

# SAND YACHTS

Sand yachting is an exciting sport which always attracts interest. Most clubs are on the coast, where large stretches of firm sand occur, and where the likelihood of a good breeze exists. Speeds of 50-60 m.p.h. can be achieved, so the sport can be certain to provide many thrills and some spills. Our larger model hails from Dunbar, just east of Edinburgh, where the Scottish Championships will be held this year, over last weekend in June. For those who would like to build something immediately, we also include plans for a smaller and simpler model, full size on the next two pages.

## Vonna by Richard Smeed

(Full-size plans available price 15p inc. post from Meccano Plans Service, 13-35 Bridge Street, Hemel Hempstead.)

This model is based on the D.N. class sand yacht mainly sailed at the local sand yacht club at Dunbar. As can be seen from the plan, its construction is fairly simple. The length of the model is 18 in. and it has a 16 in. mast with a 10 in. boom.

Construction begins with the main body,  $\frac{1}{8}$  in. sq. balsa lattice work with a covering of  $\frac{1}{32}$  in. sheet top and bottom. The seat back is made out of  $\frac{1}{16}$  in. sheet and is inclined backwards. Behind the seat the body is made up from two  $\frac{1}{16}$  in. sheet formers glued in a 'T' shape and covered with  $\frac{1}{32}$  in. sheet. When this stage of the model is completed an 8 in. hardwood

front axle can be cut and glued firmly to the underside of the body.

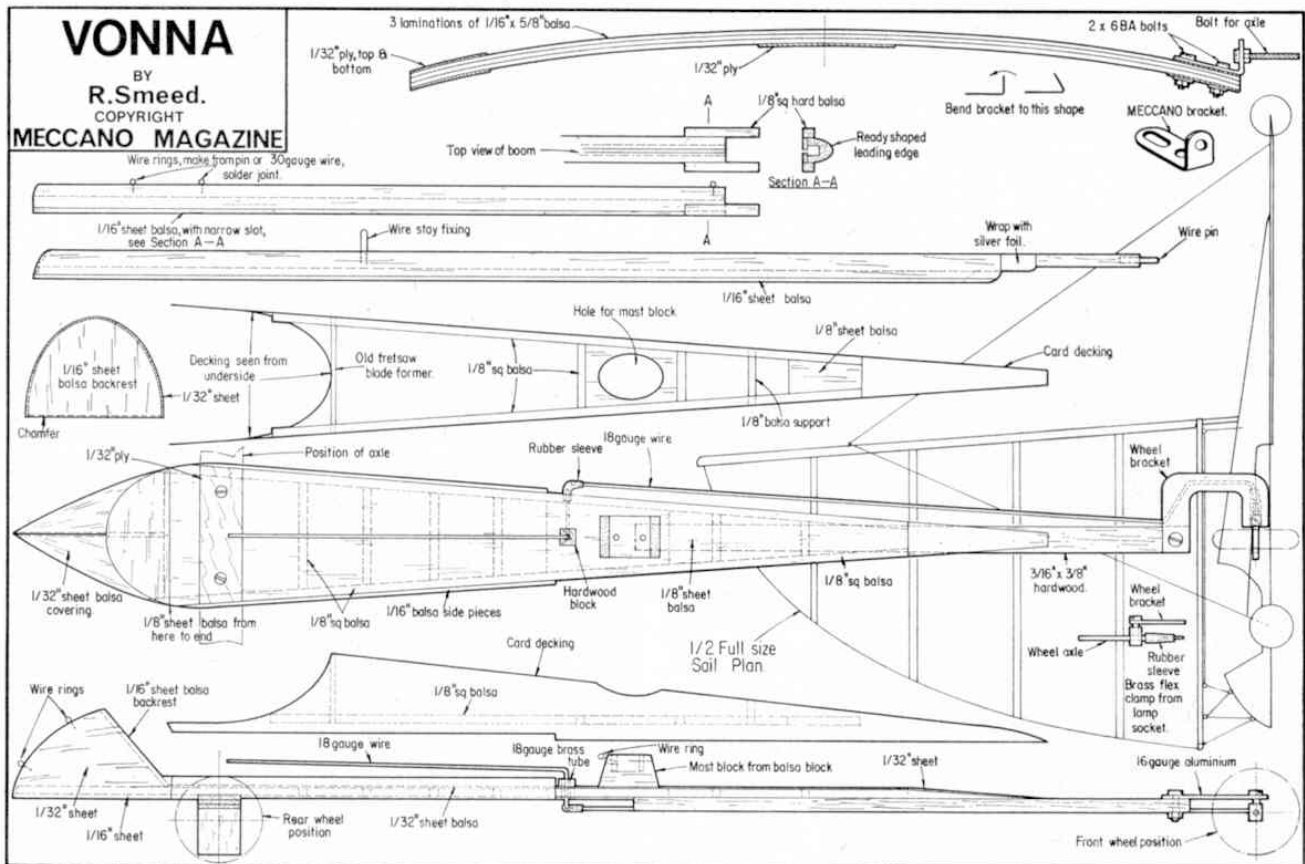
The back axle is formed from 3 strips of  $\frac{1}{16}$  in. balsa  $\frac{3}{8}$  in. wide and 12 in. long. They are glued together and while the glue is setting a slight curve is obtained by suspending the axle between two thick books and placing a suitable weight in the middle of the lamination. When dry the axle should clear  $\frac{1}{2}$  in. above the ground. The axle is then fixed to the underside of the body by 2 10 B.A. nuts and bolts.

The wheelbrackets are made from small pieces of aluminium secured to the axle by 10 B.A. nuts and bolts. The actual stub axles themselves can be the same size bolts. The wheels are all approximately  $1\frac{1}{4}$  in. diameter and can be salvaged from an old toy or bought as model car accessories (Meccano parts).

### Steering Assembly

The front wheel bracket is also made out of sheet aluminium cut into a 'U' shape large enough for wheel clearance. The stub axle is again a 10 B.A. bolt. This is passed through the centre of the wheel and is soldered in the hole of an old screw-clamp taken out of an old plug or other unused electrical appliance. The bolt should protrude about  $\frac{1}{4}$  in. through the other side of the hole. The screw from the clamp is passed through a hole drilled in the aluminium bracket and is screwed into the top of the clamp.

The connecting rod is bent out of thin gauge wire. Copy the plan accurately here as wheel clearance is essential. The actual steering arm is made out of the same thin gauge wire bent to the shape on the plan. The steering arm, connecting rod, and axle need to be pivoted and this is simply done by cutting small pieces of rubber sheathing used on electrical wire and slipping these over the ends of the wire.



### Mast and Boom

These are both made from wing leading edge, utilising its shape and slot. A thin strip of  $\frac{1}{16}$  in. balsa is cemented over the slot and when dry a narrow slot is cut with a hacksaw blade throughout the length of the mast. The lower portion of the mast is cut to the shape shown and a small piece of wire is cemented into the bottom of the mast. A small piece of silver paper is cemented just under the step in the mast. This for protection from the boom on fullsize yachts but it is just decoration on the model.

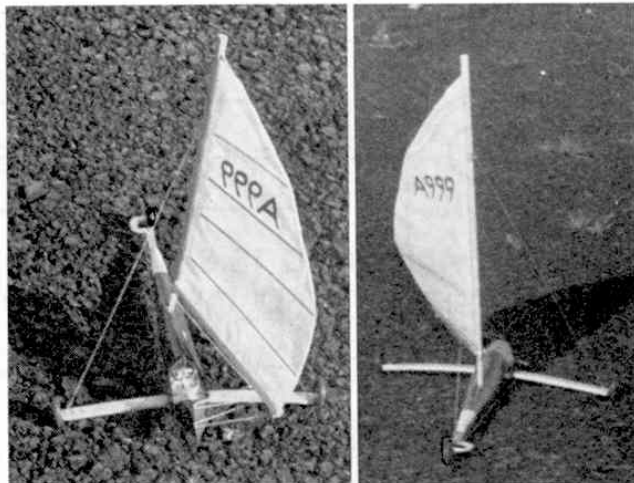
The boom is fashioned in a similar manner with two strips of  $\frac{1}{8}$  in. square balsa cemented at one end to form a 'U' bracket, to locate the boom on to the mast.

The "decking" or "fairing" is an entirely optional extra. The usual D.A. class yacht does not have this, but designing the model, with a fullsize version in mind and having studied the yacht that won a recent National Championships held at Dunbar, I decided to make one that would be removable.

A frame is fashioned from  $\frac{1}{8}$  in. sq. balsa and is pinned to the body of the yacht. A paper pattern can be made at first but the actual covering is thin cardboard. This is gently curved and is glued to the frame. An old fretsaw blade can be fashioned to suit as a former and is glued at the cockpit end of the decking. This can now be either glued to the body or a pin can be fixed to the frame and thus be pushed into the body of the yacht to enable the fairing be removed at any time. A hole is cut in the top of the covering to clear the mast.

### Sail and Rigging

The rigging consists of three stays, 1 front and 2 side. Thin string or thick thread is utilised here; one end of each stay is fixed to the bolts on the wheel brackets and the other ends should have small wire hooks attached to them and these hook on to a wire loop glued into the mast about  $\frac{1}{3}$  of the length from the top of the mast. The stays should be adjusted so that the mast when erect should lean slightly backwards and the top of the mast should swing from side to side



about the width of the yacht.

The method of sheeting in the sail on fullsize yachts is through six separate pulley-blocks, but pulleys in this case are just small "eyes" fashioned from thin wire and glued to the boom, mast and body.

The mast is supported by a small block of balsa cemented on to the body as shown on the plan.

Finally, the sail is made from a piece of nylon, terylene or cotton (there may be a suitable piece around the house) and is cut so that the boom when fixed to the sail clears the cockpit. The leach can be cut to a suitable curve joining the top of the sail and the bottom corner.

The sail is attached to the mast and boom by gluing a piece of string to the luff and the bottom of the sail. This enables the edges to be slid up the slot formed in the mast and boom. If the sail does not stay by friction it can be glued or pinned. Battens, fashioned from strips of  $\frac{1}{32}$  in.  $\times$   $\frac{1}{8}$  in. cut to the correct length and stuck at 4 places on the sail, stiffen it and give better performance.

## SANDFLY

This is a simple, quickly made and inexpensive little model which will give quite a snappy performance on a smooth surface in moderate breezes. A school playground is the best place to run it, but ask permission first!

The base is a T shape cut from  $\frac{1}{4} \times \frac{1}{2}$  in. hard balsa and cemented as shown. Trace and cut the body floor and cement to the T, fit the bulkheads B1 and B2, and then the sides. Leave these a little long at the back, and "roll" a curve into them by rolling a pencil over them, pressing it down with the palms of the hands. Cement in place, pinning while the cement sets, then cut a rectangle to fit the rear end. Sand over the top edges and cement on the top piece; the cockpit opening is best cut out after. Trim the top edges and sand flush, and fit the seat back.

Cut the rear axle to length and bend the front axle to shape, then cement and bind the wires in place. The wheels are best fitted by soldering on a cup washer, sliding on the wheel, and soldering a second washer in place. Alternatively, roughen the wire with an old file and epoxy the washers in place.

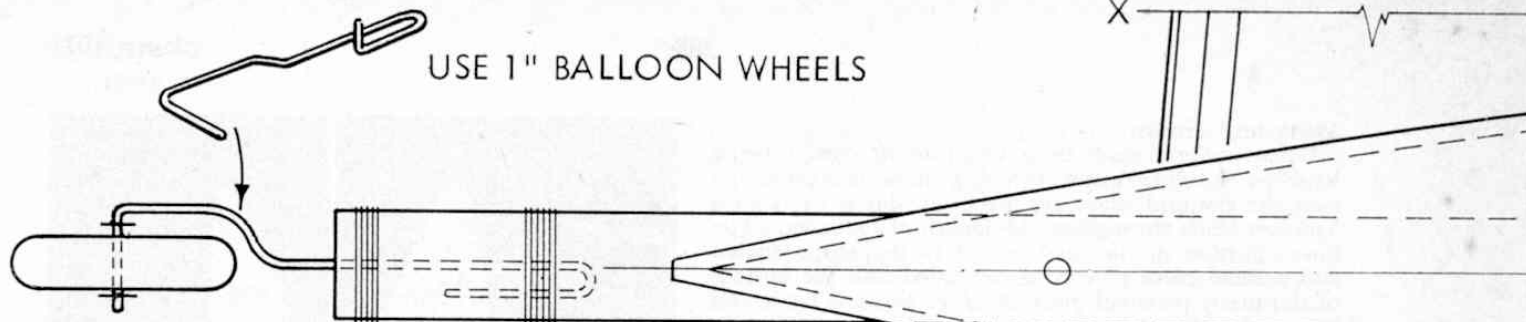
Apply sanding sealer (two or three coats) rub down and colour dope or paint to choice.

The mast is a length of  $\frac{1}{8}$  in. dowel cemented into the body and base, leaning slightly backward. Cut the

sail from a hemmed plastic bag so that the hem can be slid over the mast. Use two pieces of  $\frac{1}{16}$  in. balsa for the boom, cemented together with the sail foot between them; pierce a few holes in the plastic to allow the cement to key the two balsa strips together. Carefully drill a hole in the mast end of the boom and screw in a screw-eye large enough to slip over the mast (it could be bent from wire), take it out again, squeeze cement in the hole, and replace the eye. Make two little loops from soft pins and cement in the same way, positions as shown. Cut a three-hole bowsie from celluloid, thread on a piece of button thread, and string between the two small eyes. Tie another piece of thread to the third hole and tie a little hook to the free end.

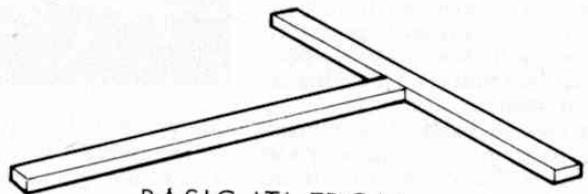
Slide the boom "gooseneck" and sail hem over the mast and put a couple of stitches through the top to prevent it sliding right down. If you fit battens to the sail, use contact cement. Fit an eye each side of the cockpit to hook the sheet on; if preferred, solder a wire across these eyes and hook the sheet to that. Adjust the sail position by sliding the bowsie along—you'll soon find where it needs to be for which course. For very breezy weather a small weight can be tied to the cross-bar next to each rear wheel—then watch it scoot!

USE 1" BALLOON WHEELS



CEMENT AND BIND 18 S.W.G. AXLE TO FRONT END OF 'T'

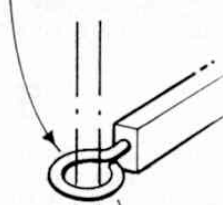
SAIL FROM HEMMED POLYTHENE BAG



BASIC 'T' FROM 1/2" x 1/4" HARD BALSA

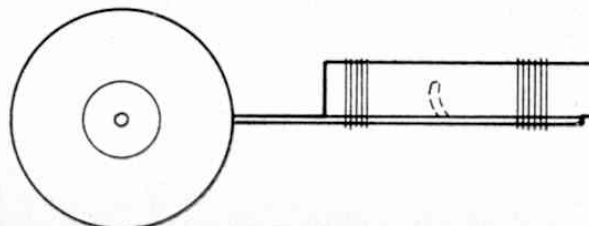
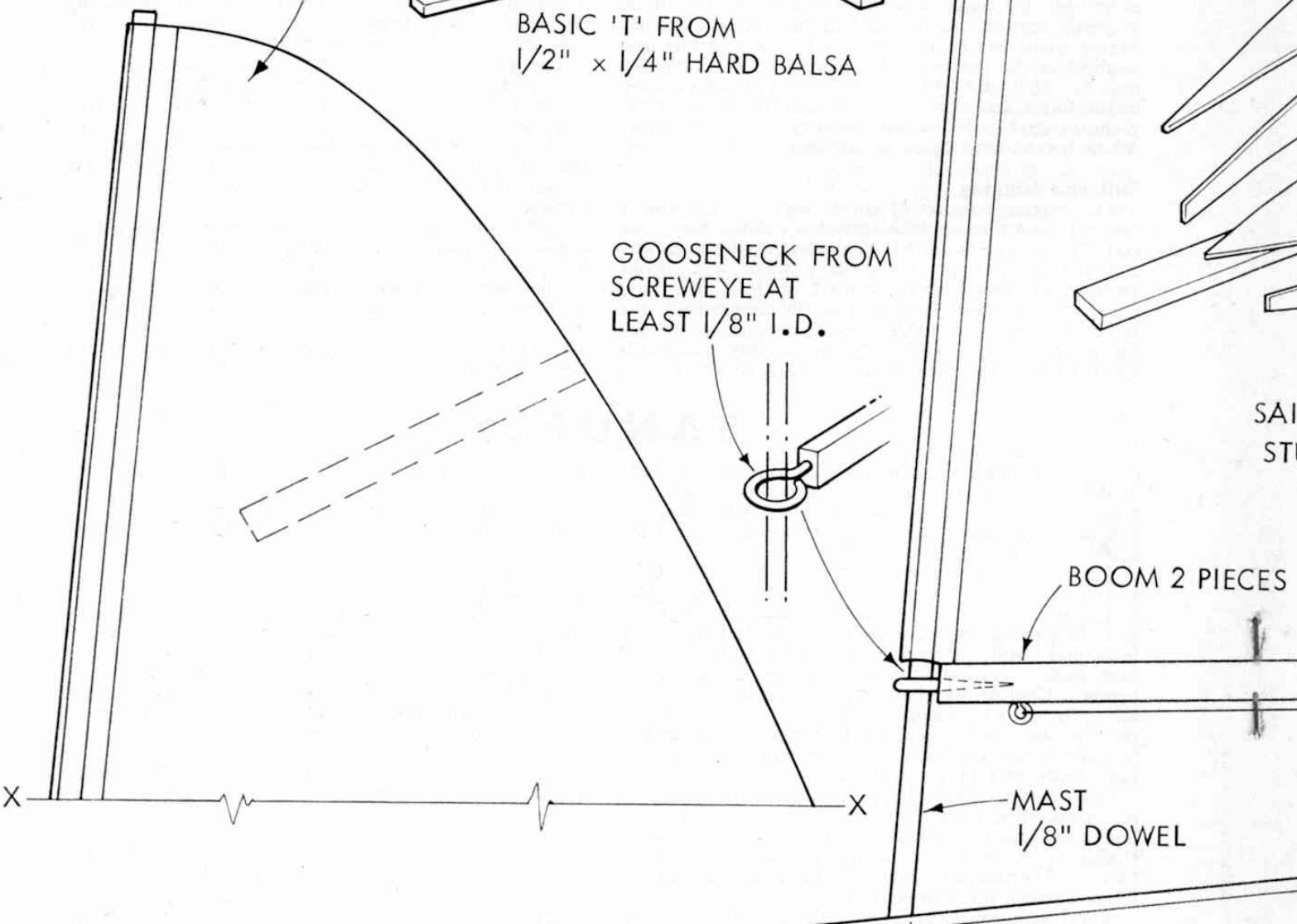
BODY PARTS FROM 1/16" SHEET

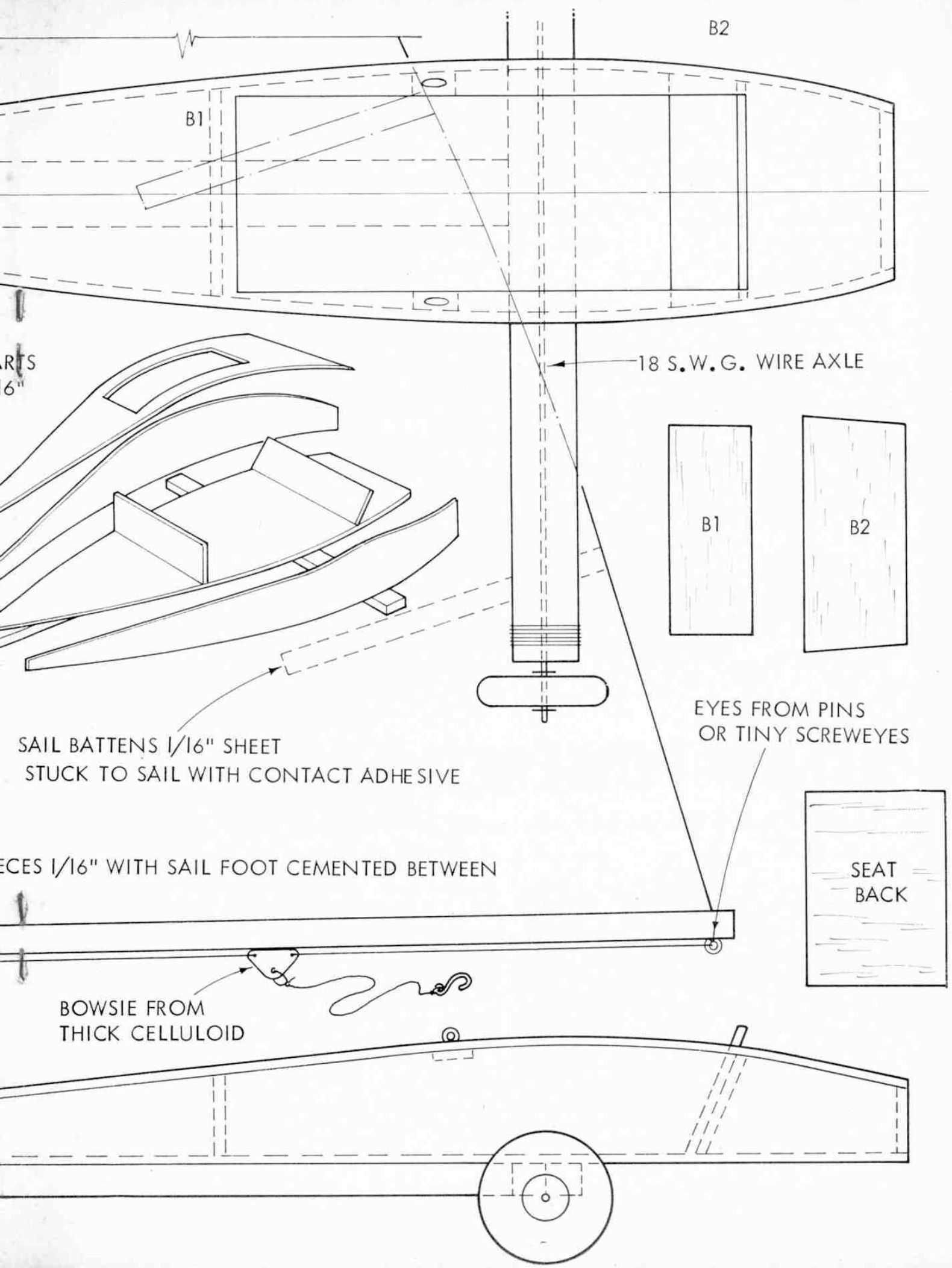
GOOSENECK FROM SCREWEYE AT LEAST 1/8" I.D.



BOOM 2 PIECES

MAST 1/8" DOWEL





B2

B1

RTS  
6"

18 S.W.G. WIRE AXLE

B1

B2

SAIL BATTENS 1/16" SHEET  
STUCK TO SAIL WITH CONTACT ADHESIVE

EYES FROM PINS  
OR TINY SCREWEYES

PIECES 1/16" WITH SAIL FOOT CEMENTED BETWEEN

SEAT  
BACK

BOWSIE FROM  
THICK CELLULOID