

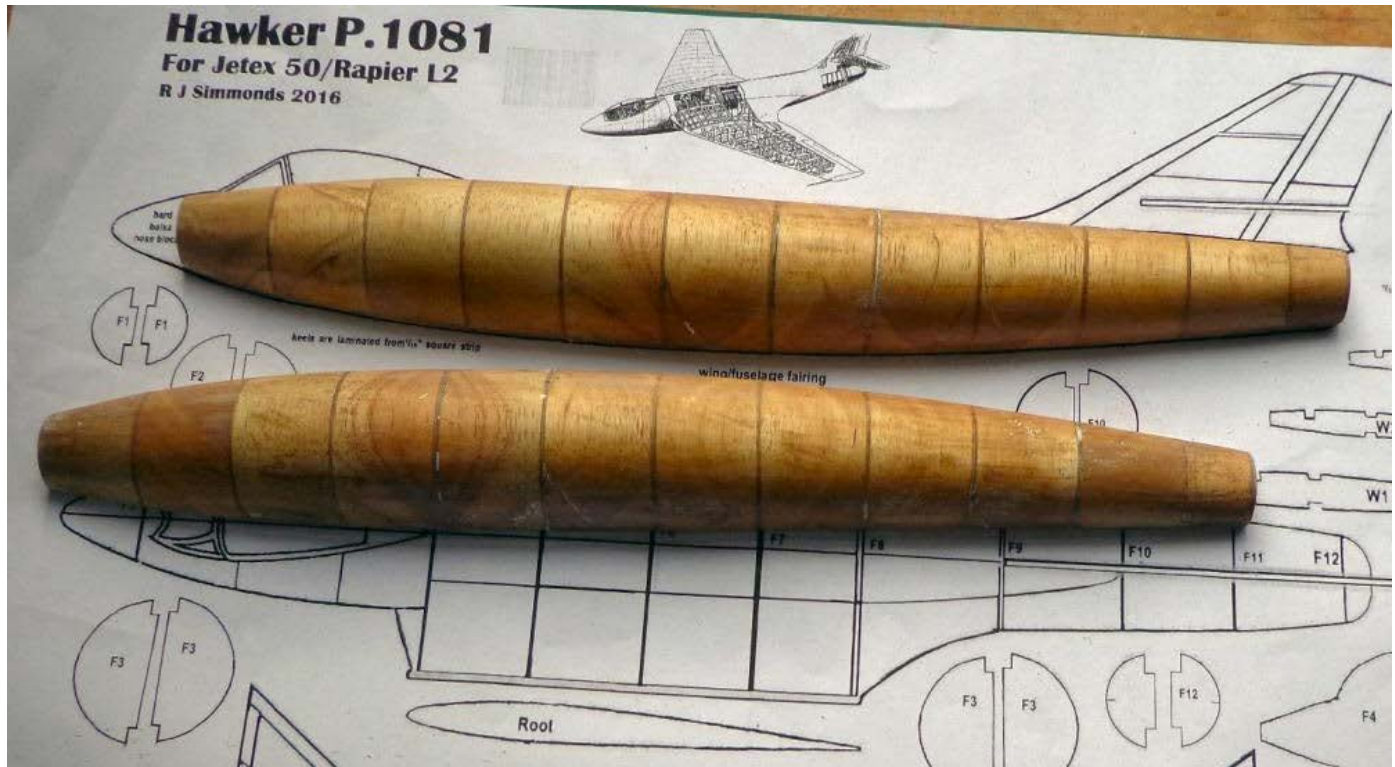
Roger Simmonds Hunter P-1081 Model for Jetex 50/TSP L-2 Power

Building the fuselage

Start with a moulded fuselage, that is, one without any stringers but an all-balsa shell like the Jetex Tailored models of yore. I have described the technique before (for a Draken) but here below is what I did for the P 1081.

First, 1/32" plywood templates are made of the fuselage cross sections at regular (2-3") intervals and sandwiched between block balsa,

This is carved and sanded to shape and given two coats of epoxy resin. A really smooth finish is obtained with various grades of 'wet or dry' paper.:



The moulds are 'tack-glued' to 1/2" balsa before the next step.

Next, very soft 1/16" balsa is soaked in hot water for 2-3 hours:



The still wet balsa sheet is then wrapped around the mould and quite tightly bound with flat rubber strip"



Above: not a mummy taken from an ancient Egyptian tomb but the 1/16" balsa sheet tightly bound to the mould.

It is then left to dry for 12 hours (or so) in a warm place - say a radiator top.

When **completely** dry the rubber is unwound and the shell carefully taken off the mould. The next bit is tricky: the shell is trimmed and pinned around the edges back on the mould and the surface wetted (hot water). Any slack in the shell is taken out by stretching over the mould and repinning. Hopefully, wetting the outer surface of the shell will remove the marks made by the rubber strip.

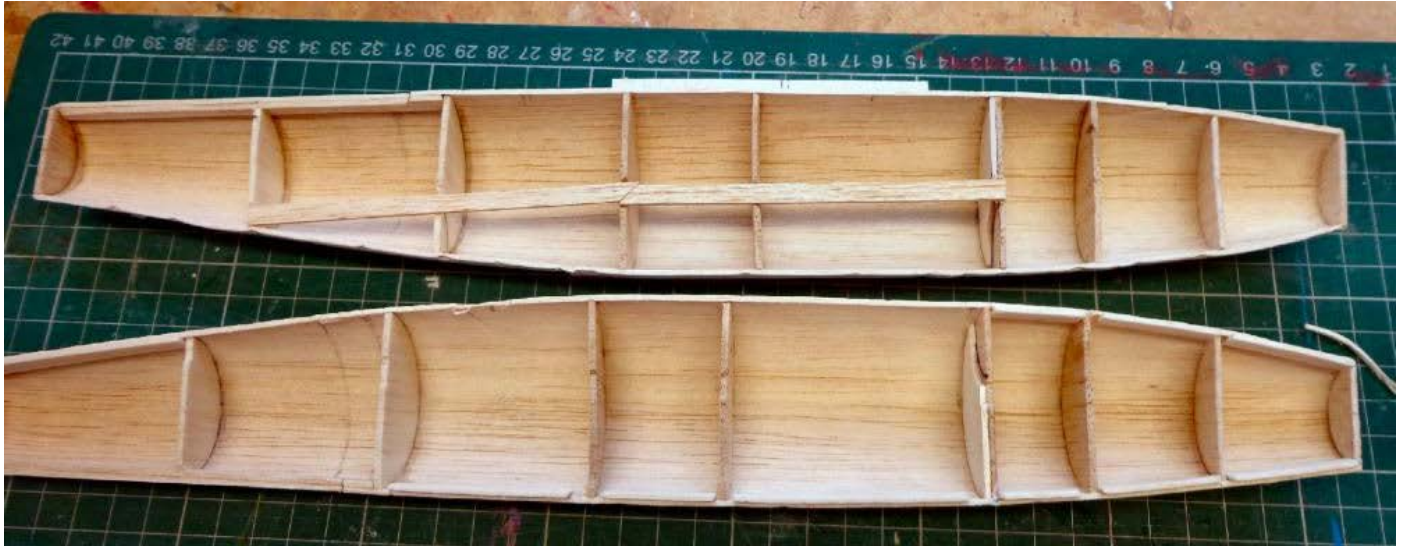
The whole is then left to dry completely. The near-perfect shell can then be taken off the mould and trimmed to shape:



Above: shells for the P 1081 fuselage. Some of the compound curves in the prototype are quite large, so the balsa did 'pinch' in places. Hopefully these can be sanded out later. The worst of these (I should have cut in darts) are fortunately on the underside and will be cut away later for the motor trough. The shells weigh about 3.6g each - quite pleasing.

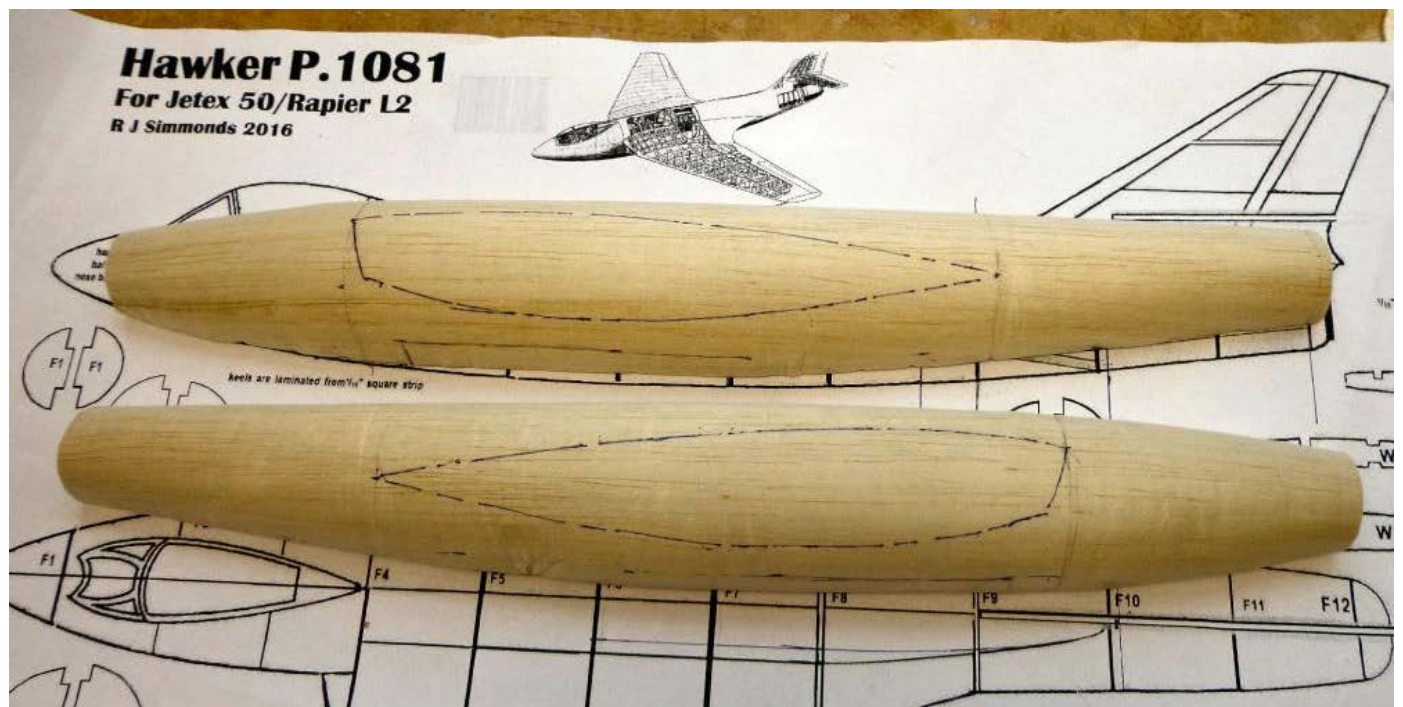
So this is some progress - next, making a fuselage frame the shells can be glued on to.

I know from experience that unsupported shells can warp, so the next step was to cut out some light 1/16" balsa formers and glue in place, followed by 'tabs' at the fuselage join:



Above: formers at front and rear and in strategic places, eg, wing leading edge. Note the balsa strip to support the motor mount and the outline of the trough and the cut out for the fin. At this point the shells weigh 11g in total - not too bad.

Next, the outline of the wing fairing is drawn on accurately, making sure the two halves match:



Building the Wing fairings

Next job is to make the wing fairings - an easy task (I hope) compared to the fuselage!

I have been slowly putting the air intakes/wing-fuselage fairings together. Like the fuselage, these are 1/16" balsa. The frame is 'medium-light' and the skin the lightest balsa I could find. The templates were first moulded to the correct shape using the original fuselage moulds and the horizontal bit then attached, making sure it was all square and the two intakes match. The building sequence below should I hope be self explanatory.





The cut outs to add lightness look 'orrible and only saved a gram, so I wonder if it was worth doing.

Here they are covered with the 1/16" balsa sheet and sanded to the correct contours:



The two intakes finished intakes together weigh 6.2g, not too bad.

The next step is to cut out a hole in the fuselage and slot them in.

First, the surplus wood where the fairings fit were removed air intakes/wing fairings were glued in place:



Great care was taken to make sure the left and right sides match and it's all square.

Next, the trough was cut out.:



And everything 'cleaned up' and smoothed. I line my troughs with 1/32" balsa sheet - this helps keep things neat at the cost of some weight and means old foil can be peeled away and new foil attached when the need arises:

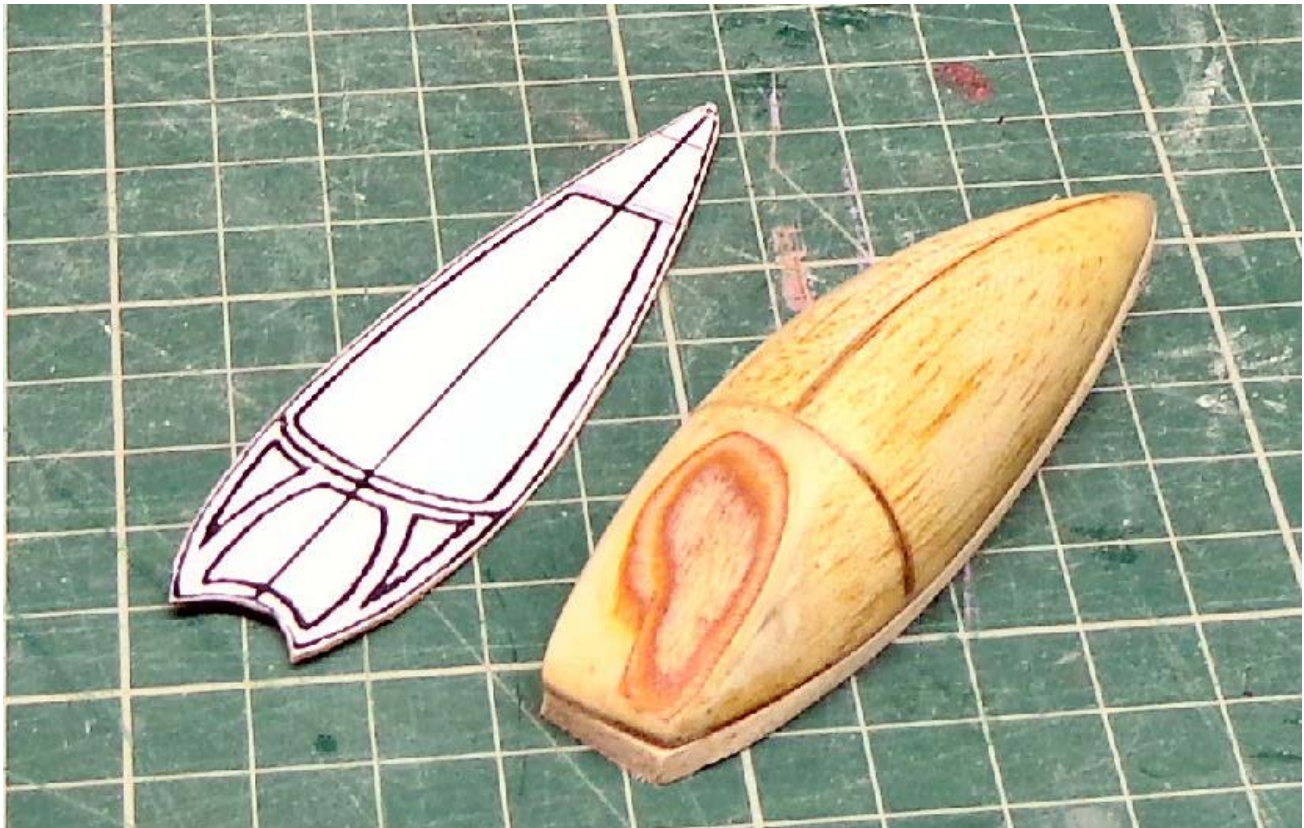


Above: the fuselage (at last!) nearly finished. At this point it weighs 18g and just needs the nose block, tail pipe and smoothing down.

Building the canopy

I decided to put the flying surfaces to one side and make the nose block and the canopy, both operations of which required some accurate carving of hard balsa, which doesn't come easily to me, so I'm always having to check against ply templates and using a bit of filler when I've overdone it. 😬

Here's the male mould for the canopy:



Above: the best I can do ... the balsa was sanded down with 280 grade 'wet and dry' and given two coats of thin laminating epoxy.

After this was set hard I finished with increasing fine grades of 'wet and dry' finishing with 1200 grade and metal polish.

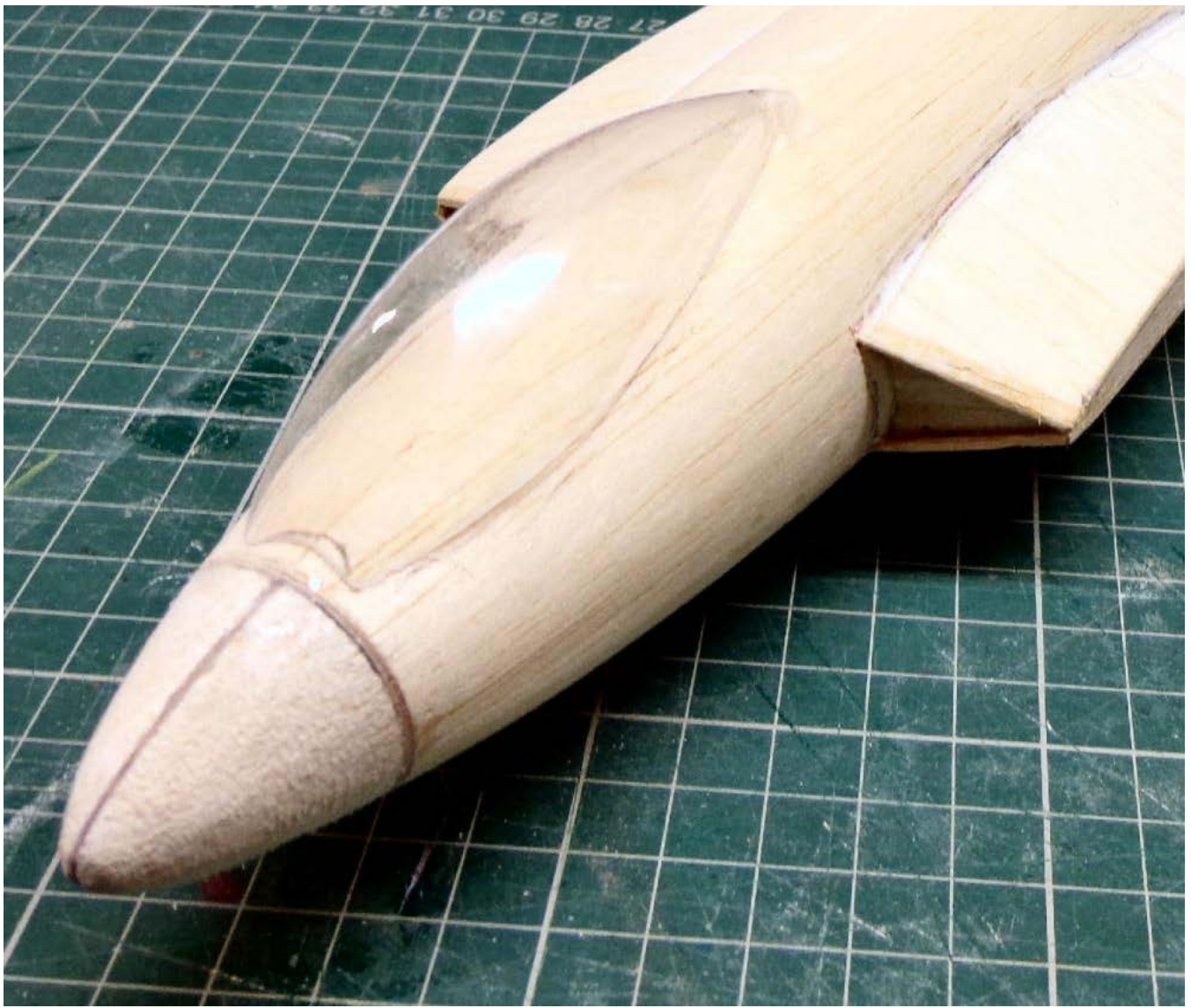
The next step was vac forming (the method using a vac-box is described elsewhere):



Above: not too bad, but despite my best efforts the inner surface will need cleaning up a bit and a thin coating of acrylic glaze.

But it's not too bad and looks quite good *in situ*:





Above: here you can see the nose block, which added 2 grams or so. The accuracy (or otherwise) of the nose really does affect the whole look of the finished model, so I took a lot time over it - note the central 1/32" ply template. The air intakes have not yet been cut to their final shape.

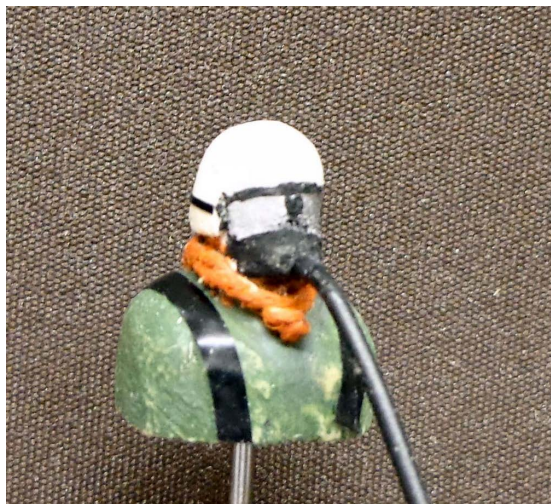
Let's make a Pilot Bust

The p.1081 cockpit is such a prominent feature of the aircraft I decided to change the habit of a lifetime and make a facsimile of its legendary test pilot, 'Wimpy' Wade.

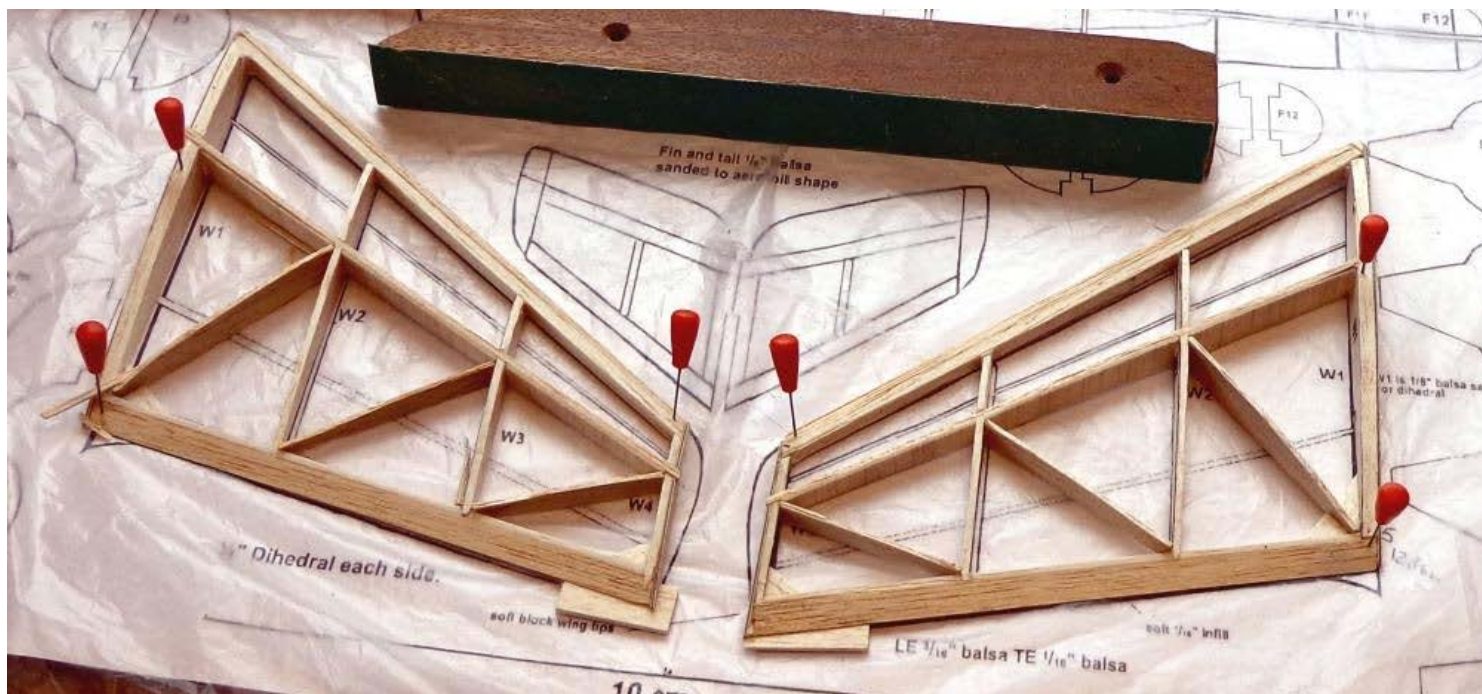
I checked photos etc to make sure I'd got the scale correct and then attacked a perfectly innocent lump of balsa wood with scalpel and sandpaper, followed by paint. Carving is not my forte, but I was quite pleased with the result (paint covers a multitude of sins) and under the canopy it will look OK I think.

Wimpy Wade wears a cravat in the photo of him in his flying gear. This I made with a bit of string and thought red would look good.

So here he is:



Building the Wings



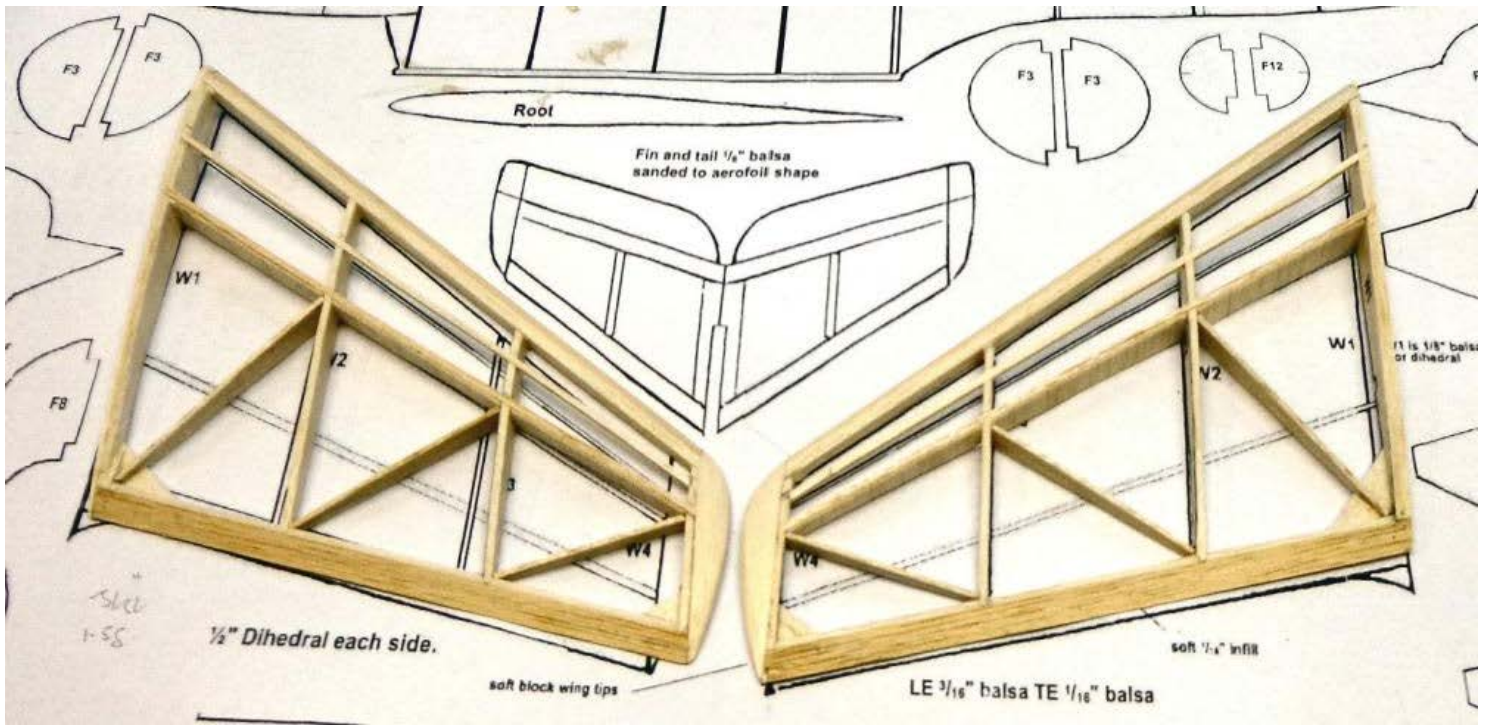
Above: the basic bits stuck together with a sanding block long enough for the whole wing and LE to be sanded to shape without any 'high spots' or waviness.

The LE is medium 1/8" balsa with 1/16" hard balsa to take any hard knocks. Note the 1/32" webbing, well worth doing as it ensures the 1/16" square spars work properly. Note also the diagonal members, a little wrinkle advocated by Howard Metcalfe They add stiffness and help the built-in 1/16" washout stay in. It also protects the wing in the event of a spiralling hard arrival.

In order to help sand the correct aerofoil, I've 'tack glued' 1/32" ply templates to root and tip.

I haven't kept strictly to the plan and the front spar still has to be added.

I then added tip blocks and sanded everything down smooth, making sure the two wings match each other!

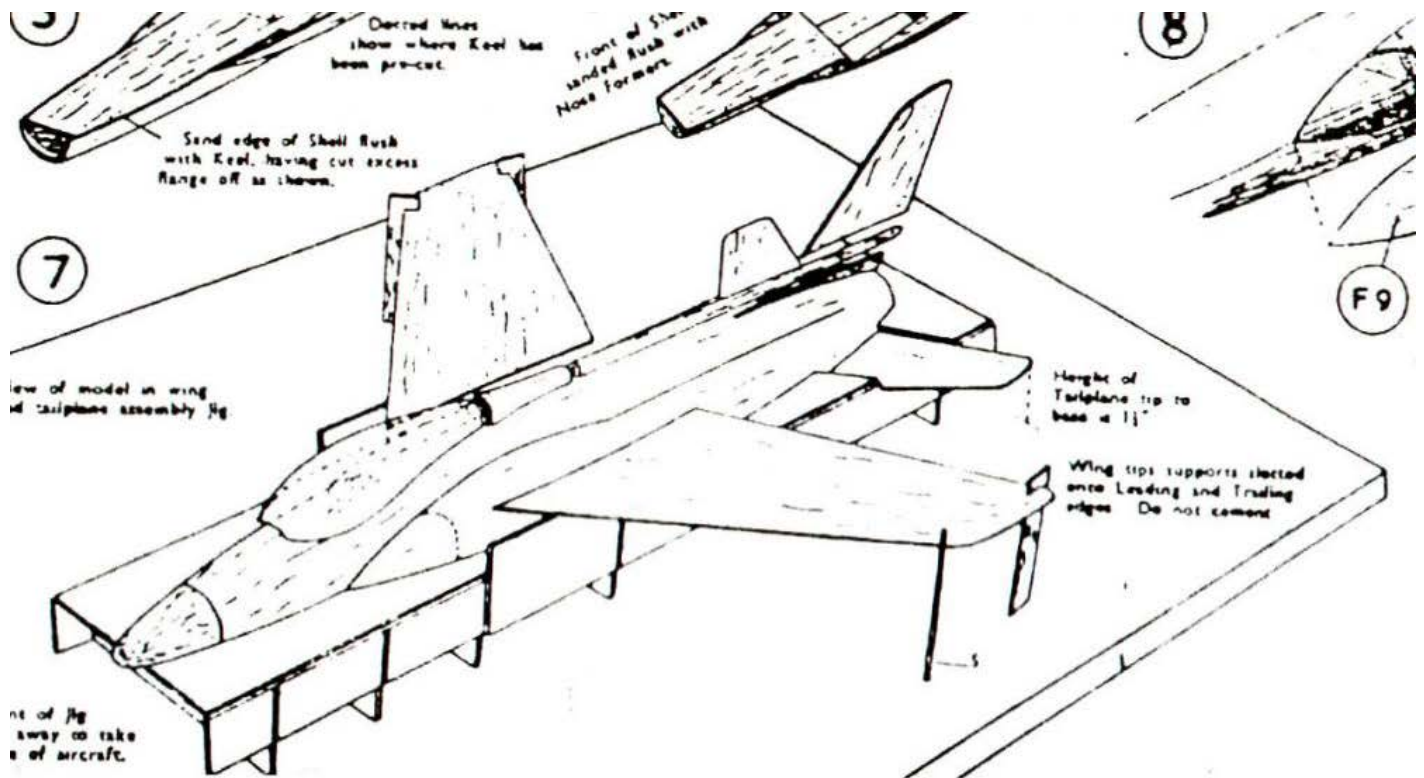


Above: the finished wings. The templates have been removed with a touch of solvent. The root rib is sanded to the correct dihedral angle

attach the wings to the fuselage. Gluing wings to a fuselage is a somewhat fraught procedure - get the angles wrong and the two sides don't match and you end up with a skewed model that won't fly straight.

Jetex/Rapier models also fly fast so any inaccuracies will result in disaster on the flying field.

Jetex - Joe Mansour - new this and always included a cardboard jig in his 'Tailored' kits, for example the Gnat:



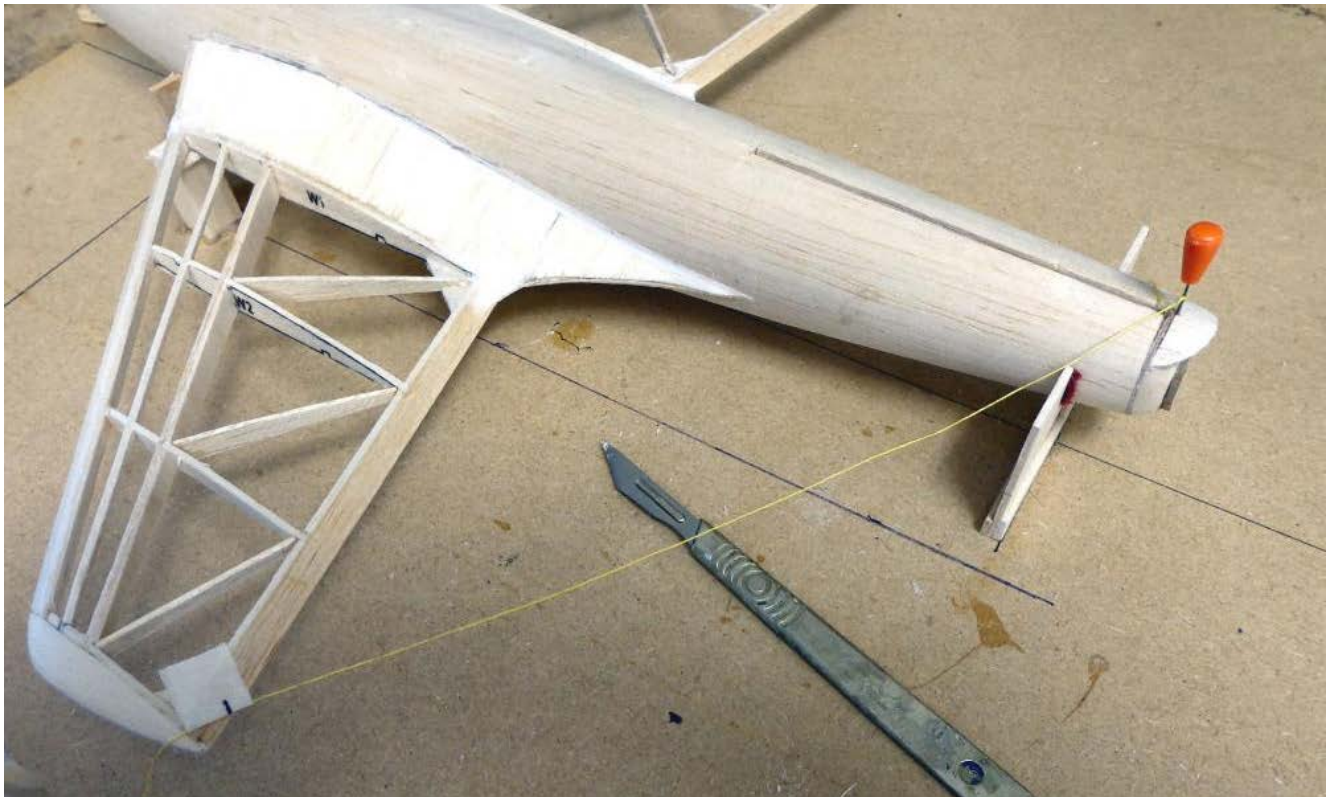
Above: the Jetex Gnat on its intricate jig. This slotted together and ensured all the flying surfaces were straight and true, and the dihedral on either side matched. Well that was the theory!

So I made a simple jig to hold the fuselage and the wings were supported on matching balsa blocks in the gluing process:



Above: I used 15 min setting epoxy to butt-join the wing roots to the fairing. This allowed time for adjustments. Not too heavy if used sparingly and mixed with 'microballoons'

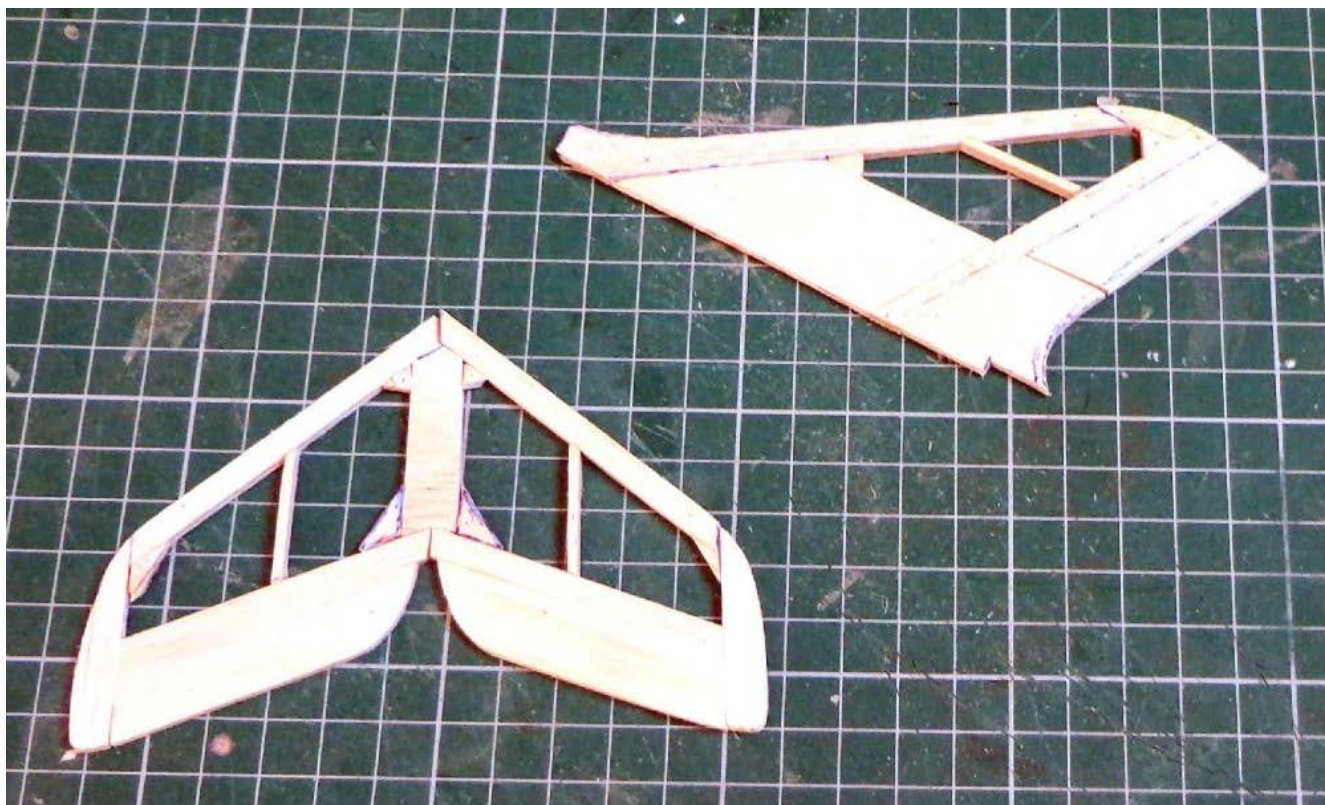
In addition a length of cotton pinned to the end of the fuselage and marked for the wing trailing was used to check everything was square:



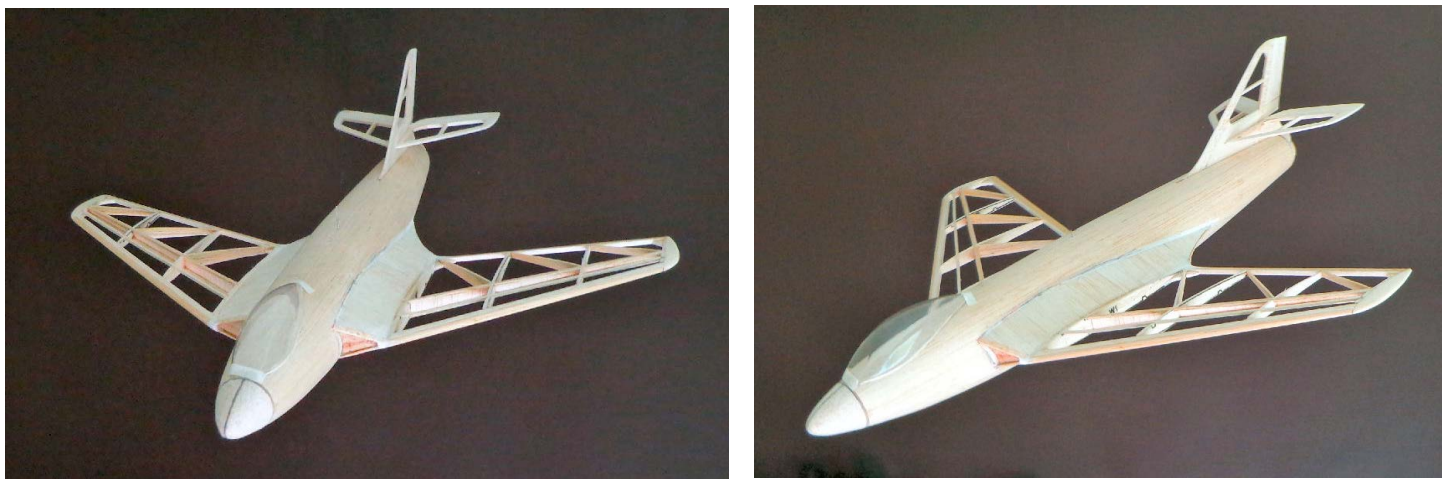
The white is Red Devil lightweight filler. This can be carved later so the intakes etc will match the real thing. It then only remains to sand the fairings a bit where they meet the wing.

Building the tail surfaces

For the tail surfaces, the first task was to sand the tailplane and fin, seen below in their 'raw' state to shape and then cut the slots.



This was done with a coarse sanding block. When this was done I couldn't resist putting the whole model together just to see what it looked like:



Above: with the canopy taped in position it looks vaguely 'Hawker P 1081-ish' even if I think I've overdone the dihedral a tad. No bad thing for its flying characteristics, but retrospectively I might have been bolder. 😊

At this point it weighs 30.2 grams - a little over what I wanted, but if it's under 40 grams covered and painted it should go OK with a Rapier L-2HP as there is plenty of wing area.

It is a truism for any project that you can do 80% of the work in 20% of the time. It's the 'fiddly' bits that actually need the most attention, at least for a scale model, and especially if, like me, you have OCD (obsessive compulsive disorder) tendencies.

So I've been busy covering the P 1081 fuselage and tail feathers with tissue and smoothing everything down to prevent the build up of too much weight. I then painted the cockpit area and glued in the instrument panel, ejection seat and Wimpy Wade.



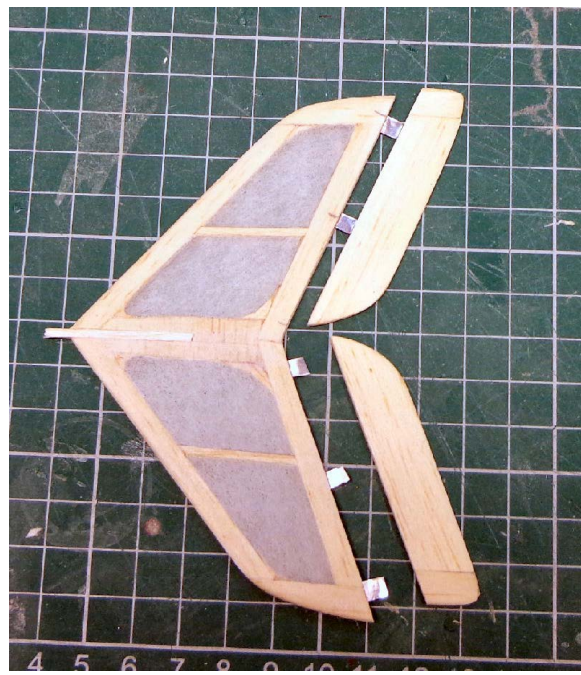
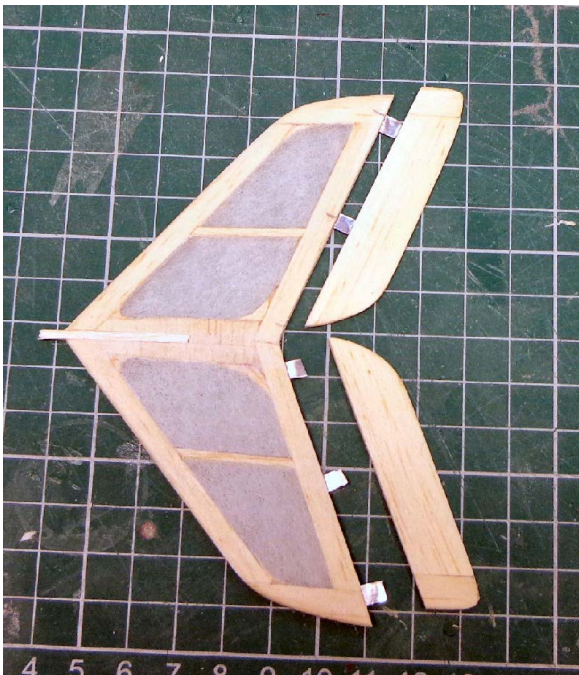
The canopy was then masked off with flexible electrical tape and painted first with grey and then pale green 'eu de nil' of the prototype and glued in place and the edges tidied up and painted, with the following result:





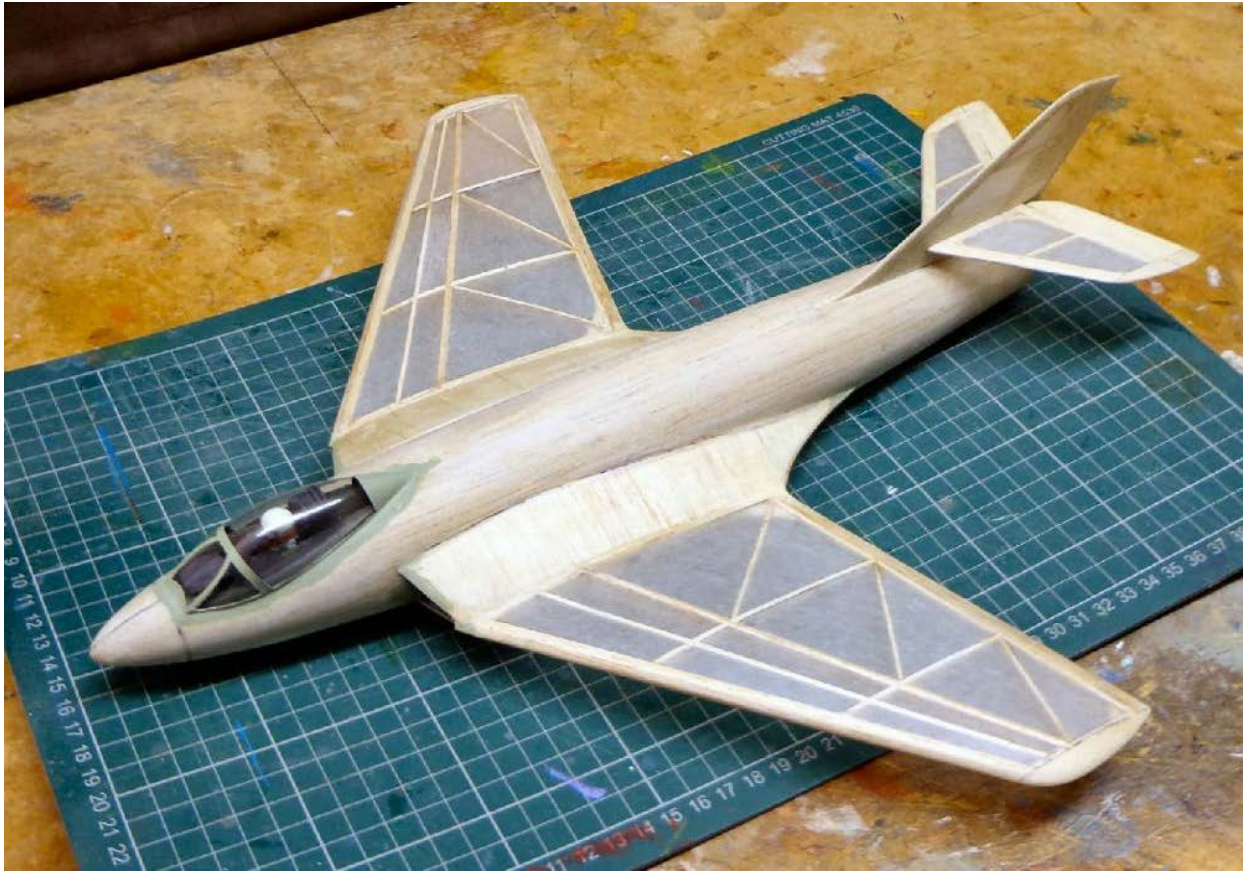
I bought some old white 'Modelspan' some time ago and this seemed an ideal model to use it on, rather than the more modern 'Starspan', which, though very good in terms of wet strength (I always cover 'wet') shrinks a lot and takes a lot of 50/50 dope/thinners to fill the holes.

After two coats of dope I separated the rudder and elevators ready for the alloy hinges:



Slots are cut carefully to take the hinges (three per side) which are glued in place with slow-setting cyano:

The Hawker P.1081 is now covered and all tail is glued in place:





Quite pleased with the results: the paint is quite light and covers well, but came out a little darker than I would have liked. It really needed, I think, a fair bit of white and a touch of blue to achieve an 'eu de nil' of the prototypes. 🙄

The panel lines etc were drawn with a fine Staedler 'permanent' pen, and the decals were made with 'Experts Choice' white and clear decal sheets. I finished with a coat of 'Vallejo' clear acrylic resin, 'gloss for the canopy and satin for the rest of the model.



This stuff is recommended by plastic scale modellers (OK, you know what I mean) and it brushed on as well as Johnson's 'Klear' of fond memory. It adds very little weight. 😊

I was a bit worried about the weight of the P. 1081: glide tests showed it needed over 6 grams in the nose 🙄, and it's approaching 50 grams ready to fly. This seems a lot, but as the P. 1081 has a fair bit of wing area it equates to about 6.3 oz/sq ft (sorry about the units, but it's what I'm used to). 6.3 oz/sqft is very reasonable, and as the model has little drag it should be OK with a Rapier L-2 up its jet pipe.

Hawker P.1081

For Jetex 50/Rapier L2

R J Simmonds 2016

