



2 finished tail fins as per the originals, flat on the inner facing side and with a good curved aerofoil outer surface. The tailplane was made in the same manner as were the two front aerofoil sections. All these items were then ready for installation later. Liquid poly cement was the preferred glue for nearly all the plasticard parts.

Centre body

The detachable tunnel shaped centre body section was a very sloppy fit and open at both ends. To keep it more firmly in place on the hull, I fixed a 1/8 inch square hardwood moulding strip all around the base of the short vertical shoulder on the hull centre hatch section over which the body fits. This strip now formed a groove into which it slotted. The bottom inside edge of both sides of the body were reinforced with a strip of 40/1000 inch plasticard to make it even more rigid and two cross members were added as well. The open ends were closed off with a ply former at the rear and a thick plasticard one at the front. A cut-out was made in each and an alloy mesh grill glued in place to allow a through flow of air when the hydroplane is running, and this can be seen clearly in Photo 2 which has the model at speed!

The front of the body was reformed and made a closer fit to the rear of the cockpit. It was possible to form a retaining clip fairing on either side of the cockpit rear, from 1/8 inch square plasticard strip. This clip type fairing not only holds the body more firmly and stops it sliding forward, but also helps to prevent water getting into the inside. A slot was cut in the rear ply former where it meets the transom for the rudder servo connecting rod to pass through. A half round cut-out was also made in the same former for the flexible silicone water cooling tube to pass through as in Photo 3. Both the electronic speed controller (esc) and the motor are watercooled.

Centre hatch compartment

There was a propshaft tube which had been fibreglassed in place complete with shaft. This interior area where the motor and electrics would be installed was in a bad state of repair, the plastic being cracked and broken with age. All the damaged bits of the compartment and the broken box sections were removed. Then it was relined with 40/1000 inch plasticard held in place this time with liquid fibreglass resin. This produced a strong 10 x 2.75 x 2.75 inch rectangular compartment, ready receive all the hardware, i.e. the motor, esc, battery, servo and receiver.

Power

The original plans showed a gearbox driven by twin electric motors either side of the propshaft. This design was completely abandoned and a single 12v to 16v brushless motor (an F.T.D. 3674, 750w, 2770kv, 85 amp)

Renovation of a hydroplane

John Blackwell restores this classic model

I recently acquired a Robbe unlimited hydroplane that had been started but not completed. This came about after making contact to rejoin my old model boat club, the Sheffield Ship Model Society (SSMS). I had been a member since 1963, but left in 1992. My main interest at that time was i.e. powered multi-racing and I participated in many club and MPBA events throughout the Northern Region, racing in B and C classes using H.P. 40 rear induction and O.P.S. 60 engines.

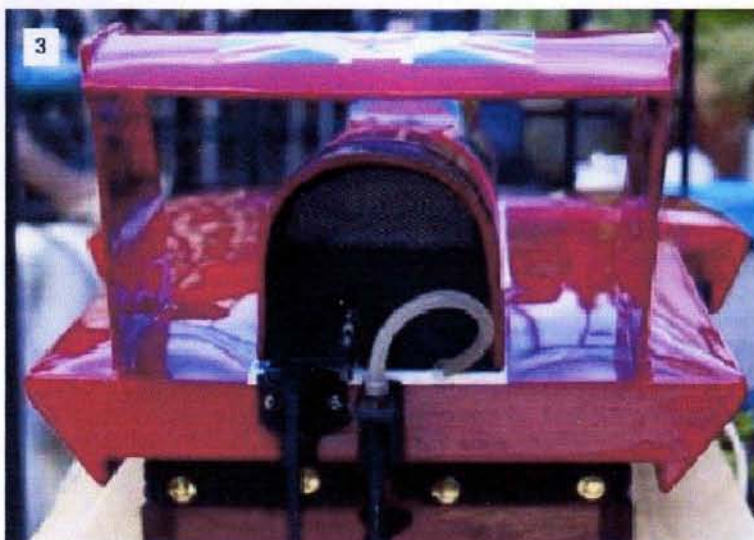
The club is now operates an assortment of scale boats, yachts and fast electrics as unfortunately i.e. power is no longer allowed on our local waters. The hydroplane had been donated to the society with several others that had belonged to a former member who had sadly passed away.

The model

The cost of it was a donation to club funds. Many of the original parts were missing so it meant an almost complete rebuild. Luckily the original Robbe plans Ref. No.1003 were still with it as the model is now obsolete and no spares are available. Photo 1 shows the model as I received it. The clear cockpit canopy was missing, also the tail fins, tailplane and the front aerofoils. The detachable body section was just an open ended tunnel shape that was very flimsy and ill-fitting. The only good part that was intact, was the actual twin sponson hull!

Getting started

Using plasticard (styrene) and greaseproof paper I began making the missing parts. I traced the fins onto the greaseproof paper from the plan and transferred the tracings on to the 40/1000 inch (1mm) thick plasticard. After cutting them out I glued a 3/16 inch flat section border strip all around each fin shape. These flat shapes would form the inner facing surface of the fin. In between these border strips I fixed four curved shaped ribs to each fin, similar to constructing an aircraft wing or tail fin. When all the ribs were set in place with liquid poly cement, they were covered with thin 20/1000 inch (0.5mm) plasticard and trimmed to shape forming two well



capable of running off a 3s or 4s LiPo battery was installed. At the moment I use a 3s 2400mAh LiPo. I may go to the larger 4s type later on (4 3s - 11.1v and 4s - 14.8v - Editor). The motor is used in conjunction with a 90 amp watercooled esc. The solid propshaft was replaced with a flexi drive set up so that it could use drive dog props.

The motor was fixed in a commercially made adjustable motor mount which was adapted with angle plates on the base of each side bracket which enabled it to be fastened to the reinforced floor of the compartment. It was a tight fit, even after shortening the inner end of the propshaft tube to get the motor and its coupling into the model.

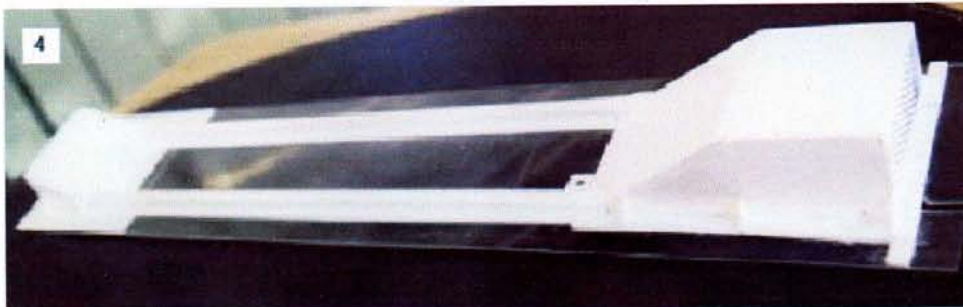
The bulkhead directly behind the motor was cut away and an alcove formed to take the very stiff three phase wiring coming directly out of the rear of the motor. Separate compartments were made to accommodate the LiPo battery and receiver. Brackets were positioned on the left side rear of the compartment for the rudder servo. The centre section of the transom was strengthened on the outside with a piece of 1/8 inch ply. This was so the offset rudder and watercooling pick up could be fitted as the inside of the transom could not be accessed due to it being doubled-skinned.

Steering

The transom fitting rudder of tough plastic is one that I happened to have in the spares box. It is soon to be replaced with a CNC machined aluminium version with integral watercooling pick up. The plastic rudder has a slight amount of play in it and causes a 'chimer' when the hydroplane is running. I also suspect that with it being plastic it bends under pressure from the propeller thrust. There is also a metal stabilising rudder fitted on the rear of the right hand sponson and this is detachable for ease of transportation. The water scoop is from one of my dismantled power boats and with it having a long thread I can adjust its height up and down the bracket depending on the size of propeller being used. A skeg wedge was glued in place between the propshaft and the underside of the hull to stop it flexing.

Waterproofing

To keep all the equipment dry in the centre compartment, a hatch cover was cut from clear acetate and made rigid with two 1/4 inch square wooden strips fixed in place with superglue, running like train lines down the length of it from the back of the forward facing air scoop to the rear one. These air scoops are constructed out of plasticard and placed over square holes cut out of the cover at each end. One scoop faces forward and the other rearwards both having mesh grills and they line up with the inlet and outlet air vents on the removable body section. **Photo 4** shows a modification to the forward scoop. This was to accommodate the very stiff wires coming up from the motor as when these were connected to the esc wires with banana couplings they formed an arch shape over the motor. At first I hoped to pass the wires either side of the motor but this was not possible. The clear hatch cover sits in a recess that's around the vertical shoulder of the inner compartment. Clips were made to keep the cover in place as well as two screws at the rear and midway for added security. **Photo 5** shows the whole thing in place. A small hole was made at the rear of the forward facing air vent to take the aerial wire that comes up from the rear of the hatch where the receiver is housed. The wire passes through the hole and up through the base of the short aerial carrier antenna secured on top of the detachable body. The wire is held in place with a small piece of



silicone tubing at the base of the antenna. Referring back to Photo 2 and you can just see the dark line of the aerial inside the air vent.

Cockpit and canopy

Contact was made with Robbe in Germany via one of their importers, but I was told that no spare parts were now available for this model. Several model shops were also contacted but they don't seem to keep canopies in stock as there are so many different types. Fortunately, one of our club members who is also an aeromodeller gave me an aircraft clear canopy which was adapted to fit.

The interior and pilot (driver?) were painted and after cutting and carving the canopy, a reasonably decent fit resulted and it was glued in place. This meant the hydroplane now had a completely clear blister cockpit canopy. As the replacement canopy was shorter in length than the original, the marked groove at the front was filled with car body filler where the original canopy should have been and sanded flush with the nose cone.

All basic renovation was now complete so the inner compartment was painted with several coats of Humbrol white enamel plus the hardwood moulding strips around its base. The tail fins were glued into the grooves provided, and when set the tailplane was fixed between them. Also the two front aerofoils between the cockpit nose section and the inner sides of the sponsons were now added.

Painting

Bright red was chosen as this would cover the previous mis-match of colours! A friend who owns a car re-finishing business sprayed it with a new aqua water base paint of Ford



Radiant Red producing a real professional look and **Photo 6** is the finished model. An external safety loop has since been added to cut off the motor. The Union Flag I have put on the tail plane bears the Naviga insignia. This is one of several souvenirs obtained when attending the last Naviga event to be held in the UK at Welwyn Garden City in 1975 (The article about the event in the 2010 Model Boats Commemorative Special brought back many good memories).

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Final assembly

The motor and all the electrics were re-installed, including the silicone water cooling tubing for the esc and the motor. This tubing is connected to a brass discharge pipe which goes out of the motor compartment and across the right hand deck, **Photo 7**.

Photo 8 is the hydroplane ready for its first powered run on the club water. The only other time it had been to the water was to see if it floated and balanced correctly. The run began slowly, but it was obvious from the 'off' that the motor had a very powerful torque, so as power was increased it rapidly became obvious that the boating lake which measures (approx. 65yds square) was not really big enough. A quick burst of throttle and **Photo 9** has the model beginning to expose the skeg wedge, steering rudder and the offside static rudder. The propeller is a carbon fibre hydroplane type, 39mm diameter x 55mm pitch. I possess a selection of these propellers, both screw-on and dog type, and have now found that the model is best suited to the this propeller. However, a larger stretch of water will be needed to obtain its full potential on possibly a 40.5mm x 57mm pitch propeller.

Conclusion

This the first of its type I have built, apart from a self-designed tunnel hull catamaran model built from scratch last year. That was inspired after looking through a 1992 back issue of *Model Boats* and coming across a model called *Mantis* designed by my friend Glynn Guest.

Photo 10 shows this catamaran (right), together with the hydroplane, which was still under construction with the then added front aerofoils and the tail fin already set up.

The reconstruction has been an enjoyable experience and it is proving an interesting model to run. The close-up **Photo 11** clearly shows the modification to the front of the detachable body and the clear canopy and **Photo 12** is of the next renovation project.

This is a Bva classic speed boat fished out of the river adjacent to our club sailing water where it had been thrown by a disgruntled modeller. This will be a little more testing of my skills I think! Any help would be appreciated regarding where I could obtain plans or fittings etc., so if you can help please email: j.blackwell66@rocketmail.com.

Hydroplane specifications

Overall length:	29 inches
Max. sponson width:	16 inches
Transom width:	10.5 inches
Motor:	FTD 3674, 12v to 16v, 750w, 85amp.
Electronic SC:	90 amp
Battery:	3s or 4s LiPo.
Propeller:	Carbon Hydro 39 x 55.
Gross weight:	2.4kg.
Radio:	Putaba 40MHz two channel



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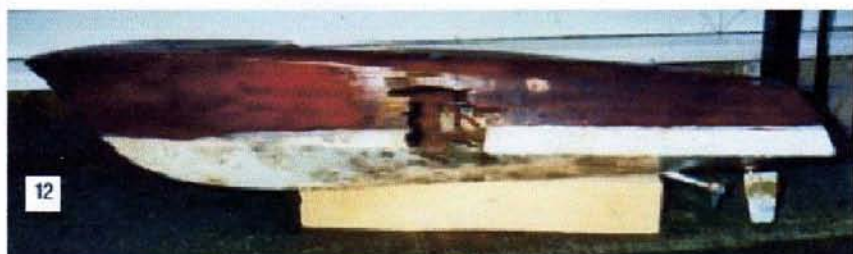
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