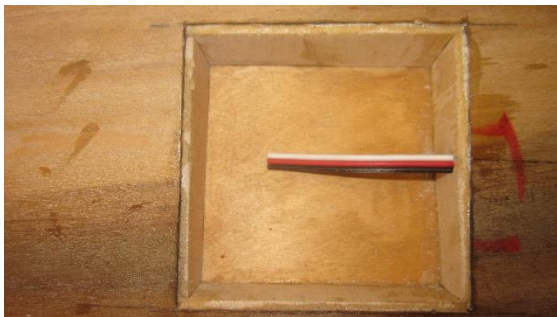


Graecalis Build Log part 6

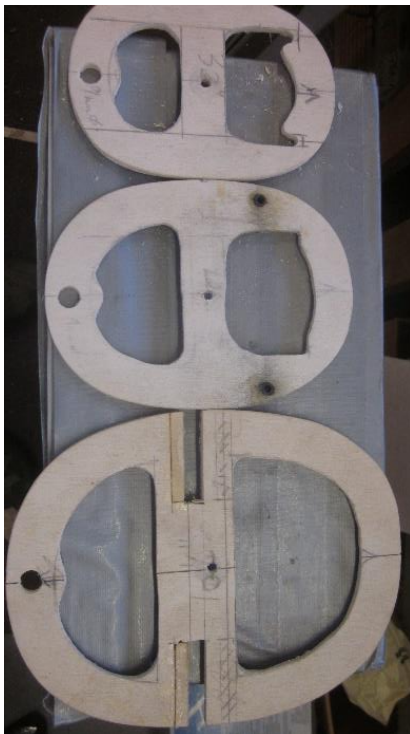
First, open out a servo well, and glue in a 1/16" ply floor:



Then line it with balsa, and drill an access hole:

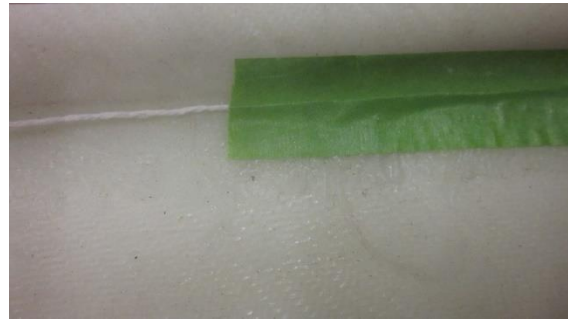


I am intending to mould carbon fibre covers for the servo wells, but apart from finishing off the roots, the wings are now more or less finished.



I decided that the crutch and formers could be fitted before getting on with the crucial task of fitting the wing joiner tubes permanently into the fuselage. Here are the three formers. They are a little different from the ones originally supplied, since I have drilled or cut several holes in them:

- i) The larger holes drilled at the bottom are to take the elevator lead.
- ii) The two holes that I lined with carbon tube in the middle one are to take the closed loop rudder activation wires. The other holes are for lightening.
- iii) The slots on the largest former are to fit the crutch.
- iv) The small holes in the centre are tapped so that I can screw a piece of dowel into them. This makes manipulating them into place reasonably accurately possible.



It's easier to fit wires if they can be pulled through the formers. So I tied a piece of string to a nail dropped into the hole for the elevator retaining screw, and ran the string through the fuselage, taping it down near the nose. The plan is to run it through the holes where the elevator lead is to run.

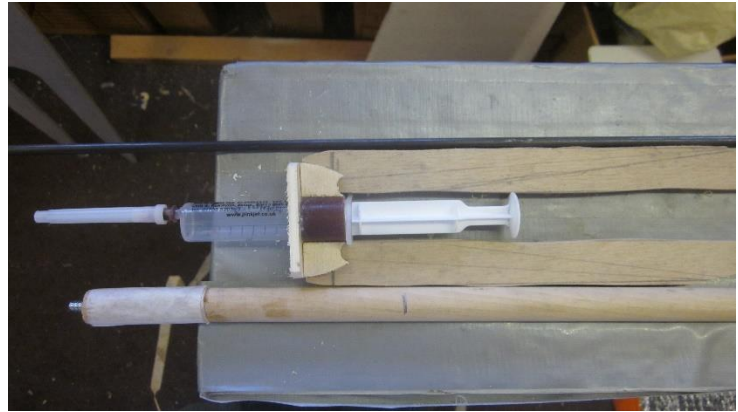
Picture to the right shows the dowel screwed into the middle former. Below is the first former, ready to be sent down to the back of the fuselage.



...and here it is glued (rather messily) in place. I spread quite a viscous mix of glue and micro-balloons on the edge of the former before manoeuvring it into place...



Then I used a home-made glue-gun to put more glue around the joint. Here's the glue-gun, pictured with the dowel:



I pushed the syringe down with the carbon rod shown at the top.

Here's the second former ready to go, with string threaded through, and a couple of carbon rods as place-keepers for the closed-loop wires.



I actually tried a bit too hard with this one, and broke the liteply former that came with the kit as I was trying to push it into position. I cut a new one from ordinary 1/8" ply which is 10g heavier than the original. Total weight penalty will be about 20g.

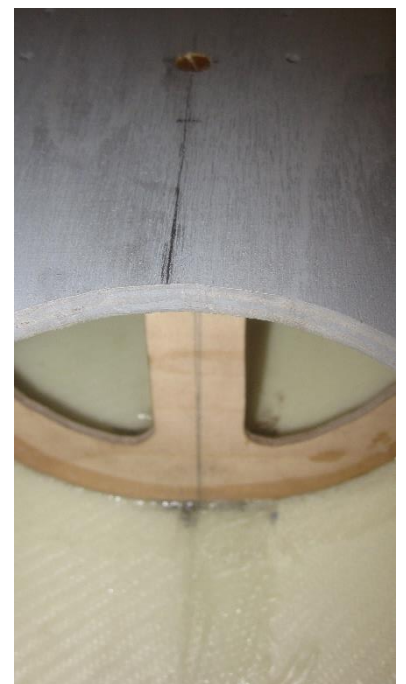


I have to fit the crutch before I can put in the third former. Here it is secured at the nose, with a pool of epoxy which surrounds the aerotow fitting. Had to be sure there was enough to surround the aerotow, but not so much as to get in the way of the plate that is to carry the noseweight and batteries.

With the crutch fixed at the nose I had some fine-tuning to do, to ensure that it ran under the wing joiner tubes at the correct height. First, I made a box to enclose the joiner tubes. This will be filled with epoxy after it is fitted.



A dry run. Everything seems OK to fit the bungee release, which also serves to locate the crutch.



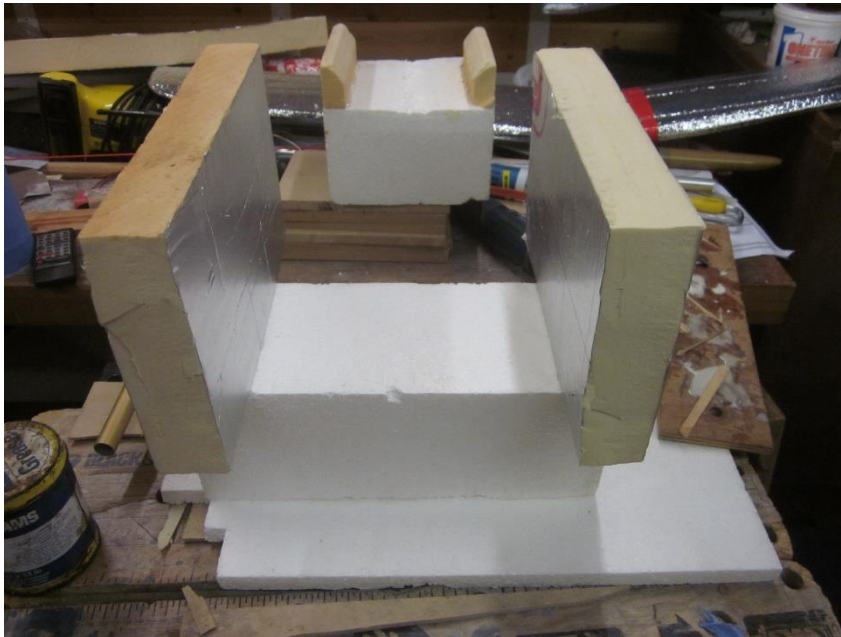
I fitted a screw through the crutch into the bungee release mechanism, mostly to be sure that the joint was tight. You can just about see it at the top of the picture.

Finally, the third former goes into place. In order to get the slots tight and in the right place I opened out the slots in the main former, and added a kind of floating sub-former with slots that were a good fit to the crutch. This was epoxied to the main former. You can see it in this photo.

What the photo doesn't show (because the camera wasn't centred) is how straight the fuselage is.



Now the difficult bit: I need to get the joiner tubes aligned correctly in three dimensions. To do this, I need to support the fuselage and wings with the wings at right angles to the fuselage centre line, parallel to the tailplane in the lateral plane, and with 0.8 degrees of incidence. Here is a support block for the tailplane, with some further bits of MDF used to adjust its height....



...in the background is the support block for the nose, and in the foreground, a cradle to support the wings at the correct incidence. There are MDF blocks and various sheets of foam under both these as well.

One difficulty with this job (and the reason for all the MDF blocks) was that I had to raise the fuselage high enough so that I could sight the wing/tailplane alignment through the workshop window.

Cutting quite a long story short, I used tape measures, incidence meters, my eyeballs and various bits of wood and foam to get everything aligned:

Then I tacked the tubes in place with a thick mix of epoxy and microfiber.



All together at last!

That's about all there is to say of much interest about this project. The remaining jobs are all pretty routine. The to-do list includes:

- Tidy up the rudder and fin,
- fit horns and servos in the wings,
- face wing roots, and add fairings to the fuselage,
- face the aileron and flap ends and the bottom of the rudder,
- put all the works back inside,
- finish the canopy,
- cover wings, tailplane and rudder with 25gm glass cloth and epoxy,
- rub it all down,
- and paint.

All of which I hope to get done before Lundy 2015!

So that's the end of the log. I'll post some photos of the finished plane after it's finished, and, who knows, even a video of it in flight.