

DCRC Aerobatic 3D Foamy Instruction Manual ©



Thank you very much for your purchase of the
DCRC Aerobatic 3D Airplane!

Recommended Equipment:

Radio: 4 to 6 channel w/micro receiver

Servos: 4 micro servos

Motor: Hacker A20-22L (Other motors will work, but this is the best we have found.)

Speed Controller: Phoenix 25, Thunderbird 18, Hacker X-20

Battery: Thunder Power 3 cell 1320mAh

Propeller: APC 10 x 4.7 to 11 x 3.8 slofly

Items needed to complete construction electronics

Yard stick or tape measure

Ruler

Foam safe medium CA and CA accelerator

Roll 1" Blenderm hinge tape

.032 music wire

1/8" diameter heatsink tubing

Hobby knife with #11 blades

Double- sided tape

Recommended power system is available at www.darrolcady.com

NOTE: THESE INSTRUCTIONS ARE GOOD FOR ALL OF OUR FOAM AIRPLANES

**Tip: Before you begin assembly, remove all parts from the box, take a few minutes to read
though the instructions and familiarize yourself with the construction steps.**

Set everything out on your construction table. This will make parts identification a lot easier!

Recommended power system and

Motor: Hacker A20-22L brushless

Speed control Hacker X20 or Phoneix 25 or
Thunderbird 18

Servos: 4 Sub Micro

Battery: 3 cell 1320 Lithium Polymer

Receiver: 6 channel micro



Step 1: Lay a sheet of wax paper down on a flat surface. Remove the tape from the wing and remove the carbon spar tube. Make sure the channel in the wing is free of small foam pieces from the cutting process. You can use the carbon spar tube to gently “push out” any excess foam from the channel. If you use epoxy, carefully spread a thin layer of epoxy in the channel and insert the spar. If you choose to use foamsafe Ca, put the spar in place and then put a bead down both sides of the spar. Spray the area with CA accelerator. Make sure that you keep the wing flat while the adhesive sets up. You use the waxed paper to make sure that you do not glue the wing to your table. You can place some weights on the wing to hold it flat while the adhesive sets up.

Step 2: Place a yard stick or straight edge down onto the horizontal cross brace, then, starting at the top of the cross brace, cut all but the last of the fuse sides. Leave the last one at the narrow end uncut! Slide the cross brace from the rear until it locks into place. Using CA and accelerator, glue ONLY the front tab (at the nose end) at this time. Repeat this step for the other side of the fuselage.



Step 3a: Hinge both the ailerons to the wing and the elevator to the horizontal stab using Blenderm hinge tape. When applying the tape to the ailerons and elevator, be sure to check that they deflect as far as they will go, so you have maximum up/down deflection.



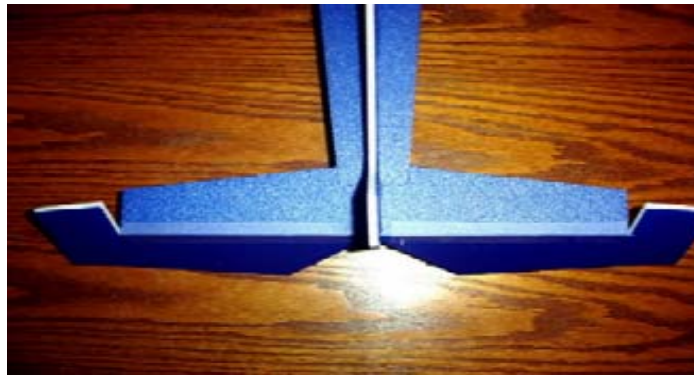
When applying hinge tape to the control surfaces, hinge both sides as shown. The best way to apply the tape is with the hinge line reflexed to one side so the surface is flat when the tape is applied. This way the control surface will move freely either direction without binding.



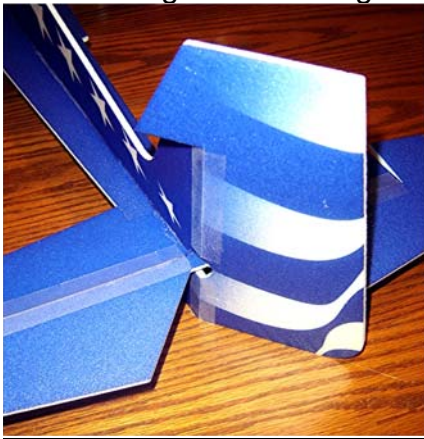
Step 3b: Carefully Insert the completed wing through the slot in the fuselage. Square up the wing to the rear of the fuselage by checking the alignment of the wing to the rudder post with a yard stick or tape measure. Make sure it is equal distance from wing tip to the rudder post on both sides. Then glue it in place where the fuselage doubler meets the top of the wing, holding the wing and doubler together until the CA sets. Glue all the remaining fuse and wing joints together by making CA fillets in all the wing and fuselage joints and spraying with CA accelerator.



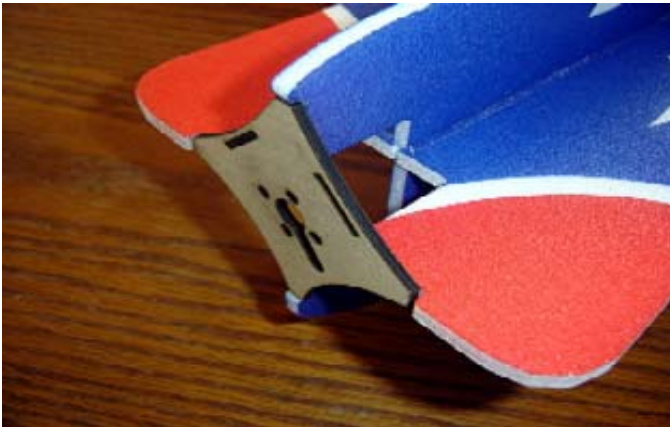
Step 3c: Insert the horizontal stab/elevator assembly into the slot in the rear of the fuselage. Measure from the stab tips to the wing tips to make sure the stab is aligned with the wing. Eyeball from the rear to sure the wing and tab line is parallel.



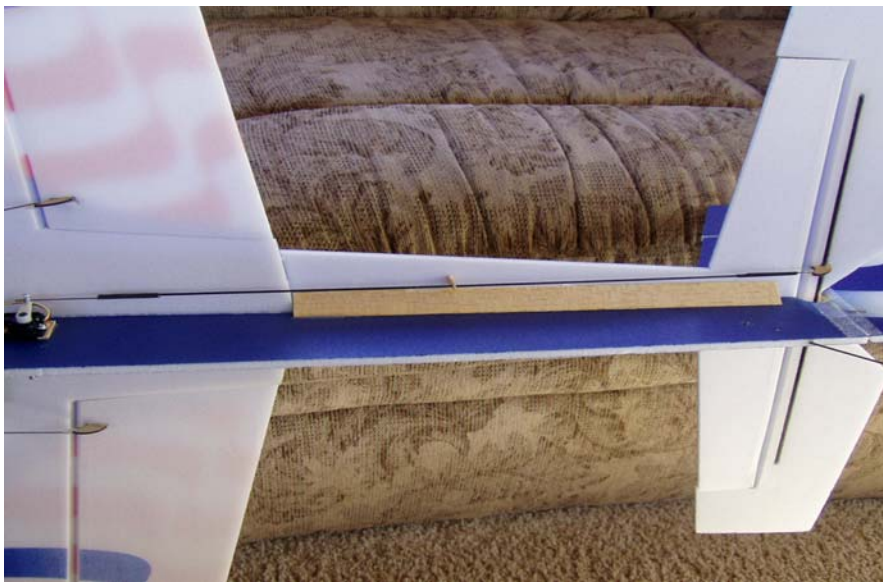
Hinge the rudder to the vertical stabilizer on both sides with hinge tape. Be sure that the rudder has maximum deflection in either direction. Glue the control horns into the pre-cut slots in the ailerons, elevator and rudder using foam-safe CA as shown. The flat side of the horns are even to the surface and the holes are right on the hinge lines.



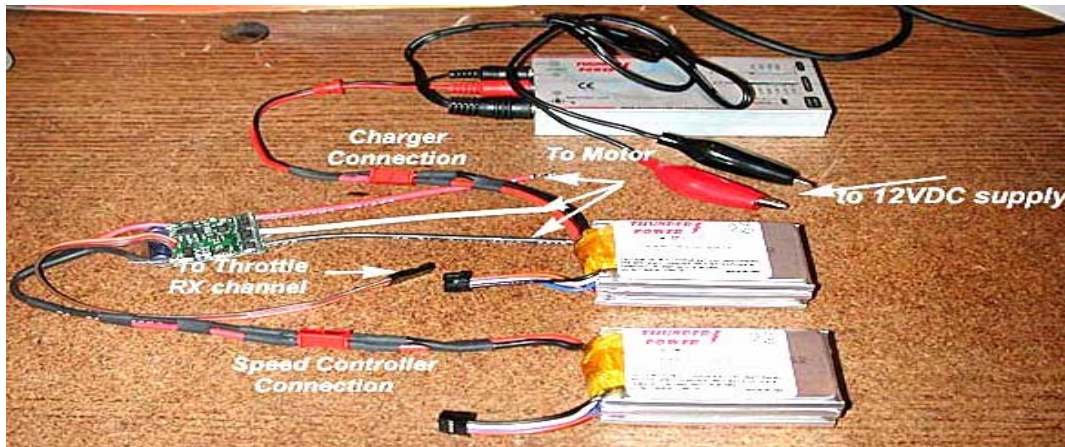
Step 4: Using 5 minute epoxy, glue the firewall assembly to the front of the fuselage. Next, glue the two firewall reinforcement braces behind the firewall on top of the fuselage.



Step 5: Glue the balsa triangular stock to both sides of the underside of the fuselage using foam-safe CA as shown in the picture: Hint: Sand the 90 degree point flat to make a better fit on the fuse.

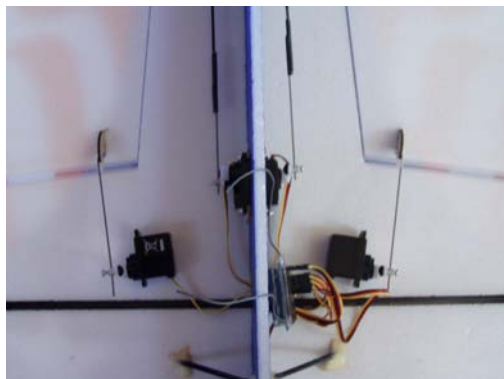


NOTE ON WIRING THE ELECTRONICS: When wiring the electronics, start with the battery and keep all the colors that plug together the same. Attaching the 3 leads on the motor in the wrong sequence will not hurt anything. If the motor runs backwards, switch any two leads around.



BUILDING TIP: Before attaching the servos, receiver, etc, wipe the area with isopropyl alcohol and allow it to dry. This will remove any residue from the foam and allow the double-sided tape or velcro to stick better.

Install the aileron servos to the underside of the wing using double-sided tape as shown (use the large servo arms on all the control surfaces which are usually included with most servos). Make up 2 pushrods for the aileron servos using .032 music wire. We recommend using Dubro micro E-Z connectors with the servos to make pushrod adjustments much easier. The pushrods should move freely with no binding.

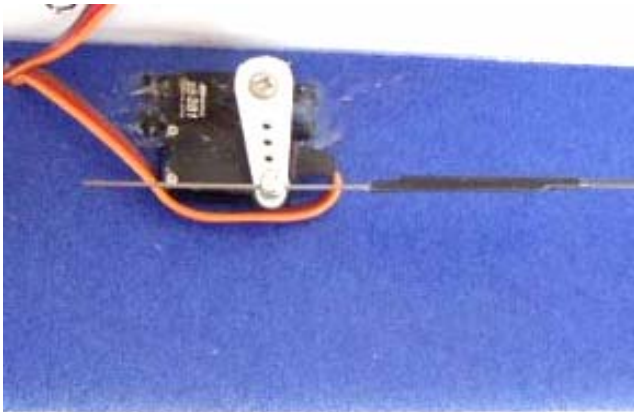


Connect the aileron, rudder and elevator servos to the micro receiver. Using Velcro, install the micro receiver on the underside of the fuselage. Determine the length from the rudder and elevator control horns to the servos and using the supplied .060 carbon rod, some heat shrink tubing and 4 pieces of .032 music wire, make up the elevator and rudder pushrods as shown. Secure the .032 wire to the .060 carbon rod with heat shrink, then wick some thin CA onto the heat shrink and "kick it" with CA to strengthen the joint.

At this time, make two standoff pushrod supports from a Popsicle stick or a coffee stirrer, like the ones at Starbucks and slip one over each .060 pushrod before you put the end on the pushrod. See the picture at the top of page 5. Wait until you have the pushrods connected before you cut the supports to the right length and Ca them in place."



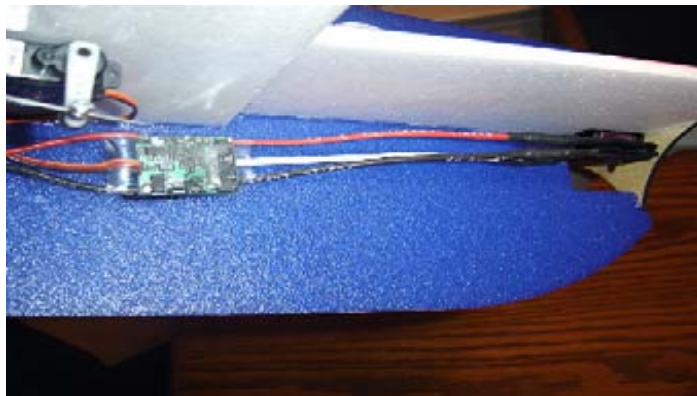
Insert the rudder and elevator servos into the square hole underneath the wing. The servos should lay on top of each other and face away from each other when installed. Secure them with CA. Attach the rudder and elevator pushrods to the servos, using either z-bends at the control horns or L-bends with Dubro micro E-Z links (pictured).



Step 7: Counter sink the four holes on the front of the firewall. This can be done easily with a Dremel tool with a round ball cutter attachment. Insert the motor shaft underneath the fuselage behind the firewall (the slotted hole in the firewall allows the motor shaft to be move into position more easily). Secure the motor to the firewall with the 4 flat head screws included in the motor package.



Connect the electronic speed control to the motor and attach it to the fuselage using Velcro. Plug in the three wires from the electronic speed to the motor. Plug the flat connector from the electronic speed control into the micro receiver's throttle position.



(DO NOT install the propeller yet!) Now turn on your radio. Plug the battery into the battery wire from the electronic speed control. Gently move the throttle stick and check the rotation of the motor. It should spin counter-clockwise. If it doesn't, switch around any two of the three wires connecting the motor to the electronic speed control. Install the propeller using the prop adapter included in the motor package.

Step 8: Determine the battery location by placing the battery on top of the wing while balancing with your fingertips on the wing spar. This is the recommended starting point for the CG(Center of Gravity) location. You may want to move it forward or backward slightly to suit your flying style. Once the battery position is determined, attach a little longer strip of Velcro on the underside of the fuselage to secure the battery. This will allow you to adjust the battery fore and aft.

Recommended throws:

Set your high rates at 100% and use as much throw as needed for 3D performance.

High rate exponential: Ailerons- 80% Elevator-65% Rudder-50%. Set your low rates at half of everything above. Example: Aileron D/R 50% and Expo 40%. Mixes are simple. Start with 6% opposite aileron with left and right rudder. 3 to 4% up elevator with left and right rudder. Adjust percentages for knife edge flight.

First Flight: Wait until a calm day for your maiden flight. Make sure the field is clear of obstacles and people. After your first flights, you do not need a calm day. You will find that our airplanes fly well in breezy conditions.

Thank you for purchasing our foam airplane. We will continue to develop the best all-around flying foam airplanes for your enjoyment.

Darrol Cady

WWW.DarrolCady.com