

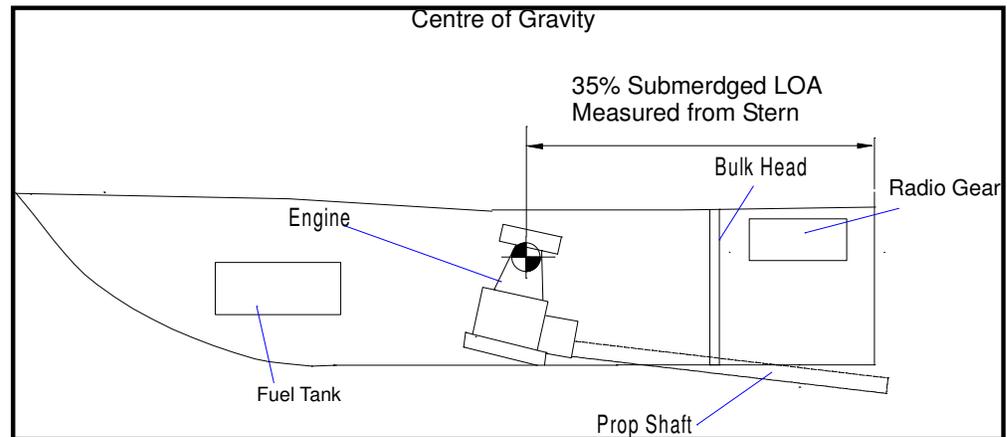
## Electric Craft Build Guide



The following is a basic guide for producing a boat without fundamental problems however the challenge is for you to develop your own ideas and innovations.

**Hull:** Design on a larger scale than Solar either as a vacuum forming or as a composite project from a mould and pattern. Alternatively, you can request one to get you going; however, you would not gain as many points for the hull design section of the competition.

After manufacturing your hull, it needs to be fitted out, i.e. all the internal components attached/fixed into the boat. The first decision will be where to drill the hole for the prop shaft, see the 'CoG' image.



**Powertrain:** make sure you have a coupling to the prop shaft that does not waste valuable power, make one that keeps the motor and prop shaft in perfect alignment. Our prototype used a brass rod drilled and tapped. Fix the motor so that you can adjust its angle slightly using an aluminium plate that can be bent slightly and slots for the screw holes in the motor. The fixing screws for the motor must be less than 6mm long to prevent fouling of the armature. Getting a good alignment with the motor and shaft is the key to minimising friction, before securing the shaft.



**Speed Controller:** You don't really need one, as you will be going flat out all the time. The supplied slide switch can be operated by the servo to give forward and reverse, as pictured. We do stock a limited number of digital speed controllers available at cost.

**Radio Gear:** This can use the same power supply as the motor or you might opt for having the separate multiple 'AA' battery pack supplied. But keep it in a watertight compartment. When setting up the servos a good idea is to take the arm of them before turning on the power to both the receiver and the transmitter. The arm can then be replaced centrally and their operation checked.

**Battery:** Quick access to this will be required on Race Day so don't put it into a compartment with lots of screws to undo! Velcro fixing to the hull such that you can use its weight to trim the boat.

### TIPS

- ✦ Water cooling of the motor will improve the performance of the boat but adds complexity.
- ✦ Adding a top deck will prevent splashes potentially swamping the boat.
- ✦ A water tight floatation section in the bow section, filled with expanded polystyrene, will prevent the boat sinking.
- ✦ Lubricate the prop shaft with grease.

