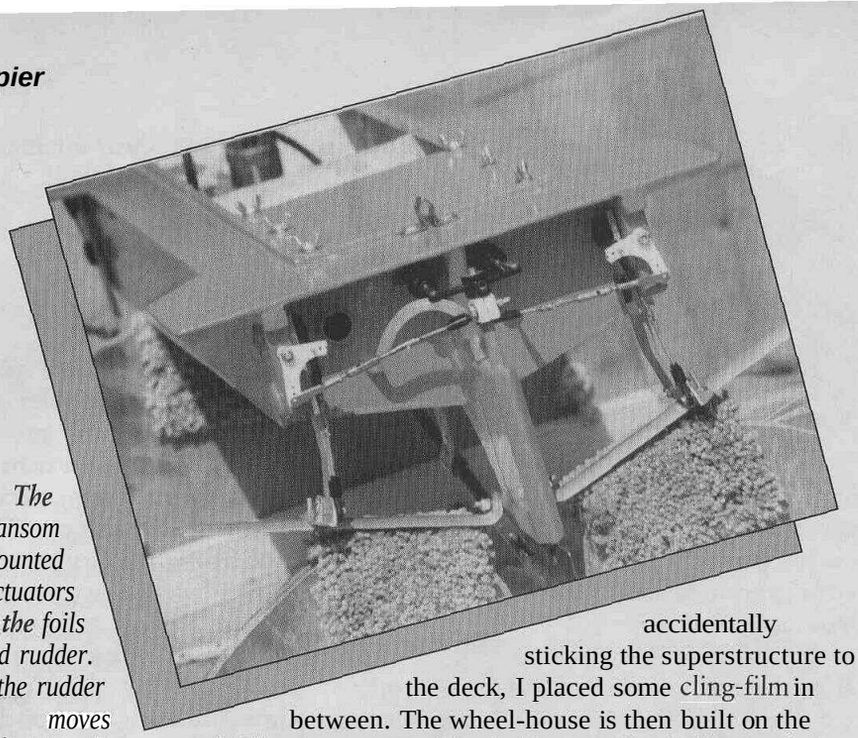

The transom mounted actuators for the foils and rudder. As the rudder moves sideways, the angle of attack of the foils is adjusted via the pushrods and bellcranks.

accidentally sticking the superstructure to the deck, I placed some cling-film in between. The wheel-house is then built on the roof. The air vents are first built around suitably sized scrap wooden blocks. When dry, remove the blocks, mark and cut vent slots in the superstructure, and glue vents in place. I attached the superstructure to the deck with a small cupboard door clip at front and back so that it comes off with a sharp tug.

The radio box lid fits inside the deck location strips. On my model it is bolted down with wing-nuts (see Finishing).

Another view of the main feature of the model, showing the rudder blade, water pickup and fixing points of the rear foils.

Fitting Out

Decide on method of engine fixing, engine mounts etc. and cut slot in hull for prop-shaft. Also, make shaft support bracket as necessary. On mine, the bracket was made from foil strip and soldered to the shaft (you could use Araldite). Again, on mine, the bracket comes from the keel, but for larger engines I suggest that the bracket is attached to the skeg. Finally align engine and mount, prop-shaft/tube and bracket and fix in place with glass fibre paste. I made the mistake of using a 4BA prop-shaft, which limits propeller choice and will have to be replaced before a larger engine can be installed, so best stick to 2BA.

A quick word about noise: With a conventional boat a lot of the high frequency noise is absorbed by the water contacting the hull. As a hydrofoil's hull is above the water the damping effect is lost, which means that you need to pay special attention to silencing engine mounts, couplings and exhaust to avoid an excessively noisy model.

Fit water cooling pipes, exhaust pipe, fuel tank, RC equipment, and push rods (with rubber bellows).

Finishing

The inside was finished with two thin coats of glass-fibre resin for fuel proofing, while the outside was first painted with aluminium primer, followed by Humbrol plastic enamel. Finally the whole model was given 2 to 3 coats of two-part clear fuel proofer.

To seal the radio lid I ran silicon rubber bath sealant around the hatch opening and, after greasing the under side of the lid, lightly squeezed the lid into position until the sealant had set. Be careful with this — the sealant nearly stuck my lid in place permanently!

Foil Alignment

You will probably find that you need a few trial and error runs to sort out the optimum foil incidences. Once set however, there should be no need to re-set except if the foil system is completely dismantled.

Variation of the angle of attack of front lower foil can be made by adjusting the foil clamps, or inserting packing pieces. For the the upper foil, allow a little play in the holes on the strut-bracket assembly so that the whole clamp/foil assembly can be set.

Initially, set the upper front foil to +5deg. and the lower foil to 2deg. relative to the deck line.

To set the angle of attack of the rear foils, adjust their bottom surfaces to follow an imaginary line which would pass half way between the front upper and lower foils. The incidence is varied by adjusting the length of the rudder/foil linkage with the turn-buckles. Note that if the foils are not equally set the model will heal to one side when the rudder is at neutral.

The aim in setting the foil incidence is to ensure that the bow comes out first, but that neither the bow or the stern foils rise so high as to skip about on the surface, which can happen if the incidences are too high. Even at 3.17kg my Rapier flies on only 12sq ins. of foil area.