

The Micro Bird of Time

A full build-and-fly write-up on the J&H Aerospace kit.

[Rene Wallage](#)



The J&H Aerospace Micro Bird of Time (image: J&H Aerospace)

Ask anyone, I have a very soft spot for the *Bird of Time*. Back in the early 2000's I seriously looked into building one from a kit. Lacking room and skills, I decided not to. Years later I discovered the ARF version, and got two. One for me, and one for a friend. No, really!



1: One for me (left) and one for my friend.

I flew mine for a few years, recovered the wing, and promptly crashed her after specking out and probably over-speeding her, resulting in a spectacular one point landing on the nose, without wings. Bits of the wings came fluttering down slowly.

After a suitable mourning period, I managed to lay my hands on another one. I flew that one for several years, until the point where I had to decide: remove the covering, give the frame some serious TLC, and re-cover. Or give her to

someone who will do that, and then enjoy her again. As I had entered the F5J world, I opted for the latter. So I've been without a *BoT* for over a year now.

And then, about six months ago, a post on Facebook caught my eye. A *BoT* kit. Following the link (see *Resources*, below) brought me to J&H Aerospace. They have a very nice collection of glider kits. Nothing but good things have been written about the *BoT* kit (or any of their other kits for that matter). The price was very reasonable, and it was possible to put a tiny motor on the nose. So what was keeping me from ordering one? Nothing really, so I ordered one.

What's in The Box

A very well protected kit arrived, with plenty of bubble-wrap, to survive the vagaries of throw-happy postal services (2).



2 (left): As it arrived, wrapped in bubble-wrap. 3 (right): What the bubble-wrap contained.

Once the wrappings were removed there was a lovely little flat pack (3). To take the guessing out of the electric power set up, I had also ordered the motor and 2S lipo. I still had a 10A ESC in my spares drawer.

Opening the little pack, I discovered a surprisingly large amount of laser cut

sheets of mostly balsa, with a few bits of lite ply, and a bag of assorted bits 'n pieces (4). Closer inspection of the various sizes of balsa showed good quality balsa, without any blemishes or knots. First impressions and all that.



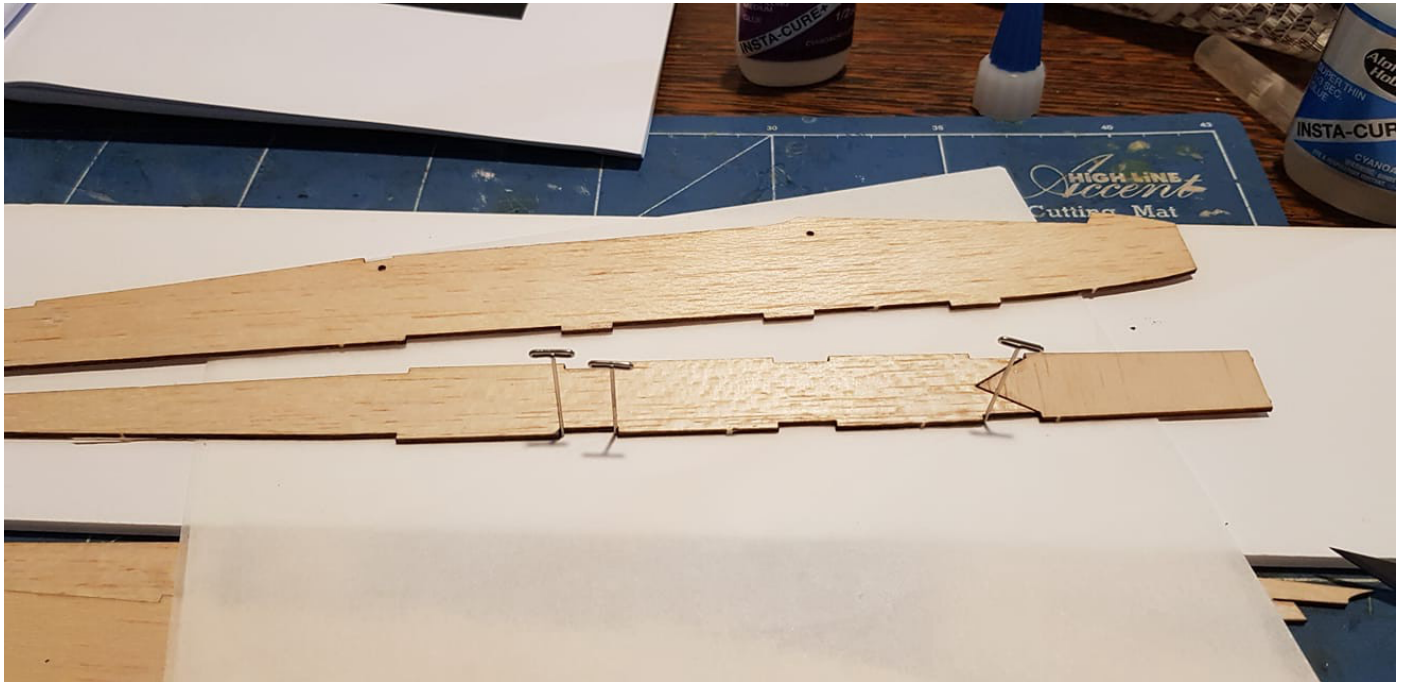
4: What the flat pack contains.

Also included was a roll of (what I later discovered was) *Doculam*. I had never used it to cover a model, but I was told it is not dissimilar to *New Stuff*. And an A4 sized printout of the instructions. These are printed in black & white, but a colour version can be found on the J&H Aerospace website. I read the instructions several times (actually, I downloaded them and had read the instructions a few times before I even had the kit in my hands). If any of the B&W pictures were somewhat puzzling, I had a look at the coloured ones and all became clear. Most of the time.

There's no plan. You don't need one, as the parts fit together like a well made jigsaw puzzle. As the manual says, just follow the instructions — we'll see!

Fuselage Construction

The manual starts with the fuselage, so I did too. Using the supplied *Depron* plate as a building board, I went from this:



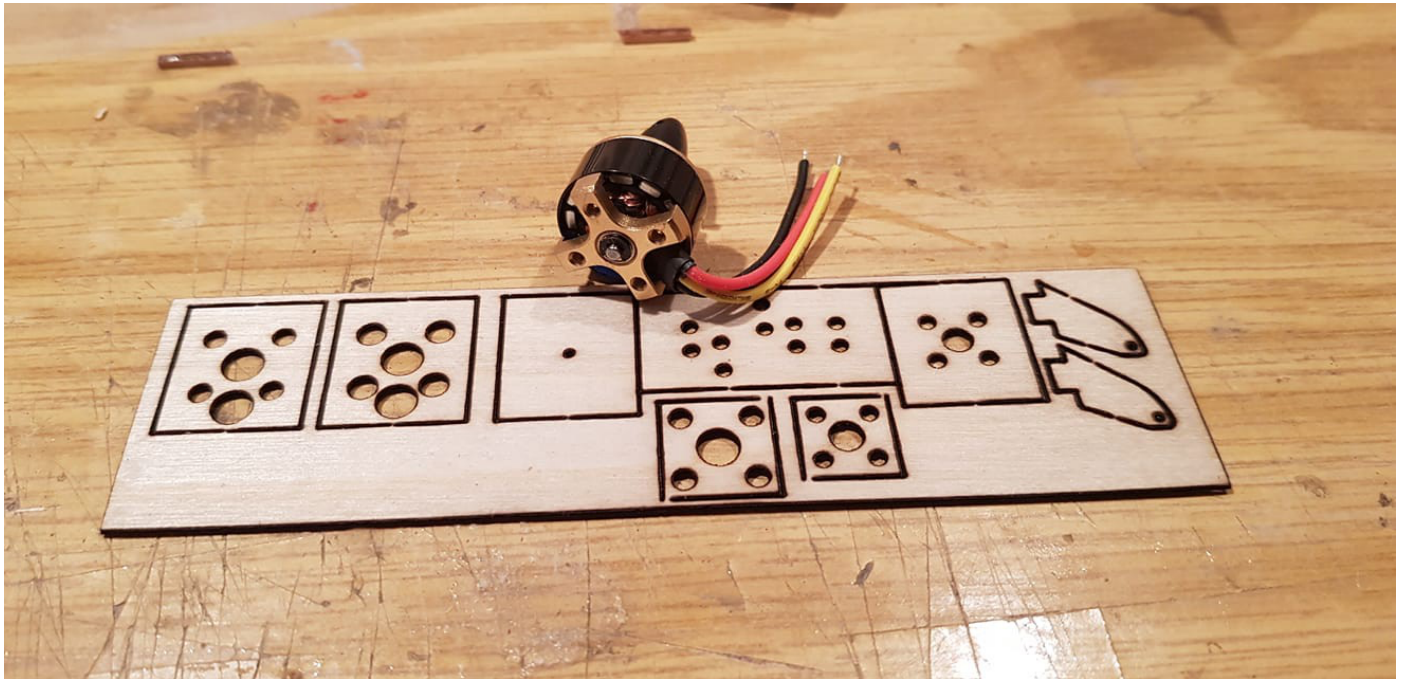
5: Fuselage construction underway.

To this, in about 1.5 hours:

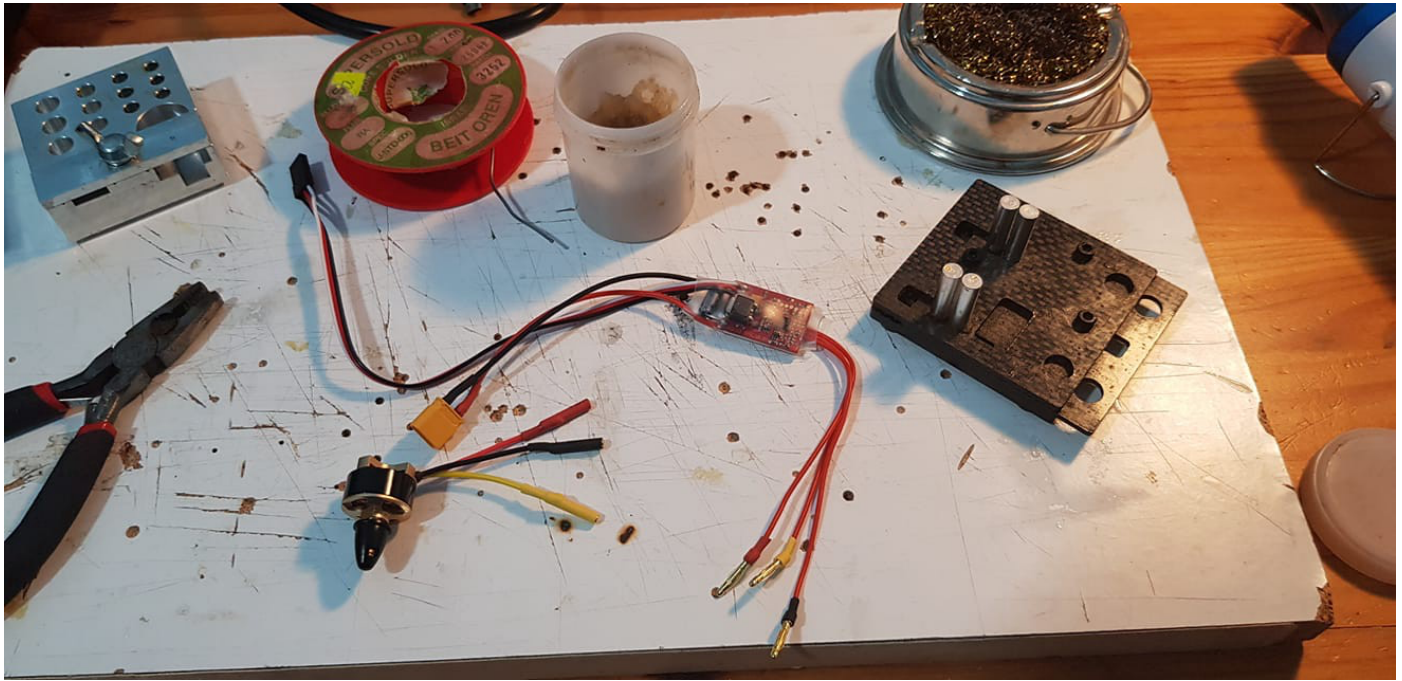


6: Fuselage, basically framed up.

As I will be putting a motor on the nose, I did not shape the nose cone. Instead I found a suitable firewall for my motor (7) and glued that in place. While fiddling around with the motor, I took the opportunity to also sort out the cabling and connectors for the ESC (8). I also connected it all to a receiver and checked the motor direction. I even made a hole in the firewall for the cables to feed through (9).



7: Should you not have the standard motor, there are several firewall options, including a blank one.



8 (left): Sorting out the cabling and connectors for the ESC. 9 (right): Cabling hole in the firewall.

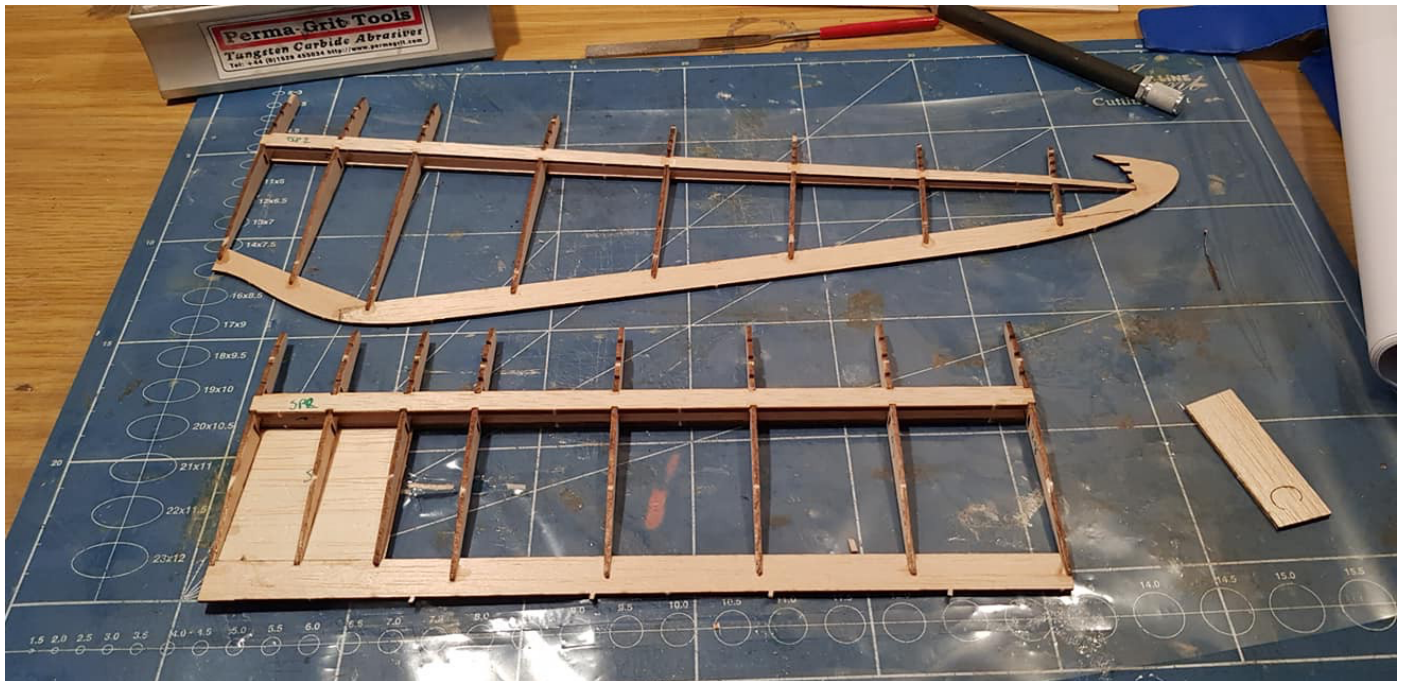
Maybe I should mention that this build coincided with our third lockdown, so this build was especially pleasant. Now onto to the wing!

Wing Construction

Before starting on the wing construction, I marked all the pieces with a fine

marker. I found this necessary because the parts for both wings are identical, so it will be easy to get them 'confused'. I do a very good confused. Ever build two left wings? Sure you did. But twice on the same project?

So following the instructions, counting all marks and slot locations I started with one mid-section (the wing is build in four separate sections), which again went pretty quick, aided by the numbers. This seamlessly flowed into the build of the outer panel. The leading edge turbulators followed, after which I could add the centre top balsa covering. Up until now, I have done hardly *any* sanding! The sanding block you see is used to sand the little bits after taking parts out of the parts sheets.

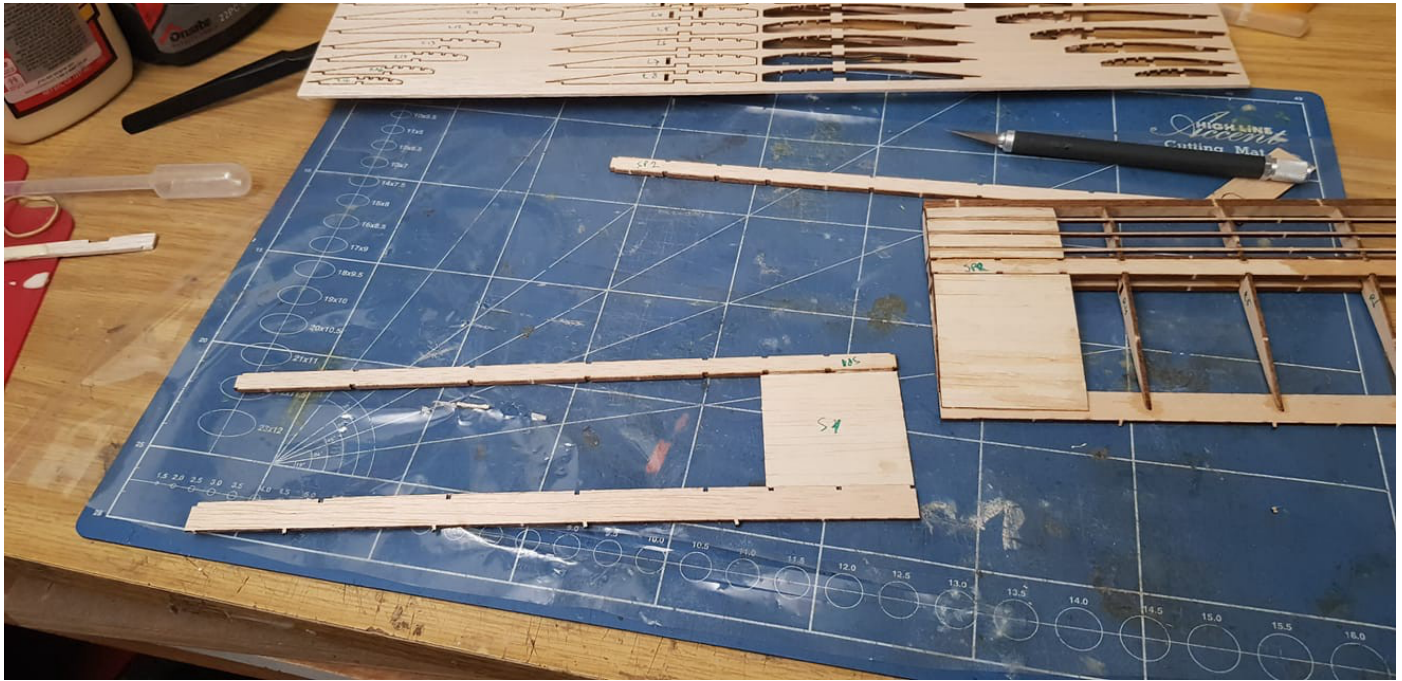




10 through 17: The basic build sequence for the wing. The leading edge is added on later.

Now I could glue the leading edges in place. To keep it all in line, I used some rubber bands to keep a gentle pressure on the parts while curing.

To prevent my traditional mistake, before setting the right wing halves aside, I made a start on the left one (18). Just to make sure I am not falling for it again.



18: Starting the left wing just to make sure I don't make two right wings.

And then put the completed parts out of harm's way.



19: Best to get the finished part up and out of harm's way.

In no time I had two more panels done. To sand the leading edge, J&H supplies a handy little profile template. So using that, and my trusty

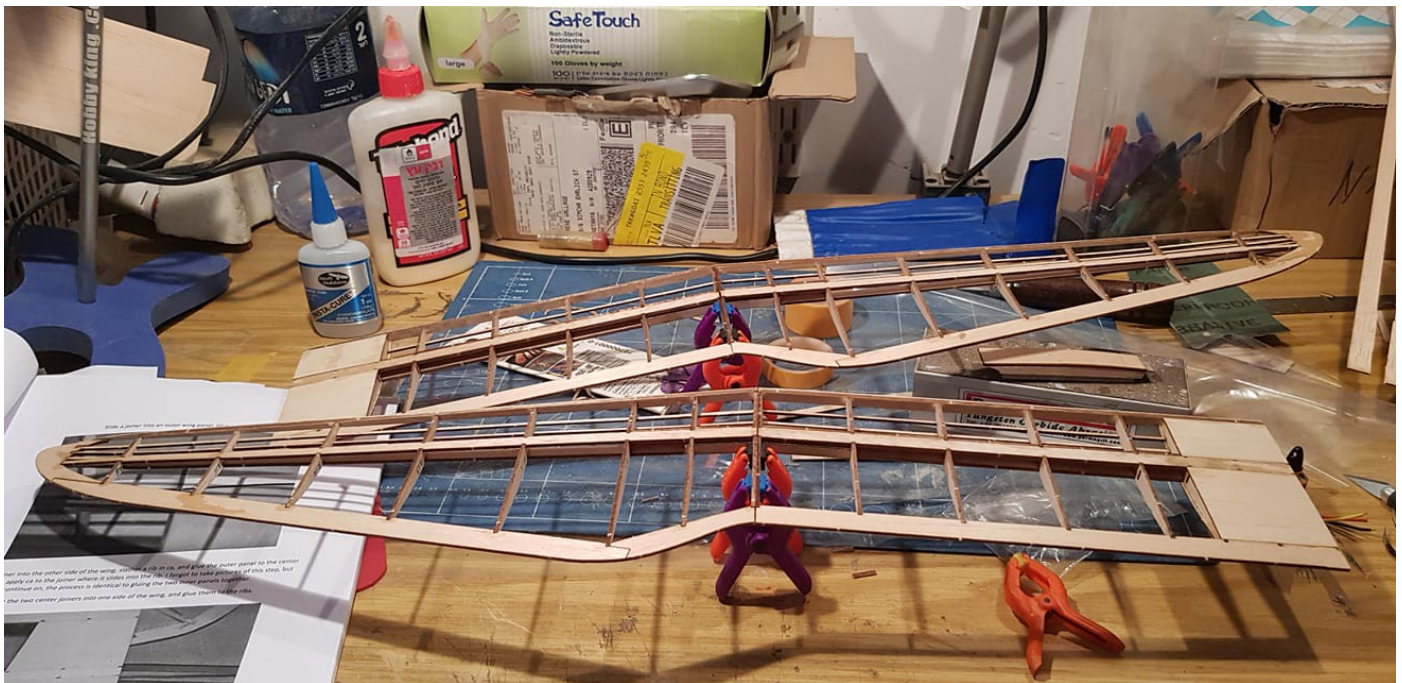
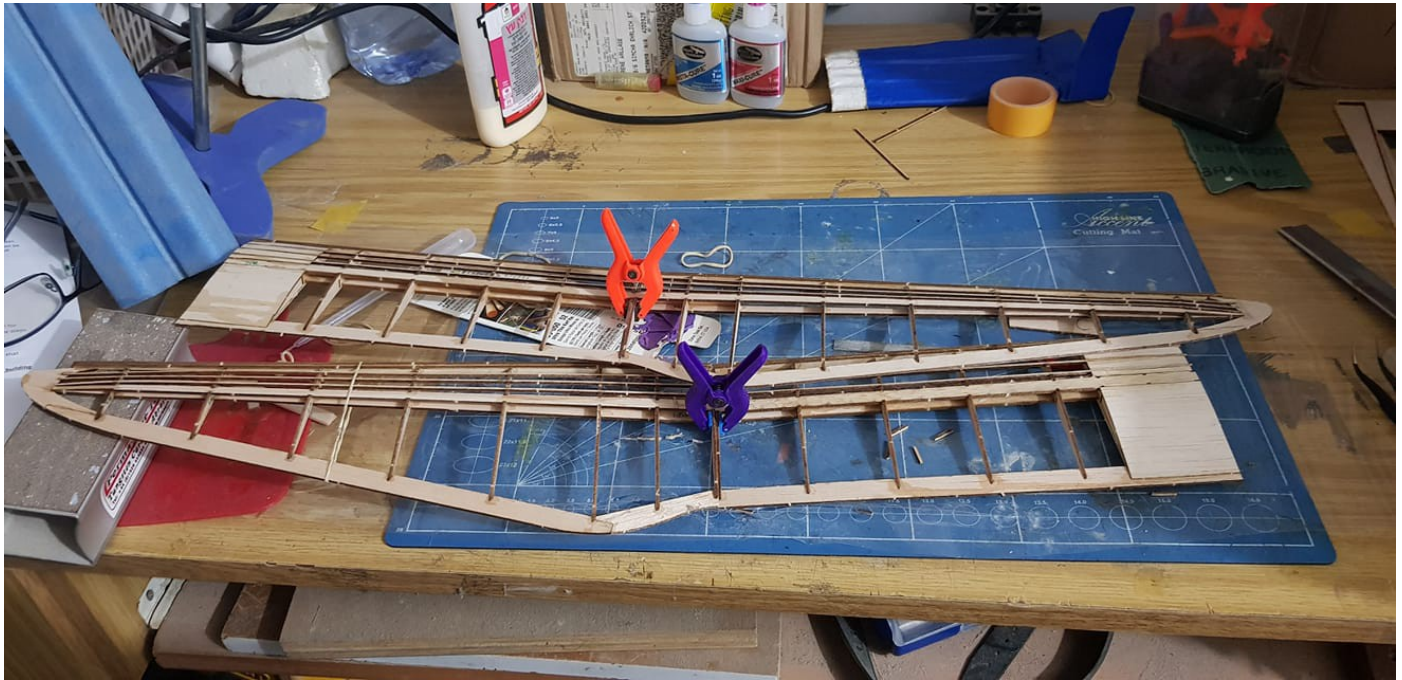
Permagrit sanding blocks, I got all four panels done. Still in lockdown, so I did the sanding in the morning, on our balcony, before the heat hit.



20, 21: Took my time doing this. The structure is strong, but the individual ribs aren't. So if you hold too tight, something will snap...(I found out)

Deep breath — making two wing halves. I followed the manual, so the outer ribs have the correct dihedral angle (I used the supplied angle indicator).

Sand both sides flush, trial fit, and when all looks good, spread some aliphatic glue, and clamp together. Easy, peasy.



22, 23: Joining the wing panels.

It must be noted that due to the design of all the parts, and the way they fit together, the two panels (together with their lite ply dihedral spars) fit together perfectly. So when that was done, some more trial fitting, first

without, and then with the main spars, again aliphatic glue was spread, and the wing halves were joined. I used masking tape to keep them tightly together. The next morning I found this:



24: The completed wing, ready for covering.

Covering and Finishing Details

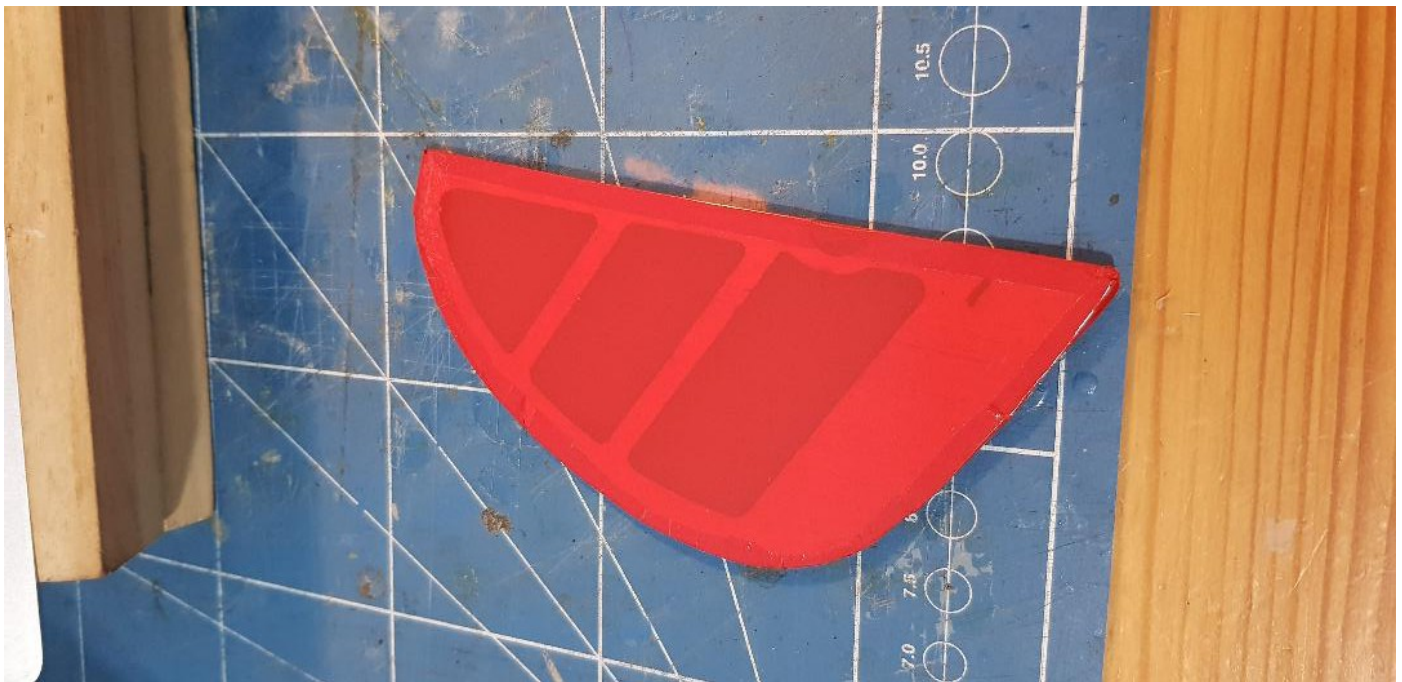
With both the wing and fuselage ready, I had to proceed with the covering job. As I am not very good at it, I hate covering.

I knew I was going to use the supplied *Doculam* on a large part of the wing, but needed some colour to aid my 60+ eyes to orient the model. Rummaging through my collection of heat shrink I found two unused flat rolls of *Solite*. I think the colours are just right for a *BoT*.



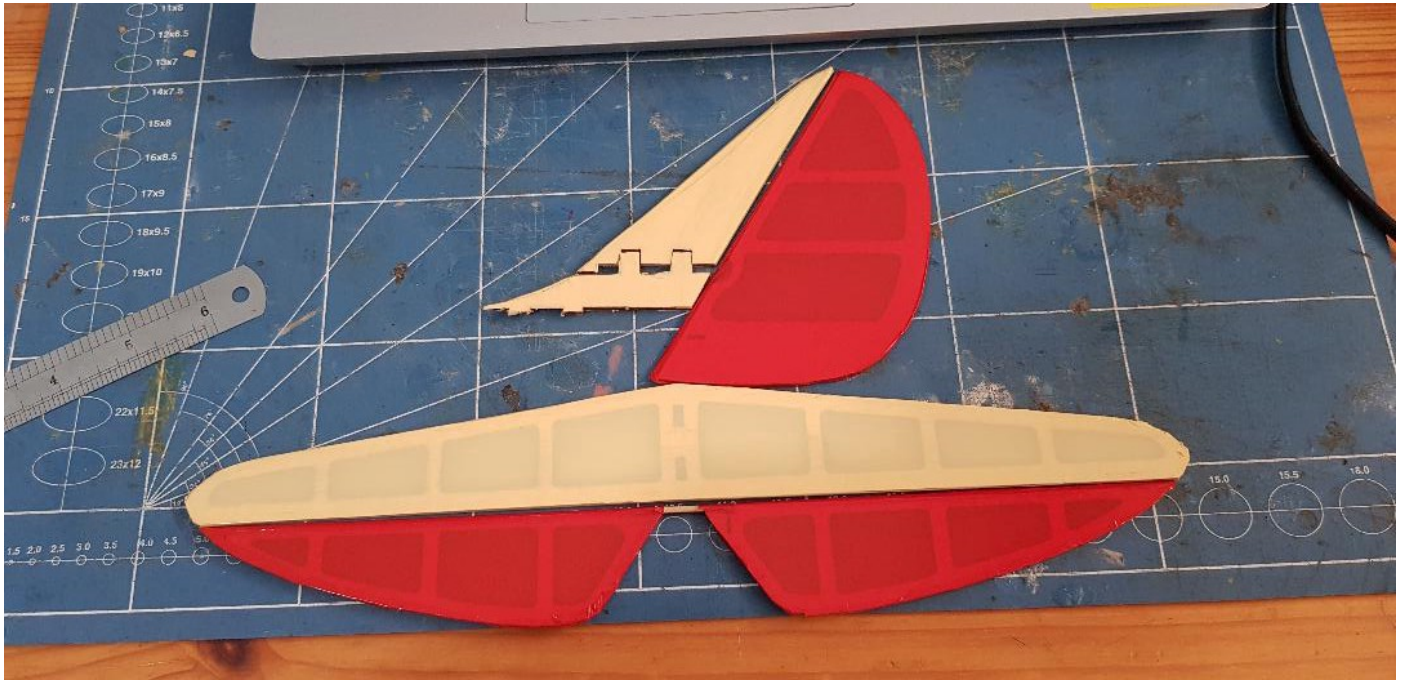
25: Covering materials, ready to be employed.

Anybody who has ever used this covering knows, it's ultra-light and ultra-*ultra*-sticky — to itself. Removing the backing sheet is in itself a battle. Then, once the backing sheet *has* been removed, you need to prevent the material from folding onto itself or you can start all over again. So do not have a fan on (ceiling or otherwise) and move the AC airflow away from your work table. Also, an absolutely clean and dust free table is a must. To get the hang of this material I started with the tail group. Some choice unprintable words were used, and I invented some more in the process.



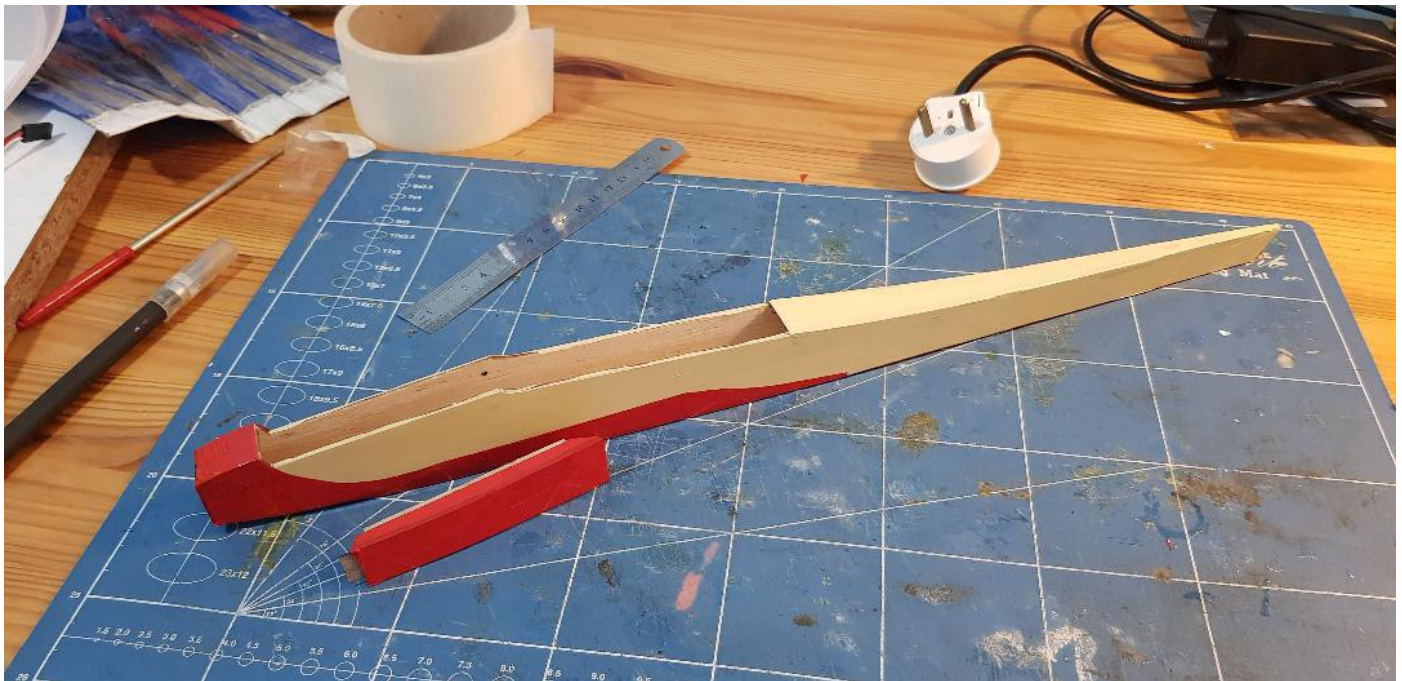
26, 27: First experiment; covering the rudder in one piece. Do-able.

I found it best to tack the material with medium heat, than tighten the covering with high heat, and than to use a heat gun at a distance to shrink the wrinkles away. Ta daaaah:



28: The finished covered tail group.

Once that was done, I felt comfortable enough to tackle the fuselage:



29: Covering the fuselage.

Removing some of the covering, to open up the pushrod holes etc, I always find it easiest to use a warm (not hot!!!) soldering iron.



30: Opening up holes with a **warm** soldering iron.

Procrastinating a bit, because I really don't want to cover that wing. I found some itty bitty things to do. Like re-enforcing the fuse, where the wing hold down rods go. I glued in four tiny pieces of 1mm lite ply. Sticking a thin piece of carbon fibre flatrod to the tail skid. And adding some decoration to the fuse's sides. Most of my models have the Israeli Air Force insignia on them, so there was another reason not to start covering the wing yet.

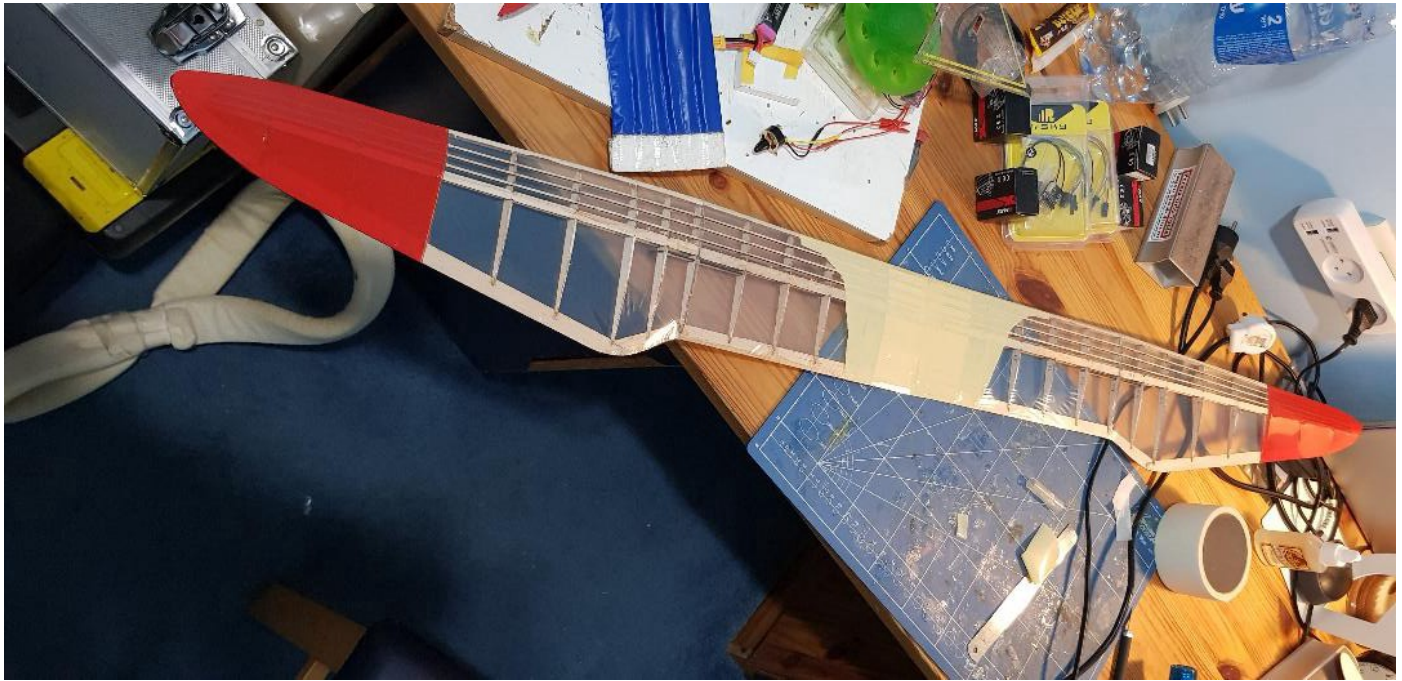
Next came another little head scratcher: fitting the motor. As I mentioned, the motor was ordered together with the kit. I've never held a motor that small! It came with the motor backplate installed, and four small Allen bolts to install it onto the fuse's motor mount. However, the fuse is so tiny and narrow, it was nearly impossible to get a small Allen driver and my sausage fingers inside, to tighten the four tiny Allen bolts into the motor mount. Looking it all over, while dunking biscuits in my coffee, my eye fell on a handy multi Allen driver set from a well known Chinese website. I taped the right sized rod to a pencil — presto! — I had a usable Allen driver that fitted inside the fuse. I could even bent it a little so I didn't need to fit my fingers inside

the fuse.



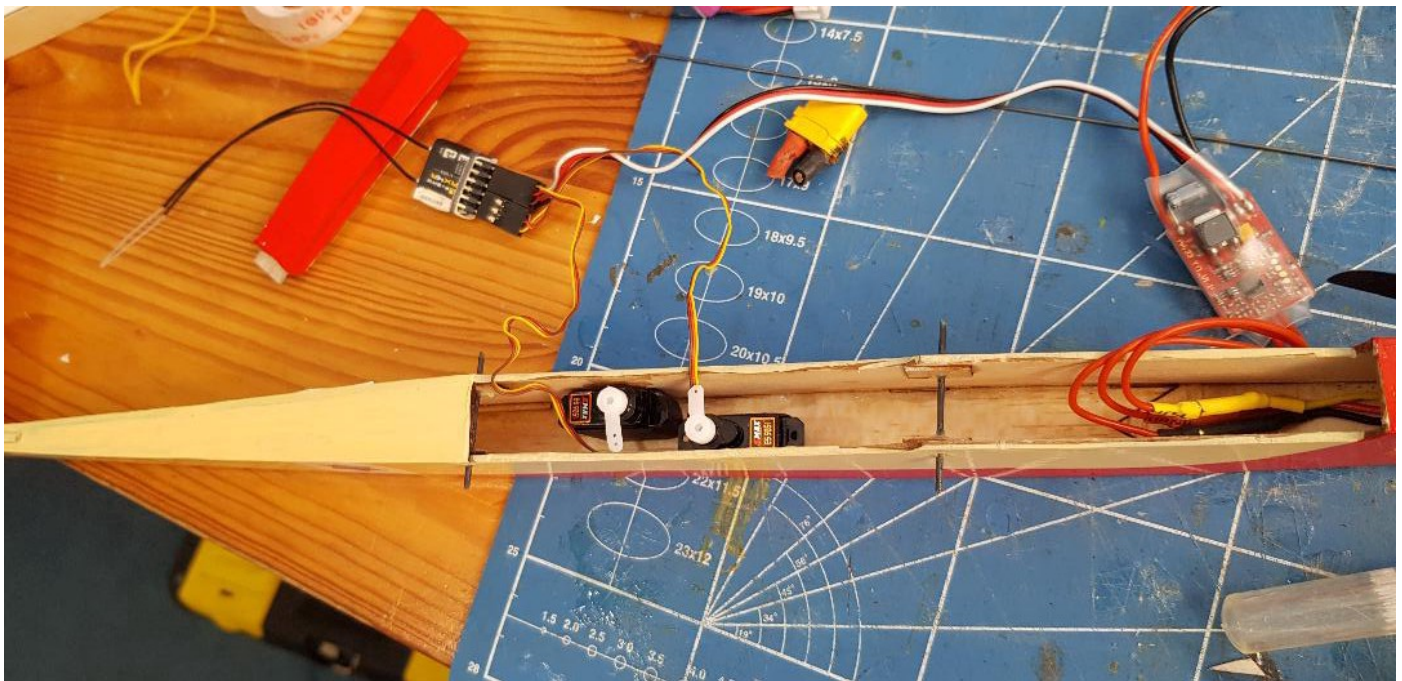
34: Fitting the tiny motor into the even tinier fuselage. My custom, 'extended reach' Allen driver is in the foreground.

No more excuses — onto the wing. I knew more or less what scheme I wanted, so started with the neutral, transparent *Doculam*. I covered the wing in eight sections: four top, and four bottom. The *Doculam* went on really well. After the *Solite* experience, it was a joy to use. Didn't shrink very well with the iron, but I found later, after adding the *Solite*, careful use of the heat gun got rid of any wrinkles. I took two afternoons for the wing covering, with plenty of breaks, so as not to get frustrated. It was all worth it in the end.



35: The finished, covered wing.

Next came the servos. Now, as I have that little motor on the nose, I installed the servos towards the back of the fuse. This would cost me dearly later on. I wrapped the servos in heat shrink, roughed up the sides somewhat, and glued them in place.



36: Installation of the servos in the tiny fuselage.

Attaching the tail group was a no-brainer, I just had to make sure that the covering was removed wherever wood had to be glued to wood, and make sure it's all at the correct angles while curing. I used aliphatic glue here, as it gave me more time to get things right. As the design assures you of a straight fuse, there was very little chance I could get this wrong.

Next came the pushroddery. The pushrods that are in the kit are genius in their simplicity. Two carbon fibre rods, four pieces of 1mm piano wire with a z-bend, and four pieces of heat shrink. I fed the carbon fibre pushrod into the fuse, cut the piano wire to the required length (I did the tail end first), insert the z-bend into the control horn. Then comes a slightly fiddly bit, if your hands are as big as mine. Slide the heat shrink over the piano wire on one side, and the pushrod in the other. Hold them together, and hit it with some heat. I used my little heat gun. For some extra security, I added a drop of cyanoacrylate. With 20/20 hindsight, it would have been easier if I had NOT glued in the control horns previously, so it would have been easier to trial fit, and put it all together outside. On the servo side, I cut down the servo arms as per the manual, centred the servos, and repeated the procedure.

I had two sets of little folding props with spinners from the aforementioned Chinese supplier, that fit the recommended size. While trying to fit one on the motor I broke one. There's a saying here: "if it doesn't go with brains, use brute force. If it doesn't go with brute force, use more brute force...". I put the saying aside and used some more brains instead. The spinner is a bit oversized, and it's not streamlined as an F5J, but it'll do.



40: The finished motor installation.

All that still needs doing is balancing her. With the motor, ESC, receiver, and 2S Lipo all in front of the servos, she ways very nose heavy. Try as I might, I couldn't get anything to fit inside the fuse behind the servos, because I had glued in the wing rod. In the end, I removed the rod by cutting of the protruding bits inside and outside and re-drilling the holes. It was either that, or removing the servos and repositioning them further forward. Which would include re-doing the pushrods.

Than it was just a matter of trial fitting, balancing, trial fitting, balancing...you got the picture. In the end I found the best way to balance was to push the receiver as far back as possible, and add a 2g piece of lead just in front of the vertical stab.

Flying

And just like that, I had run out of excuses! Now I just had to maiden her. So the next Friday morning (our weekends are Friday/Saturday), I arrived at the patch bright and early, and setup my *Enigma* and *BoT* ready for launch. To calm my thumbs, and 'sniff' the air, I had a 10 minute flight with my *Enigma* first.

For the first flight, I gave my transmitter to our resident test pilot, all things RC mentor and general good guy, Israel Ofek. The launch at full throttle had the *BoT* jumping out of my hands like a scalded cat! Israel did a very short flight, just to make sure it all worked, and after a dive test the CG was declared fine. I had set up the elevator throws too high, so upon landing I toned that down and got ready to launch again. This time with the transmitter in *my* hands.



41: The happy pilot with his just-flown Micro Bird of Time. The smile says it all.

Half throttle was more than enough power to see her off at a brisk pace. Once at altitude I cut the motor and tried the glide. I needed a few clicks up

elevator trim, and that was it; hands-off flat glide. And that says more about the kit design than my building abilities. Because of the light weight (139g) lift is indicated very well. Imagine your glider going "wheeee" and jumping up. Once my thumbs had calmed down, and I relaxed, I started to get a good feel of her. When slowed down, she flies very much like my big *BoT* did, although with the Micro edition I did fly some loops.





42, 43: Proof of flight pictures. (images: Eyal Radomski)

A lovely little glider. A very enjoyable build, she flies like a much bigger glider, looks great, and gets plenty of attention at the patch. I keep her for low wind/low lift days, or early in the morning.

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Resources

- [Micro Bird of Time](#) from J&H Aerospace
- [Doculam](#) from Adlam Films
- [New Stuff](#) from Aloft Hobbies
- [SoLite](#) from Solarfilm Sales

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