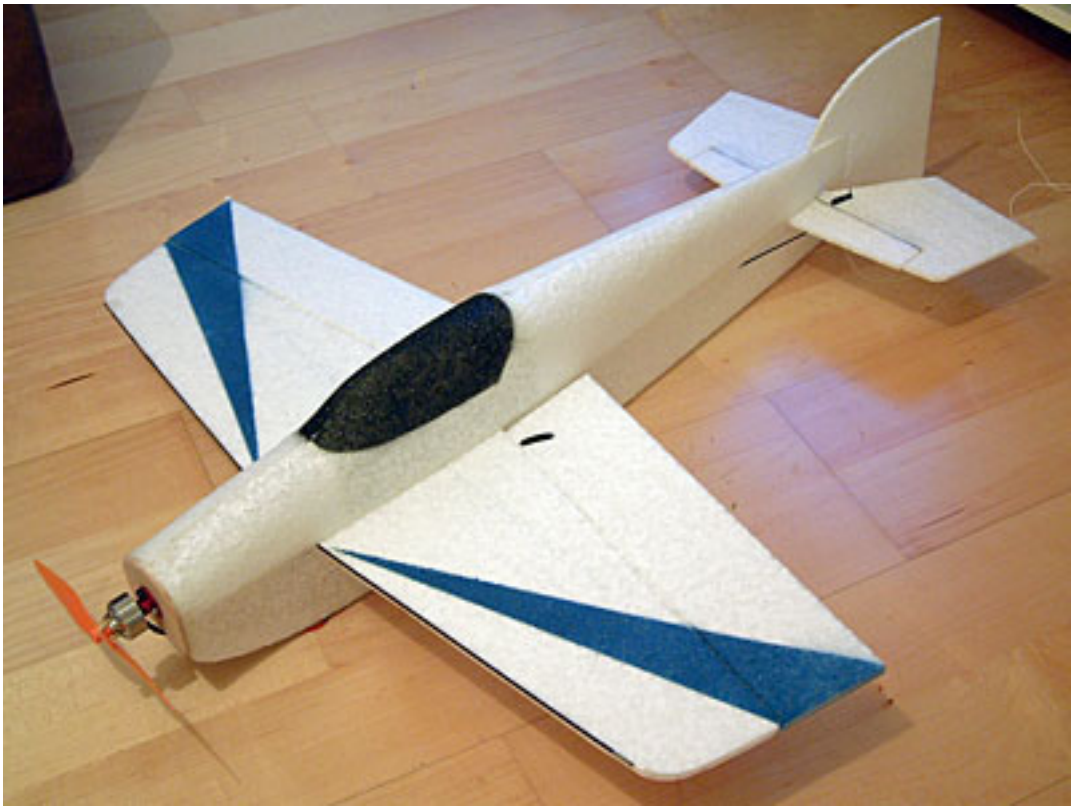
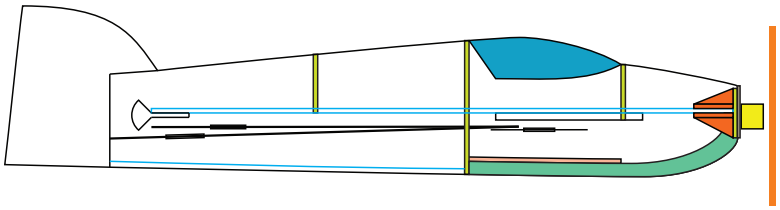
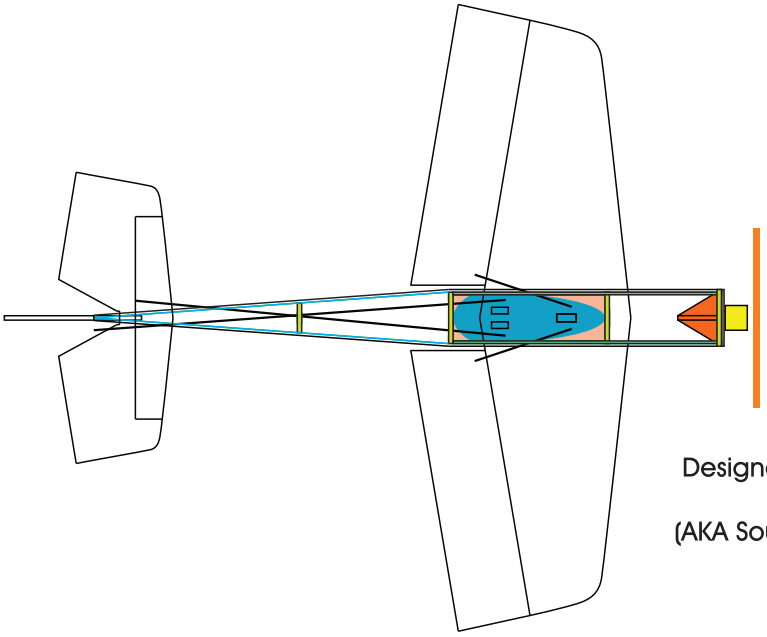
Silent Mite
Build Guide



Full Fuz EPP Pattern/3D Hybrid

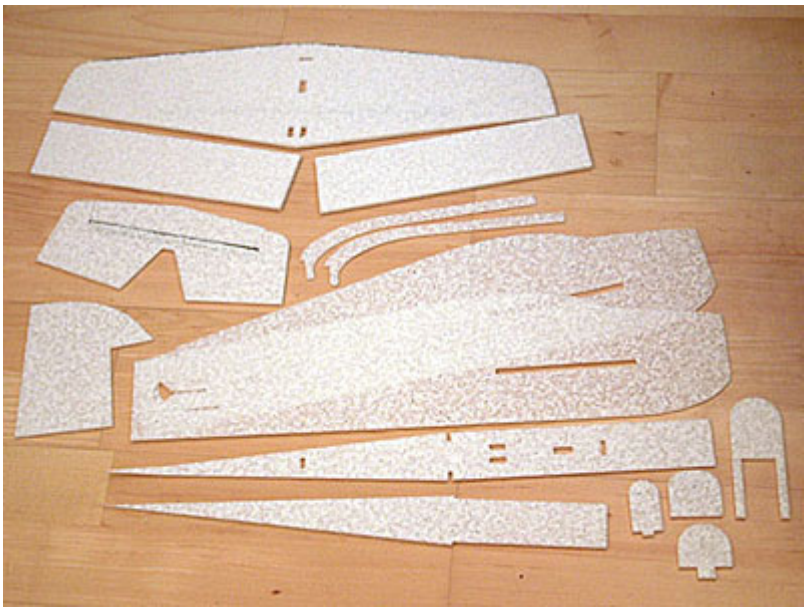




Wingspan:	28”
Length:	32.8”
AUW:	~6-7oz
Power:	60-80W

Designed December 2006 by
Tom Girling
(AKA Soundman on RC Groups)

Please note, during the building of the Silent Mite, I altered some of the parts, added a couple & changed a few things here & there - the plans provided are the correct version & may differ slightly from the photos.



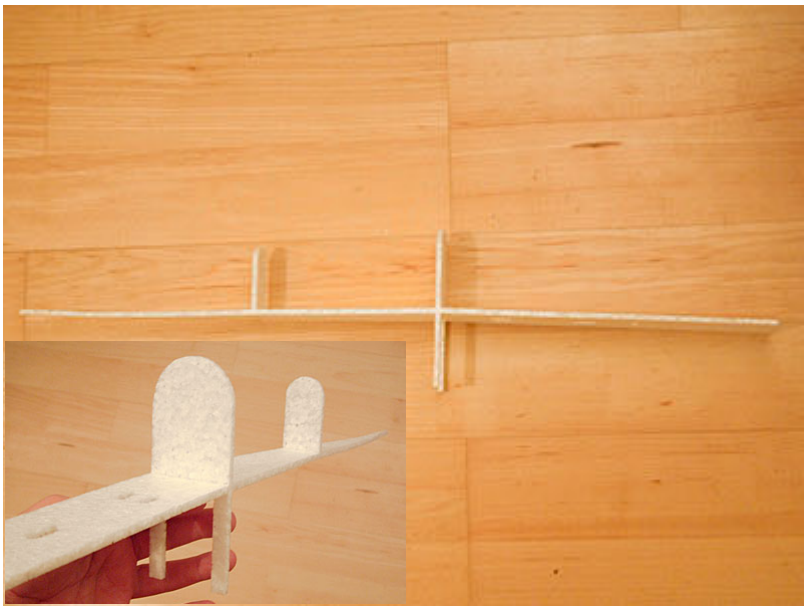
To build the Silent Mite you need 3mm, 5mm & 8mm EPP sheet - however instead of the 8mm that is used for the wing, you can use 5mm sheet instead - you will need to modify the wing cut outs in the fuz sides to compensate for this.

You will also need 3mm (1/8) Lite Ply or other similar material for the motor mounting plate. Some carbon for stiffening the wings & elevator (I used 3mm strip), and some 1.5-2mm carbon rod for the pushrods.

Everyone has their own personal preference as to how to do pushrods, conrtol horns, clevises etc - so I assume that you can work this out for yourself. I also chose not to use landing gear - you can easily fit a wide variety of gear if you choose to...again personal preference applies.

To start with, print out the plan & join the tiled sections together. Cut out all the component parts (may differ slightly from photo). To cut the parts out, I lightly spray the paper templates with 3M spray mount (blue can in the UK) - this is the repositionable type of spray, works very well & holds enough to cut around & then pull off when cut.

Glue F4 and F5 onto the Mid Keel as shown.



Next lay the two fuselage halves on a flat surface. Apply glue (I used UHU POR as a contact adhesive) to the top straight edge of the tail section on both halves, allow the glue to go tacky & join together. The fuselage could have been cut as one piece - doing it this way reduces scrap when cutting the parts out.

Next glue the nose doublers in place, hold down with weights while drying. The side with the doublers will become the inside of the fuselage.

Now draw a line on both fuselage halves that runs along the top edge of the wing cut out to the top edge of the elevator cut out.

Glue the assembled mid keel section along this line - at this stage only glue the mid keel side, & straight vertical part of the two formers to ONE side of the fuselage only. Allow this to dry.

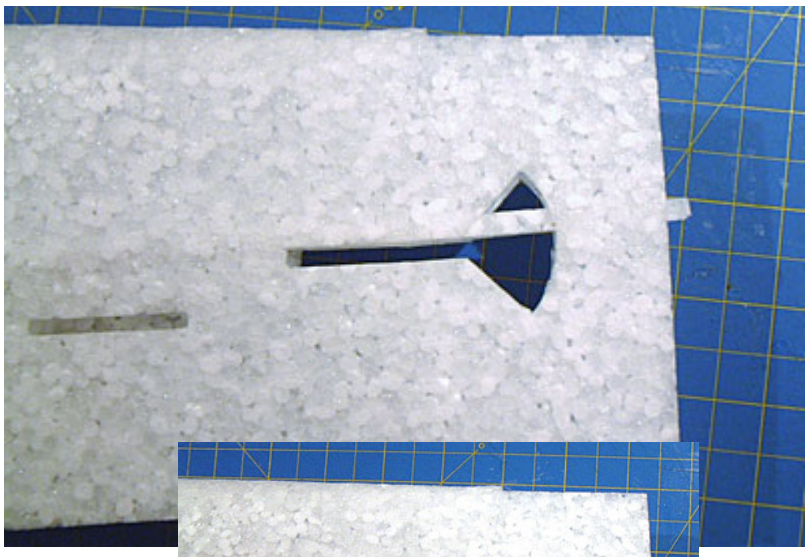
Now comes a tricky part. I advise doing a couple of dry runs on this before applying any glue!

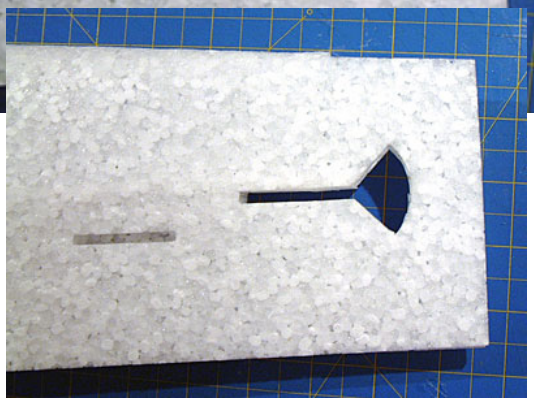
Bend the fuselage around the formers & around the mid keel to form the whole fuselage. The trick is to keep the fuselage skin tight, but not to pull it too tight to warp or stretch the foam.

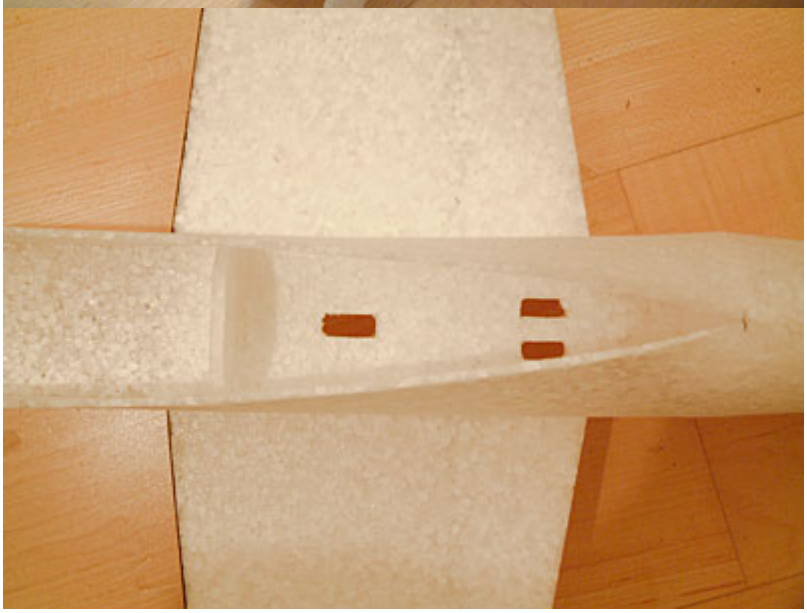
once happy with this movement, you can apply some glue. Again this needs to be done with a contact adhesive (UHU POR).

Apply glue around the edges of the two formers & the remaining side of the keel. Also spread some glue onto the fuselage where these parts will touch. Allow the glue to go tacky & roll the fuselage skin over & around in one motion, then hold in place for as long as needed to ensure good adhesion.

You will notice that the Mid keel extends through the elevator cut out - trim this excess away as shown.





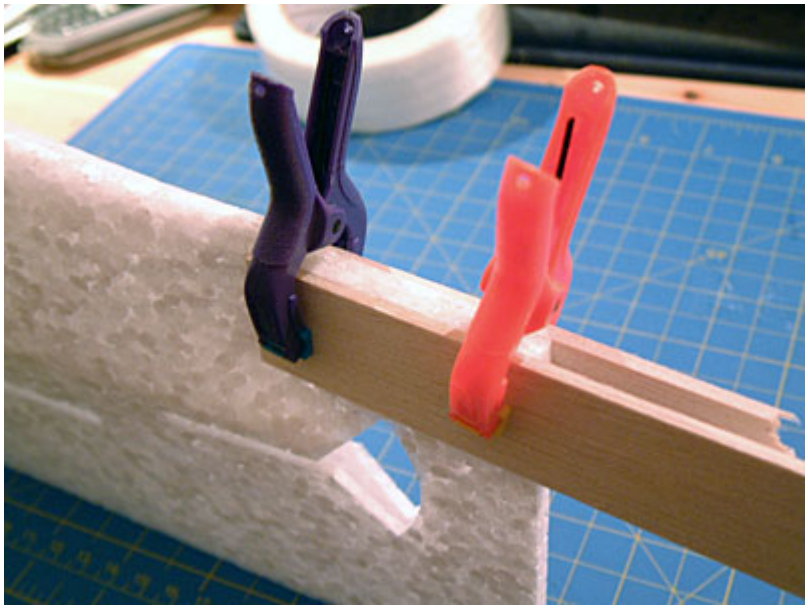


Take the wing & install your preferred method of strengthening. I used some 3mm carbon strip on both the leading & embedded in the wing towards the trailing edge - this gave me a very stiff wing.

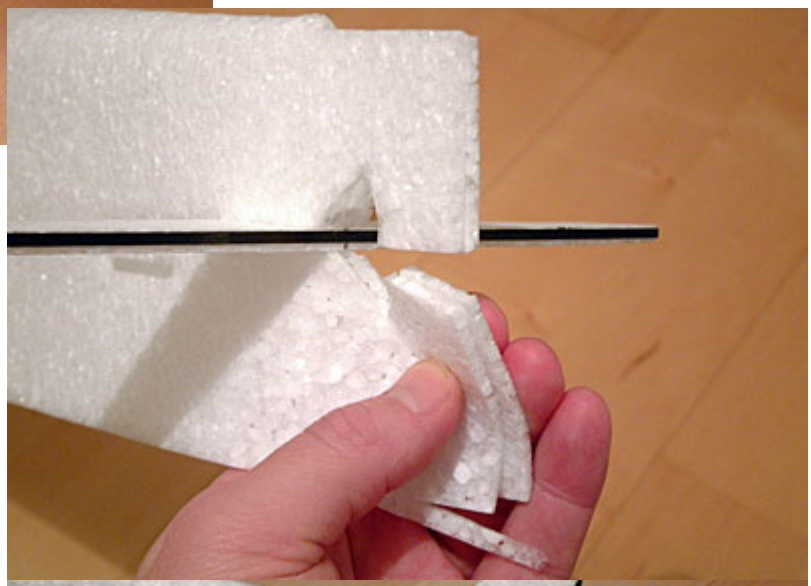
Push the wing into place, making sure that the servo cut outs all line up - then apply some glue to hold in place. At the same time glue F3 into place - this fits through both the mid keel & wing and can also be used to check the wing alignment.

Take a step back & admire your work so far.

The top of the fuselage at the tail needs finishing....apply some glue & clamp tight while it dries



back to the nose...glue F2 in place inside the fuselage (straight vertical edges only). Then install the Nose strengtheners as shown...this will help transfer any impacts back along the mid keel & away from the weaker fuselage sides.



Take the elevator stab & give it some strengthening - I again used 3mm carbon strip along the trailing edge.

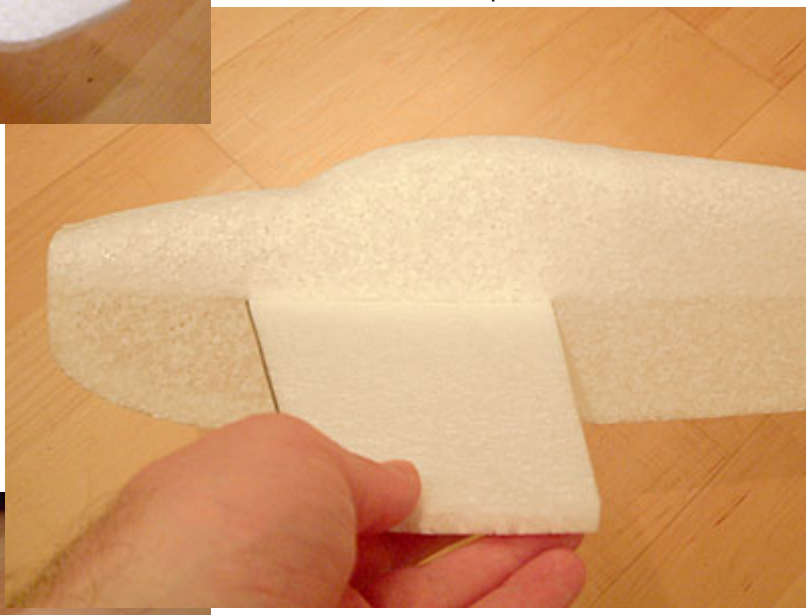
To fit the elevator later, you will need to cut through the back of the fuselage as shown here.

For now just glue the stab in place.

Now comes the bit that you've been dreading. Time to seal the canopy & nose of the fuselage. You're probably wondering how to do this - its actually incredibly easy....a little messy & requires some patience - so make sure you're in the right mood to do it - no rushing here!

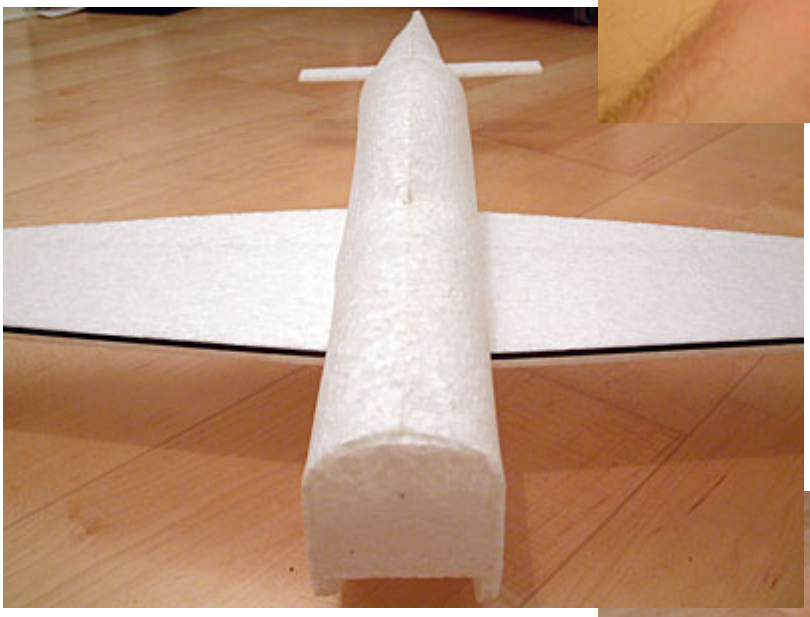
This is done again using contact adhesive (UHU POR). You are trying to create a continuous butt join all the way along the canopy to the nose.

Apply a little glue to each edge - maybe 2" at a time, allow to go tacky then fold/roll the fuselage sides over to meet each other. You will have a litte time to reposition it but not much.



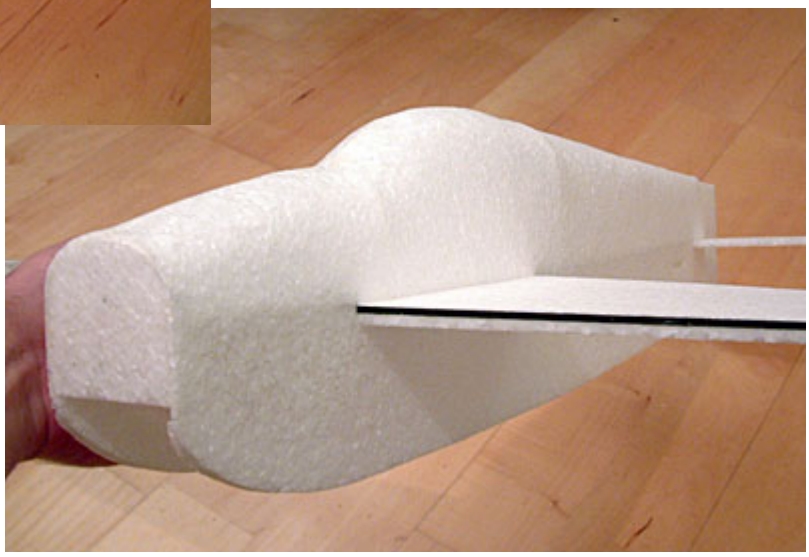
Once you get the hang of it you can start applying more glue as soon as the last part is holding itself, still working about 2" at a time as you go. Keep checking the sections that you have joined before & ease any parts that seem to be moving out of align back into shape.

As long as you go carefully without rushing - this is actually quite an easy task to do. When the edges are joined, they will naturally create the curves around the canopy & nose.

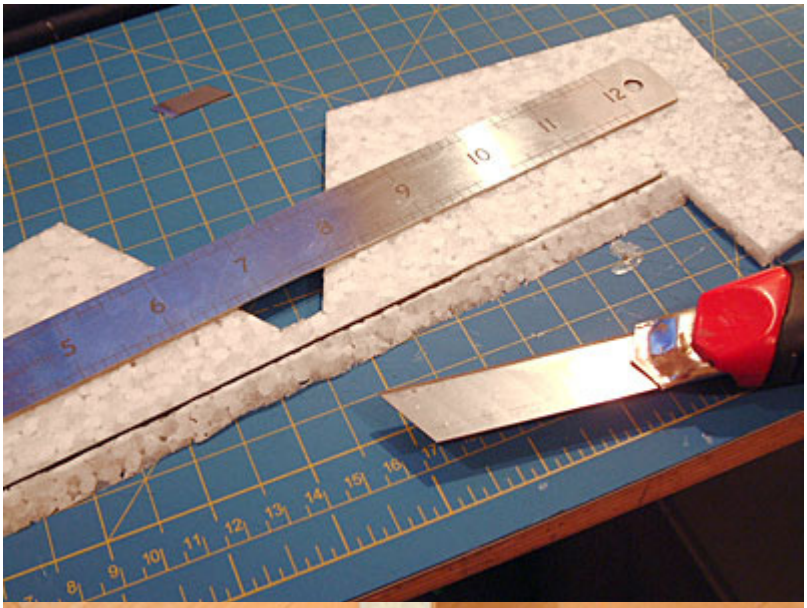


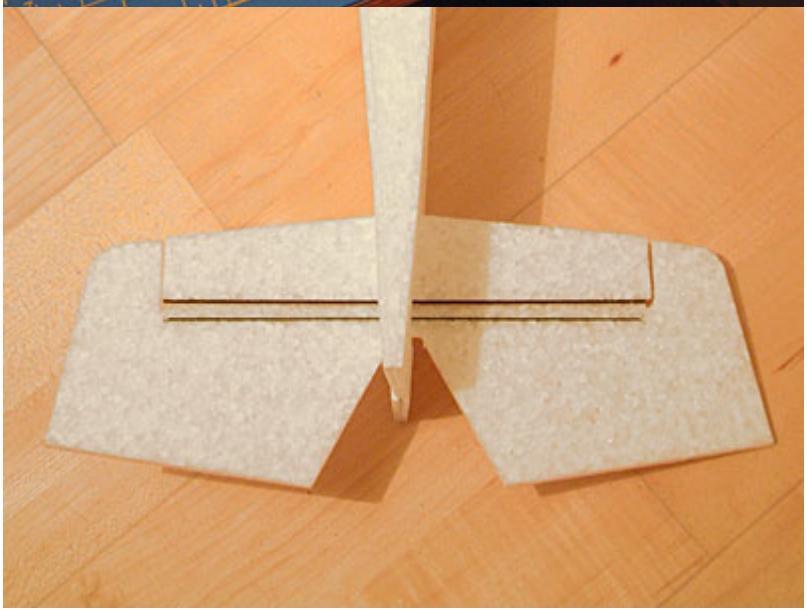
Remember to also apply some glue to the top of F3 at the front of the canopy & then F2 when you reach the nose to help hold the fuselage skins in place.

You will find that there will be a period of time that you will need to keep tweaking the joins to keep them in position - overall this whole section may take half an hour of more to do, so make sure that you have the time to do it in one go.



Take a step back & admire you work so far!





Take the elevator - install some strengthening (3mm carbon strip again). Bevel the hingeline... the old steel ruler, table edge & knife routine.

The fix the elevator to the stab using fibre reinforced tape (or preferred method) for the hinge. Typically if using tape, you will need to apply a thin layer of UHU POR to the EPP to help the tape stick well.

Now its time to fix the back - apply glue to the open back of the fuselage & the edges that you cut for access....then clamp together & allow to dry fully.

I used Mylar hinges for the rudder - if you do the same, you can install the hinges at the same time as sealing the back up.

Attach the rudder & ailerons using your chosen hinging methods. For the ailerons I again opted for mylar hinge strip & used a double bevel on the rudder/ailerons.

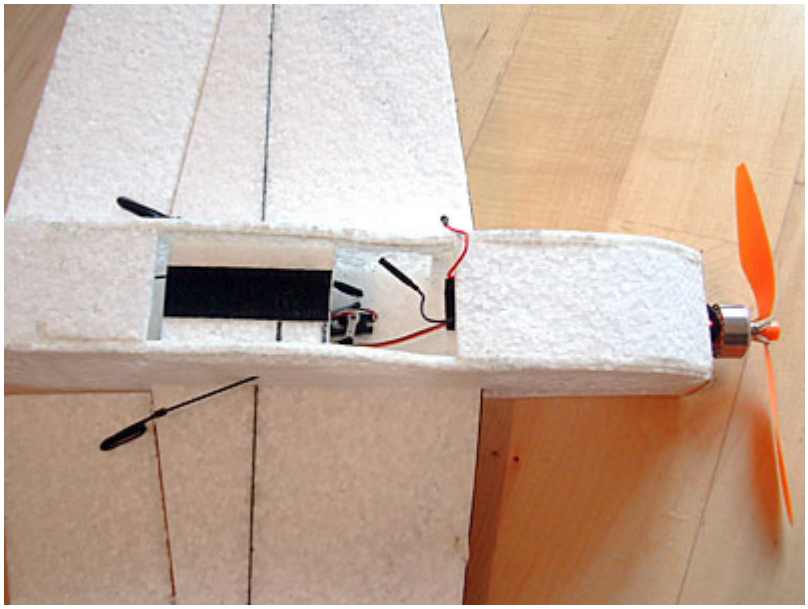
Now is the best time to get busy with the paint. Use the supplied template to create the canopy....the rest is up to your own imagination.

I used small cans of enamel spray paint which seems to work very well - remember to apply the paint thinnly to keep weight down.

Now glue the 3mm Lite Ply F1 onto the nose, install the motor & all electronics.

Once all your equipment is installed and tested - you can seal the bottom of the fuz with the bottom keel, allow this to dry.

Now you can install the nose underside & battery tray - these can be modified to suit your installation.
(in the photo the fuz appears slightly warped - this is due to poor storage on my part - after being left flat over night it straightened out again)



CG - a good starting point is 3”-4” back from the leading edge.

Throws - as big as possible, if only flying pattern then smaller throws are fine.

The Silent Mite will be happy to torque roll virtually hands off, knifedge & basically do pretty much anything you tell it to.

My setup:
Double Stator C&K motor with custom winding.
GWS 8x4.3 prop
Castle Creations Phoenix 10
MZK 4ch DSP RX
1x 6g Pico servo ailerons
2x 4.4g servos elevator/rudder
3S1P Kokam 360

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