

'PERKY' – attractive, simply constructed launch

BY PETER WILLIAMS

NEARLY 18 inches long, *Perky* is a good starting point for learning how to build a launch from balsa wood. It is a typical small river craft with an inboard engine. These craft with clean simple lines makes them good subjects for modelling. *Perky* is semi-scale and a few acceptable liberties have been taken with the design to make it easier to construct. For example, the flat deck will be frowned upon by the purist but, as it forms the basis for starting the construction, it is better from

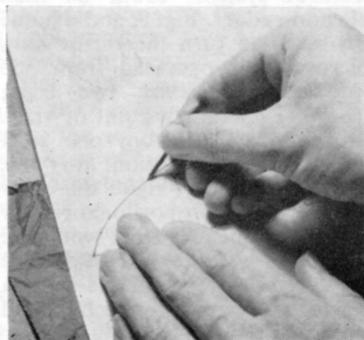
that point of view.

First, pull out the two sets of plan pages by opening the staples, then trim the left hand edge of page 35 with the half circles in register with each other. You now have a long plan with all the parts shown full size. You will need three sheets of $\frac{1}{8}$ by 3 x 36in. medium balsa, two sheets of 3 x $\frac{1}{16}$ x 36in. balsa, three strips of $\frac{3}{16}$ x $\frac{3}{16}$ x 36in. balsa and 4in. of 2 x 2in. block (for the bows). The latter can be laminated from $\frac{1}{2}$ in. sheet—half a 2in. wide sheet

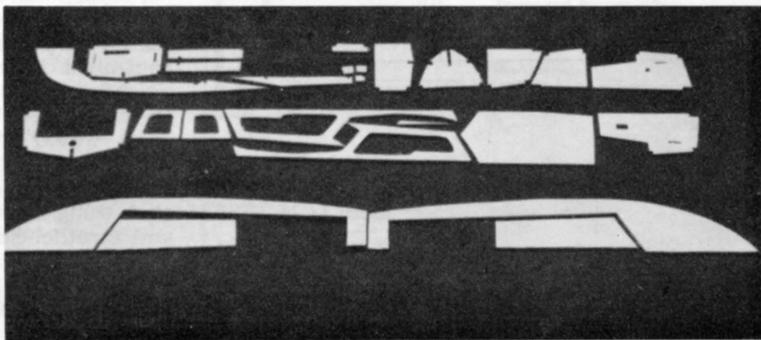
will do. Construction is quite orthodox, using stringers of the inwade (edge of deck) and chine (junction of sides and bottom).

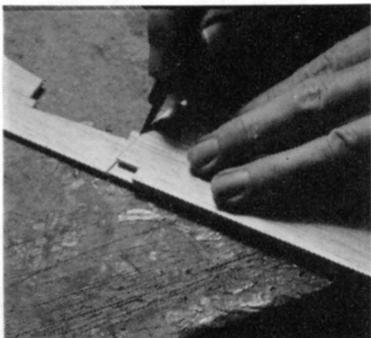
Trace down all the parts on to the $\frac{1}{8}$ in. sheet, noting the grain direction. The deck, the cabin roof, the transom and the formers B2 and B4 must each be cut in two pieces and joined along the centre line. Use balsa cement throughout, for P.V.A. glue, whilst much used in aeromodelling today, softens if it gets wet.

1 Use a sharp pointed nail for marking the outlines with carbon.

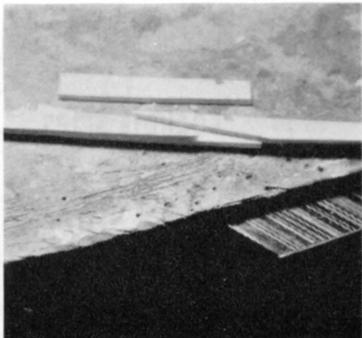


2 All the parts laid out as they were marked on the three sheets of $\frac{1}{8}$ x 3 x 36in. The layout is important for grain direction.

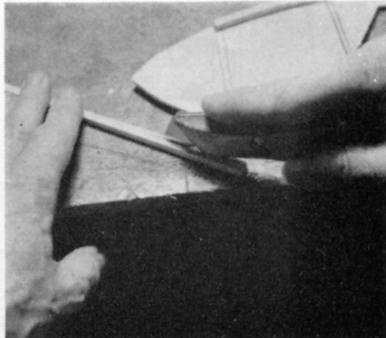




3 Half parts of formers are cut round for the other half.



4 The three parts of the keel shown at the prop shaft point.



5 The ends of the inwale and chine stringers are slit to allow them to be bent.

Assembly

Pin the deck down on to a building board and mark the position of the bulkheads on it. Take a pair of $\frac{1}{16}$ in. sq. strips and make two 4 in. long parallel cuts in one end of each, using a razor-saw or strong modelling knife. This makes them easier to bend round the bows. Squeeze cement into the cuts (it can be

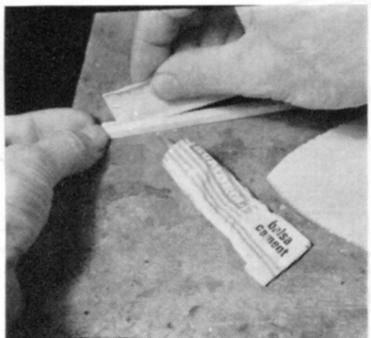
dragged in with a piece of stiff paper). While the cement is still wet bend the strips round pins driven into the deck and pin it down $\frac{3}{16}$ in. from the edge of the deck. These are the inwales. They should start at the front face of bulkhead B1 and be cut off at the stern end of the deck flush with the end. Mount on the deck and pin

it upright, using a matchbox as a square to ensure that they are vertical. Cut out the cockpit sides from $\frac{1}{16}$ in. sheet and cement them to the deck at B5 with their lugs in the slots. Cement B3, 2, and 1 in place. Cut B4 horizontally on line shown and cement the lower part to the deck and cockpit sides threading the rest over the

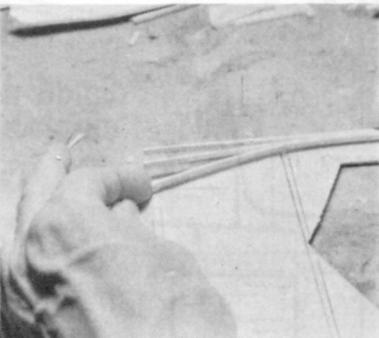
6 Cement is worked into the cuts with a piece of stiff paper.

7 The slit ends are bent one lamination at a time and pinned.

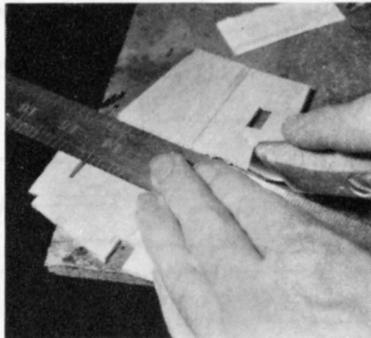
8 B4 is cut across at the deck line to allow the hull to be assembled upside down.



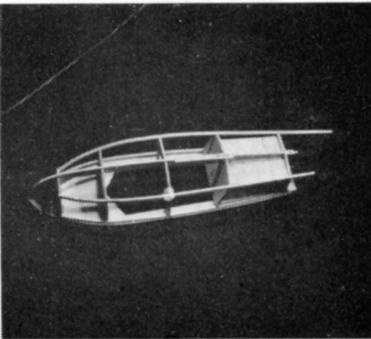
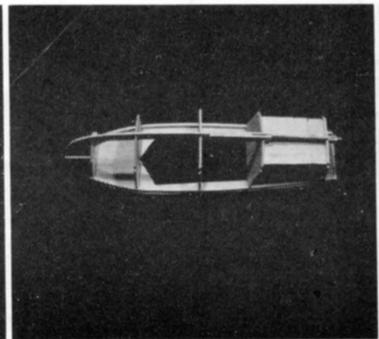
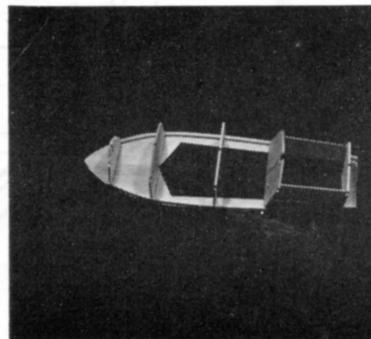
9 All the bulkheads assembled on the deck and the cockpit sides slotted between them.

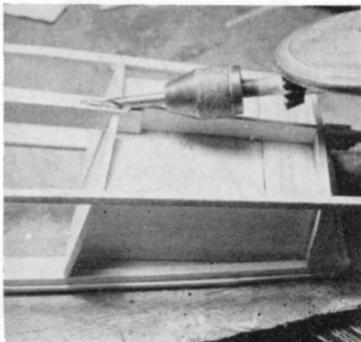


10 The keel is cemented into the bulkhead slots over the cockpit floor.

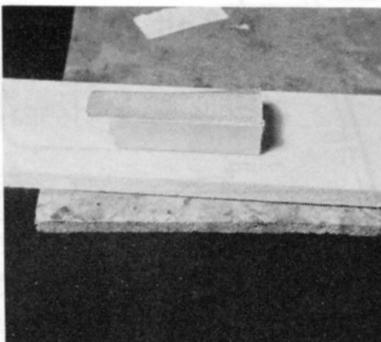


11 The chine stringers are added. They extend initially past the last bulkheads to allow rubber bands to be used.

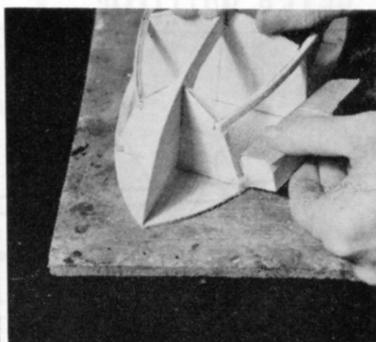




12 The hole for the prop tube is opened out with a drill, using the existing hole as a guide.



13 A piece of sandpaper is glued to one face of a wood block to sand the inwales without scoring the deck.



14 The block in action. This is necessary to prevent the deck being thinned.

lugs on the latter as before to set the correct angle of this bulkhead.

Cut out the keel parts and lay the main keel over the plan to ensure the correct position of its three ports before cementing the doublers to one side. When set remove it and cement on the doublers at the other side. You now have a keel with holes for the prop and rudder tubes.

Make the Cockpit floor from $\frac{1}{8}$ in. sheet and cement it to the cockpit sides, B4 and B5. Cement the keel into the notches in the bulkheads so that the small notches in its top edge engage to keep the bulkhead in place. Slit the ends of two more pieces of $\frac{1}{8}$ in. square (offcuts from the first pair) and bend them into the notches in the bulkheads using pins and rubber bands to hold them until set. They should project $\frac{3}{8}$ in. past B5. Don't fit the transom yet.

Glue a piece of sandpaper on

to one face of a wooden block and sand the inwale to the same angle as the sides of the bulkheads. When the chines stringers are set, remove the pins and sand them on both outside faces to conform to the angles of the sides and bottom. Sand off the front ends flush with the front face of B1. Sand the keel to the angle of the bottom.

Saw the bow blocks roughly to shape and transfer the section drawn on the plan to the new face of one. Trim it to this line and use it to mark a trim line on the other block. This will give a right and left handed block for each side. Place each in position forward of B1 and mark round the keel to give a cutting line for the bows on each. Trim to this line and cement them in place. It will be seen that the blocks are $\frac{1}{8}$ in. larger than B1. This is so that they will be flush when the skin has been added.

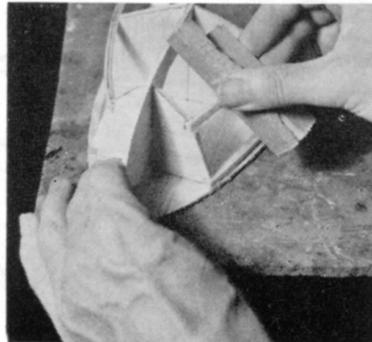
Dope one side of the $\frac{1}{8}$ in.

sheet, and start skinning the sides from the stern, doped face inside, using short strips of $\frac{1}{8}$ x 3 in. balsa side by side, butted against the underside of the deck, with the grain running vertical. Give the framework and underside of the deck a coat of clear dope.

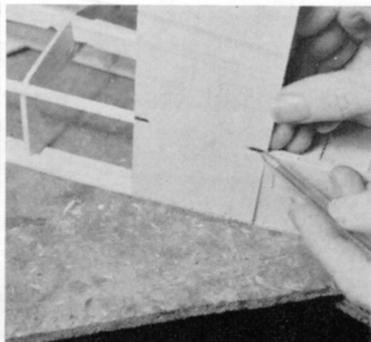
The sheet will have to be cut at a slight angle as it nears the bows. Stop the skin at the bow block. Using a sanding block, sand off the surplus ends at the chine of the same angle as the bottom.

Skin the bottom with $\frac{1}{8}$ x 3 in. sheet, reaching from the centre line of the keel, where they are butt joined, to overlap the sides at the chine. Use narrow pieces as you reach the bows; they are easier to bend to conform to the change of angle of the bottom at this point. Sand off the surplus edges and carve the bow blocks with a modelling knife, rasp and coarse sandpaper until they follow the smooth lines of

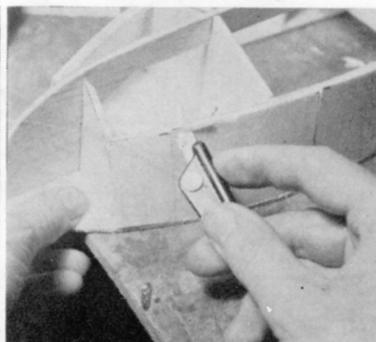
15 The chine stringers are chamfered to the angle of the sides and bottom.

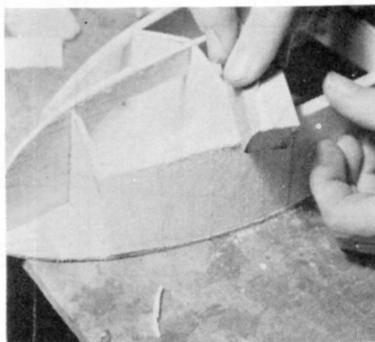


16 Marking the $\frac{1}{16}$ in. sheet to fit the sides, note the grain direction.

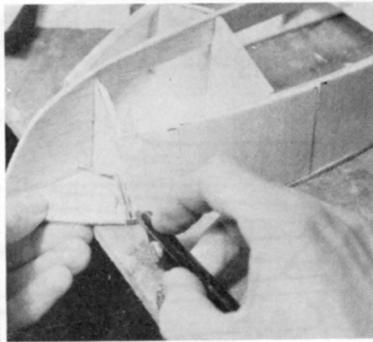


17 Surplus sheet is trimmed off level with the chine stringer.





18 The edge is sanded in line with the bottom to take the bottom sheet.



19 The front face of the side sheet is trimmed to clear the bow block.



20 Each bottom sheet is measured and cut, then a duplicate cut from it for the other side.

the skin, and the chine line carries on to it as shown on the side view.

Top sides

Remove the hull from the board and turn it up the right way. Re-unite the upper part of B4 using strips of $\frac{1}{8}$ in. sq. as a brace. Cut out the cabin sides and cement them to the deck and B4. Chamfer the

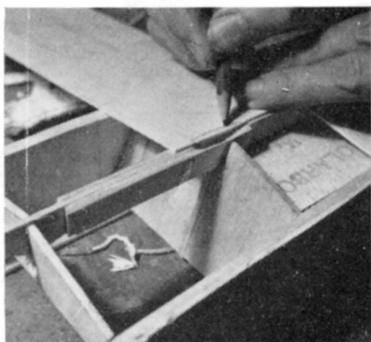
edges of the cabin fronts so that they fit together—do not make the mistake of making both for the same side—it is easily done! Cement and pin these together and to the sides and deck and sand the front edges of the cabin sides to the same angle. The roof is made from two layers of $\frac{1}{8}$ in. sheet sanded to a curved section at the edges. It has a strip of $\frac{1}{8}$ in. square,

cemented all round the underside to fit inside the sides and keep it square. The roof is not cemented on; it is removed to gain access for the installation and battery chargers. Strips of $\frac{1}{8} \times \frac{3}{4}$ in. can be used to represent seats in the cockpit. The inside is given a coat of colour dope to protect it further from water and to avoid the sight of bare wood which gives a model an

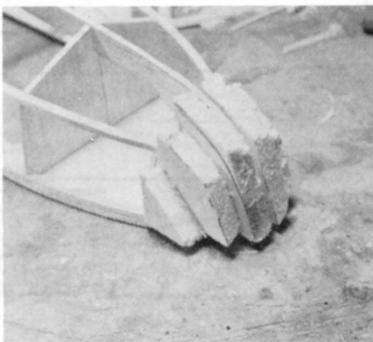
21 The clearance for the prop shaft is cut on the meeting faces of the bottom sheets.

22 The bow blocks can be made from three laminations of $\frac{1}{8}$ in. sheet.

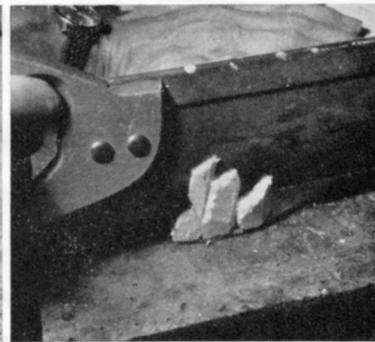
23 A tenon saw is used to roughly profile the blocks when they are in position and set.



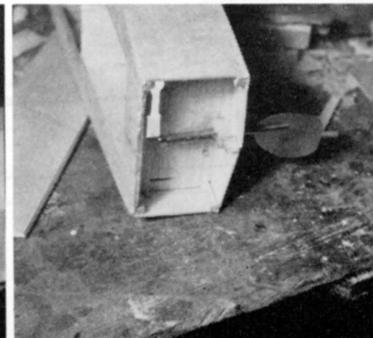
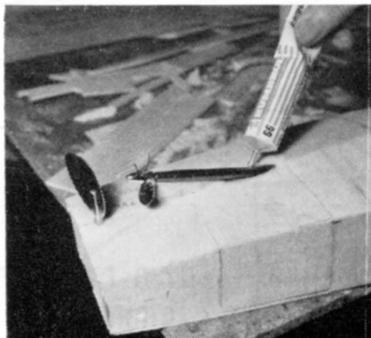
24 The prop tube is double cemented in and a fillet of cement run round it.

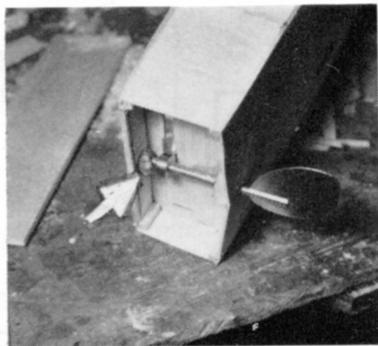


25 The rudder tube is inserted and cemented in place. If it has a thread and nut, it may be put in dry.

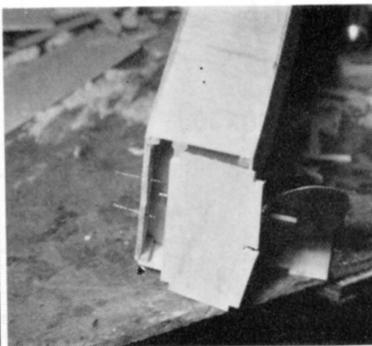


26 The tiller arm is fitted after the rudder shaft is in position.

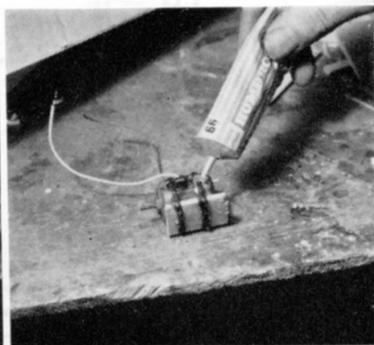




27 A small block of rubber is fixed with Evo-Stik (arrowed) to act as a friction lock.



28 Only now can the transom be fitted. Two pins through the deck prevent it falling too far in.



29 If the motor does not have fixing lugs, it can be bound and cemented to a piece of $\frac{1}{4}$ in. balsa.

unfinished appearance. The cabin windows are then glazed from the inside with celluloid.

Fitting out

The prop shaft assembly is introduced into the slot in the keel. It may be necessary to open out the slot with a suitable drill first. The shaft is slid in and propped up with a $\frac{1}{4}$ in. sheet skeg cemented to it, with a scrap of silk wrapped on it to make it secure. Any gaps between the propeller shaft and the hull should be filled with plastic wood. The rudder assembly is inserted through the remaining hole in the bottom skin, and the nut locked down onto the keel doublers.

The tiller-arm is fixed to the top, passing through the slot in B5. It should face forward into the cockpit and a block of rubber, wedged between the top of the tiller and the underside of the deck, to which it is

glued with Evo-stik, forms a friction lock for manual steering. If radio control is to be fitted, the tiller-arm must be drilled to take a push-rod which passes through the cockpit—the tiller is then fixed at 90deg to the rudder, so that push-pull action of the push-rod from a motorised actuator in the cabin turns the rudder. (No rubber block is then needed).

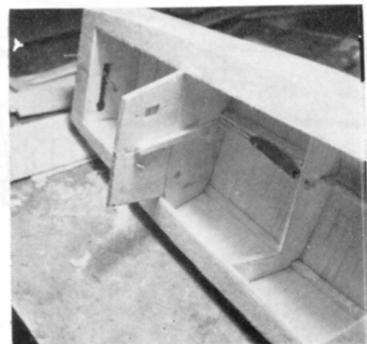
When you are satisfied that it is working properly and the nuts are tight, the transom is cemented all round the edges and pushed into place. If pins are pushed through the deck $\frac{1}{8}$ in. from the stern edge, they will prevent its going too far in. It should be flush with the edge of the deck and sit in the notch in the end of the keel. When it is set, the surplus length of the sides, bottom and the chine stringers is trimmed off flush with the face of the transom.

The motor mount will depend

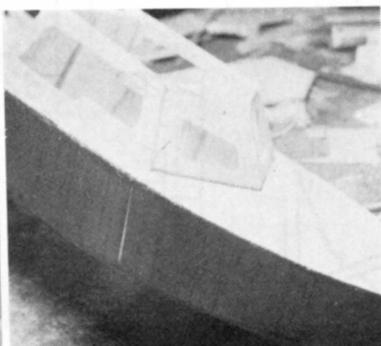
on the type of motor used. Scraps of block or laminations of $\frac{1}{8}$ in. sheet are built up each side of the keel forward of B3 and cut to the same angle as the prop shaft. The motor is coupled to the shaft with a piece of flexible plastic tube, it is then glued down with Evo-stik or screwed down with wood screws, if it has a set of fixing lugs; otherwise an aluminium strap is secured over the motor. The motor leads are joined on to additional wires (which are stranded, flexible insulated types) and one taken to a tin clip which is bent to fit over one tag of a 4.5 volt flat battery. The other lead goes to the end tag of a switch mounted on B4 and the centre switch tag lead goes on to a second tin clip on the other battery tag.

If desired, two flat batteries wired in parallel may be used or, if the motor runs best on 6 volts, a pair of cycle headlamp

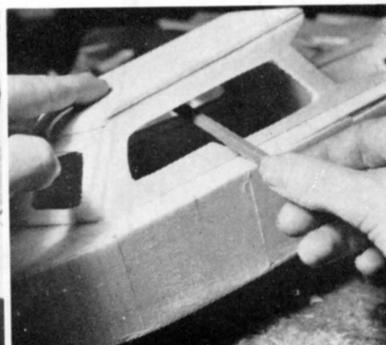
30 The top half of B4 is re-fitted using $\frac{3}{16}$ in. square as a brace.

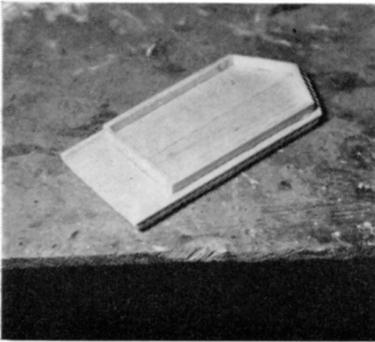


31 After fitting the motor, the cabin sides and front are added.

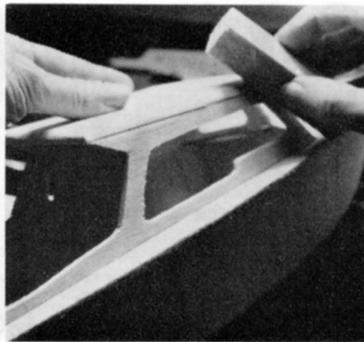


32 The cabin roof is marked through the windows for the position of the $\frac{3}{16}$ in. square on its underside.

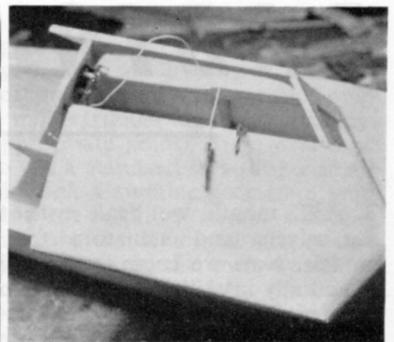




33 The 3/16in. square under the roof panel prevents the roof from slipping off, but an internal rubber band may be used in addition.



34 The edge of the roof is rounded and blended into the cabin sides.



35 The narrow tin clips soldered to the wires shown here are for connecting to the batteries.

batteries may be connected in series, using a further piece of wire with tin clips each end. It is a good plan to hook up the motor and battery before fixing the motor down, to see that the coupling runs freely, without imposing an excess load on the motor. Provided the motor is in line with the shaft, all should be well.

Finishing

The grain of the wood may be filled by covering it with light-

weight Modelspan tissue applied with clear dope. The technique is to dope the wood, then apply the tissue cut slightly oversize. Brush more dope on it: this softens the first coat of dope as it soaks through. Smooth out any wrinkles as you rub the tissue down, then cut surplus tissue from the edges with a sharp razor blade.

When dry, further filling may be carried out with sanding sealer; a couple of coats, then

sanding before finishing in paint, using Sellotape to mask different coloured areas. The deck was covered with white Modelspan which goes almost transparent when doped, to show the grain. It was ruled with ink and a draughtsman's pen before applying the sanding sealer, and a couple of coats of varnish. Avoid getting excess paint around the rudder tube and the propeller, as it will interfere with the smooth working of both.

GEN PAGE

(continued from page 16)

In common with P9444 (RN-D) in the Science Museum and R6915 in the Imperial War Museum, it has outer wing panels bearing external wheel-well stiffeners, showing conversion at some period to Mk V standard; work which gave them a new lease of life in later years and is probably the only reason for their survival.

War bonnet

Modellers who study the variations in air-line liveries may

wish to compare the Indian head insignia this month, that formerly displayed by Western Airlines, with the insignia shown on the Boeing 737 last month. The one shown here, in black and red was discarded in favour of the present version. Another Injun bites the dust!

Veteran Vickers

Final photograph shows the reconstruction of the Vickers *Gun-Bus* which is a well-known sight at all the best displays in the summer. Intimate point which the camera seldom captures, and this time is no exception, is the word "BOMBAY" on each side of the nose with a

bracketed figure "two" underneath. The markings on the clear doped finish are completely accurate and copy the original even in the application of Type D roundels on the wings. Which, although were not officially in existence and would certainly not have been thus termed in 1915, did occasionally turn up, showing a centre disc with a diameter one third that of the whole. Indeed the only fault we can find is that the symbol on the central stripe of the rudder is a little large in proportion to its circle, on comparison with photographs of the original. It is correctly shown in our drawing.

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