



# Build This Plywood Kayak

You'll like the simple construction of this tough little lightweight. Fun to paddle or sail, it's designed to be steered by a novel kick-up rudder you control with foot pedals

**U**NLIKE MOST KAYAKS, this easy-to-build plywood design has a generous beam and a perfectly flat bottom from stem to stern, both of which increase the stability. Even more novel, though, is the way it's put together.

There's no tricky toolwork involved. The sides and bottom are  $\frac{1}{4}$ -in. plywood with uncomplicated  $90^\circ$  chines and simple fore-and-aft curves. To keep the weight down,  $\frac{1}{4}$ -in. plywood is also used for the frames, making it necessary to add stiffening cleats to the edges to give them more rigidity and provide the required surface area for mounting the planking.

From the sheer down, it's an ultrasimple plywood hull. For the deck, however, you switch to fiberglass, stretching  $7\frac{1}{2}$ -oz. glass cloth over the tops of the frames and saturating it with resin, then feathering the joint where the cloth laps the side planking.

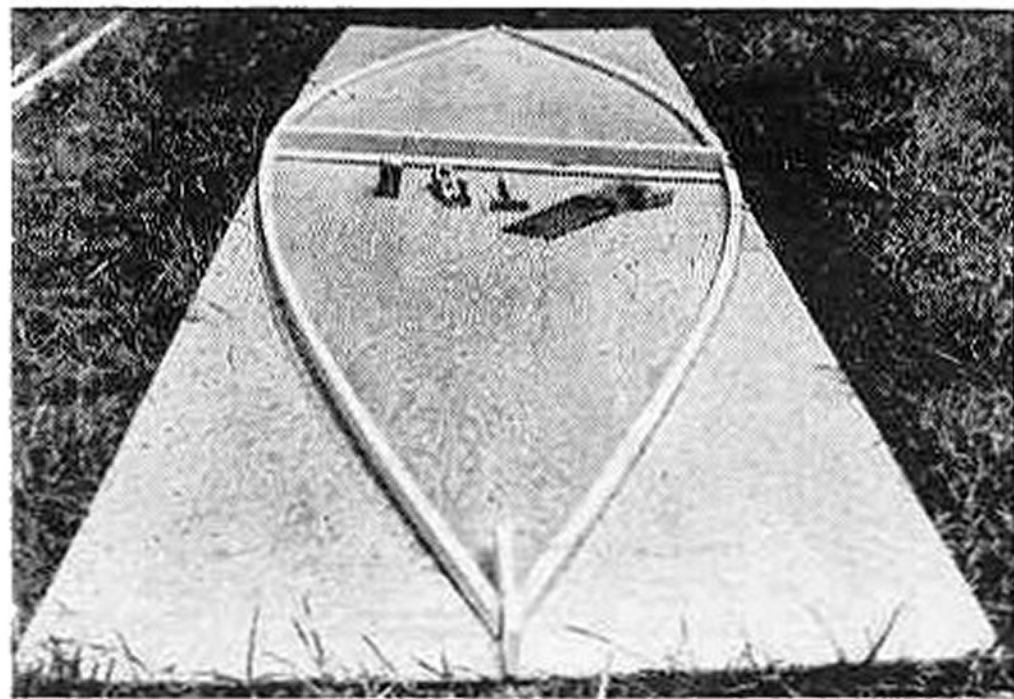
You'll need four 4x8 panels of  $\frac{1}{4}$ -in. exterior plywood. To save work, have the lumberyard rip a 1-ft. strip lengthwise from two panels. These can be cut to length to make all but one of the frame blanks. The two 3-ft.-wide pieces left are butt-joined to make the bottom. Four full 8-in. strips can be ripped from the third

panel to make the butt-joined side planking. Complete plans for construction start on page 148.

Begin with the bottom. Temporarily join the two yard-wide pieces of plywood with an 8x36-in. butt strip. Center a  $34\frac{1}{2}$ -in. length of 2x2 over the joint. Nail it temporarily in place, with heads protruding so you can pull them out later. Pencil a center line lengthwise down the middle of the two joined panels.

Next, cut the  $\frac{3}{4}$  x  $\frac{3}{4}$ -in. chines. These are 15-ft. 10-in. lengths of clear pine. Center the midpoints on the ends of the 2x2 crosspiece and bend the ends in toward the center line. Two scraps of lumber can be nailed temporarily over the center line to serve as the stems. Mark the ends of the chines for angle cutting so they will fit flush to the stems. After cutting the ends, nail them temporarily to the plywood.

Pencil in the frame positions at right angles to the center line and check width measurements at each location against those in the plans. If necessary, spring the chines in or out to get the proper curvature. Temporarily nail the chines to the plywood at each frame location, then pencil the outline of each one on the plywood



**CUTTING PATTERN** for the bottom panel is arrived at by bending the chines around beam-width crosspiece

bottom. Be sure to carry the inner lines across the butt strip since this must be cut to fit between the chines rather than under them.

Now pull the temporary chine nails far enough out to remove the chines from the plywood. (Leave the nails in the chines for alignment later.) Use a sabre saw to cut the plywood bottom. This done, you can remove the butt strip and trim it along the inner chine lines.

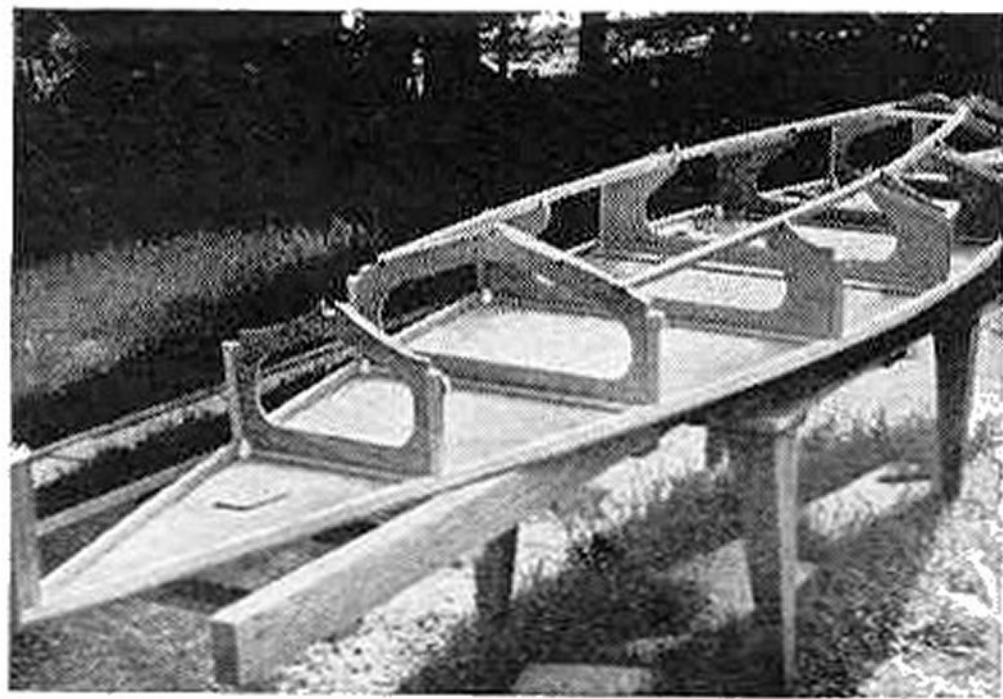
Use a resorcinol resin glue, such as Weldwood, when assembling the boat. Begin by replacing the butt strip joining the two pieces of bottom planking. Coat all mating surfaces with glue and retighten all screws in their original holes.

Next, mount the chines on the bottom. Glue-coat all mating surfaces and push the temporary nails back into their original holes to re-align the chines. Then drive 1-in. copper nails through the plywood into the chines, spacing them roughly 6 in. apart.

Now you can cut and assemble the frames. On the cockpit frames (3, 4 and 5), leave a cross brace between the cockpit stringer notches. These will provide the necessary rigidity to hold the frames in proper alignment until the stringers have been installed, after which you can cut them out to form the cockpit.

While not shown this way in the frame drawing, frames 4 through 7 should have the stiffening cleats mounted on the rear surface, while frames 1 through 3 should have them on the forward surface. Thus, the stemward edge of each vertical cleat will protrude slightly beyond the chine and gunnel stringers. When this edge is planed flush the cleats will provide ample gluing surface for side planking.

Position each frame on the bottom and

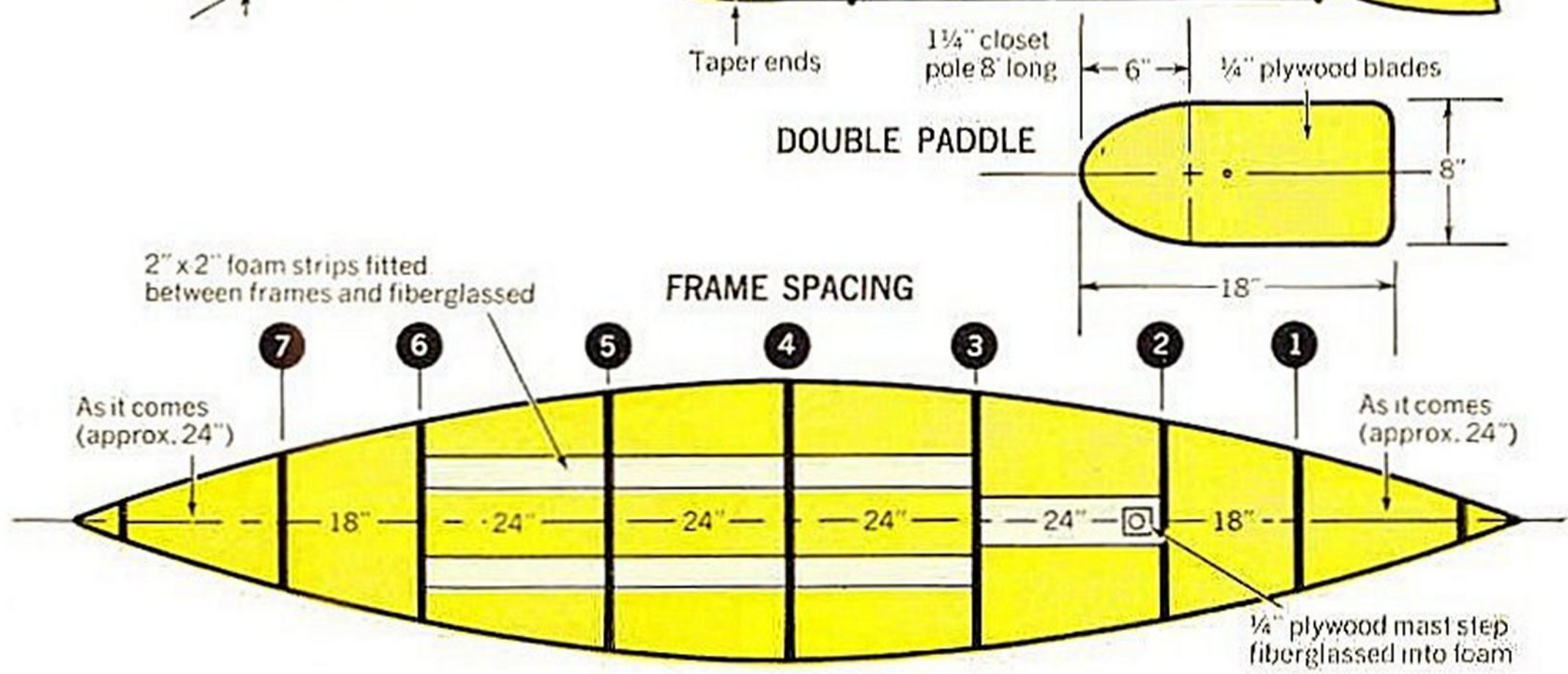
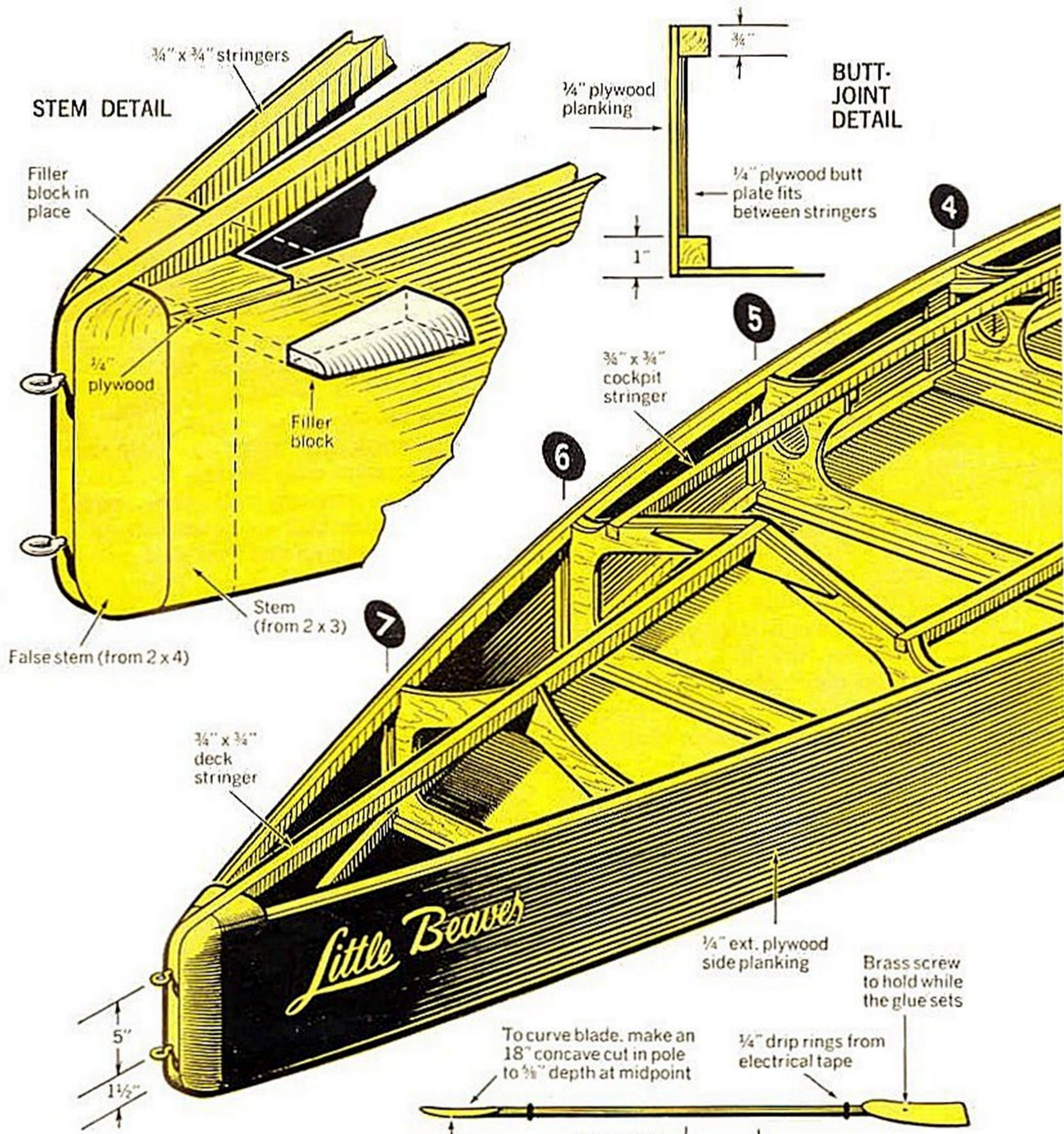


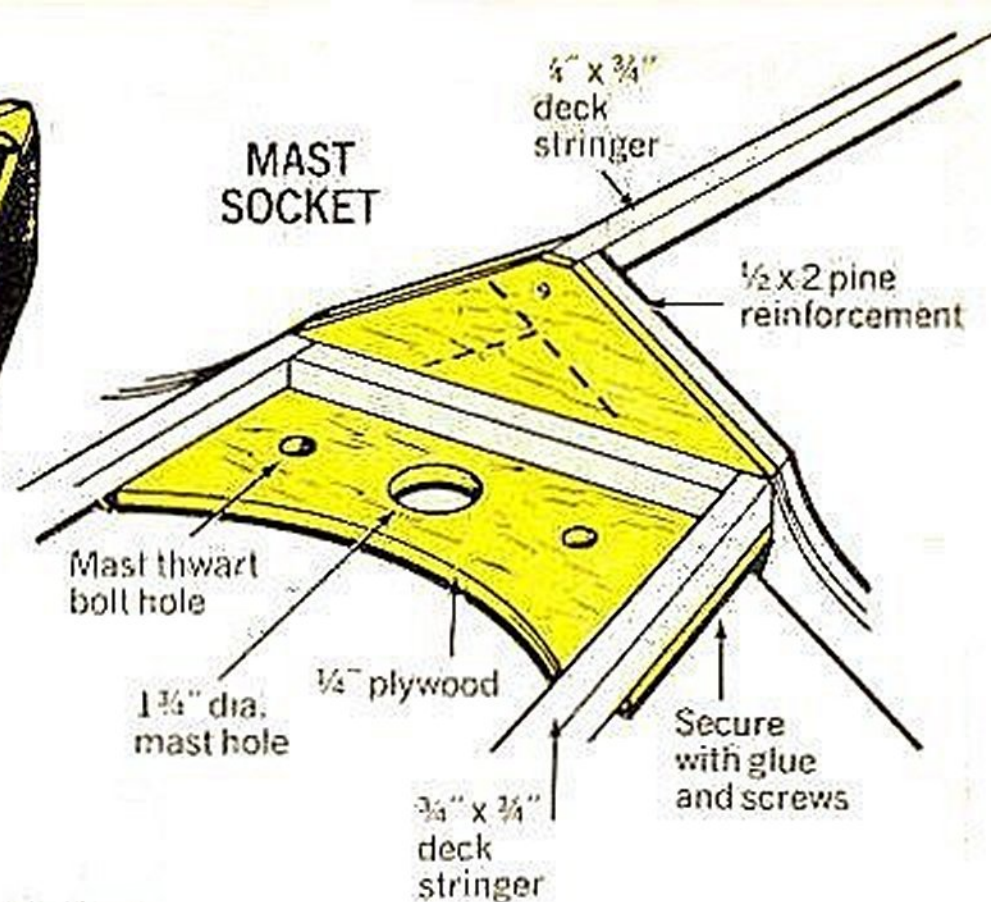
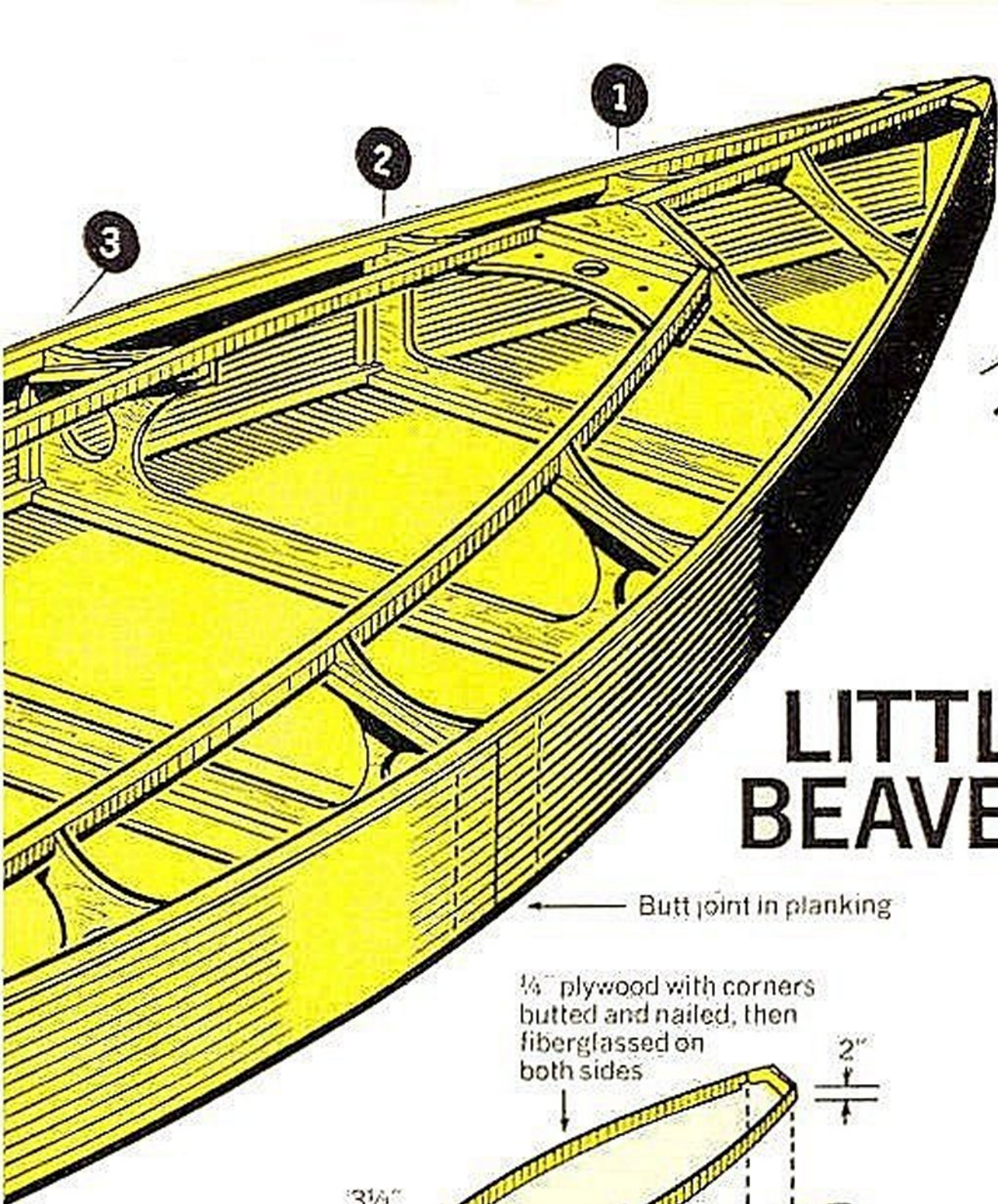
**COCKPIT STRINGERS** are installed after frames have been mounted on bottom. Use both glue and screws

drive a 1 $\frac{1}{4}$ -in. fine wire nail down through the stiffener strip and bottom near each end, leaving the heads protruding so you can pull them out later. Now, turn the hull over and draw a straight line between the two nail points. Drive a  $\frac{5}{8}$ -in. No. 4 flathead brass screw through the bottom into the cleat at the midpoint of this line. Then pull out one nail at a

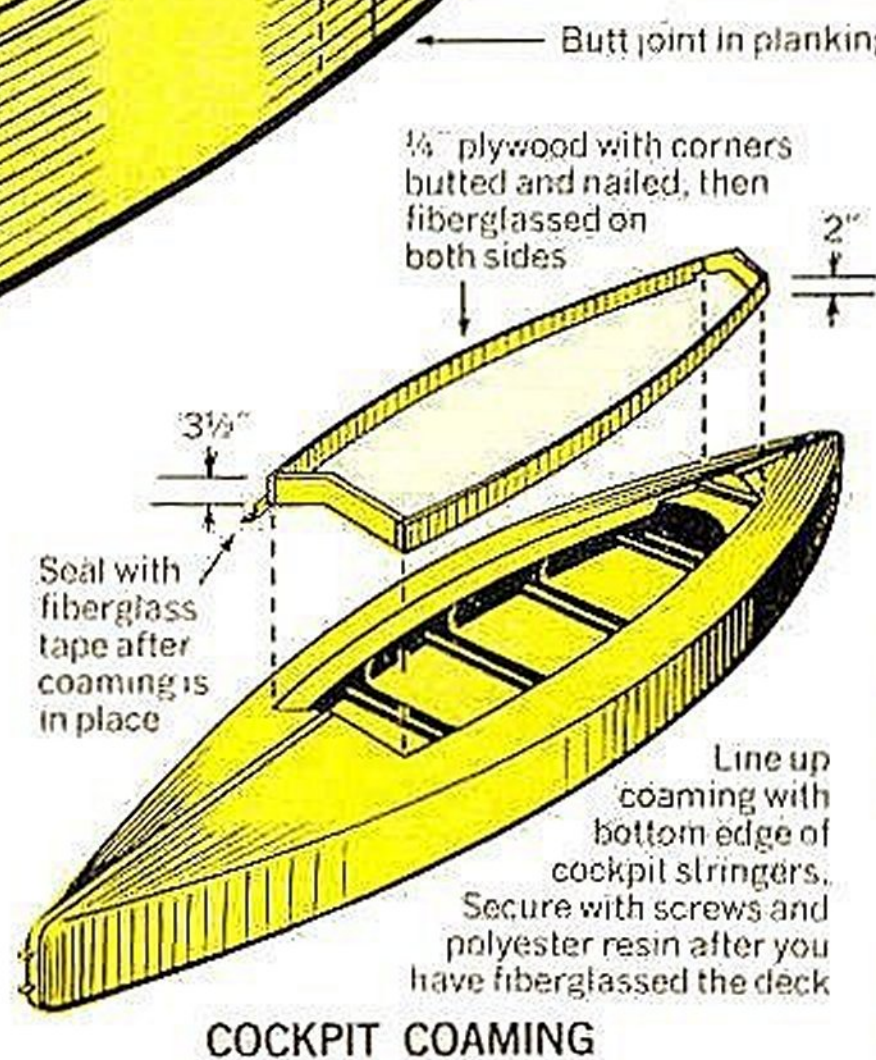
**LEEBOARDS PIVOT** to permit beaching boat. Wing nuts and carriage bolts lock them in "up" position



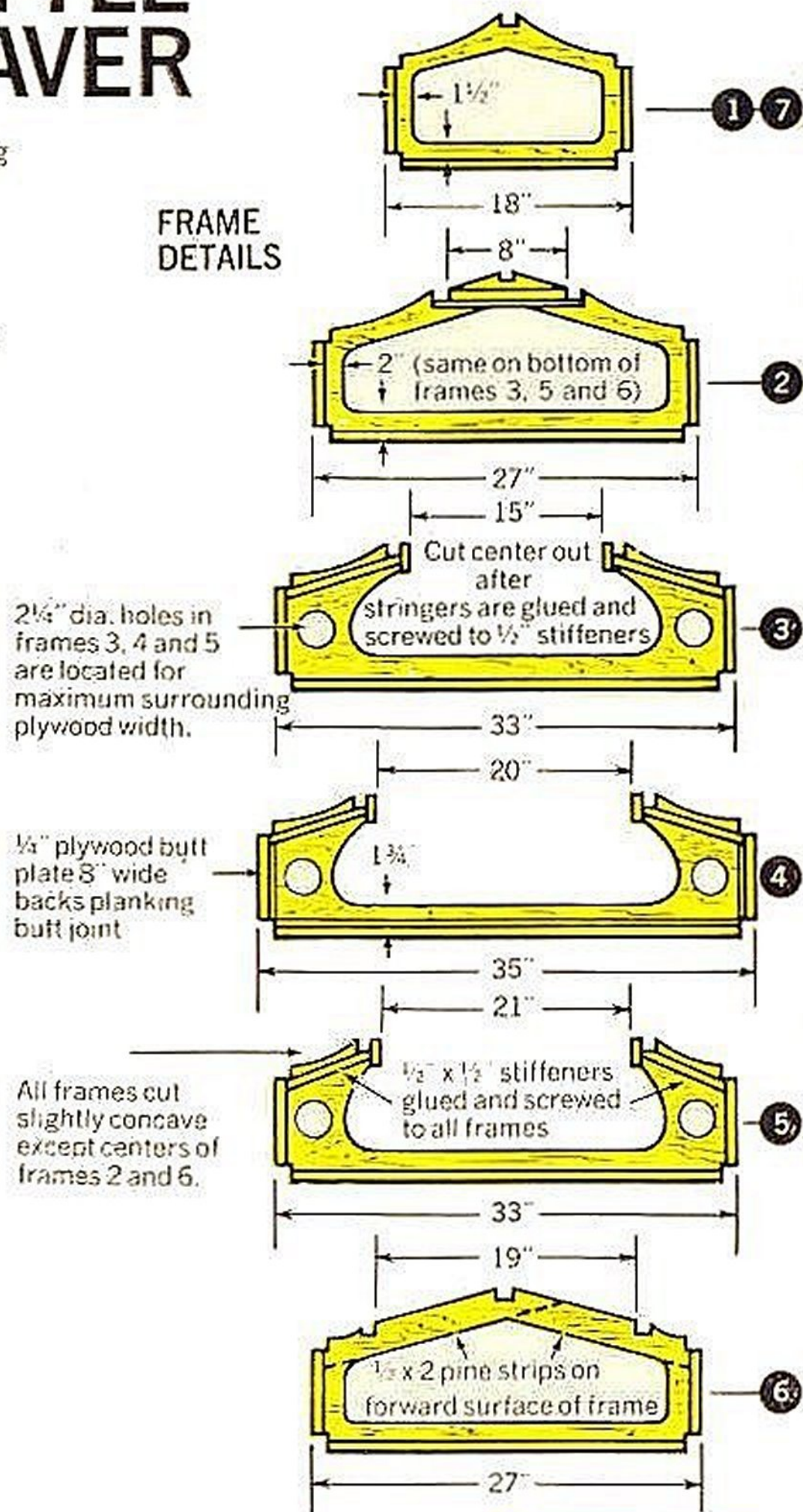




# LITTLE BEAVER



## FRAME DETAILS



time and replace it with a similar screw. As in all other joints, coat mating surfaces with glue. If additional screws are needed to draw the bottom snug against the frame, drive them along the penciled line.

The stems are also mounted at this time. Drive a 1 1/2-in. No. 8 flat-head brass screw up through the plywood into the end of the 2x3. The false stem is actually a nose-piece shaped from a 2x4 to continue the hull line and provide a sharper bow. You can mount this along with the various filler pieces which complete the stem assembly after the side planking and deck stringers

NOTE: All frames cut from 1/4" plywood blanks, having vertical dimensions shown. Only the width varies.



# BUILD THIS PLYWOOD KAYAK

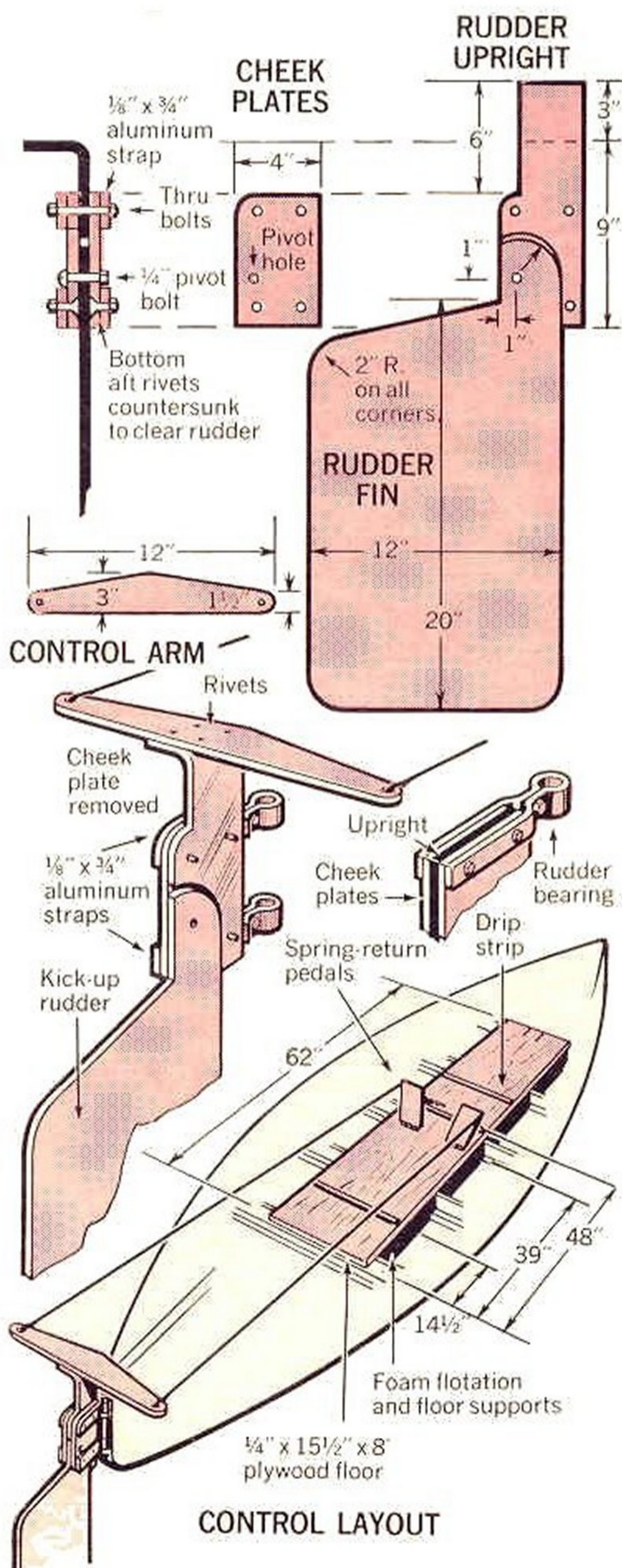
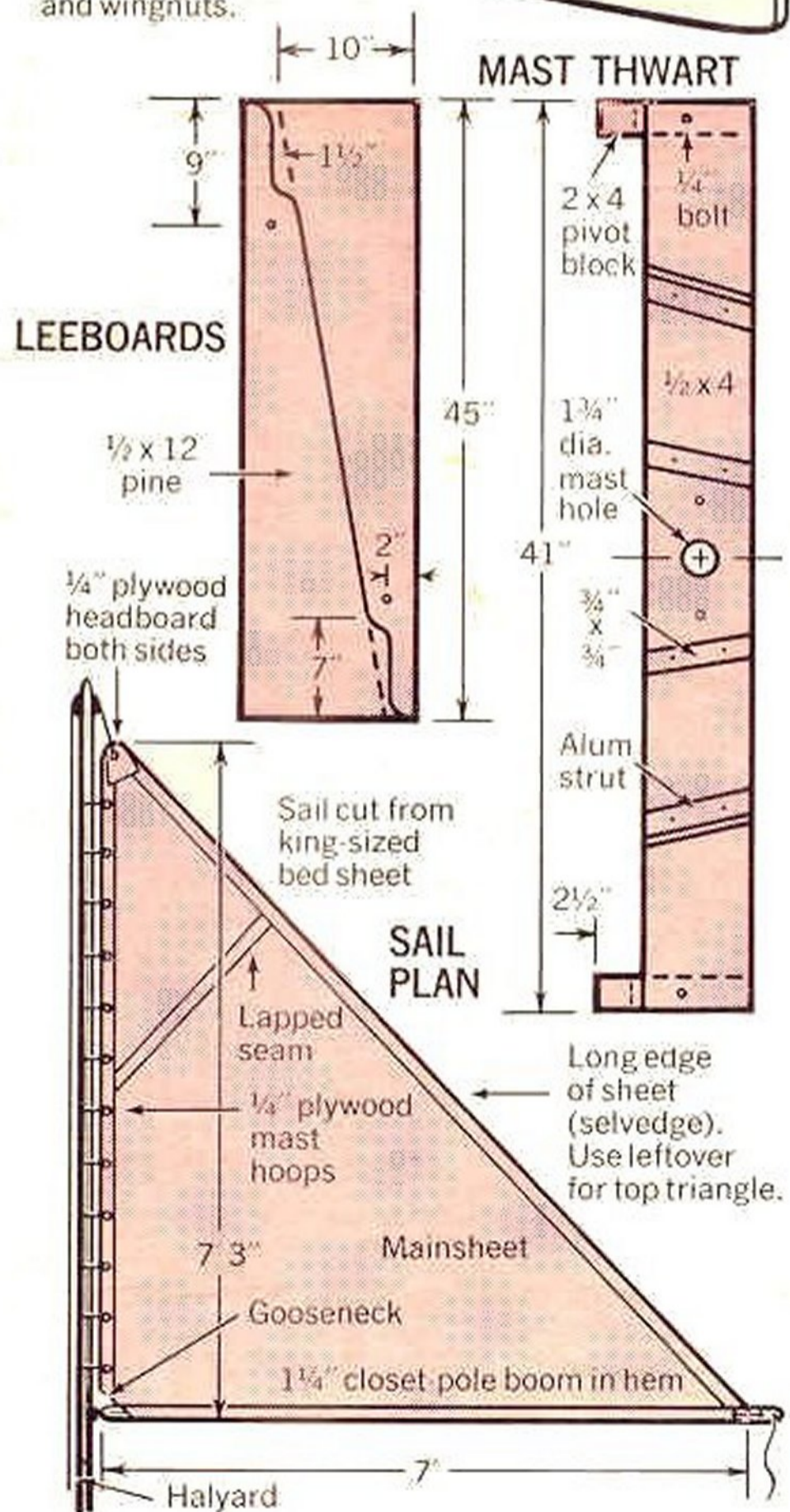
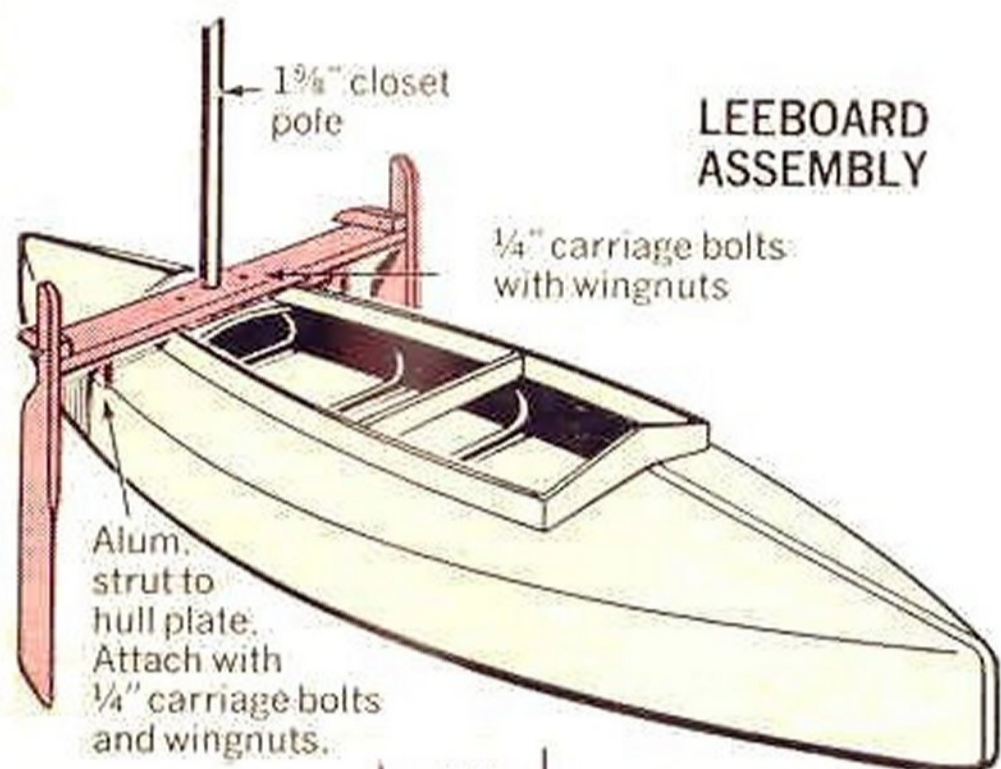
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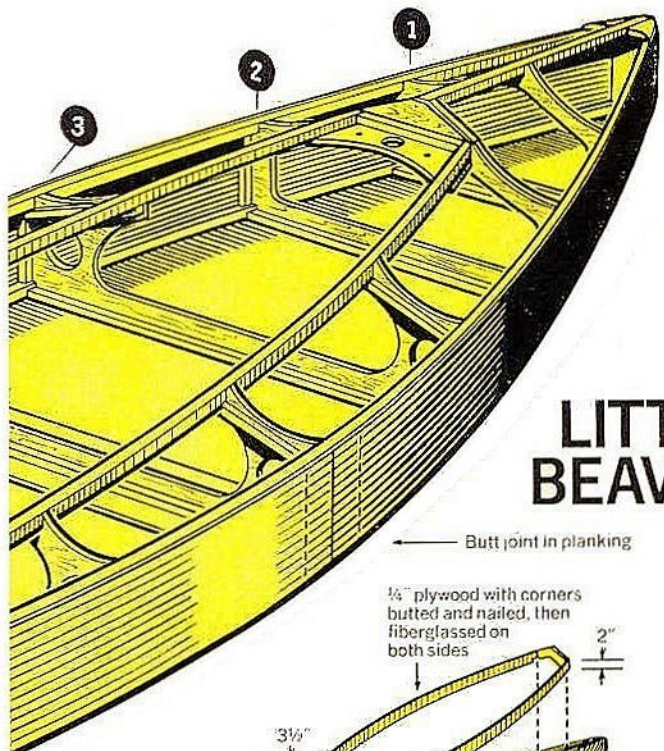
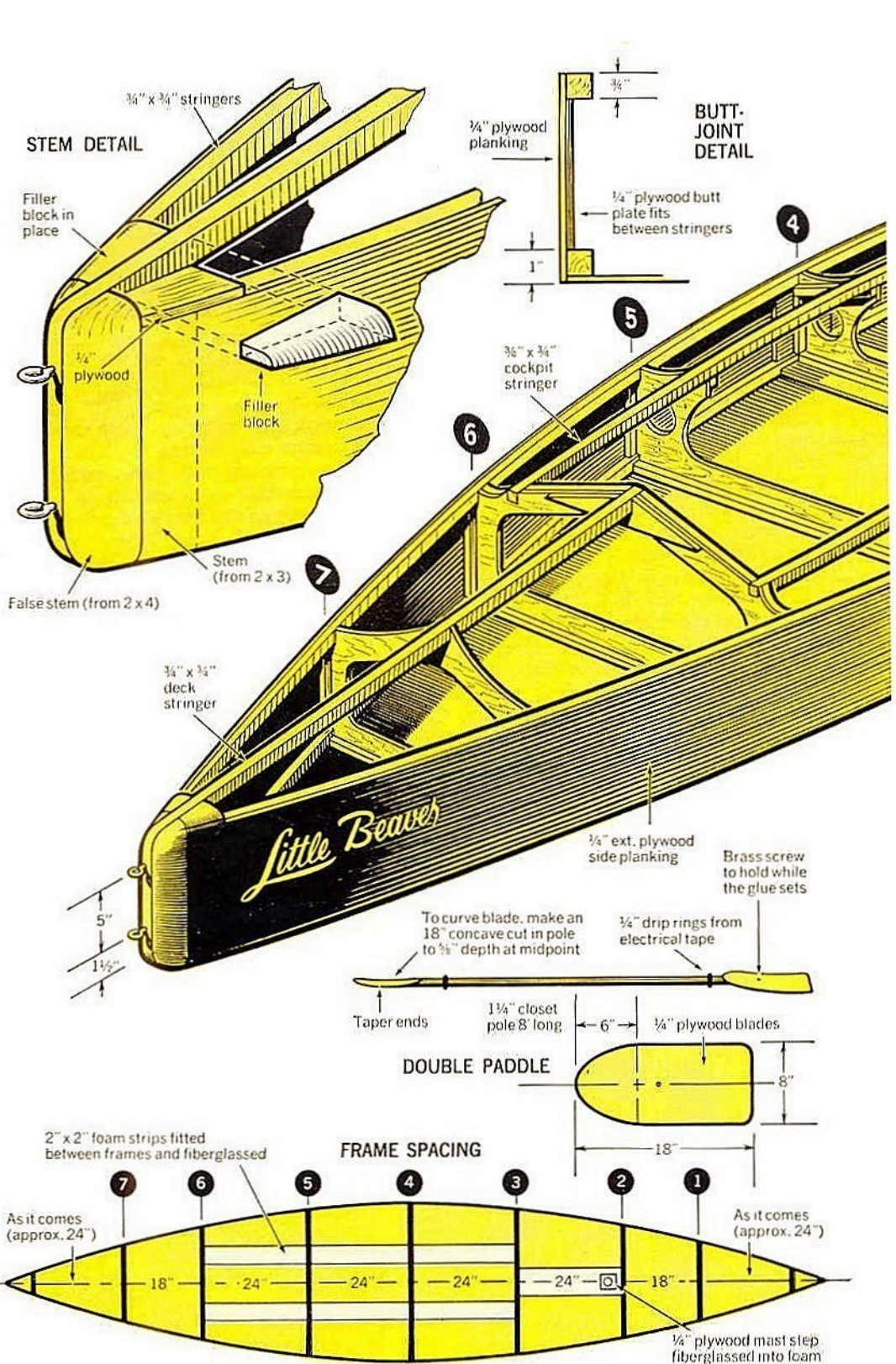
have been installed. Now you are ready to attack the deck. Use a continuous length of fiberglass. Draw it moderately taut lengthwise and staple at the stems.

Do the same thing crosswise, stapling at 1-in. intervals just below the gunnels. Cut V-notches where necessary to eliminate wrinkles where cloth overlaps sides. Flow on three coats of resin with a soft brush, sanding lightly between coats and feath-

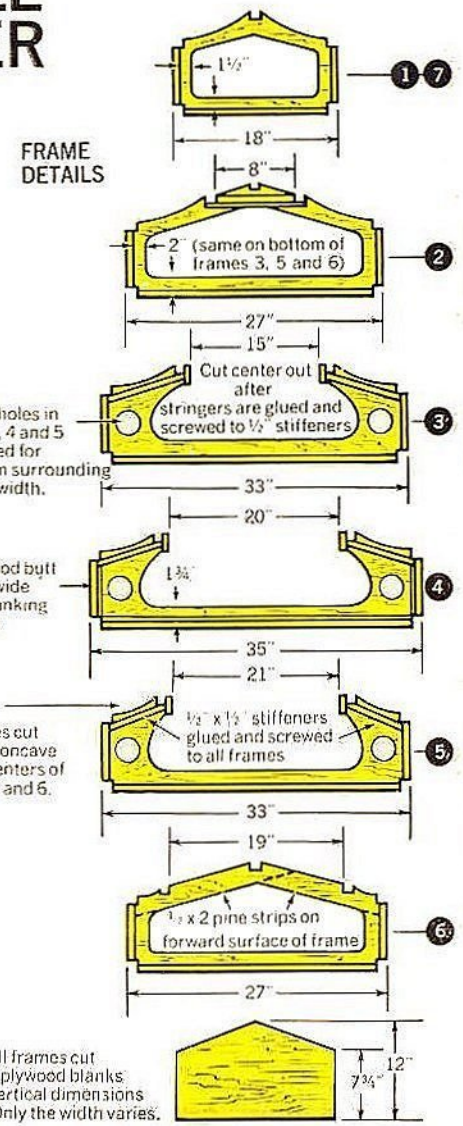
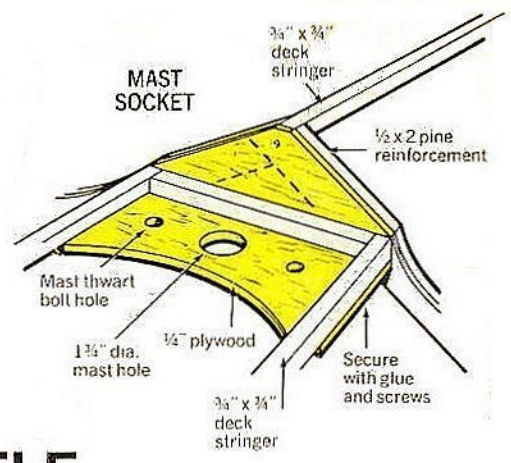
erning the fabric edge to the plywood. Now you can install the plywood cockpit coaming.

Drawings of the paddle, controls and sailing accessories are generally self-explanatory. Control pedals are hinged to the floor and equipped with short lengths of screen-door spring or heavy rubber bands cut from an inner tube. The aluminum rudder is mounted on the hull with large eyebolts at the stern "stem." Use steel or aluminum rod as a rudder pin. If desired, omit the control system.





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