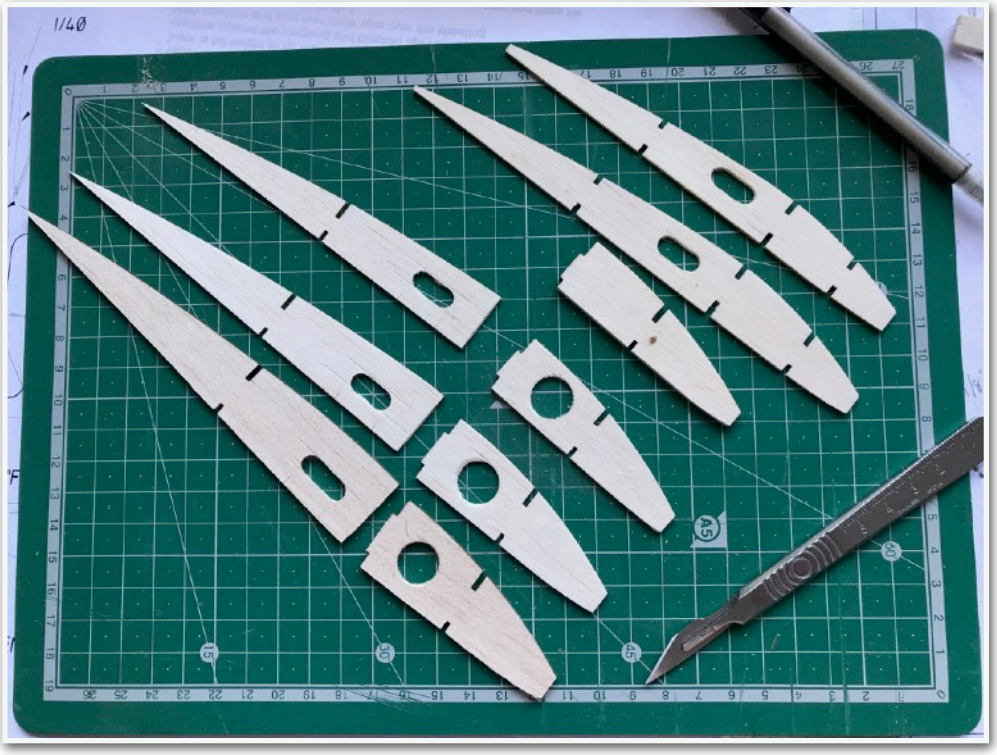
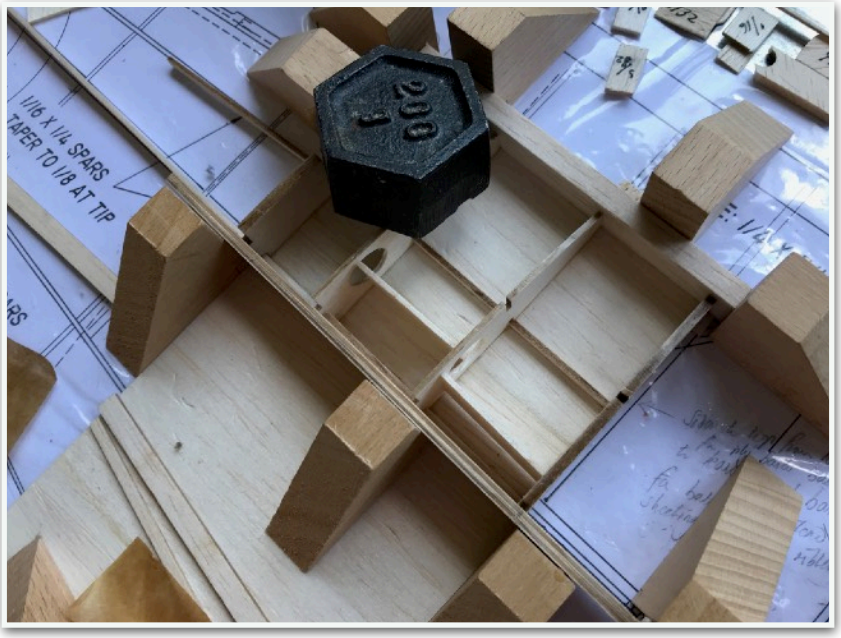
De Havilland Hornet build, part 6

I'd already put together the right wing. The left was obviously going to be simple. Except that I had written copious sequence notes and decided to check them out.

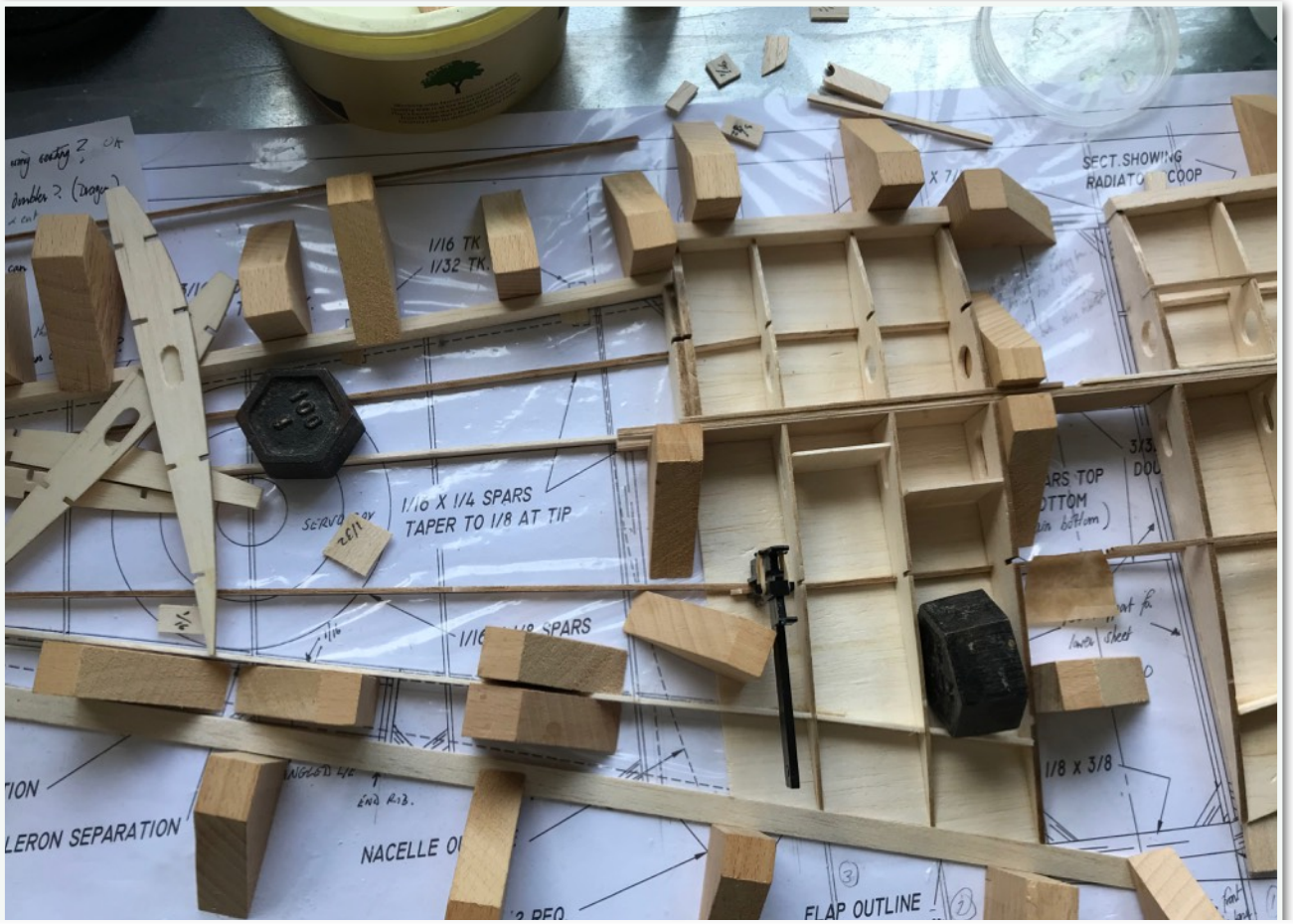


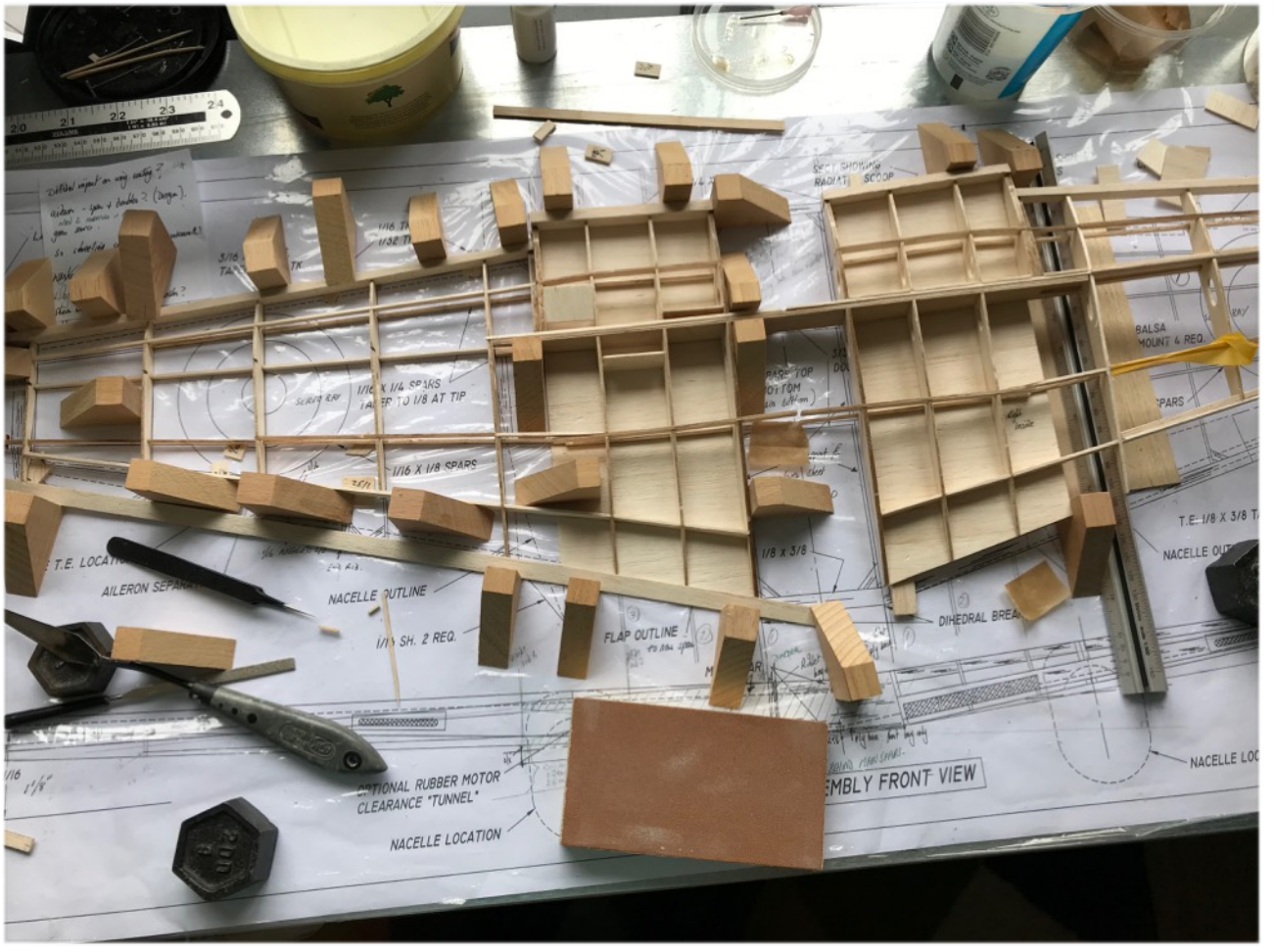
It had the advantage that I prepared the ribs for wiring before attaching them to the lower sheeting.

The really tricky part is getting the lower spars in the right place for the ribs, but I imagine that those familiar with sheeted wings have ways of achieving this.



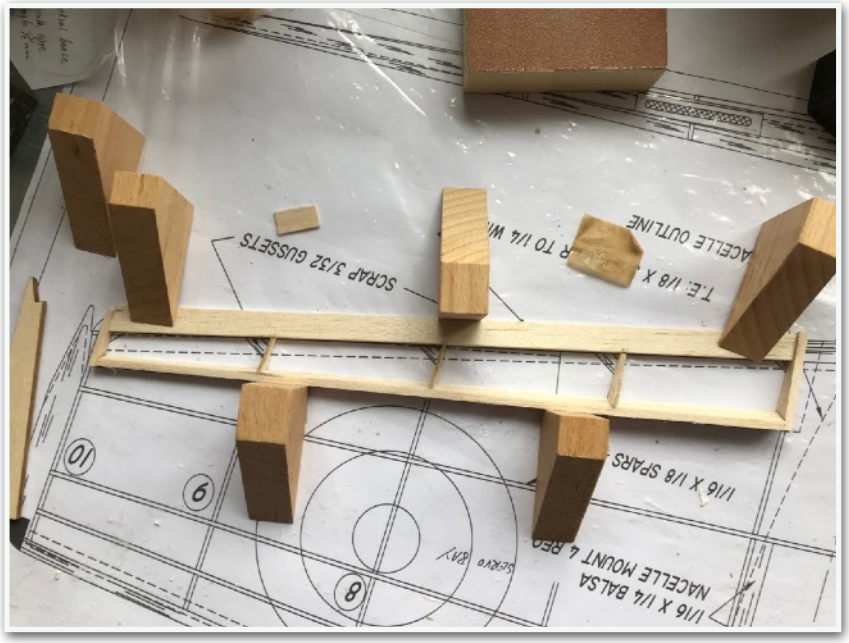
I added rib 1, then used it and loose fitted ribs 2 and 3 to get the spars in place, both forward and aft of the temporarily fitted brace.


1/16 TK
1/32 TK.
1/16 X 1/4 SPARS
TAPER TO 1/8 AT TIP
1/8 X 3/8
FLAP OUTLINE


1/16 X 1/4 SPARS
1/16 X 1/8 SPARS
1/8 X 3/8
NACELLE OUTLINE
FLAP OUTLINE
NACELLE LOCATION

Currently the wings remain separate with the dihedral brace glued only to the right wing. Top sheeting will await more solutions first.

On the whole it went OK and I have arrived at a position where I can start kitting the frame out and thinking about how to fit the wings.



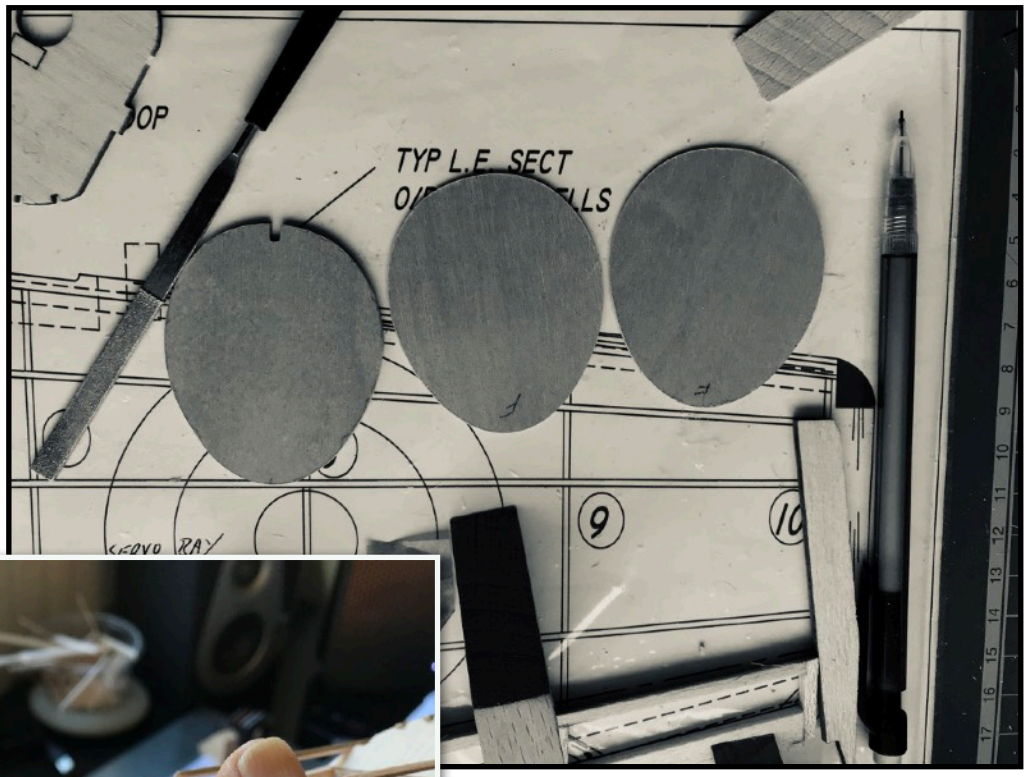
Along the way I also knocked up a couple of ailerons. I had drawn a ‘plan’, but to be fair ‘bodged’ would be an adequate description of the process.

I still have the nacelles to build and adapt for motor, wheels and hopefully retracts.

The plan and parts allow for a stick motor option, but the rest is up to the builder. Oh, and detachable wheels for display only. But, the light structure is illustrated by the two 1/16’ x 1/4” x 2” strips in the wings, intended for hanging the nacelles below.

I have also whittled battery positioning down to just the one option of forward loading through the nose. That interferes with the wing sheeting adaptation already implemented, but remains possible.

Pursuing that I prepared some ply strengthening for the nose former, plus two 1mm ply parts for attaching the removable nose cone.



Whilst trial fitting these I realised that I really need to understand how the wing will be attached and adjust the fuselage for battery tray, servos etc; around that.

Built for around 200g flying weight with only balsa, covering and canopy in the central section, the recommended approach of joining the wings with two 3/32” balsa dihedral braces in the central section makes sense.

Essentially this is a wing in free fall with a body to enable the empennage to guide it about. The body section must make up less than a third of the weight and probably less in resistance. It doesn’t need a lot to sit square on a one piece flying wing.

There is no side structure, like a matching rib 1, on the fuselage for attaching the wing. Just temporary sticks. On the other hand, now with a decent ply dihedral brace there are other possibilities.

I am adding around 100g to each nacelle and maybe 150g to the main body.

Hence the 1/8” dihedral brace that fits from nacelle through to nacelle and the webs added to the main spar. It’s also why the wing mid section is having 1/16” sheeting top and bottom. Current plan is for this sheeting to extend through the central section, within the fuselage.

As built the wing is not a snug fit within the body seating. There will be maybe 1mm above and below the modest balsa opening provided by the design.

So far, I have 3 possible solutions:

- Ron has suggested releasing the lower body section, attaching it to the sheeted wing and fitting the whole back to the body with a standard tongue and screw arrangement. This is not as appealing as it sounds - the body would need challenging surgery to release this section followed by difficult re-construction. The fuselage would also need considerable reinforcement to provide a sound foundation and snug seating. Requires a similar adjustment, as below, for the battery tray.

- Adapt the method described on the plan: Remove the temporary side verticals and slot the beefed up wing, largely with all sheeting added, through the fuselage. Attach it with additional fillets to the upper and lower body, plus use the battery tray as integral to both the forward body and wing - this would tie the wing into the body and the tray would be built into the wing to effectively replace upper sheeting in the centre section, forward of the main spar/brace.

- Sheet the upper sections of both wings as planned, but leave the upper and lower centre sections unsheeted. This still allows the brace to extend through the body to securely join the wings together. It has the advantage that rib 1 on each side can be attached to the existing body framework which could be strengthened to distribute forces. L/E and T/E centre section pieces, which are fairly chunky balsa, could still be fitted, and optionally the rear spar can be braced as the plan but maybe with ply. How important is the centre section sheeting?

More consultation with one who knows.

Meanwhile, the nacelles. At least there is a bulkhead/former suitable for beefing up for a brushless motor.