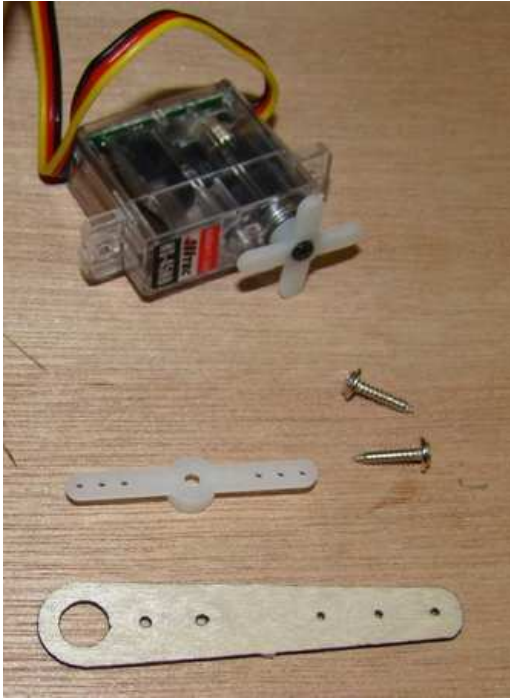
Step E-02: Electronics Installation - Elevator Servo

Repeat Step D-01 to install the short control horn into the TOP of the elevator. Notice the notch in the elevator control horn fits around the elevator spar.



Step E-03: Electronics Installation - Elevator Servo

Repeat Step D-02 to install one of the single-side servo arms onto the elevator servo.



Step E-04: Electronics Installation - Elevator Servo

Repeat Steps D-03 through D-08 to install the Elevator Servo and Elevator Servo Pushrod and Z-bends.



Step E-05: Electronics Installation - Rudder Servo

Repeat Step D-01 to install a LONG control horn into the LEFT side of the rudder.
This is the side OPPOSITE of the carbon bracing.



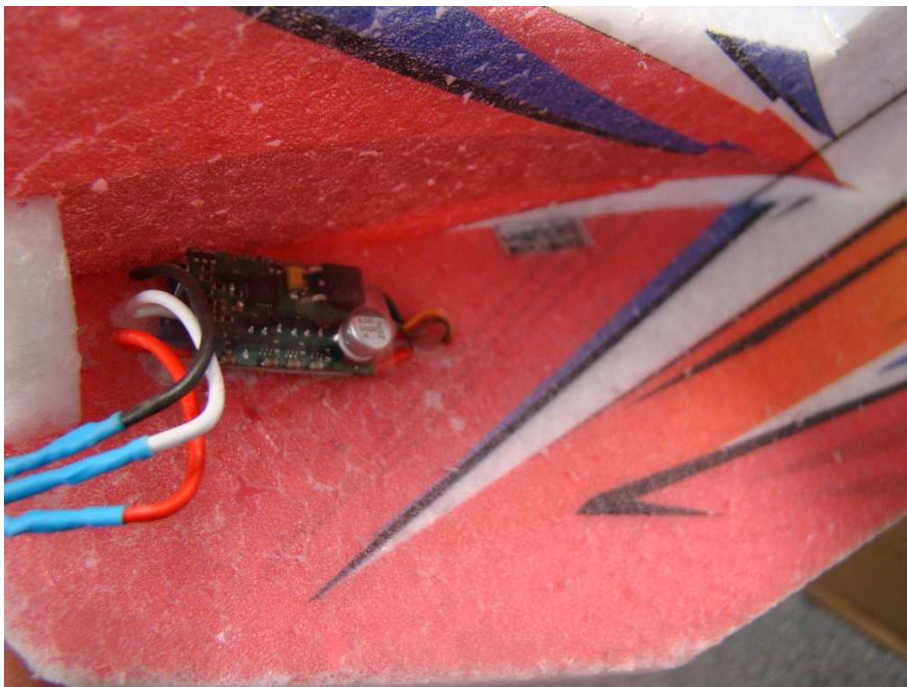
Step E-06: Electronics Installation - Rudder Servo

Repeat Steps D-02 through D-08 to install the Rudder Servo and Rudder Servo Pushrod and Z-bends.



Step E-07: Electronics Installation - Speed Controller

Using either bullet connectors or direct-soldering, connect the speed controller to the motor and adhere the speed controller to the fuselage with Welders Adhesive.



Step E-08: Electronics Installation - Receiver

Adhere your receiver to the side of the fuselage using Welders Adhesive. You can route wires to your receiver by poking small holes in the fuselage and running the wires through the holes. The easiest way to poke holes is with a sharp hobby blade.



Step F-01: Completion

Congratulations! You have finished assembly of your 33" Extra 330 SC. Now it's time for Setup.

At this time, you can setup your control throws, exponential and center of gravity.

Please refer to the recommended setup sheet at the end of the manual for our setup recommendation.

Once you have determined where your battery must be located to obtain the correct Center of Gravity, install your preferred method of mounting the battery. We recommend using a strip of Velcro and adhering it to the side of the fuselage with Welders Adhesive.

Finally, You will want to install the propeller recommended for your motor.

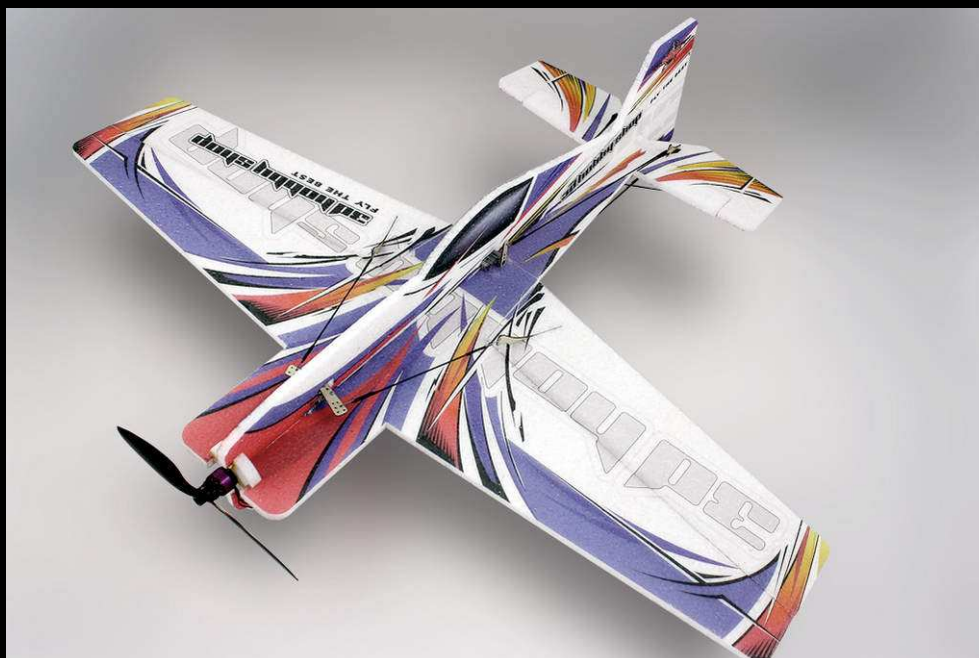
We have provided a small length of tubing that you can cut up and use for a prop-band mounting system.

Step F-02: Checklist

Before Flying your 33" Extra 330 SC for the First Time

Before flying your foamy for the first time, we recommend that you run through the following checklist. We're sure you're anxious to get out and fly your new foamy, but please note that following this checklist will ensure that you have the best experience possible with your 33" EPP Extra 330 SC.

- 1.) **Check for secure control linkages.** Make sure that all of the Z-Bends are secure, and that all of the control horns are secured in place and the glue has fully cured.
- 2.) **Range Check.** Please perform a range check to ensure that your radio and receiver system are functioning correctly
- 3.) **Radio Setup Check.** Please perform a simple ground check to make sure that all control surfaces are moving in the correct direction, and that no switches on your radio do something you don't expect. Now would be a good time to CAREFULLY ensure that your propeller is spinning the right direction.
- 4.) **Charge up a few batteries, and have a safe, enjoyable maiden flight!**



3D Hobby Shop Recommended Setup

Ailerons

Servo Arm Position: E

Control Horn Position: D

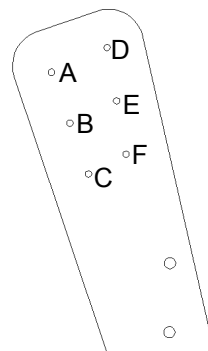
High Rate Throw: 45 Deg

High Rate Expo: 50-70%

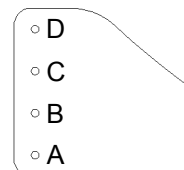
Low Rate Throw: 22 Deg

Low Rate Expo: 50-70%

Servo Arm



Control Horn



Elevator

Servo Arm Position: A

Control Horn Position: D

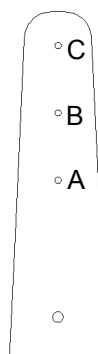
High Rate Throw: 45 Deg

High Rate Expo: 50-70%

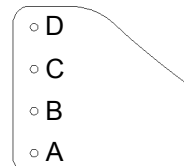
Low Rate Throw: 22 Deg

Low Rate Expo: 50-70%

Servo Arm



Control Horn



Rudder

Servo Arm Position: A

Control Horn Position: D

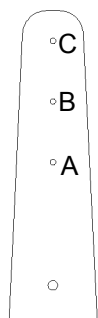
High Rate Throw: Within 0.5" of Elev.

High Rate Expo: 50-70%

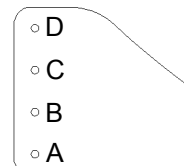
Low Rate Throw: Within 0.5" of Elev.

Low Rate Expo: 50-70%

Servo Arm



Control Horn



Center of Gravity

Center of Gravity: 2.7" from leading edge at wing root

