Building Instructions

SPINRAY

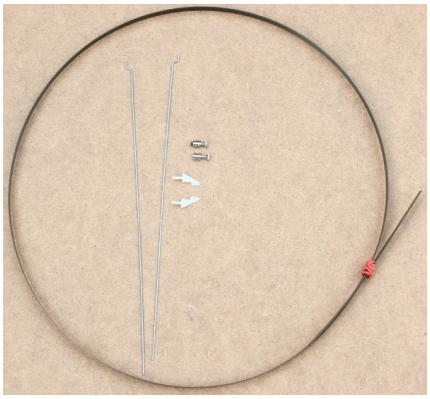
www.4-Max.co.uk

Designed and developed by George Worley and Colin Low

Building Instructions for 4-Max SpinRay

Kit Contents

Foam Parts



Carbon Spar and Hardware

1 tube of UHU Por

Parts Required to Complete

2 x Bell Motors 1400kv 70W we recommend Purple Power PPB-2826-1400
2 x 10A-12A Electronic Speed Controllers
2 x Prop Adapters
1 x 6x4 APCE Prop (standard rotation)
1 x 6x4 APCE Prop (opposite rotation)
1 x 3S 740mAh or 800mAh LiPo battery we recommend Purple Power PPL-20C3S-0740
2 x 9g servos
1 x 5 channel receiver – We recommend Spektrum 2.4GHz
1 x Computer transmitter – We recommend Spektrum 2.4GHz

Tools Needed to Complete

Weights to hold items down/in position
Pins to hold items in place
Fine tooth saw
Allen key
Heavy duty side cutters
Standard Cyano (Superglue)
Cyano accelerator (Kicker)
2mm drill

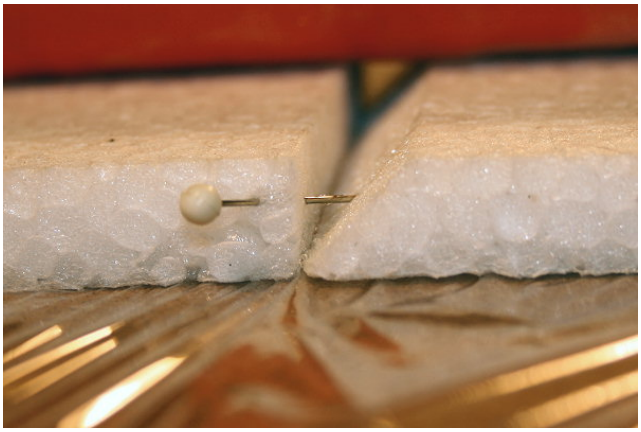
Start With Elevons

Lay a piece of cling film on a flat surface.

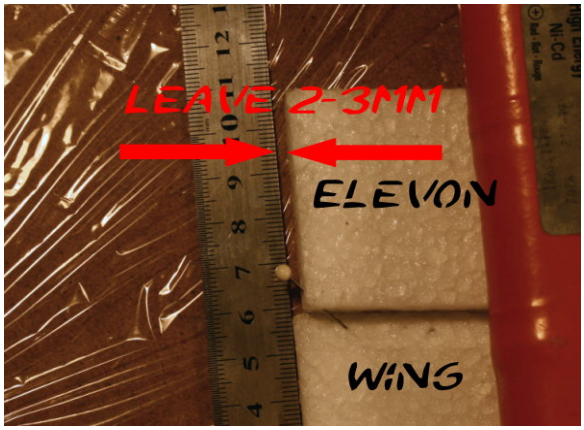
Apply a bead of UHU Por along the trailing edge of wing and the elevons

Run the end of a small paint brush along the groove to get a "U" shape fillet of glue

Lay the rear part of the main wing down on the cling film and push the elevons up to the trailing edge of the wing ensuring the equal spacing of the elevons along the wing.



Weight and pin the elevon to the wing and allow to dry for 20 minutes

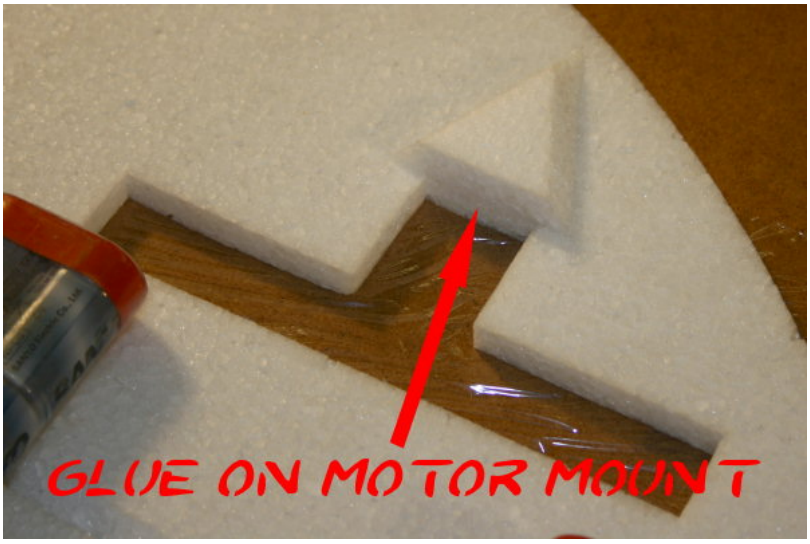


Leave a 2-3mm gap at the wing tip

Do not make the elevons flush to the end of the wings as this will interfere with the movement of the elevons against the side fins. Pin and weight them to hold them in place. Allow to dry for 20 minutes. Remove from board, remove cling film and spread out any excess glue (on the side that was next to the cling film) and allow to dry for a further 20 minutes.

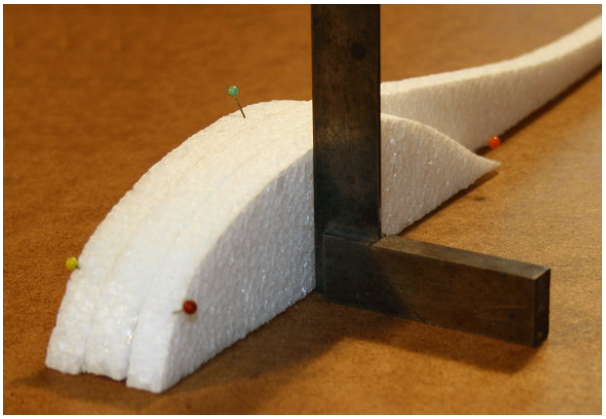
One Half of Motor Mounts

While the elevon to wing joint is drying apply a generous covering of glue to the bottom of the motor mount, gently move parts in a circular motion to ensure glue covers all parts. Then immediately separate and allow glue to cure for 12 minutes before carefully aligning and squeezing together (contact glue style). Repeat the same for the second motor mount making sure everything is square, as per photo below.



Lower Fuselage

Apply a generous amount of UHU Por to one side of the lower fuselage side cheek and join to the long main fuselage and gently move parts in a circular motion to ensure glue covers all parts. Then immediately separate and allow glue to cure for 12 minutes before carefully aligning and squeezing together (contact glue style).



Repeat the same for the second side cheek making sure everything is square.

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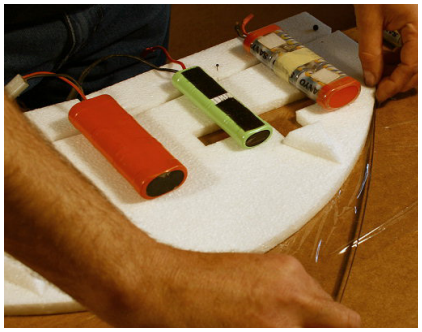
Wing

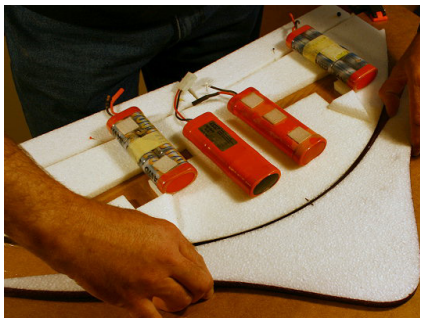
Trial fit the carbon spar and cut to length using a fine tooth saw ensuring you do not breathe in any of the carbon dust as it is carcinogenic.

Spread a thick layer of UHU Por on the curved leading edge of the rear part of the main wing

Apply a thin layer on one side of the carbon spar,

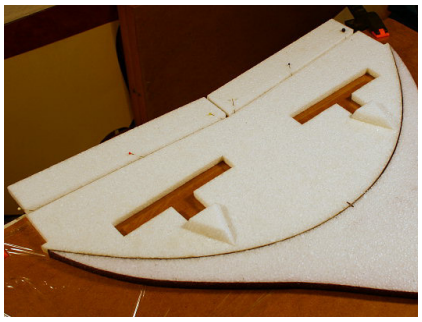


Allow to cure for 10-15 minutes before joining. (contact glue style)



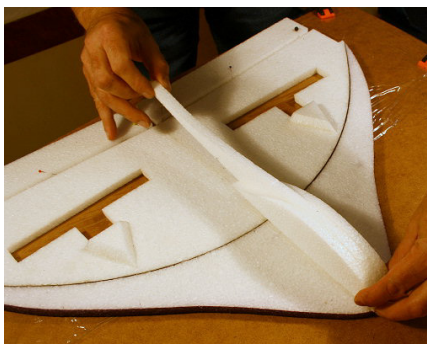
Spread a thick layer of UHU Por to the curved trailing edge of the front part of the wing and a thin layer to the carbon spar which is now glued to the rear half of the wing.

Allow the glue on the front of the wing and the carbon spar to cure for 12 minutes before joining the front half of the wing to the rear half of the wing.



Both halves joined

Fuselage



Glue bottom half of fuselage to wing (contact glue style)

Glue the two remaining halves of the motor mount to the top side of the wing (contact glue style)

Glue top half of fuselage to wing (contact glue style)

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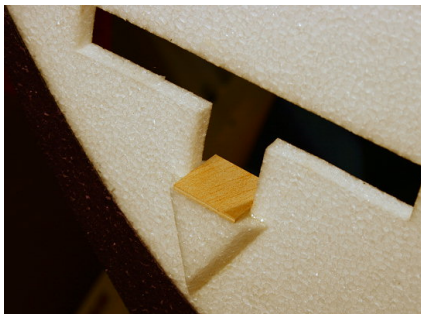
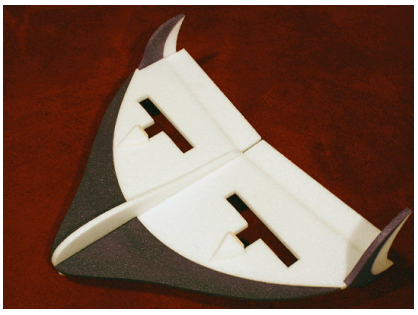
Motor Mounts and Side Fins



Glue the light ply motor mount to the wing as per photo (contact glue style). The light ply mount is slightly oversized, this is intended.

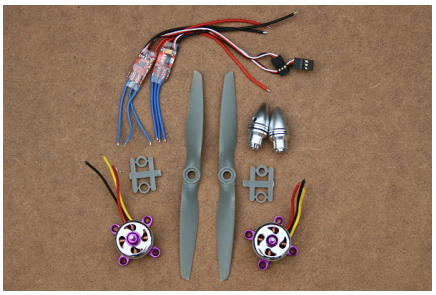
Measure the centre of the side fins and glue to wing (contact glue style) ensuring they are square from the front and side



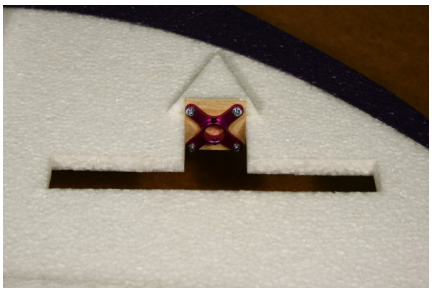
The finished model

We find it's easier to install the motors, ESC's, Servo's and Receiver before adding the side fins.

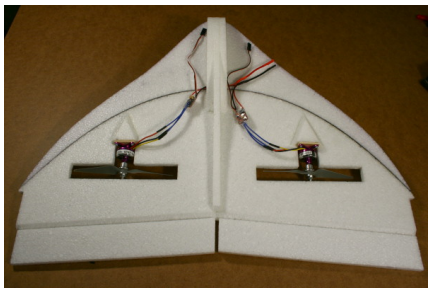
The Following Only Applies If You Are Installing The 4-Max Power Package



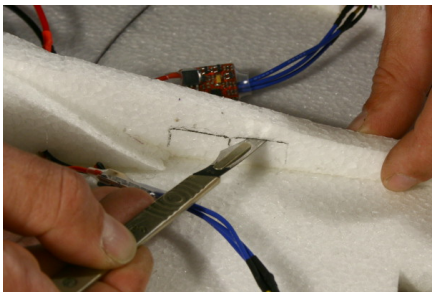
The 4-Max Power Package



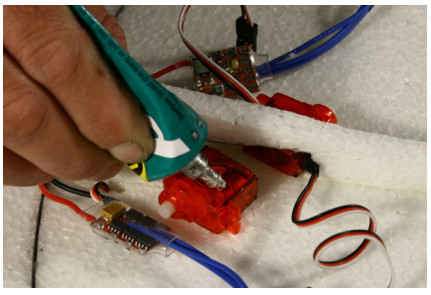
Mark and pilot drill the holes for the motor mount. Add a small drop of thin cyano to the holes to strengthen the light ply. Install the motor mount as in the picture.



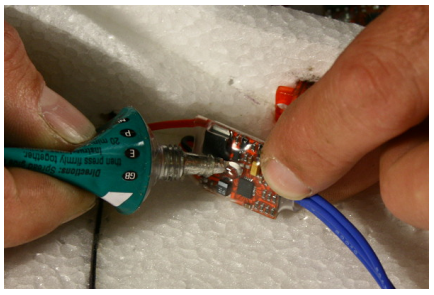
Motors and ESC's installed.



Mark and cut out the hole for the servos



Use UHU Por to tack the servos in place



Use UHU Por to tack the ESC's and wires in place

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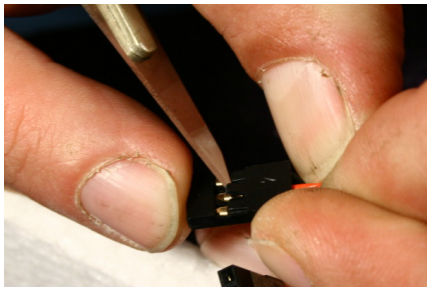
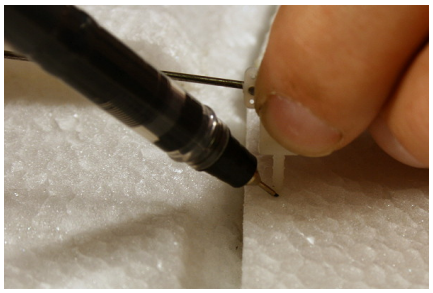


You need to disable the BEC on one of the ESC's this is done by removing the red wire and taping it back out of the way.

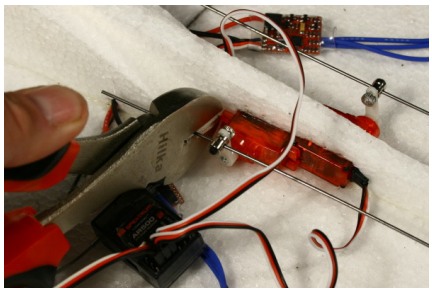
Assemble the wire retainer as shown above. You will need to use a 2mm drill to on the horn for the wire retainer

Put a small drop of medium or thick cyano on the nut and then spray with kicker. Ensure that the wire retainer can rotate easily.



Mark the position for the horn ensuring the holes are over the hinge line as in the above photo. Use a 2mm drill to drill the elevon.

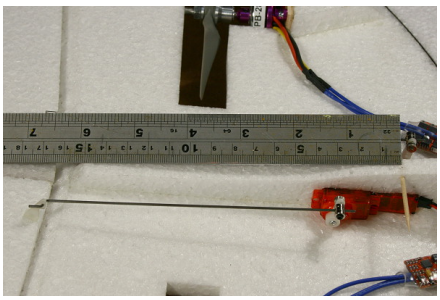
Spray the horn with kicker and allow to dry. Apply thick cyano to the elevon and insert the horn in the elevon very quickly and spray with kicker.



Ensure the servos are centred. Make sure the servo arm is at 90º to the wing. Trim excess piano wire with side cutters.

Place a small mark on the side fin to mark where glue is to be applied.

Apply UHU Por to side fin and end of wing (contact glue style).



Measure 165mm forward from the hinge line and insert a cocktail stick or small piece of wire through the foam.

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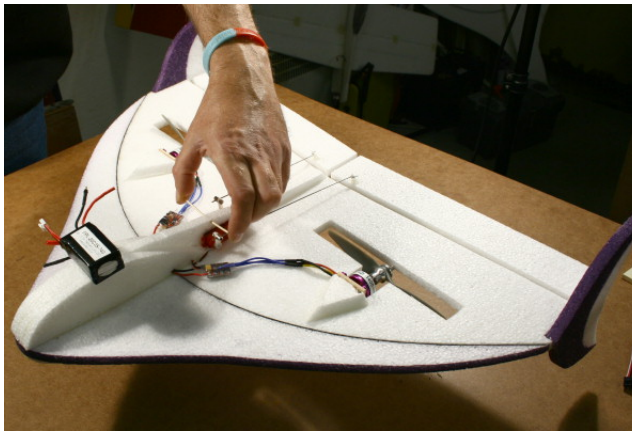
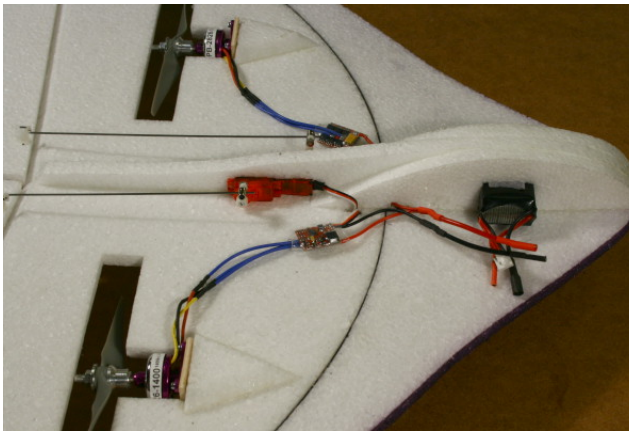


Hold the model by the cocktail stick and balance the model by moving the battery fore and aft. Mark and cut the hole for the battery. Slightly undercut the hole to ensure a snug fit for the battery.



The finished model all wired up and ready to fly (after a bit of programming of your transmitter).

Please see www.4-Max.co.uk for information on transmitter programming.

Specification

Length	455mm	17.91”
Wingspan	595mm	23.42”
Flying Weight	266g	9.38oz
Control Throws	20mm	Aileron and elevator - 40-50% exponential Rudder - 80-100% exponential
C of G	165mm	forward from the hinge line