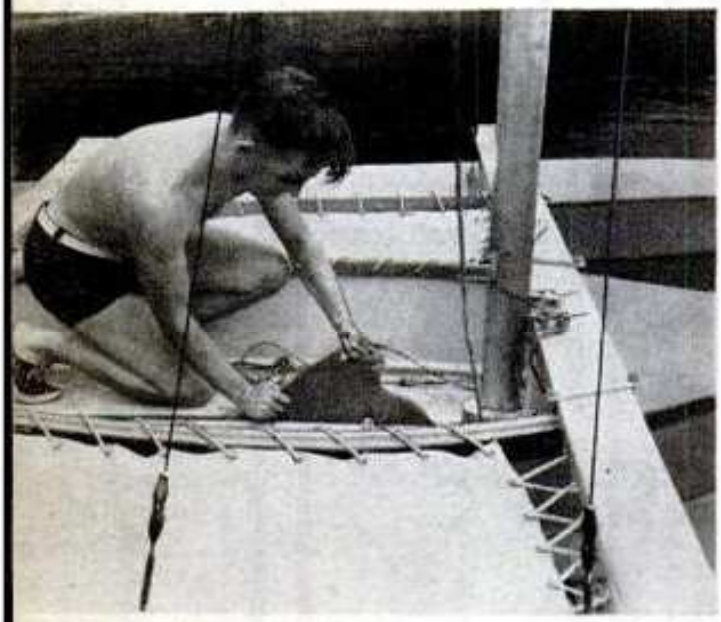
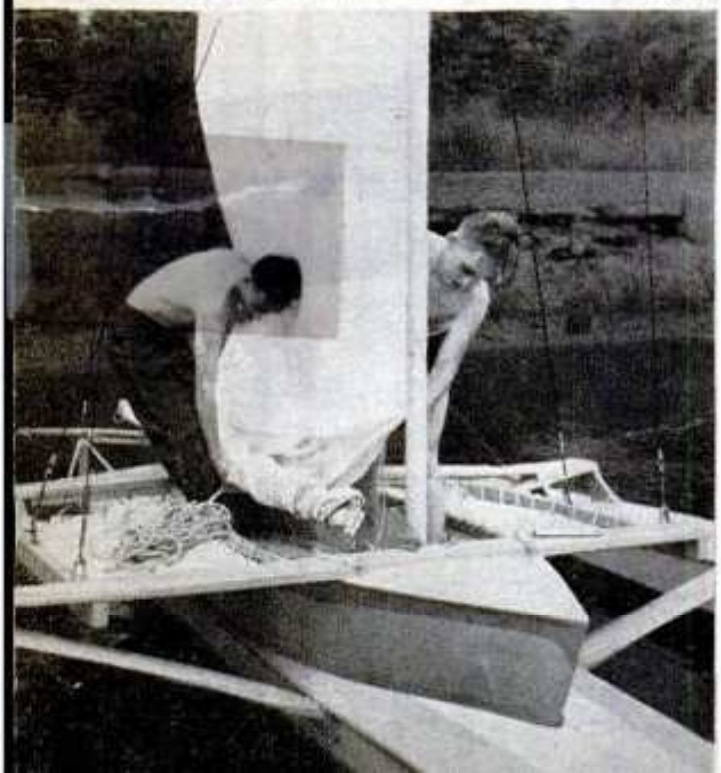
Build this 20-ft.

By J. Julius Fanta

Above, stern view of Trimaran shows wooden bracket just aft of cockpit. This permits emergency mounting of outboard motor on starboard side of center hull

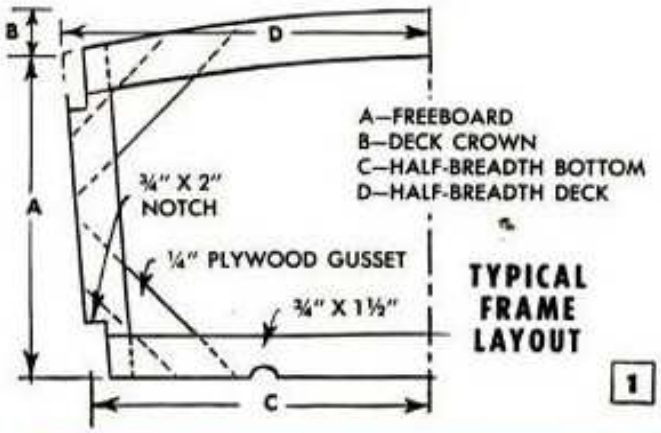


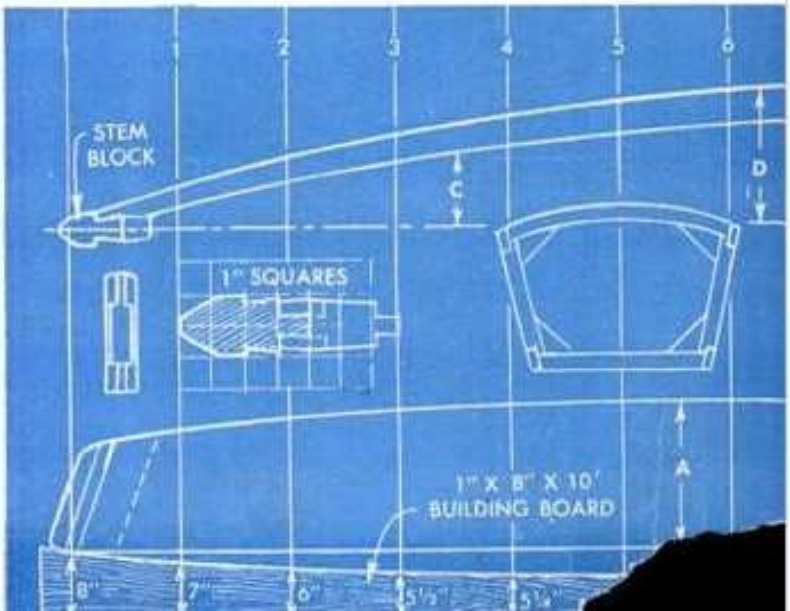
Raising the plywood centerboard, above, cuts draft of main hull to a few inches. Below, lightweight aluminum boom is easy to handle when hoisting mainsail. Note cable stays anchored to cockpit supports



DESIGNED by Commodore Victor Tchetchet of the International Multihulled Boat Racing Association, Trimaran combines the thrills of a conventional sailboat with an exceptional rate of speed, maximum safety and unusual ease of handling. In a spanking wind, the sleek hull with its outriggers skims over the water at speeds as high as 22 m.p.h., and in a hardly perceptible breeze, when other sailboats are without steerageway, she moves along at a surprising speed. Capsizing is next to impossible because of the buoyancy of the outrigger pontoons. Even a wind approaching gale force would be more likely to blow out the sail or snap the mast than capsize the craft. But, while the rugged construction and "3 hull" design permit Trimaran to withstand high winds and heavy seas in an emergency, it must be remembered that she still is a small boat and sailing should be confined to protected waters.

The main hull and pontoons are built by covering wooden frames, spaced 12 in. apart, with ¼-in. waterproof plywood. First, make the 20 frames for the hull to the dimensions given in the table of offsets, Fig. 2. Join the frame members with waterproof glue and





TRIMARAN

reinforce them with plywood gussets, which are glued and nailed to the faces of adjacent members, as in Fig. 1. When building Trimaran, use monel-metal screw-type nails throughout. Note that five frames, stations 8 to 12, must be made in two parts to permit installing the centerboard trunk. Fig. 4 shows how these particular frames are put together.

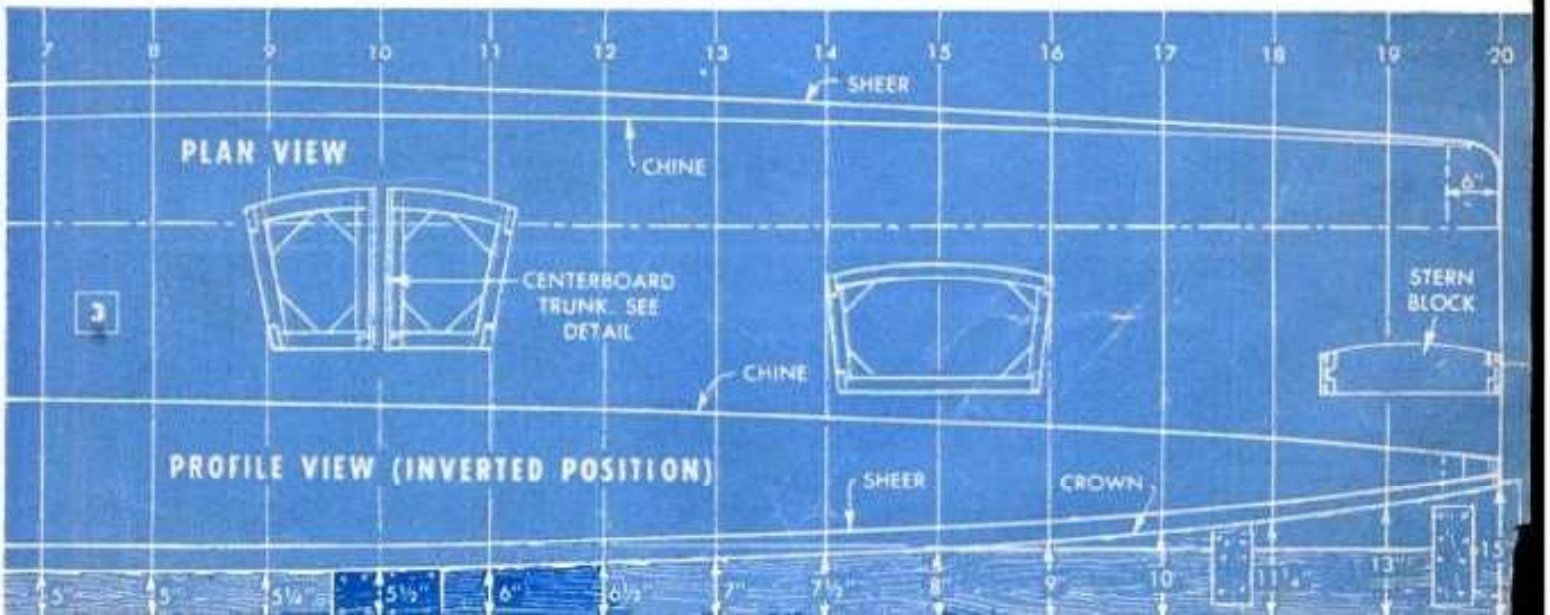
After assembling all the hull frames, make a building board from 1 x 8-in. stock, cutting the contour of the top edge of the board to conform with the profile view, Fig. 3. Support the building board on sawhorses, Fig. 4, and temporarily nail the frames in position on the board, spacing them 1 ft. apart on centers. Assemble and install the centerboard trunk, as in the upper details. Then glue and nail the chine and sheer battens in the notches cut in the corners of the frames. Fair the chines and sheers into the stem and stern blocks, planing the battens flush with the frame surfaces. The centerboard trunk is made up of two pieces of ¼-in. plywood mounted on two oak uprights. A 1-in.-sq. cleat along each side of the trunk ½ in. from the bottom edge provides a surface for bolting and gluing the plywood bottom around the trunk. Cotton calking laid in glue on adjacent sides of the cleat between the bottom and the trunk assures a watertight joint.

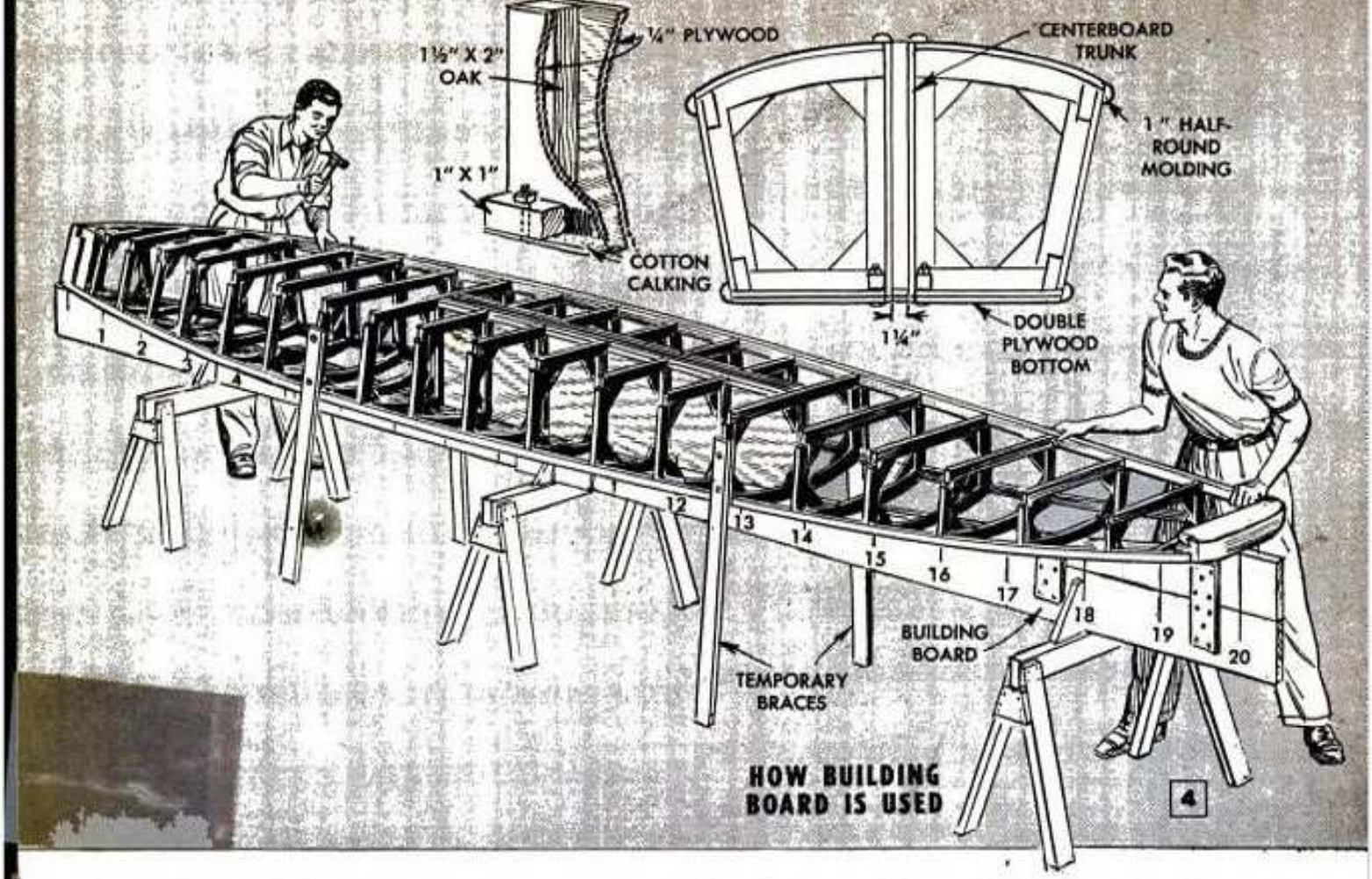
To plank the hull, cut the plywood for

2 **TABLE OF OFFSETS**

MAIN HULL (DIMENSIONS IN INCHES)

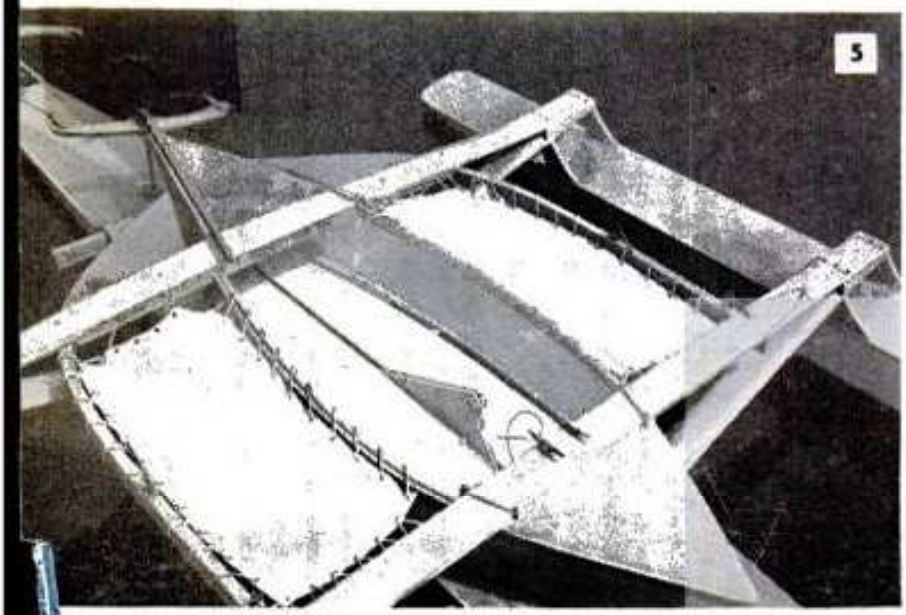
STATIONS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HALF BREADTHS FOR BOTTOM	2¼	4¾	6¾	8½	9¾	10¾	11½	11⅞	12	12	12	12	12	11⅞	11⅝	11⅜	10¾	10	9⅛	8½
HALF BREADTHS FOR DECK	4	7¼	10	12⅛	13½	14¼	14⅞	15	15	14¾	14½	14⅛	13⅝	13⅛	12½	11¼	11	10	9⅛	8⅛
FREEBOARD	13¼	14⅜	15	15½	15¾	15¾	15⅝	15½	15¼	15	14⅞	14½	14	13⅜	12¾	11⅛	9⅝	7¾	5¾	2½
DECK CROWN	1	1¾	2⅜	2¾	3	3	3	3	2⅞	2¾	2½	2¼	2	1¾	1⅜	1½	1½	1½	1½	1½

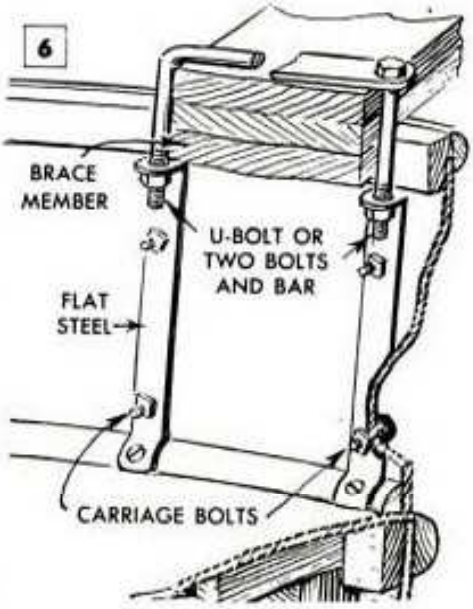




the sides slightly oversize. Coat contacting surfaces of the chines and frames with waterproof (marine) glue and fasten the plywood in place with monel nails spaced 2 in. apart. Then clamp the plywood to the chines and frames. When the glue has dried, cut off the overhanging edges of the plywood and plane flush with the battens. The bottom is covered with two layers of ¼-in. plywood, the pieces being cut a little oversize and slotted where they fit over the centerboard trunk. To assure watertight joints along the chines and around the trunk opening, cotton tape is laid in a thick coating of marine glue which is applied to all contacting surfaces. Then the plywood is laid in the glue and nailed as before. The second layer of plywood is merely glued to the first one. When planking the boat, you can add strength by making sure that the plywood joints on opposite sides of the hull fall on different frames. The deck is covered with one layer of ¼-in. plywood bent over the crown. After the deck is in place, the edges of the plywood are trimmed flush with the sides and the joints are covered with 1-in. half-round molding.

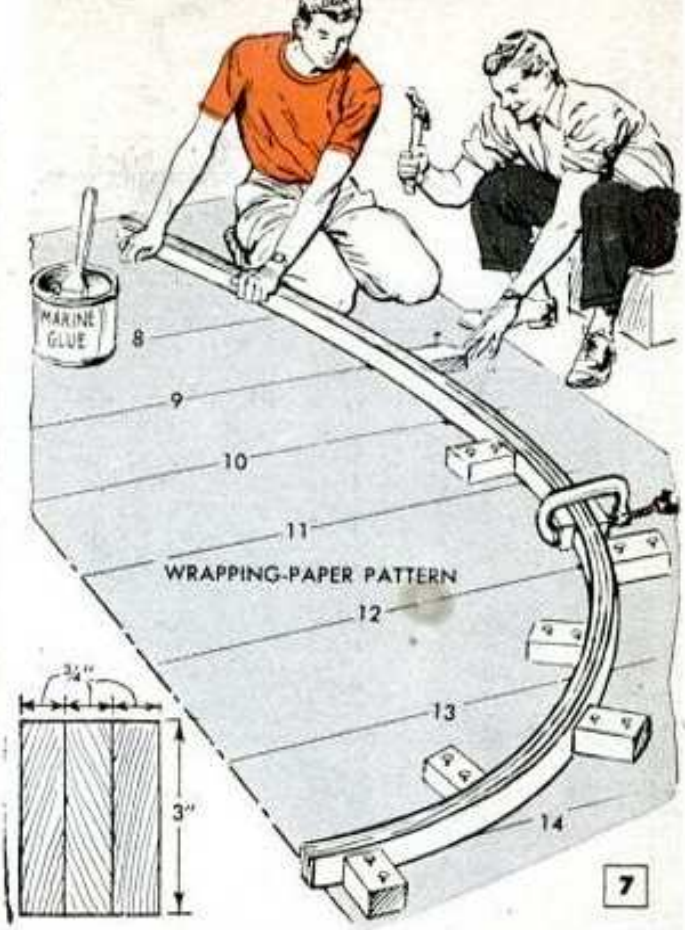
Construction of the main hull is completed by adding the cockpit, the sides of which are glued and nailed to a curved chine fastened directly to the plywood deck, Figs. 8 and 9. A series of holes, drilled near the deck line in the aft portions of the cockpit sides, provides a self-bailing feature to drain off spray. Both fore and aft sections of the cockpit are covered with plywood.



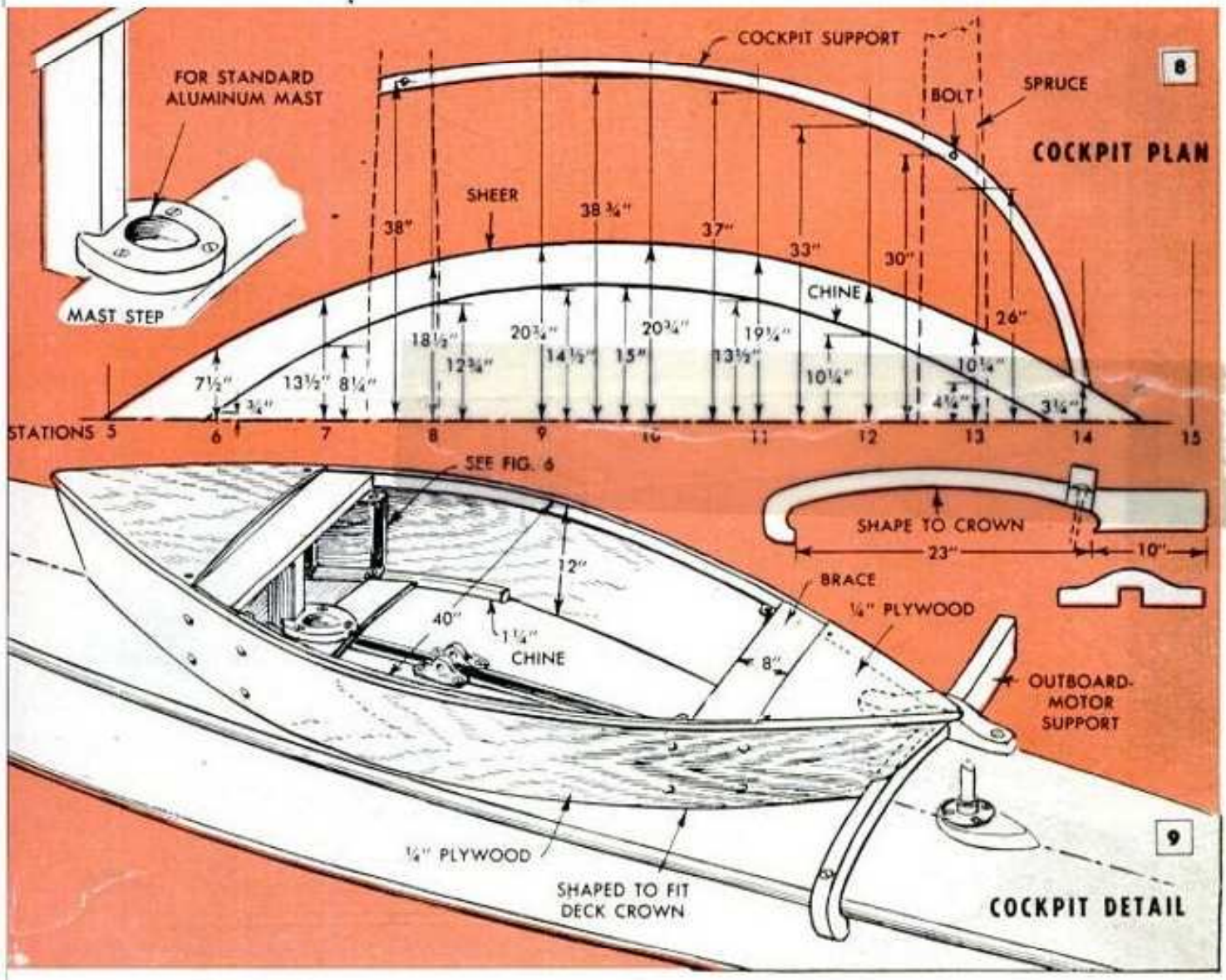


Construction of the two pontoons is similar to that of the main hull. See the table of offsets, Fig. 10, for the dimensions and Figs. 11 and 17 for the plan and profile views. As the corners of the pontoon frames are square, they can be assembled quickly in a jig made by nailing two boards to the floor or bench top at right angles to each other. Note in Fig. 21 how the pontoons are reinforced at the points where the crossbeam hangers are attached. The frames are left open at the corners for ¾-in.-sq. chines, parts being joined only by the plywood gussets. The frames are assembled on a building board which is cut to dimensions given in the table of offsets opposite the heading, "rise of chine floor to bottom." The ¼-in.-plywood sides can be beveled and glued and nailed together at the stem, or stem blocks can be used. Install one deck plate amidships in each pontoon and two deck plates in the main hull.

The curved cockpit-seat supports are laminated by gluing together three strips of ¾ x 3-in. spruce. Make a full-sized pattern from dimensions given in Fig. 8 and bend supports in a jig formed by wood.

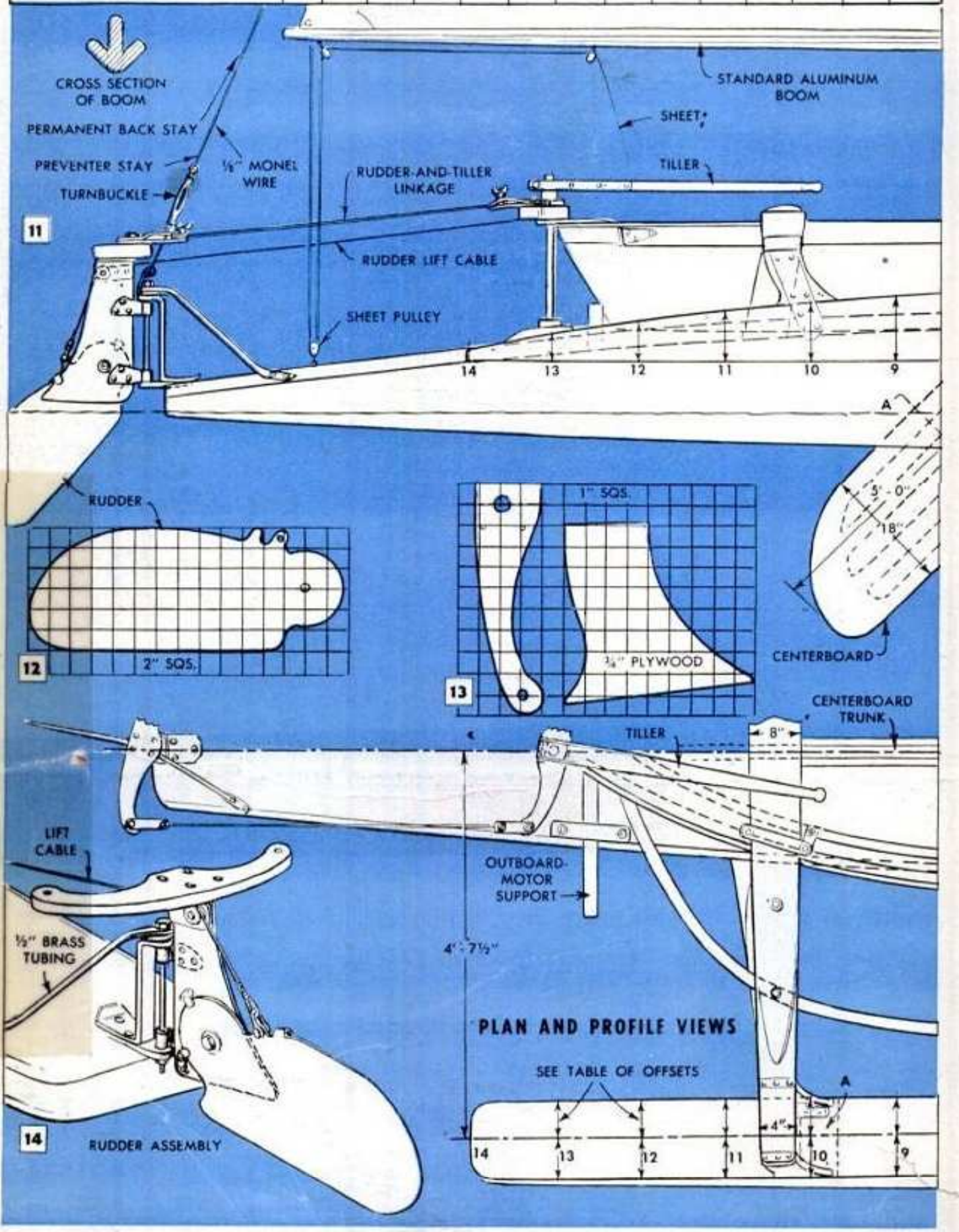


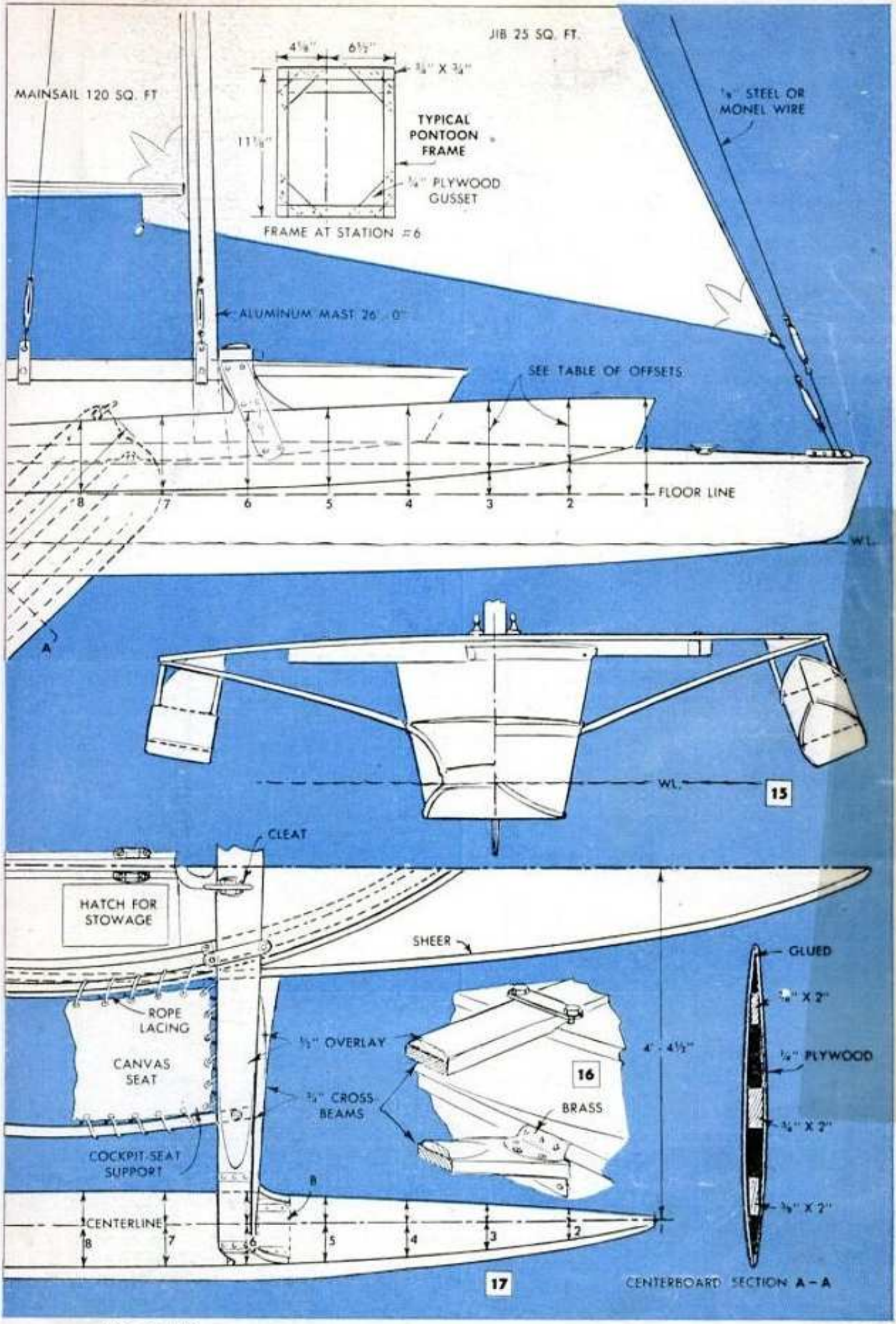
LAMINATING COCKPIT SUPPORT



10 TABLE OF OFFSETS FOR PONTOONS (DIMENSIONS IN INCHES)

STATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14
TO INNER SIDE BOTTOM AND DECK	1⅛	1⅞	2⅝	3⅜	3¾	4⅛	4½	4⅞	4⅞	4⅞	4⅞	4⅞	4⅞	4⅞
TO OUTER SIDE BOTTOM AND DECK	2¼	4⅛	5¼	6	6¼	6½	6½	6½	6¼	6¼	6	6	6	6
FREEBOARD	6⅞	9¼	11⅛	11¼	11¼	11⅛	10½	9¾	8⅜	6⅞	4⅞	4⅛	2¼	¾
RISE OF CHINE FLOOR TO BOTTOM	6½	4¼	2½	1¾	¾	½	¼	0						




JIB 25 SQ. FT.
MAINSAIL 120 SQ. FT
4⅛"
6½"
¾" X ¾"
11⅞"
TYPICAL PONTOON FRAME
¼" PLYWOOD GUSSET
FRAME AT STATION #6
⅛" STEEL OR MONEL WIRE
ALUMINUM MAST 26' 0"
SEE TABLE OF OFFSETS
8
7
6
5
4
3
2
1
FLOOR LINE
W.L.
A
W.L.
15
CLEAT
HATCH FOR STOWAGE
SHEER
GLUED
ROPE LACING
CANVAS SEAT
½" OVERLAY
¾" CROSS BEAMS
16
BRASS
4' - 4½"
¼" PLYWOOD
¾" X 2"
COCKPIT SEAT SUPPORT
B
CENTERLINE
17
CENTERBOARD SECTION A – A

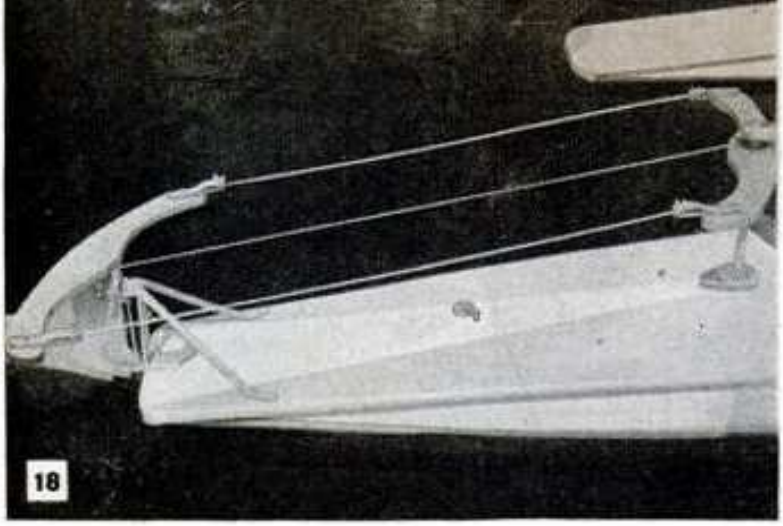
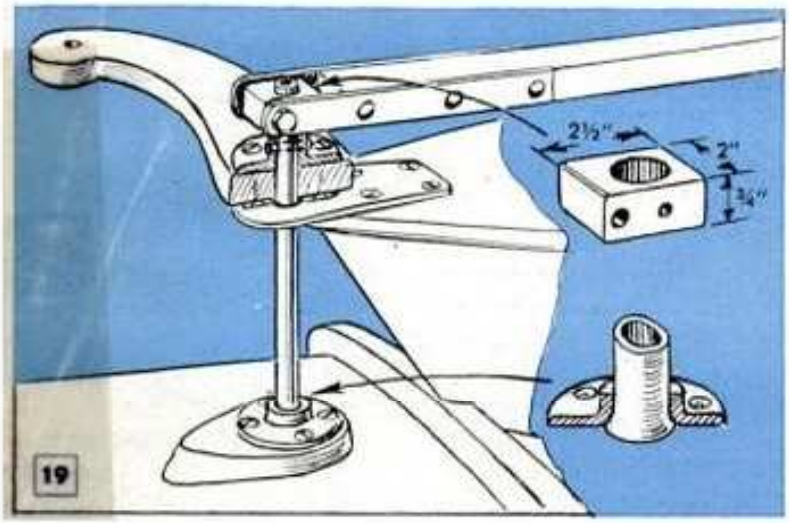


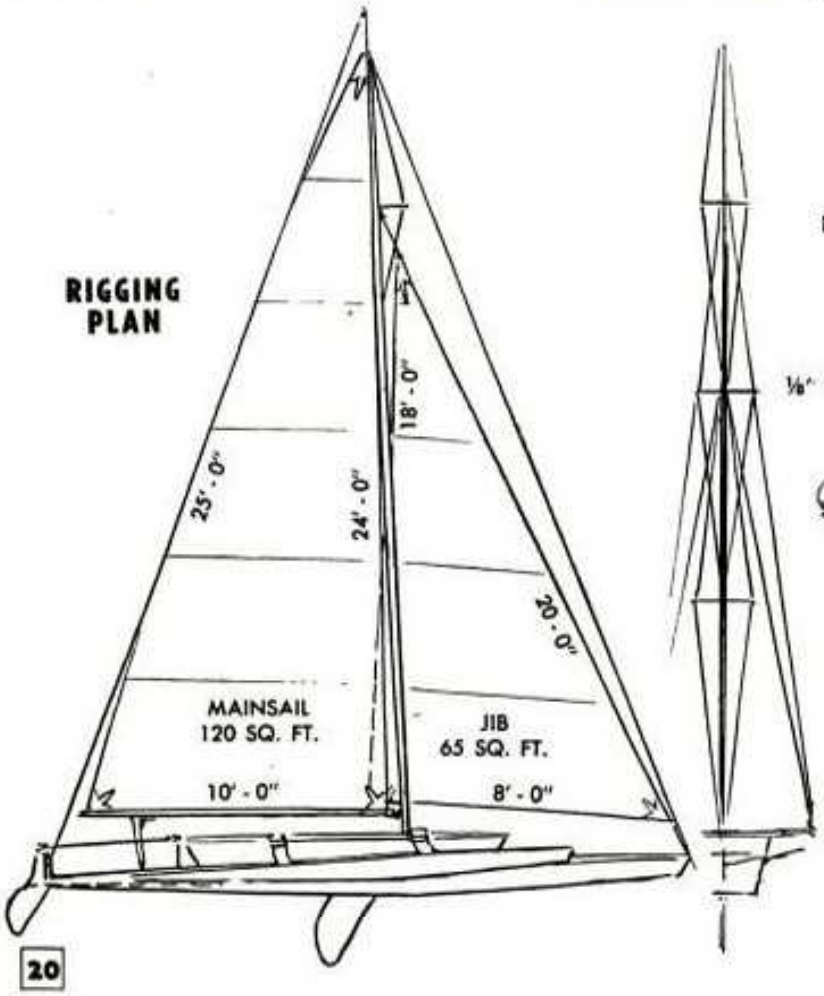
Photo above illustrates a typical steering assembly. Folding rudder is raised or lowered from the cockpit with the cable which is visible midway between the rudder-and-tiller linkage

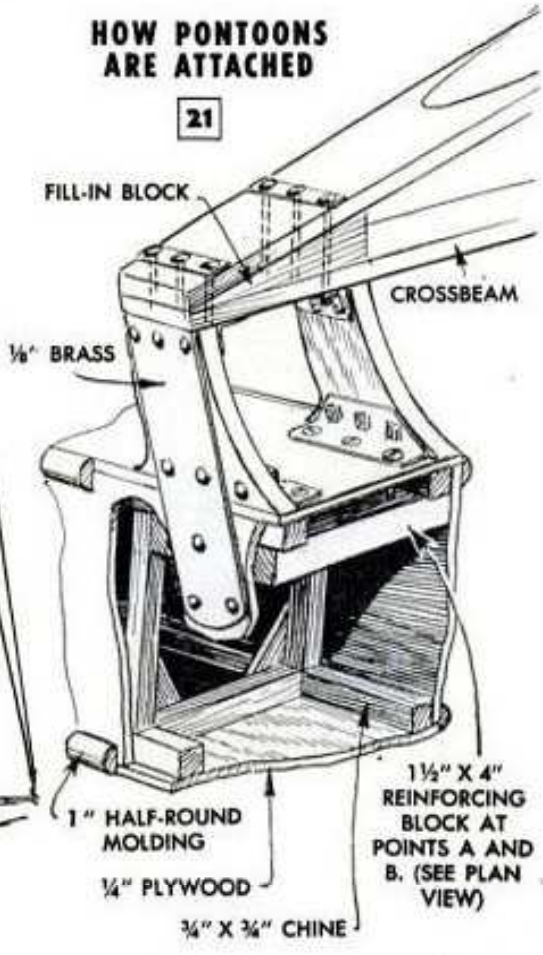


tacking wooden blocks to the floor as in Fig. 7. Install the pontoon crossbeams as shown in Figs. 6, 15, 16 and 17, and bolt each cockpit-seat support to the underside of the upper crossbeam members, fastening the inner end of the support to the side of the cockpit with screws and glue. Fig. 5 pictures the pontoons and cockpit completely assembled with the canvas seats laced in place. The rope lacing is passed over the cockpit gunwales and through holes drilled in the sides. At the crossbeams, the rope is passed through notched cleats which are screwed to the undersides of the beams.

The centerboard is made as shown in Fig. 11 and the right-hand detail of Fig. 17. Edges of the plywood sides are glued and nailed together all around. After assembly, the upper end of the centerboard is drilled for a pivot bolt and hoisting shackle. The mast step is installed directly over a frame fore of the centerboard trunk, as in Figs. 8 and 9.

The folding rudder can be cut from galvanized steel or ½-in. plywood as in the squared pattern, Fig. 12. The steering arms for both rudder and tiller ends of the link-





age are cut as in Fig. 13, which also gives the pattern for the ¾-in.-plywood pontoon hangers. The rudder is assembled and then mounted on the hull with a brass bracket braced with tubing, Figs. 11 and 14. The rudder-and-tiller assembly is pictured in Fig. 18. The tiller arm is pivoted on a length of brass tubing as in Fig. 19, the lower end of the tubing being flared to lock it in a brass flange. Note that the tubing is pinned to a pivot block at the top and to a brass flange just below the block. The tiller itself is bolted to the pivot block and the flange is screwed to the top of the tiller arm, as indicated.

All wooden surfaces of Trimaran should be sanded smooth before painting, and then a copper-base wood preservative applied. Follow the preservative with two or three coats of marine paint in the desired color and apply antifouling bottom paint to the area below the waterline.

Fig. 20 shows the general rigging plan and sail sizes. A standard 26-ft. aluminum mast may be used, or one can be made of Sitka spruce. A pear-shaped cross section is recommended for the wooden mast, tapering from 3 in. at the top to 5 in. at the middle and then to 4 in. at the step.

Lamp Shade and Glass Pane Provide Setup for Tracing

A small lamp shade and a pane of glass can be used to good advantage in tracing drawings or photos. Invert the shade and place it over a light bulb, resting the edges of the shade on blocks as shown. Place the glass on top of the shade. In use, the drawing to be traced is taped to the glass and transparent or ordinary bond paper is placed over it. With the light on, the lines of the pattern can easily be seen through the paper.

Roofing-Paper Seams Sealed With Caster "Roller"

Needing a tool to press down the edges of newly laid roofing paper to insure waterproof seams, one homeowner improvised a roller from a furniture caster and a broom handle. The shank of the caster was simply fitted in a hole drilled in the end of the handle, the latter being long enough to permit rolling the seams from a standing position.

Slip Poured Through Paper Spout

If you get things all messy while trying to pour slip from a container into a mold when making ceramics, use a simple pouring spout cut from heavy paper. Make the spout 2 or 3 in. wide and clamp it to the jar with a strong rubber band. When the pouring is done, just remove and discard the spout.

Hallie H. Holt, Springfield, Ill.

Trailer Lights Made Dependable by Improving Contacts of Ground Circuit

Trailer owners, who are unable to get dependable operation of the running lights and taillights, will find that the cause is often a loose contact in the ground circuit. The trailer hitch should be kept free of excess grease and rust if it is the only circuit contact between the chassis of the car and that of the trailer. However, a more positive contact can be provided by means of two heavy wires, one attached to each chassis. A plug on one wire and a socket on the other provides for connecting the wires at the time the trailer is hitched to the car. Each running light, instead of being grounded to the body of the trailer, as is usual, should be connected directly to the trailer chassis by a heavy wire.

Frank H. Tooker, Lakehurst, N. J.