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Miss Daytona build – 23

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It is getting to the more nerve-racking part now, since I am now making all the additional bits to make the boat complete, and this includes the fitting of some parts that have just come: will they all fit? These include my 'birthday present' of a 60-amp water cooled 'Shark' ESC and a receiver. For the latter, I opted to replicate the one in Sundowner on the basis of 'standardisation'.

There were a few jobs to do first however, including:

Adding some more plastic foam to the spaces available in front of the engine. I cut a slot in one of these to suit the battery so that it has a place to hold it reasonably firm. Re-calculating the size of all the foam added so far, it came to 2.2 litres in volume, or buoyancy of around 2.2kg.

Making a securing fixture to stop the rudder servo on its slide in mount moving (the control wires under tension would cause it to slide out when turning left) when under turning forces. I just had enough space for an M3 bolt and clip for this, screwing into a brass plate epoxied to the hull bottom. It was going to have the long edge of the triangle the other way up, until I tried the drivers platform in before the glue cured... and ended up turning it round.



The big missing bit that caused my apprehension was that up to now I had not been able to make sure that I could fit connecting pipes and wires in the planned spaces. The smaller connections are easy, like the servo and ESC control wires as they are small and flexible. The battery, motor and ESC power leads however are 14 AWG wire to handle the current. I had two goes at this, one with 'normal' cabling which, after soldering it all up I found it was too springy and inflexible to go 'round the corners', so I had to remake it all with high flexibility cable (same size, but silicone insulation and many more wire strands) that *just* fitted. The water pipes had to be over 4mm outside diameter and these were accommodated too, again *just*. The ESC, again *just*, fits behind the left-hand fuel tank (as planned). After fitting it all together, with a few 'alterations' to bits of frame and mounting here and there, I was happy that it fitted and could be easily removed as required, especially



the battery for charging/replacement. Since the next task is to re-seal bits of wood where I cut away the previous sealing surface, getting rid of dust and debris etc, I then removed it all again. The photos show the pile of bits to install and the hole they have to go in. In the top photo, the radio receiver is in a bag on the left, the ESC is in the middle and the 'table' like object on the right is a frame to support the receiver over the gearbox as I found I could not easily fit it to the underside of the hatch cover as the connecting wires and aerial would stop it going in easily. The battery is top left. The motor had to have extension leads which I used single wire plug in crimp connectors (plus solder) as until I get it all going, I do not know whether the motor default direction is right or not. Brushless motors have three connections and reversing them is about swapping over any two of them, so that was an extra bit to fit under the 'engine'. An annoyance here was that the motor was supplied with stiff cables tinned at the ends but that were just too long to be used, so I blithely shortened them and then realised that the copper wires were covered with lacquer that took some removing...



The last task prior to reassembly is to fit the control wires, that hopefully will not go anywhere near the other difficult bits, but time will tell – see later.

For the record, the order of removing things is as follows:

- Remove the engine by pressing in the button at the front.
- Remove the driver on his seat first lifting off the steering arm, this then all lifts out (I gave up screwing him down owing to lack of access to the screw heads, but he is quite firmly located).
- Remove the petrol tanks by removing first the frame bars holding them in (lift outs)
- This then allows the ESC to be removed and disconnected if required.
- The receiver is removed on its table through the hatch (lift out, while removing the cables).
- The rudder servo slides out after removing the hold down screw and the drivers control and then the rudder cable can be removed, at least from the servo.
- The motor can then be removed by unscrewing the mounting bolts and the grub screw on the shaft coupling.

Now that I had all the RC gear and bits (and it fitted), I charged up the battery and tested the system while all the components were out of the boat. They all were fine ('straight out of the box') apart from the ESC default setting is for a motor that has 'centre stick stationary' and then up for forwards and down for backwards. Unlike *Sundowner*, I did not want to be able to select reverse on this boat, as it has very low freeboard and a big hole in the deck, so that meant getting to grips with the programming of the ESC without the optional programmer. This meant following a sequence, moving the transmitter throttle stick and listening for beeps from the ESC: fine as long as you can hear the beeps! I thought I had done it, but it did not remember after being powered down, and further attempts ended in some sort of software dead end where I could not reset it. I have had to order a programming unit for the ESC to get it right, fortunately reasonably cheap as computer stuff goes. I have to say that there was then a very frustrating afternoon trying to get it working: the

hopeless instructions were not clear and I then spent two hours asking AI on Google before realising I was telling it the answers, what it told me was misleading or just wrong. Three hours to get it right and 5 seconds using it as a programmer! The last issue was that the motor rotated in the wrong direction (50% chance) and I had to swap two of the three power wires to it.

I then had no excuse not to thread up the rudder control wires. This was like threading several needles in one go and remembering to route the wires the right way. I wound the wire round the drum on the servo one and three quarter times, and added a stiffish spring in the wire run behind the driver's seat to maintain tension. The photos show the wire inside and out (apart from the bit round the servo drum which is well hidden).



I used screw clamps around the spring because they allowed me to tension the wires, and partly because I can take the wires out, if necessary, without cutting them. These were modified bits of a small electrical 'chocolate block strip'. Actually, the wire is two pieces terminating at the rudder end as per prototype and at the spring. One reason to wait to do this until I had the RC gear working was because as supplied the servo is not necessarily set in the mid position, as I discovered with



Sundowner – I made up the rudder controls and fitted them for that boat then switched on the RC and the servo immediately went hard left as its mid-point. Yes, you can rotate the horn on the servo via its splines easily enough (or 'trim' it a too-small amount via the controls), but that meant taking it all apart again, and on this boat that would mean rethreading the rudder wires again if it was wrong. Indeed, the servo did move when first switched on. The rudder is actually quite stiff and not 'springy' in position, and the servo seems to have no trouble moving it without slipping or effort, along with the driver as well (that I had to try too). Of course, this all means that the rudder is now more vulnerable to knocks, another reason to leave it until the final few tasks.

In the end it seems satisfactory and everything fitted and (eventually) worked on dry land. For the record, the boat, as now finished with all the bits in it, weighs 2.15kg. This is a little less than my estimate, and about the same as the amount of buoyancy I have been able to add. The photos show it in running trim but before it 'saw' any water of any variety, shadows courtesy of a sunny day.



