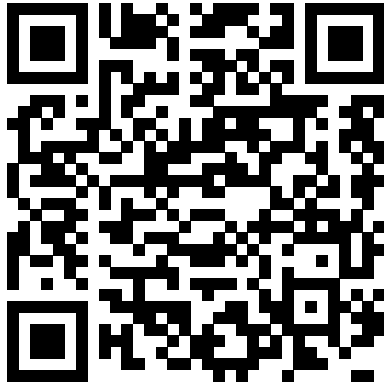


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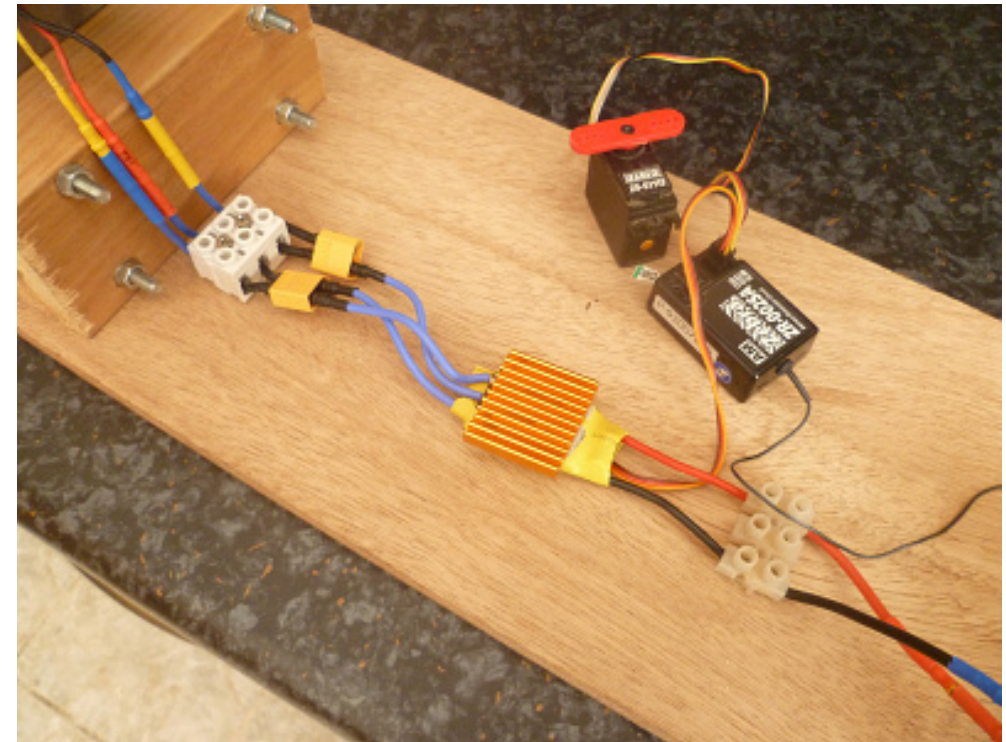


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HSL 102

by nasraf



4th Jun 2020

HSL 102

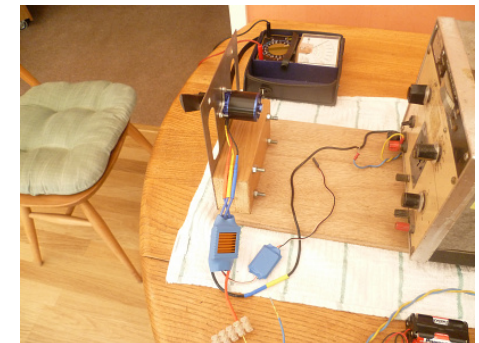
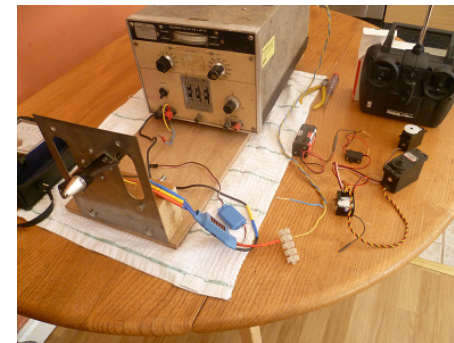
Thanks to the inspiration of jbkwi and the purser with their models of the early Royal Air Force High Speed Launches I have decided to have a go at one. jbkwi sent me some out line drawings and an indication of the boat cross sections and stations. From this I produced some drawings of a model 1 metre long and have got started. As I have found a R/C transmitter and receiver that was intended for the Valshedra and some servos I now intend to make it a model to sail. I have also found an out runner motor a ESC that I once intended to use on Kiel Kraft Super 60 that has laid in my loft for the last 55 years, not likely now I shall ever fly it. I am using a bit of an experimental build process. I have made a base for the build from some 3/4 inch plywood stiffened by a couple of pieces of steel square section. On to this I have laid a sheet of 3 mm ply which will form the deck of the launch, when the structure is complete I will cover the deck with strip decking. Hopefully I will sheet the sides of the hull with 3 mm ply, if it will bend enough, the bottom of the hull I may plank as it may be a bit curvy for sheeting. Did very well so far for most of the materials, got the plywood base and a big bit of 3 mm ply as off cuts from a ply wood stockist for £ 5, my one bit of hardwood section from B & Q cost nearly as much. Nice surprise in B & Q this morning, I wanted some small wood screws and I came across open bins where you can pick and mix, and you pay by the packet, I had a small one at £ 2.50 and you can get a very large number of 1/2 and 3/4 inch small screws for your money. I have now assembled most of the details of the hull structure, at present only held together with screws and rubber bands. I also use a length of 6 mm threaded rod and nuts to hold the frames in position during the build. When I am happy with things I will glue it together. I have attached a couple of pictures of the assembly so far. How big a prop. should I use, I do not want to go very fast and I expect the motor is more powerful than I need but I can not turn the throttle up too far.



5th Jun 2020

HSL 102

After starting the build, as a change of scenery I thought, after finding some of the bits, to see how well the electrical items I had worked, mainly the motor and controller. I have had the motor and controller a long time and it came from China. As I had never run it I made up a support jig and mounting and fitted a cut down aircraft prop. to give the motor a bit of loading and to determine direction of rotation. I thought that these motors were miniature 3 phase induction motors with the electronics producing a variable frequency three phase supply, thus the three supply conductors, but from the little reading I have done on the subject this appears not to be the case. I think they are basically a switched stator relative to permanent magnets embodied in the rotor. However they can still be reversed like a 3 phase induction motor, by interchanging two conductors. After I had made the test rig and got out my now very old Solartron variable DC supply, I gathered up my odd assortment of radio gear to test and drive the motor speed controller. First one tried and technically the best, a 5 channel Spektrum Dx5 transmitter and AR600 receiver. Failed to get this one binded so gave up. Then put together a simple 3 channel Zebra unit, with this I could control the motor and run a couple of servos. Was quite pleased and when I reversed two connecting conductors the motor changed direction. Unfortunately this situation did not last very long and the motor ceased functioning, there had not been any significant load applied and nothing got hot to the touch. I have read that these Chinese controllers are not very reliable, so I am looking for suggestions on what to replace it by. I have added a couple of pictures of the the test set up, it will be back to woodwork to morrow.



1st Jul 2020

HSL 102 part 3

After a number of days doing other things and being put off working on the HSL due to finding that a couple of the frames I had cut by estimating the form, these were nos. 2 and 3 from the bow were not of the correct size. This, using quite thick 3 mm ply, made it impossible to bend the material adequately to contact the frames and chine stringers, I have very little experience in building models from scratch, in addition if I had managed to form the ply covering, the shape of the bow would all be wrong. Another thing I had wrong was to try and form a too big ply sheet, I had managed to do this for the aft end of the boat where there were no complex curves, but at the bow end this was a failure. To some extent I think these problems are due to my idea of building the model from the deck up, if it was just frames with fitted stringers the errors would have been obvious much earlier. However as this is a bit of an experimental project and all my frames are already glued to the deck and I did not want throw it away and start again, I decided to bodge it up, hopefully no one noticing when the hull is finished. This has required lots of little packers to be added around the wrong sized frames. It also took me some time before I gave up on trying to fit large plywood panels in the bow area. I have found that strips of 3 mm ply cut in strips of approx. 15 mm wide can be persuaded to follow the curves required to the first frame from the bow. The bow section I intend to do in solid plywood pieces and sand down to the required shape. To day I received the two Chinese ESC's that I obtained from Ali Express after the useful advice from jbkwi. They were very cheap at about £ 10 for the pair including PayPal exchange costs and delivery, but I think I have probably made another mistake in only getting them with a rating of 30A. They took 21 days from ordering to arrival, but I think a lot of this time was due being in customs in the UK. I have tested both of them on my motor test set up and I found they got hot quite quickly. I think the motor I have, probably needs at least a 60 amp ESC, I now know where to get one and for the initial work the 30 amp units will be OK. As I had my original defective ESC and this had a finned heat sink, I cut the shrink sleeve off half one of the 30 amp units and glued it to the small aluminium plate heat sink that I found under the sleeve material. I then ran the motor for 5 minutes at a moderate speed and I would estimate that the sink got to about 50 degrees centigrade using a 3C 2.8 amp hour battery which will be adequate for the early stage of the project. It is now back to the drawing board as I have an idea to effectively mount the motor off the prop shaft and thus simplify the motor/prop shaft coupling. I have attached some pics of hull build and esc test set up and modified ESC.

