2006

Snappy

HLX & RZX

24” Mini Wing

From

RCWorks.com

You will need the following radio equipment

- **2 Channel radio with channel mixing.**
- **2 Servos.**
- **1 4 channel Receiver.**
- **1 Kokam 1500 or Etec 1200 mah lithium polymer battery pack.**

You will need the following to build the wing…

- **GOOP Adhesive.**
- **3M 77 Spray Adhesive.**
- **Scotch extreme packaging tape.**
- **Hobby Knife.**
- **Lead weights for setting the C.G.**
- **Ruler**
- **150 grit sand paper**
- **2 or more colors of packaging tape OR Ultracote**
- **Small Flat Screwdriver**

STOP

These are instructions not suggestions.

Once you start building this kit it is NOT RETURNABLE.

This is <u>not</u> intended as your first wing. You should gain experience on a 48" or 36" wing first.

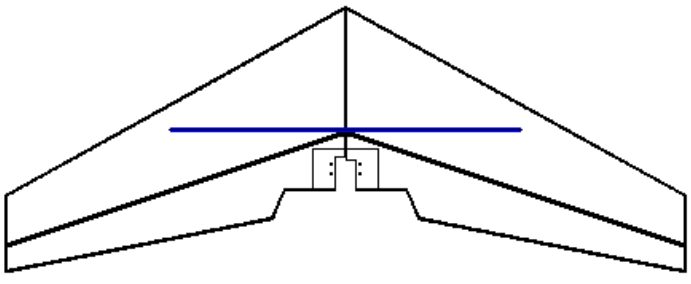
Start Here!

Please read the entire instruction manual once before starting construction.

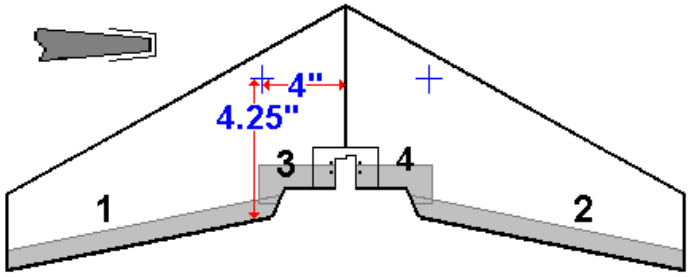
Take the wing cores from the beds and use a piece of the scrap foam to rub off all the hairs left from cutting the wing. Smooth the surface with 150 grit sandpaper.

Take GOOP and lay a bead down the spar slots in both halves of the wing. Place the spar in the slot of one wing. NOTE: Spar slot is in the ink line on the bottom side of the wing cores.

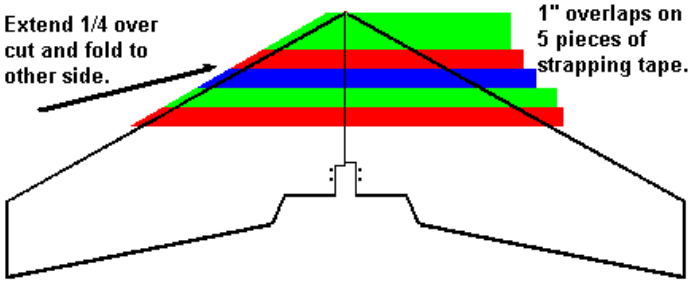
Use GOOP and coat the center wing joint and slide the halves together, place the wing on a piece of waxed paper, now tape the wing halves together so they will not stick to your table. Place a phone book on top of the center section and let it dry overnight. Some like to do this in the wing beds I would prefer a flat table, I am more interested in making sure that they glue up square. With the halves matching side to side. Install the plywood portion of the motor mount at this time.



Tape the trailing edge as show, this is done by spraying the trailing edge with 3M 77 spray and placing 1 inch wide strapping tape (Take 2 inch and split it down the middle) so that half is on the top of the wing and half is on the bottom Place a 3rd piece as shown and pace a 4th piece on the bottom in the same manor as #3 NOTE: Tape 3 and 4 are important if you tend to be crash prone.

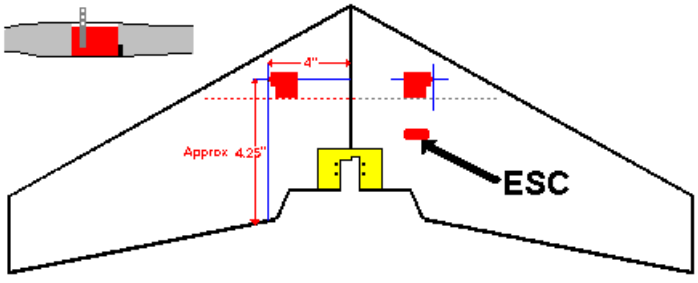


Spray the bottom front half of the wing with 3M 77 spray. Start taping the bottom by placing the 1st run of tape over the main spar half the tape in front of the spar half and half behind the spar and past the leading edges of the wing. Trim the tape on the same angle as the leading edge with ½ in excess on both sides and wrap the excess over the top of the wing being careful to keep it smooth. The next piece of tape has its back edge over the main spar overlapping the previous tape by 50% and it get finished the same way by cutting it a ½ inch too long and wrapping the excess over the top. It will take 5 full width (2") pieces of tape and then cut a piece of tape in half length wise and cover the tip of the nose. This should give you 2 layers of tape from the main spar to the nose.



At this point it should look like this on the BOTTOM…

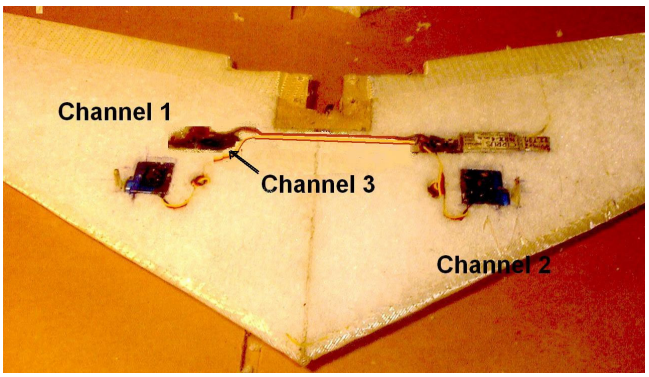
Now it is time to cut pockets for the ESC and the servos. On the top of the wing you will find 2 crosses. These are where your servo horns should be located. We recommend the HS-55 servos with the plastic mounting tabs removed. Carefully cut in about the middle of the servo and cut back until you locate the main spar. When properly fitted the backside of the servo will be below the spar and butted up against it. (The reason we remove the mounting tabs.) The cross section shows how the servo should butt up to the spar.



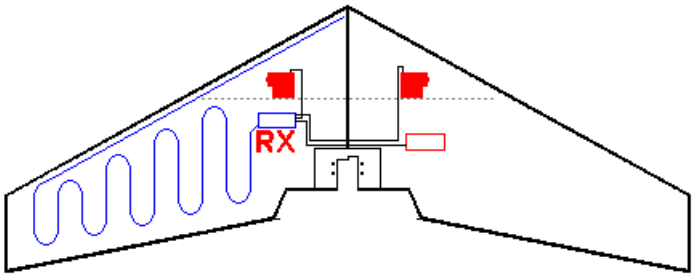
Now cut in the area of the red rectangle and make a spot for your ESC, the wires to the motor should have a plug that can fit either way to aid in reversing polarity and swapping the motor without having to bring a soldering iron out to the field. Now with make a tunnel in the foam from the ESC pocket to the motor. (See next picture.)

Now find a spot for the receiver, it should be at least as far away from the motor as shown. If you like me and want it a bit neater you can take a dremel tool with a cylinder burr and make a couple of wells to pack excess servo wire.

NOTE: an area wide enough to contain the battery from the nose to the main spar must be left clear as shown, lest you go to install the battery pack and cut into radio wires.



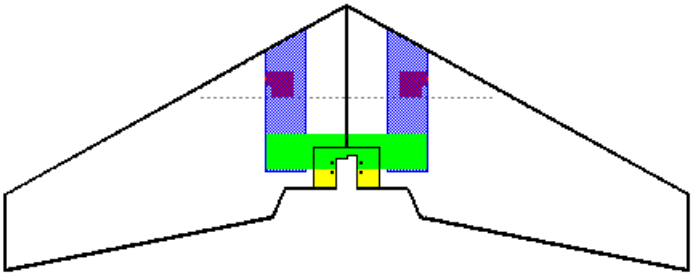
Time for the antenna. With a new blade cut a line as shown to a depth of 1/8 inch and push the antenna wire into place. Time to check the radio gear. Hook the battery and make sure of the following…



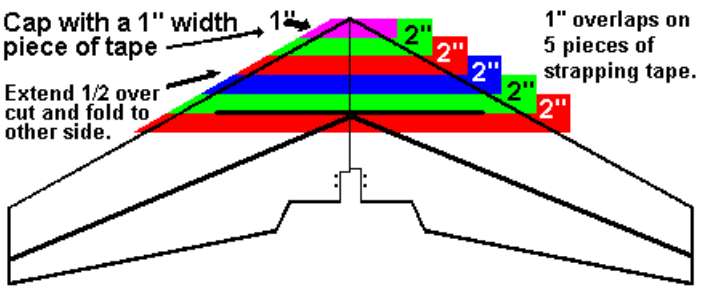
Look at the wing from the top and pointing away from you…

Stick Up = both elevons up
Stick Down = both elevons down
Stick Right = Left elevon down, right elevon up.
Stick Left = Right elevon down, left elevon up.

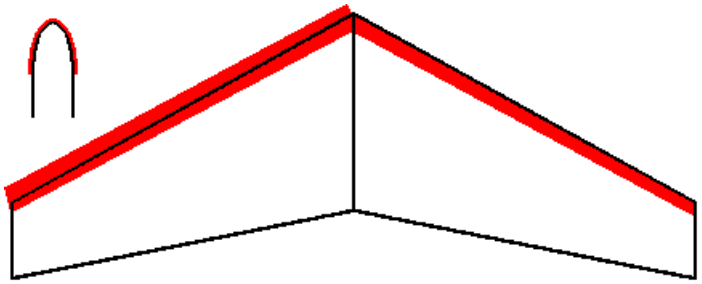
Now it is time to seal up the radio gear. Cut 2 covers for the servos from the coroplast in the kit. Place the covers over the servos to take up the space between the servo and the top of the foam. Tape over the servos from front to back as shown and than make a pass over the ESC.



This is similar to the work you have done on the bottom except that you only need to cover an 8-inch span. Same as the bottom start at 1” behind the main spar and overlap the last tape by 50%. This gives the center some structure. Finish the same as the bottom with a 1” width tape to cap the tip of the nose.

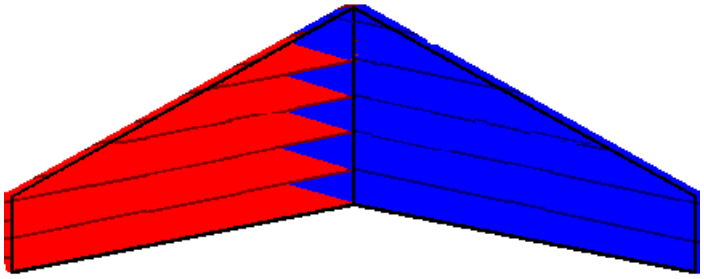


Now cap the strapping tape on the leading edge as shown…



Now with you favorite covering material cover the wing. Tape or Ultracote are the top 2 choices for the. Monocote requires too much heat. Overlap no more the, ¼ inch.

Cover the bottom first and then the top.

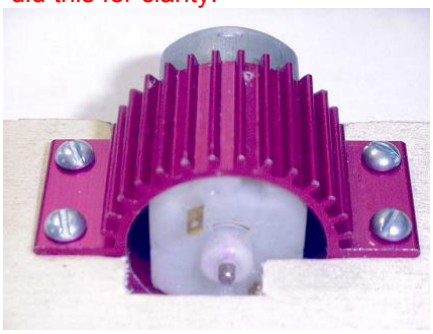


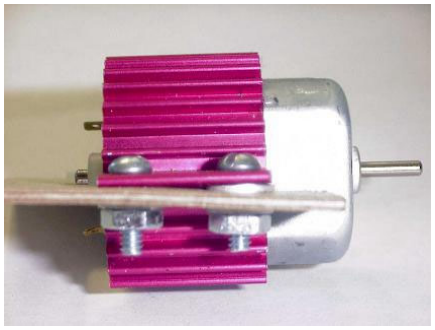
Now your wing should look something like this…

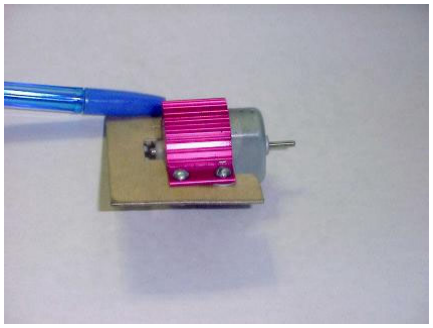
Install and wire the motor, install the prop so the number close to the center face the motor. Temporally connect the battery and make sure the motor blows out the back…

Note the motor mount system comes with 6 washers and 4 sets of screws and nuts, in the center picture you can see the 2 “extra” washers are use to level the motors centerline to that of the wing. If you wish to dial the thrust angle to perfection be my guest. For small increments use strapping tape under the front end of the mount. This wing would fly with only the 4 washers under the plywood if you so choose, if your running a brushless such as a razor 300 you may want to set this up, unfortunately this mount does not fit the 19.5MM case. The Snappy RZX kit comes with the Razor Motor Mount.

NOTE: I have shown this on a piece of plywood that should have been installed at the time of the wing joining. I only did this for clarity.



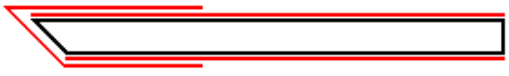




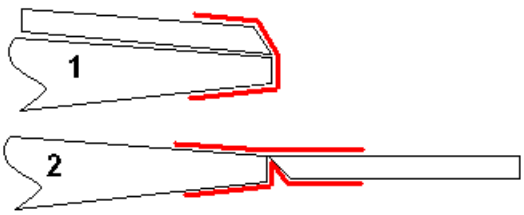
Time for the elevons…

Sand a bevel on the leading edge of the elevon. (The side that will be next to the wing.)

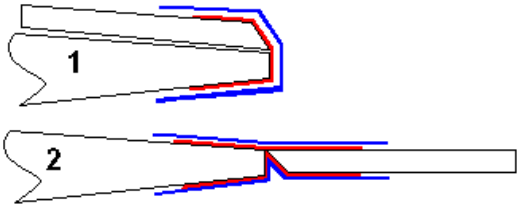
Cover them in your favorite covering…



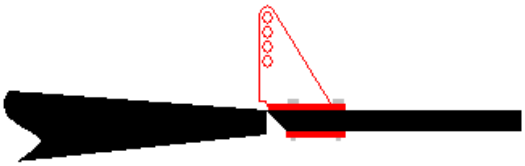
Make your hinges from strapping tape, it more durable and sticks better than hinge tape. Just cut the tape into strips ¾ inch wide and the length of the elevons and place it like so…



If the look of the fibers in the tape is too much for you simply cover the strapping tape with your favorite covering. If not save the weight.



Now for the control horns. Place them directly behind the servo horns. (4 inches from the center of the wing.) use your hobby knife to start the holes and screw the horns in place.



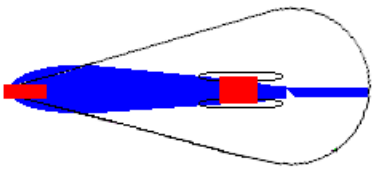
Hook up the linkages… take the control rods and stick the end with the Z bend in the servo horn. Start at the second hole unless you really fancy yourself a stunt pilot. Take one of the DuBro adjusters and slide it on the back end of the rod and place the tip of the adjuster in the TOP hole of the 1/2A horn unless your ready for excitement. Turn on the radio and receiver and set the TX to zero trim, give the elevon 3/16 up elevator and tighten the adjuster screw. Do this to the other side.

Servo End Elevon End

Time for the winglets…

You can tape them, glue them or Velcro them I prefer this method due to the fact you can change them if they start looking ratty.

The red is strapping tape, cut to slits ahead of the elevons and pas the tape through the holes and stick it to the wing. On the front a small strip to hold the leading edge in place. This will afford you HS-55s a little protection on landing or minor mishap.



Now we will install the battery pack NOTE: all packs are 7.4 volt 2 cells packs, 3 cells will cause your motor to self destruct on the first use of the throttle. (Yes someone did it.).

These instructions will be for the ETEC 1200 and the ETEC 1200 HP. We do not advise batteries over 2.2 oz.

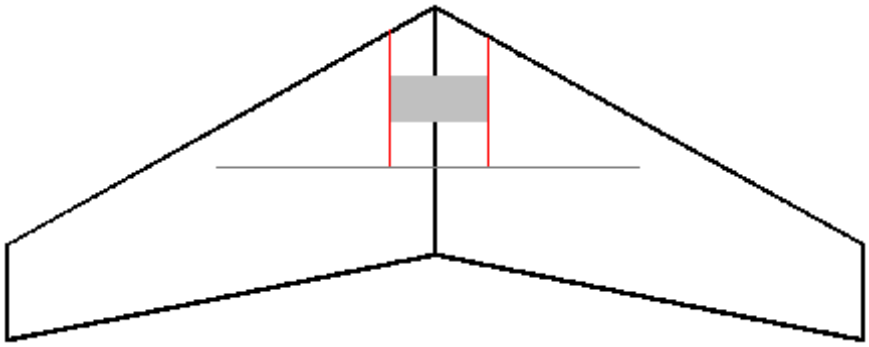
Wrap the pack in the same color covering as the center of your wing with the wires wrapped around the edge until you're out of wire. You may attach a JST connector in place of the deans connector or make an adaptor if you use that pack in other planes.

Here you have a choice, if you are accident-prone you may opt to just Velcro the battery to the top of the wing for a while until your comfortable with the wing.

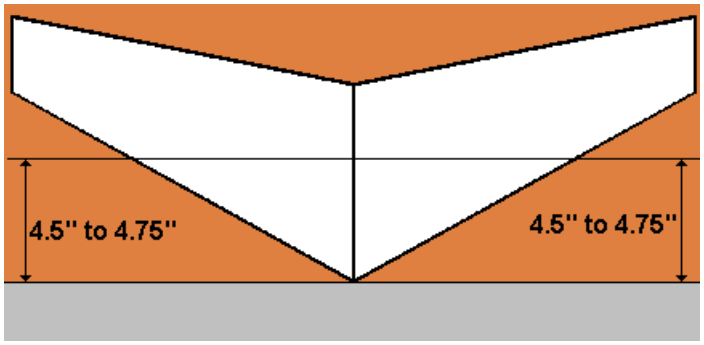
This gives you a few advantages. 1. Should you plow hard and make your li-po mad it is easier to get it away from your wing. 2. By not having it inside on a hit it will not act as a hammer inside the wing. 3. This wing uncut is stronger. HOWEVER… having it inside the wing gives better airflow and faster speeds.

The next steps you take will be the most important

Take something you can use as a balance for the wing, I use a 3 sided scale ruler (Available from about any office supply) and balance the wing on the glue seam of the wing cores using your battery pack as the only weight. After you have a good side to side balance make a line along both ends of the battery pack. (See RED LINES in picture.) When you set the C.G. you will be sure to keep the battery within these lines.



Now take the wing and place it on your balancing edge as shown. I make sure that the edge is 4.5 inches from the edge of the workbench and tape it in place. Now moving your battery pack fore and aft between the 2 lines you drew in the last step you will achieve C.G. when your wing will sit level for a second then fall forward. Use a couple small pieces of tape and recheck balance side to side and then C.G. again just to be sure. Once you have double-checked this critical step draw to lines side to side as close to the battery pack as possible.



Should you chose to mount the pack inside the wing then cut into the wing on the rectangle you have drawn in the last 2 steps. NOTE: DO NOT CUT INTO THE BOTTOM LEVEL STRAPPING TAPE.

Now decide if the battery is a part of the wing or removable…

If your battery is going to be part of the wing, spray it and the cavity with a little 3M77 and install it, cover it with a bit of strapping tape and covering then recheck C.G.

If your battery is going to be removable spray the cavity with 3M77 and line the cavity from the covering, across the floor and back up to the covering as to cover all foam in 1 layer of strapping tape, cover the cavity with covering and ably the Velcro to the battery pack and the floor of the cavity. Recheck C.G.

At this point you should be ready to hit the field, take 4 dimes and a roll of tape for fine-tuning the C.G. to your personal preference.

Please send us pictures of your finished wing!

If you have any questions please send them to…

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