Build guide for RCRCM Eagle

3750mm Wingspan F5J Glider – Eagle

Available in 4 Versions: I have the Carbon Lite version for the build

The servos used for the build are KST DS125MG for the wing as the ply servo mounts supplied work very well.

I have also used the KST DS215MG for the fuse as this also fits in the servo frame supplied as well.

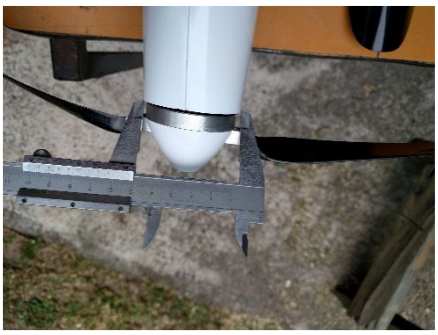
I will start with the fuse first:

The motor mount is fitted from the factory and I found this more than strong enough for its size.

I did find that it has too much up thrust so I have shimmed the motor so that some of the up thrust has been taken out.

The spinner is a 50mm Aeronaut with a 52mm centre to fit a pair of Vita Prop 13 x 7 props, but this will depend on the motor you use.

I have used a Neu 1115 motor with 6.7:1 gear box and this works very well. I used this motor as it was 1 I had not in use at this point and has very good thrust.

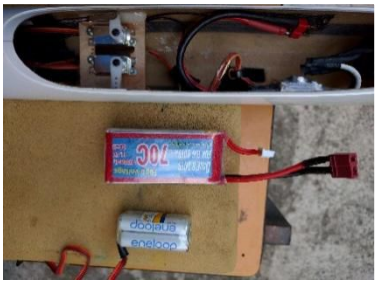


After mounting the motor and ESC, I fitted the servo tray supplied.

I fitted it 60mm to the front of servo tray as this gave me room for my battery to fit behind and also in front of the tray.

Please note, I cut the servo tray to move the rudder servo off to one side and keep the pushrod as close to the fuselage wall as possible. This keeps maximum room for the battery pack to fit behind the servos. In my case I have one of the new Dave's Toys HV 1000-3S 70c packs in front of the servos and I also used a 4 cell Nim pack for the RX which I fitted behind the servos. This will change depending on the size of the motor and the weight of the motor ESC combo.





The Tail:

I found the rudder to be too tight with the wiper molded onto it, so I had to cut some of the fin back. This made the gap larger and gave me more movement. I folded the rudder back and sanded the back edge of the rudder until I had the travel I wanted.

Next comes the rudder horn. Fold the rudder back and tape it to hold it out of the way, then mark the rudder in line with the pushrod and cut a slot in the vertical web. I used epoxy glue with micro fiber to set the horn in place. Take care that it is not sticking out too far as it will bind with the fairing on the fuss where the pushrod connects. I found I had to cut the fairing back to get the travel I was after.

I glued the threaded coupler to the carbon rod with thick CA as this is a bit slower to bond and gives you time to push it into the correct position.


Fitting of the Tail:

This part is very quick as it is a full moving tail and the elevator pushrod is fitted for you in the factory.

I found the carbon rod was a bit tight so I had to sand this down. I used wet and dry as you don't want to sand it too much and also the carbon dust is not good for you.

After I fitted the pivot rod it was time to do the same with the drive rod.

Do not sand it too much as the friction is all that holds the tail on the model and you don't want to have one side come off in flight.

I like to glue the rods into place. To do this you need to find the center of each rod so it is even on both sides and glue the rods in as shown in the pictures. There should be one in each side, not both in the same side as

this makes it very hard to fit the tail.

Fitting the loom and plug for the fuse to wing:

I like to use the computer plugs for this as you don't make any mistakes when plugging the wing in.

This is not hard to do but you need to line up the cut in the wing and fuse so that when you put the wing on and screw the wing down it is all connected. All you need to do is cut the hole so the plug fits through and then put a packer in the fuse to screw it to. Please note you will need half the plug sticking out to connect with the wing.

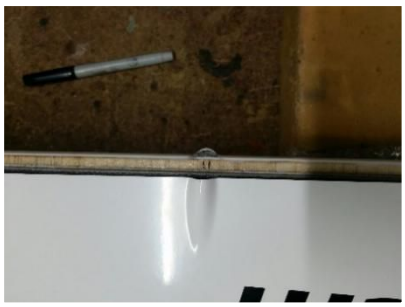
The Wing:

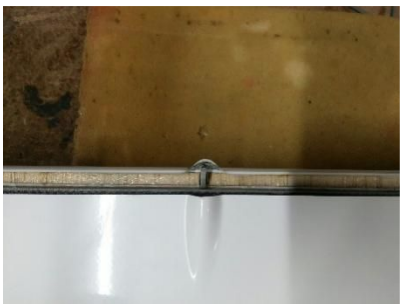
I changed a couple of things in this setup as I was not able to get the flaps to go down as far as I wanted.

The ailerons can be worked on first as there is no change to this other than the gap seal which was too tight, the same as the rudder. This is a quick fix. Tape the aileron back so that you can get a sanding block in and sand until the aileron fits with no binding on the gap seal.

You can then mark the slot ready to cut to fit the fiberglass horn. Please note the horn must not stick out past the wiper as this will cause binding when connected to the servo.

I then glued the horn in with epoxy and micro fiber. This makes it strong but also light.





Fitting the servo frames and servos:

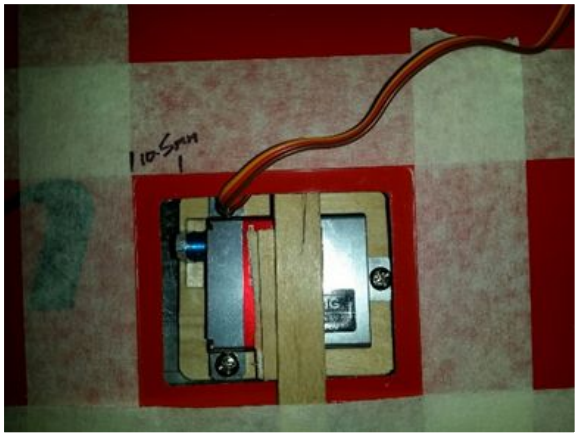
If you use the KST or MKS wing servos, they will fit the frames supplied.

When you fit the frames please put packing tape on the underside of the servo so it will not stick to the top skin if glue gets underneath when fitting.

I like to fit the servo to the frames so I can cut the screws down as a long screw will put a nice mark on the top skin, and there is nothing worse than a mark on the top skin. I also put masking tape around the servo hole so that no glue gets on the wing skin. The servo horn will be around 10.5mm from the rebate and the pushrod will be 50mm long pin to pin.

I make up packers to put some pressure on the servo. This holds it in place and keeps the servo as tight to the skin as possible.

You will need a short 200mm extension cable to go from the servo to the wing root for connection to the center panel.



The center panel:

This is where I made the most changes.

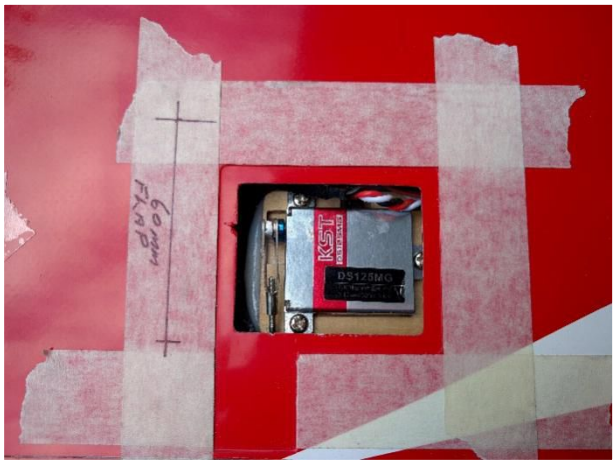
I found using the horns supplied to exit the wing on the underside did not give me the travel I needed or wanted as the horn hit the skin when the flap was at about 30 degrees. I fitted a new horn on the top side of the flap and cut a slot for the pushrod to exit the top skin. Wow, this now gave me more than 90 degrees, more than I needed.

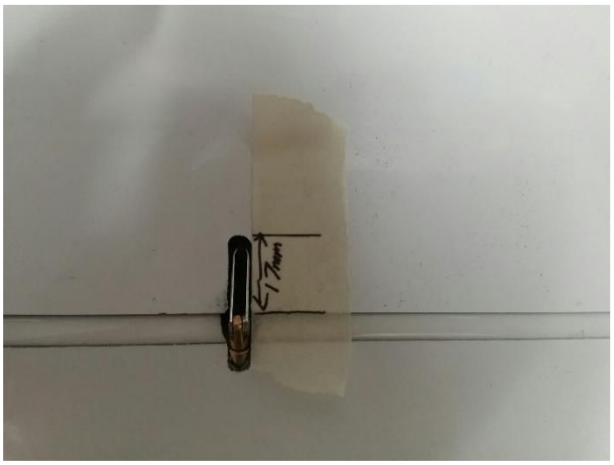
In this case I made a pushrod 60mm long and fitted the servo the same way as the flaps.

I cut the slot 17mm long into the rear of the wing and 5mm wide for the pushrod to exit the top of the skin. I then cut a slot in the wiper of the flap to make room for the 3mm threaded horn.

I cut a slot in the balsa web so the horn could be glued into the flap on around a 30-degree angle. This gave me good triangulation for the best slop free hold on the flap. This needs to be glued with epoxy and micro fiber to get a strong joint.

The pushrod for the flap is 60mm in length. If you tape the flap at 90-degrees, set the servo horn facing the back of the wing and fit the pushrod, you will be able to get 90-degrees of flap and also around 10mm of up going flap so you can use flaperons.



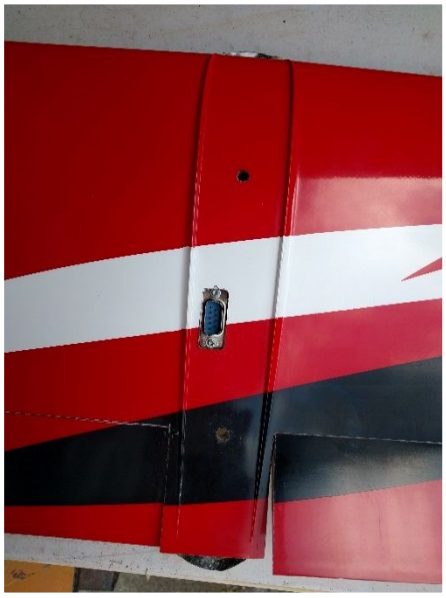


Making a wing loom:

You can make this up with 4 extension cables and cut them to size. I used the computer plug as per the fuselage, this way when you fit the wing to the fuss and bolt it down it is all plugged in and ready to go.

Please note, I was able to get 90-degree travel on the flaps and around 45-degree travel on the ailerons.

All you need to do now is to tape the inner and outer aileron so that the servo will drive the full aileron all the way to the tip, then set the CG to 81mm from the leading edge.



If you set the wing all clean with the continuation of the tip and inner part of the wing and sight the rudder and elevator you are ready to program and fly

Wing settings:

I set the full wing as neutral, the same as the wing profile of the wing.

Speed mode or reflex - I set to be flat on the bottom of the wing. This is about 2mm up

Thermal mode - I set the full wing to have a maximum of 5mm down. This model is not the lightest model but when using a good amount of camber, flies very slow and has good control.

Differential on the ailerons - around 10mm down and 15mm up at full travel. You will need to program in some rudder to help the tail track the way it should.

Brakes or butterfly - I have set this at 80 degrees' full travel and around 10mm up going aileron. Then program the down elevator to suit your flying. I like to have more down than is needed to keep the nose from lifting to a stall and if I need to stretch I just pull the elevator as needed.

That's it you are ready to go flying! Happy flights to you all.

Build guide by David Pratley