Wot4 mk II

Assembly notes

I like Chris Foss's designs. I have a Wot trainer, which does most aerobatics with a hoochy Eflite 46 motor up front. When there is no strong cross wind I love flying my Foam-e Acrowot. It's a bit flimsy in the mid-riff and undercarriage but is easily mended. So when I wanted a slightly more neutral model my first thoughts went to a Wot4 mk2. The quality is excellent and the design looks the business. I put some powerful Tower Pro MG958 digital servos with all metal links and horns in throughout and a Propdrive 4248 motor up front. This produces up to 1300W on 5S so should be more than powerful enough on 4S using a Turnigy 14 x 8 wood propellor.

Mostly it went together with no trouble so I'll only comment on the things that were less than perfect and things I did differently.

Things I didn't like.

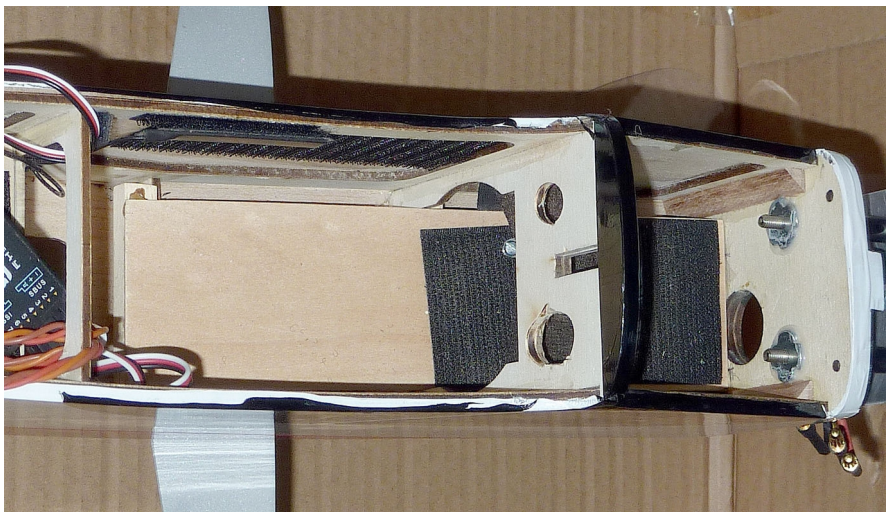
1 **Rudder linkage.** I still can't see the point of pull-pull rudder linkages, and certainly not on this modest sized model with a modest rudder. A snake, or another wood rod as supplied for elevator, would be fine. Making up the wires and adjusting the connections are a real pain. However I did use the pull-pull and regretted it. Never again. On big models I'll put the rudder servo at the rear and use a solid 2.5mm linkage.

2 Split elevator. Assembling this is prone to error. The connecting rod has to be glued into the two elevator halves with epoxy at the same time as pushing them onto the hinges. It is very difficult to do this without glue going where it shouldn't.

3 Pieces of string. The manual said that there would be pieces of string in the wing to pull the servo wires through. There weren't, so I had to drop a weighted wire down to act as a pull-through. I added a 15cm extension wire to each aileron servo wire and secured it with heat shrink.

4 Motor firewall T-nuts. One of the M4 T-nuts was poorly threaded. I always check them with a screw before I fit them. Ripmax obviously didn't. The screw went in roughly the first time. I should have cleaned the thread with a tap then. When I came to do the final fit the screw jammed just before it was fully in. I couldn't get it out. Fortunately the three other screws locked in properly and will hold the plate safely.

5 Electric conversion kit. I looked at the details of it and thought, 'I already have most of this'. So I made a motor mounting plate out of 2.5mm aluminium. I fitted some spacers and M4 screws to suit the motor length. I sprayed white a black spinner that I had in stock. I certainly didn't like the picture of the battery mount. I did a rough CofG check with the 4S 5Ah lipo that will be using and found it needed to be well forward. So I glued a 2mm ply battery plate onto the first three formers with added obechi to increase the glue area. I arranged it so it sloped up to the front making battery insertion easier. I put velcro on the front area and screwed on a velcro battery strap for extra security. It is long enough to move the battery to get the correct CofG. All of this is shown in the picture on the next page.



6 Film. Before cutting the film out of the fuselage air outlet, wing servo holes, wing wire holes and elevator and rudder control exits, I went round the edges with a film iron. The film was not strongly glued down on the sheet and might pull away with time. I was a bit concerned that a single warm air outlet would not be enough. When I fitted the cowl I saw that air from the motor could also come out through the side gaps.

There wasn't a suitable place in the fuselage either for a receiver battery or a current telemetry sensor. So I powered the receiver from the battery elimination circuit on the electronic speed controller. Unable to monitor mAh used, I had to revert to a lipo voltage sensor, which is fine but slightly less useful as voltage varies with throttle.

Balancing

I now use Nano-tech 4S 5Ah batteries for larger models. It is a bit of a squeeze to slide it in. When I move it as far forward as I can, the model balances in the correct place.

Other changes

The wheels are a bit small for a grass runway. I will replace them with larger ones. I am also going to use nylon M5 screws to hold the undercarriage on. These will act as weak links. The problem is that if they break I won't be able to get the stubs out. So I have bored holes through the battery plate to allow an extraction tool to screw on to the ends of the nylon bolts. I can then wind them downwards out of the underside.

Updating to a Neuron ESC

In late 2019 I bought some of the new FrSky Neuron S ESCs. The Neurons have a wide range of telemetry built in such as current, rpm, battery voltage, mAh used and ESC temperature. I fitted a 60S into this model. It is so much smaller than the Plush ESC that I was using that I could put it in the space just behind the motor bulkhead. That, and the fact that I no longer needed the lipo battery voltage sensor, meant that I could now add a receiver/servo NiMH battery and switch rather than use the battery equivalent circuit in the ESC. This was much better for both neatness and for safety against the lipo running down.

Data

All up weight without the battery was 2150g. The battery weighed 504g so total flying weight was 2654g. The wing area is about 35dm^2 excluding the area over the fuselage. This makes the wing loading about 76g/dm^2.

Flying

This model is less agile than the Acrowot, probably due to its higher weight. I quite quickly increased the throws that I had set for low rate. After a few more sessions I switched to using full rate. Manoeuvres need to be planned as the response is not instant unless at high speed, but no doubt that is good for developing my flying skill. Like the Acrowot it can be difficult to stall but when it does it behaves well and does not drop a wing.

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