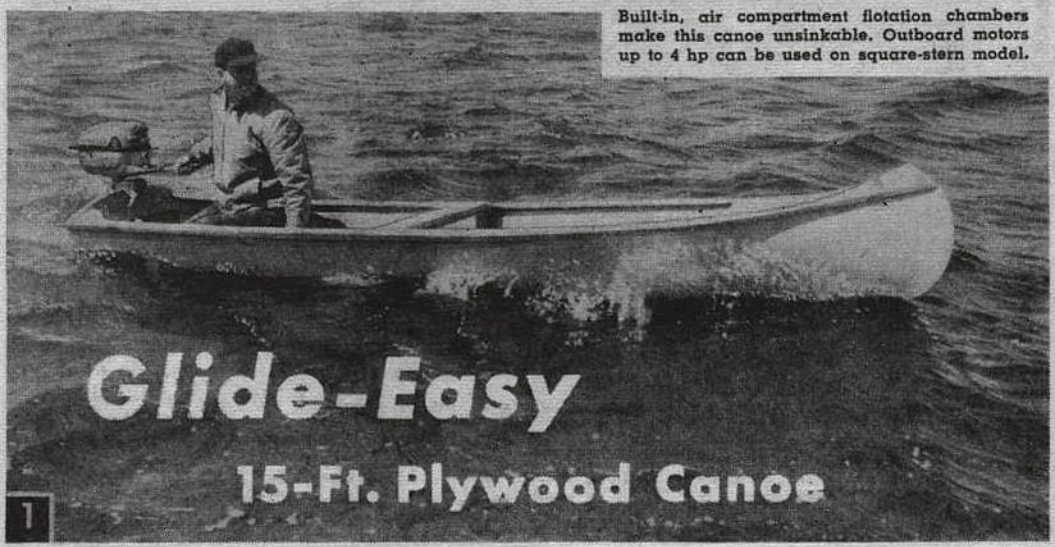


Built-in, air compartment flotation chambers make this canoe unsinkable. Outboard motors up to 4 hp can be used on square-stern model.

Glide-Easy 15-Ft. Plywood Canoe

1

Unique design for very rugged, quickly-built boat that retains canoe maneuverability and light weight

Craft Print Project No. 266

By WM. D. JACKSON
Naval Architect

STATEMENT OF USES

USES: A dual purpose canoe, may be built as a double-ender paddling canoe or with square stern as an outboard model. Is adapted to carrying on top of a car and can be used with standard size outboard motors not over 4 hp.

LENGTH: 15 ft. overall.

BEAM: 36 in. overall.

DEPTH: Amidships, 12 in. Forward 25 in.

WEIGHT COMPLETE: Painted and fiber glassed, 75 lb.

SEATING CAPACITY: Two.

CONSTRUCTION: ⅛" plywood molded into canoe shape, no stems, minimum framing, fiber glass covered.

COST: Standard canoe of similar size but with a multiplicity of pieces sells for $225. Glide-Easy may be built for one-quarter to one-third of this figure.

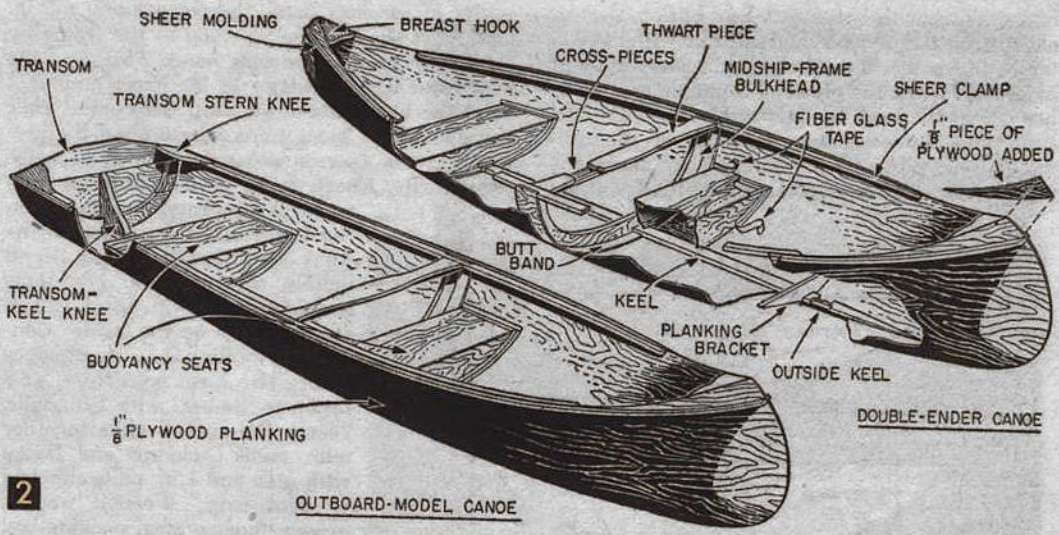
IF YOU have ever struggled with the oars of a heavy, slow-moving rowboat—and then paddled a swift, high maneuverable canoe—you can appreciate why many true sportsmen prefer canoes. But, too often, the multi-ribbed conventional canoe is not only hard to build but too thin-skinned for hard usage.

This design teams up plywood and fiber glass to produce a tough, scrape-proof canoe you can build in one-tenth the time it would take you to turn out a conventional canoe. The use of only one frame offsets the extra weight of using plywood, so that this canoe is still light enough for comfortable portage.

Glide-Easy can be built with a square stern for use with an outboard motor (Fig. 1), or as a double-ender (Fig. 2) for paddling.

Start construction by making a full-size drawing, on heavy paper of the planking pattern (Fig. 5) that will cover one-quarter of the hull. Use a ¼ x ⅜-in. batten about 8 ft. long to draw the curved sheer line and bow lines tangent with the 12 in. radius. Cut out the pattern and place it on a 4 by 8 ft. sheet of ⅛-in. plywood as in Fig. 5. A keel centerline drawn on the plywood will help to locate the pattern. Draw around the pattern to lay out one side, then flip it over and lay out the other side. When cutting the plywood, make a slit the width of the saw blade along the centerline stopping it 48 in. from the bow as indicated in Fig. 5.

If you are going to build the double-ender paddling canoe, lay out and cut another sheet of ⅛-in. plywood as you did the first one. If the square-stern canoe for use with an outboard motor is your choice, do not lay out or cut the second sheet of ⅛-in. plywood. Set these sheets of plywood aside until later and make full-size patterns of the parts shown in Fig 3. Note that some parts, such as the transom and transom knees, are used only on the outboard-type canoe. Omit these if you build the double-ender. With the patterns drawn, cut them out and transfer their shapes to plywood or lumber as per the



MATERIALS LIST—GLIDE-EASY

No.	Size and Description	Use
	PLYWOOD	
2 pcs	1/8" x 4 x 8' gum, mahogany or fir	bottom sides
1 pc	3/4 x 12 x36" fir exterior AC	center mold
1 pc	3/8 x 12 x 36"	transom
	1/4 x 36 x 60"	buoyancy seats
	LUMBER	
1 pc	3/4 x 13" x 15'	moldings
2 pcs	3/4 x 1 1/4" x 10'	sheer clamps
1 pc	3/4 x 1 1/4" x 14'	outer keel
1 pc	3/4 x 2 3/4" x 14'	inner keel
1 pc	3/4 x 5 1/2" x 8'	transom frame
1 pc	3/4 x 3 1/2" x 3'	center brace
1 pc	1 5/8 x 9 1/2 x 12"	transom keel knee
1 pc	3/4 x 7 1/2 x 24"	stern, knees, breast hook
1 pc	3/4 x 3 1/2 x 14" (2 pcs for double-ender)	brackets
	FASTENINGS	
1/2 lb	1" galvanized Stronghold nails	
1/4 lb	1" #18 box nails	
1/4 lb	3/4" box nails	
1/2 lb	1 1/4" galvanized shingle nails	
5 doz	1 1/2" #8 fh screws	
4 doz	2" #8 fh screws	
	FIBER GLASS AND CLOTH	
5 yds	50" width fiber glass cloth	available at Herter's Inc., Waseca, Minnesota
1 1/2 gal	fiber glass resin with catalyst	
12 yds	2" wide fiber glass tape	
1 lb	ground fiber glass fibers	

drawings. When fastening the transom frame pieces to 3/8-in. plywood, coat contacting surfaces with waterproof glue and 1 in. galv. *Stronghold* nails or #6 x 1 in. *fh* screws arranged in a staggered double row spaced about 2 in. apart.

Next, cut the keel (Fig. 6) to size and shape. Note that the double-ender keel is tapered at both ends and somewhat shorter than the keel for the outboard-type canoe. Now, cut a 1/2 in-deep notch in the 3/4-in. plywood midship frame (Fig. 7) for the keel. Since two 1/8 x 6 in. plywood pieces—cut from ends of plywood sheets used for planking—are used as butt bands to reinforce the seam where fore and aft planking join, cut a 1/4-in. deep notch 6 in. wide in the keel so the butt band straddles the midship frame (Fig. 7).

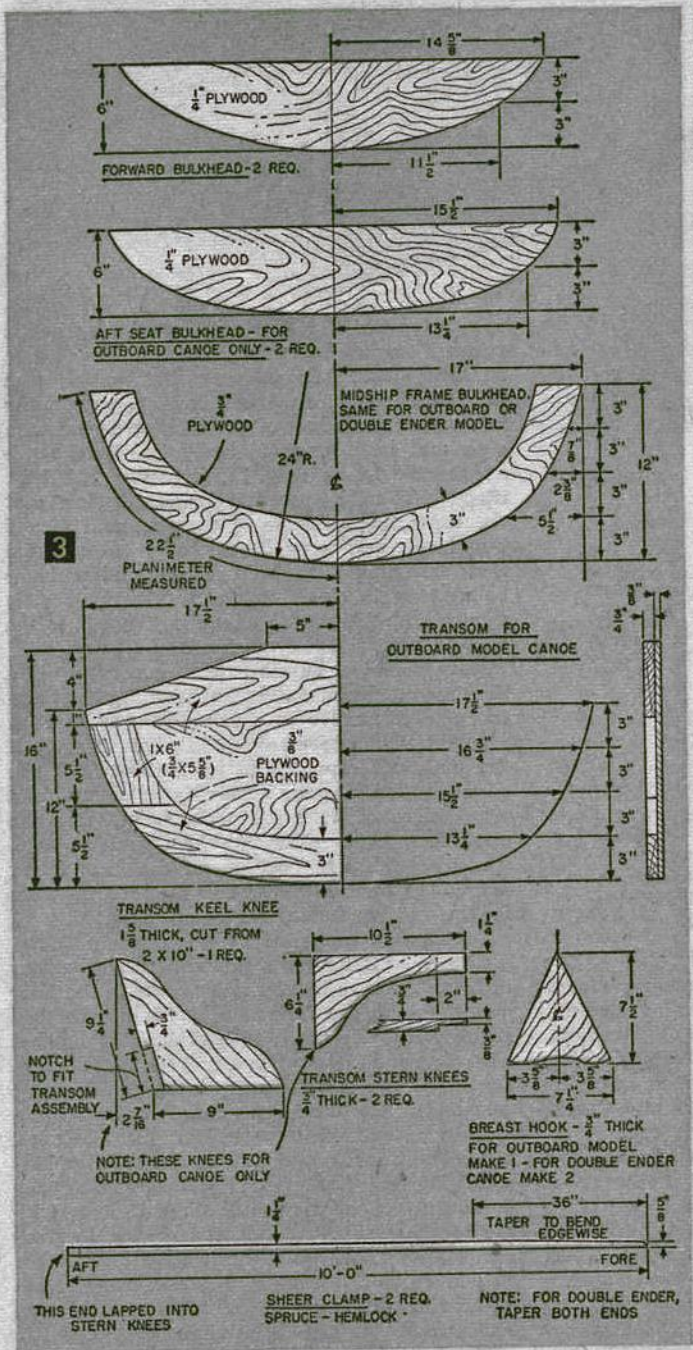
To assemble the keel and butt bands to the midship frame, fasten keel to frame with glue and one #8 x 1 1/2 in. *fh* screw first, making sure the frame is square with the keel. Then coat the keel notch and edges of the midship frame with glue and bend one of the 1/8 in. butt bands around the frame (Fig. 7), fastening with 1 in. Stronghold nails spaced 3 in. apart. Now coat the contacting surfaces of the first and second butt bands and wrap the second band over the first, fastening with 1 in. Stronghold nails as before. Again check to make sure the keel is square with frame and clamp butt bands to the keel on both sides of the frame until dry.

Next, make a building form consisting of a 2 x 4 mounted at a convenient working height on top of legs similar to a saw horse as in Figs. 4 and 6. Cut one planking bracket (Fig. 6) if the outboard canoe is to be built—two if the double-ender is your choice—and clamp to a scrap piece of 2 x 2 in. stock 38 in. from the centerline. Now place the keel and midship-frame assembly in position on the form, mark and cut a notch in the 2 x 4 of the building form for the midship frame, and clamp in place.

To support the ends of the midship frame, erect two 1 x 2 in. braces extending from the floor to frame ends as in Fig. 4. Toe nail to the floor and clamp to the frame. Now lift up the keel slightly, cast the notch in the planking bracket with glue and fasten with one #8 x 1 1/2 *fh* screw. Do this to fore and aft ends for the double-ender canoe. For the outboard canoe, notch the previously assembled transom for the keel and fasten the transom and transom knee to the keel with glue and three #8 x 1 1/2 *fh* screws at each joint. Be sure the transom is aligned square with the keel laterally. To support it, brace the transom with 1 x 2 in. braces extending to the floor as you did for the midship frame. Now round off bottom surface of keel with a plane for good contact with the 1/8-in. plywood planking.

The 1/8-in. plywood planking is bent to shape after

first soaking with hot water. Lay burlap, rags or old rugs on the plywood and saturate with hot water (cold water will do if plywood soaks for about 24 hours). When the plywood is pliable enough to bend, coat the keel, the forward 3 in. of the butt band and the contacting surfaces of the previously cut plywood planking. Then place the plywood on the frame locating the aft edge at the center of the butt band, thereby making a 3 in. lap. Start shaping the plywood to the frame by bending it around the butt band. Fasten to the butt band with C-clamps at the sheer ends and bend the bow ends down until the curved ends come together. Then, tie a rope around the plywood at the bow in order to hold it in place temporarily. Check to be certain that the plywood is accurately centered on the frame and then fasten to the butt band with a staggered double row of 1 in. box nails spaced about 1½ in. apart. Clinch the nails over on the inside. Continue by pulling the slit-cut edges along the keel together, and fasten to the keel with 1 in. nails. Clamp the curved ends together with small C-clamps and fasten with glue and 1 in. nails clinched or bent over. Wooden wedges driven under a steel packing-box band wrapped around the plywood and held together with a C-clamp (Fig. 8), will keep plywood in position until glue dries.



Install aft planking as you did fore planking. For the outboard canoé, do not cut the ⅛-in. plywood; merely soak and wrap it around the transom and butt band. Fasten with glue and 1 in. box nails to the butt band and 1 in. Stronghold nails to transom.

Leave the hull in the building form about 12 hours after installing planking so glue will dry thoroughly. Then remove clamps and lift the hull off the form. Place it right side up on a couple of sawhorses. Fit the breast hook to the pointed end of the canoe as in Fig. 2 and secure with glue and 1 in. nails. The double-ender has a similar breast hook at the other end while the outboard canoe design calls for two transom knees at the stern. Coat the contacting surfaces of the knees with glue and fasten to the transom with two #8 x 2 in. *fh* screws, and attach to the planking at the sheer line, using 1 in. Stronghold nails.

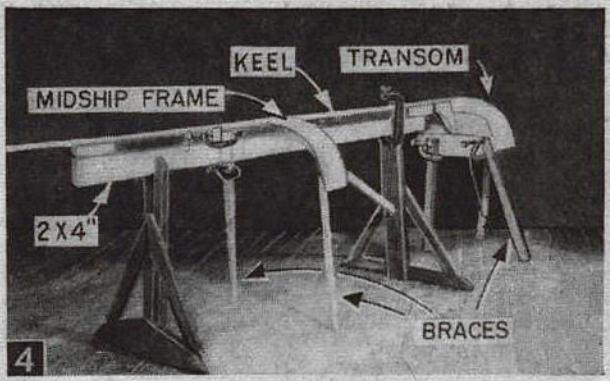
For the sheer moldings rip a 15 ft. length of ¾ x 1¾ in. stock as in Fig. 7. Clamp in place on the outside of the planking at the sheer line as in Fig. 7 and mark the planking along the molding edges. Remove the moldings, coat the contacting surfaces with glue and reclamp the moldings in place. Fasten the plywood to the moldings with ¾-in. nails spaced

1½ in apart.

Make two sheer clamps (Fig. 3) and half lap the ends to fit the transom knees. Notch the clamps to fit over the butt bands, glue coat all contacting surfaces and fasten with #8 x 2 in. *fh* screws spaced 6 in. apart. Then install the two ¾ x ¾ in. crosspieces and the thwart piece across the top of the midship frame as in Figs. 7 and 2.

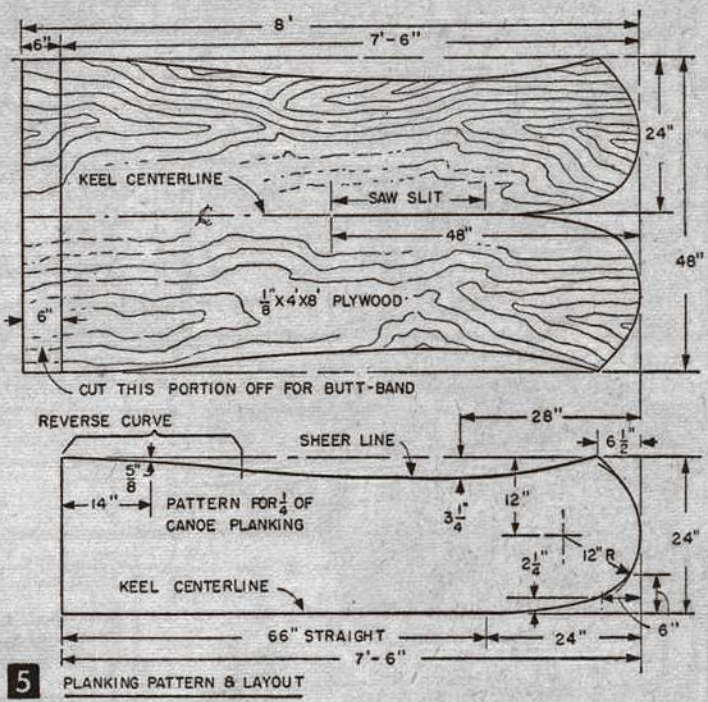
Now turn the hull over, bottom side up, to install the outside keel. Saw 15° bevels on each side of the keel as in Fig. 7 and make it 13 ft. 2 in. long for the outboard canoe or 12 ft. long for the double-ender canoe. Next, taper the end of the keel down to nothing at the bow, Fig. 7. Taper both ends for the double-ender. Fasten with glue and #8 x 1½ in. *fh* screws spaced 6 in. apart. Again turn the canoe right side up so that the buoyancy seats (Fig. 2) can be installed. Make cardboard templates of the side pieces shown in Fig. 3. Locate the position of these side pieces from the midship frame (Fig. 7) and mark the inside of the hull. Since the templates are only an approximation of their shape, fit, mark and trim each template individually so that it follows the inside contour of the hull. If you cut too much off a template, discard it and make a new one. A good fit is important because these buoyancy seats are flotation chambers that keep canoe and occupants afloat if swamped.

After fitting the templates, transfer their outline to ¼-in. plywood and saw to shape. Make up the ¾ x 1 in. seat frame and fasten the sides to

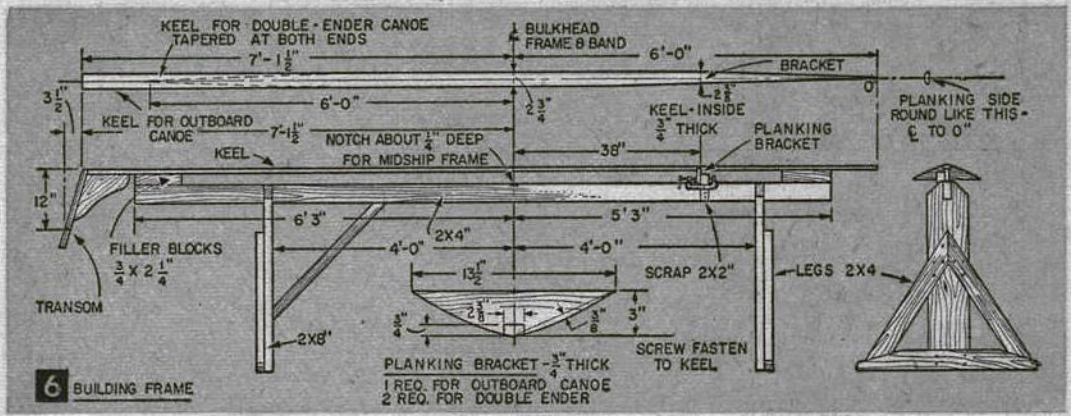


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Midship frame and transom are kept in alignment with braces toe-nailed to the floor and clamped to the frame parts.



5 PLANKING PATTERN & LAYOUT



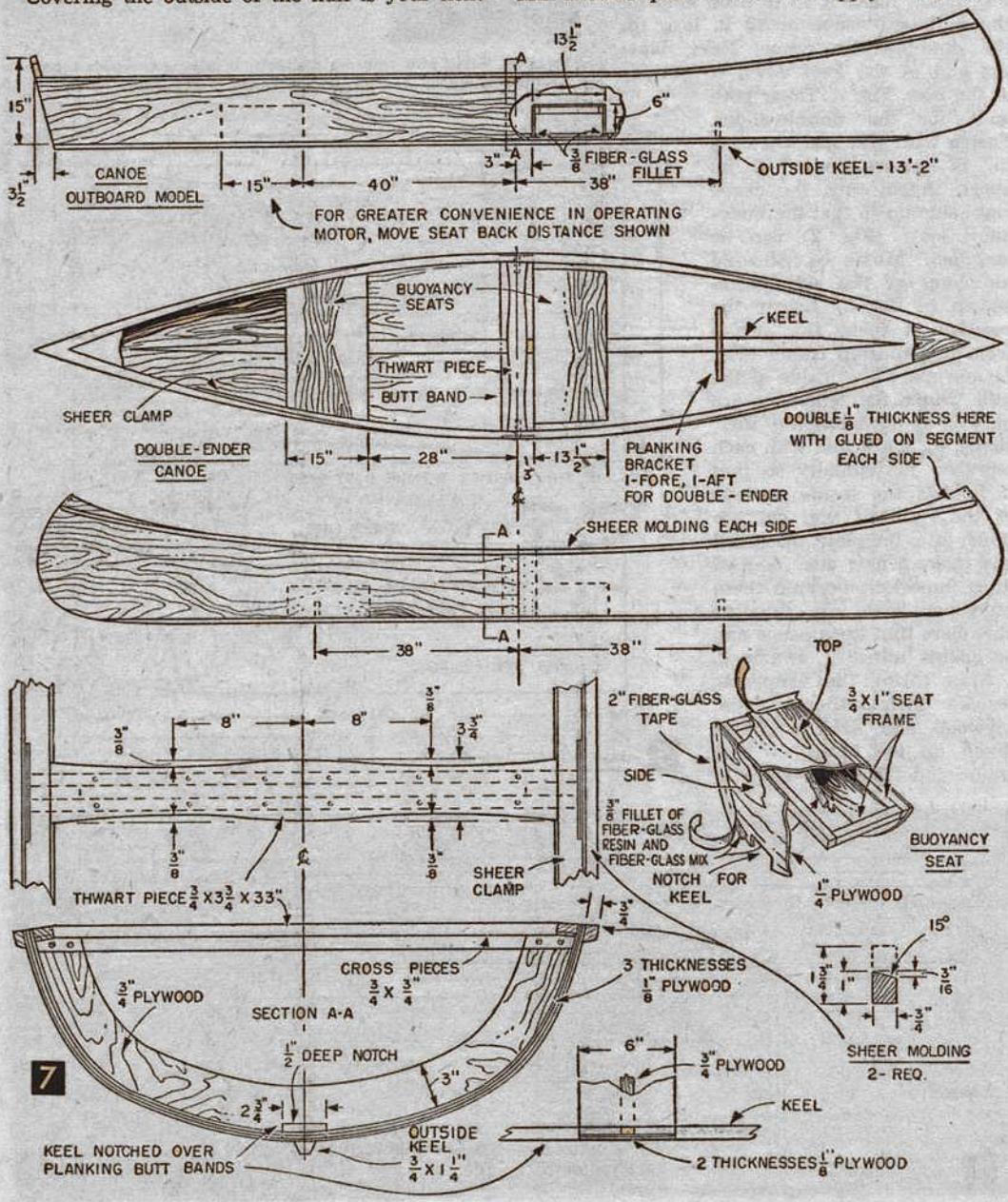
6 BUILDING FRAME

the frame with glue and nails. Coat the areas inside the hull that will be in contact with the seat sides and frame with fiber glass resin and, while still wet, place the seat in the hull.

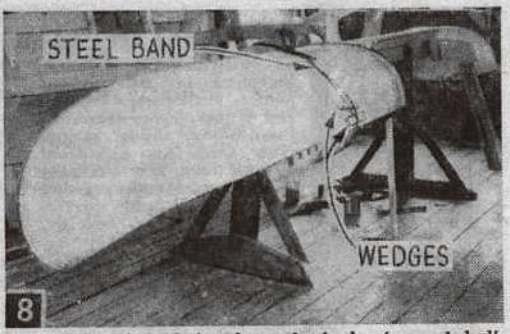
Next, fasten with three nails driven through the planking into the seat frame on each side. To make a water-tight seam where the seat sides meet the hull, make up a heavy paste-like mixture of fiber glass resin and ground glass fibers, and apply a ⅜-in. fillet of the mixture as in Fig. 7. Then glue and nail the ¼-in. plywood top in place and seal all corners and seams with 2 in. fiber glass tape and three coats of resin.

Covering the outside of the hull is your next step. First turn the canoe upside down on two sawhorses and prop it up so that one side of the canoe, from sheer to keel, is in as flat a position as possible. If you are using 50 in.-wide, fiberglass cloth, cut the cloth down the 50 in. width giving you two 25 in. wide pieces.

Mix about 1 qt. of fiber glass resin and paint over the entire side of the canoe including the outside keel. If the plywood absorbs the resin so as to leave dull areas or spots, touch up these areas with another coat of resin. Now place fiber glass cloth on the hull side so that one long edge is against the bottom of the sheer molding. Mix another quart of resin and apply to the fiber



7



One sheet of 4 x 8 ft. plywood planks forward half of the canoe.



Pontoon outrigger assembly stabilizes canoe. Makes it virtually untippable.

glass cloth, starting along the sheer clamp and working toward the keel, bow and stern. Keep pressing and stretching the cloth gently to remove any wrinkles as you saturate it with the resin. Do not mix more than a quart of the resin at a time because it sets up rather quickly and becomes unmanageable. Also have a pan of warm water with household detergent or soap handy to remove the resin from your hands.

When you reach the keel, wrap the cloth over it and trim off excess. Wrap it around the bow and stern too. Then turn the hull over and apply fiber glass cloth to the other side, again overlapping the keel, bow and stern. Apply three coats of resin allowing each coat to harden before applying the next one. After the last coat has hardened, remove high spots with a disc sander and smooth the surface with fine sandpaper.

For color, a pigment can be mixed into the last coat of resin if desired. For those of you who wish to paint your canoe, we suggest using two thinned coats of Dolphinite #9585 undercoat on the outside, followed with two thinned coats of deck and ship paint #9007. The inside of the hull looks well with two coats of Dolphinite #9400 rowboat paint. Molding and cross bars should be varnished bright.

Although not necessary, the addition of a pontoon outrigger assembly (Fig. 9) will improve the stability of the double-ender or outboard type canoe. The outrigger also makes an excellent addition for sailing purposes.

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Glide-Easy

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