EL 400 Hovercraft

Designed and built by Fran Oakey

The EL 400 hovercraft is a freelance model designed as an addition to the Micro Racer, to have a small model more suitable for use on water, sporting a superstructure to protect the radio equipment from plashes. The Micro Racer at 250mm long by 180mm wide was a bit over the weight limit for its size, so putting a superstructure on it would take it over my considered weight limit. In order to have a superstructure to cover the radio, the size of the model had to be a little larger. It was estimated that a model 400mm by 200mm would be about large enough to take the additional weight of the cabin about a couple of ounces. Calculations indicate that a model of this size should be in the order of 12ozs.

It was decided that the model would be of the integrated design, one prop to supply both the lift and thrust air. The model was made from 1.6mm hard balsa to keep the weight to a minimum with the base reinforced with 0.4mm ply. The all up weight of just under 15ozs is a little over the calculated weight. A simple style of superstructure was drawn similar to that of the EL600 giving the scale like appearance of the Griffon machines, which has been built from 0.8mm ply wood and balsa. A model of this size would require a propeller four or five inches in diameter with a pitch of four inches. A duct with an internal diameter of 4.375 inches was made and a 4.5” x 4” prop was cut down to suit the duct. The skirt was made from rip stop nylon, the coated type used for kites.

The model was fitted with light weight radio equipment the type used for indoor model aircraft, but on 40 MHz’s. A Corona receiver, Titch-44 servo, 8amp ESC and an MS 024 gyro were installed all powered from a 2S1P LiPo. Tests were done using an Electramax Delta 400 motor to power the model which turned out to be fairly successful.

The small size and low weight of the model makes ideal for indoor running but for outside operation on water the model needs a little more power. To this end a brushless motor will be fitted which will reduce the weight by a couple of ounces and also give the extra power.