Deep-Vee Sea Angler

This 20-footer offers a variety of power options—150 horses are suggested for a cruising speed of 32 mph

Craft Print Project No. 360

SEA ANGLER is a 20-foot cruiser of the deep-vee hull type that has gained so much in popularity in recent years because of its ability to provide a high turn of speed with minimum pounding in rough seas. Actually, the concept of the deep vee is not new, but early attempts to produce hulls of this type —almost 40 years ago—were unsuccessful. At that time use of longitudinal steps, or lift rails, was not understood, and the engines lacked the power needed for this type of hull.

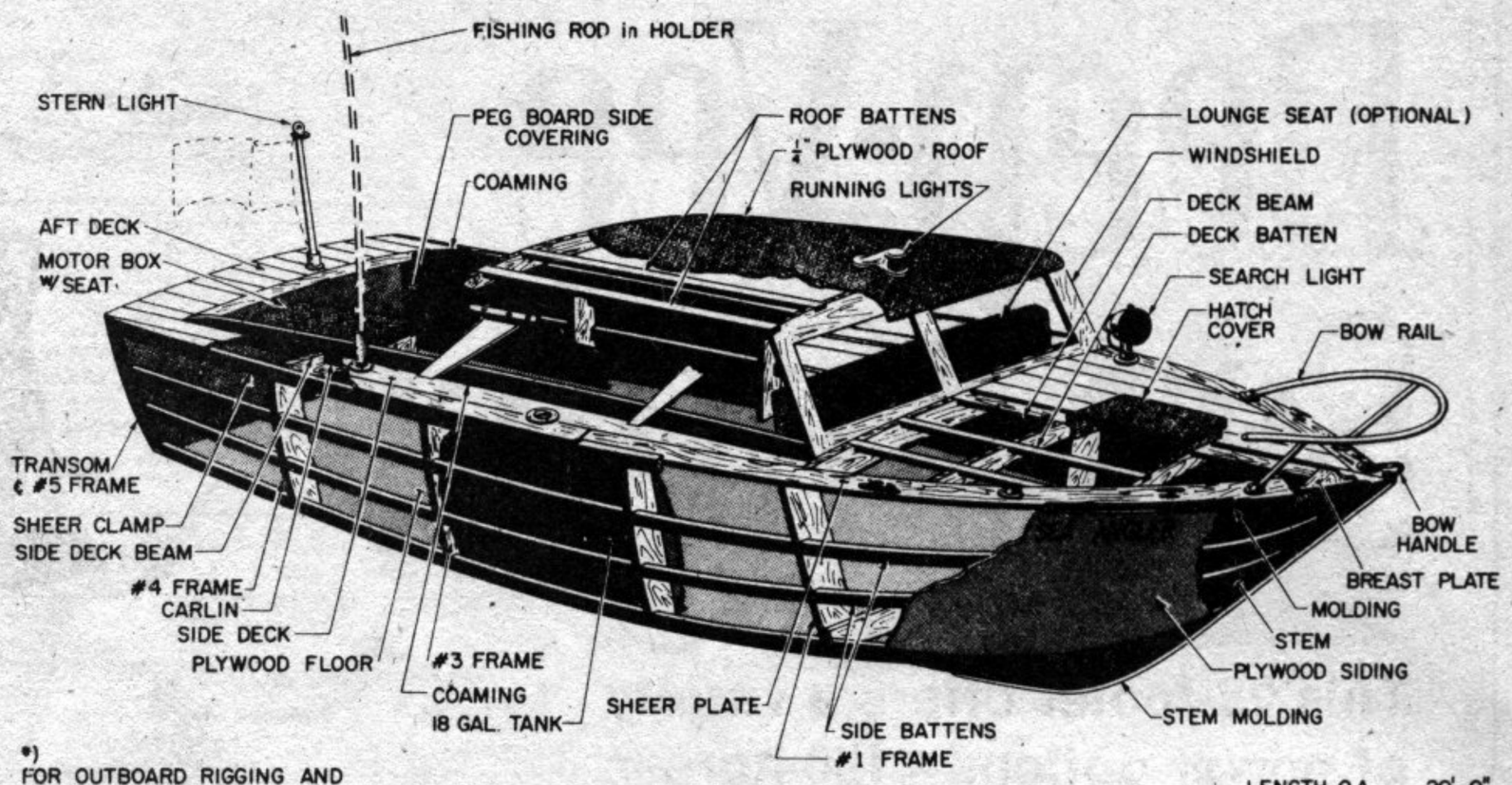
For Sea Angler, an engine of about 150 hp is recommended, either as a straight inboard, an inboard/outboard, or a pair of outboards. This can give the boat a top speed of about 38 mph, and a cruising speed of about 32 mph, The flexibility of power options allows you to use an automotive conversion of your own choice, in addition to stock marine engines.

Construction is of plywood panels over hardwood frames, which makes the job simple for anyone familiar with the use of common hand tools. White oak is the best frame material but good, clear white oak may be hard to get. You can also use Douglas fir, or mahogany. The new plastic-coated plywoods are ideal for hull sides and decks. The surface takes an exceptionally smooth paint finish with long-lasting qualities. For the bottom, which is "double planked," use two thicknesses of AC or AB grade exterior plywood. Bond the B or C sides together. A layer of fiberglass on the bottom is recommended.

If possible, build the boat indoors, in a garage or shed, but be sure you have plenty of working room: at least 24′ x 12′ is recommended, with overhead clearance of 10′.

SPECIFICATIONS	
L.O.A.	20′
Beam	8′
Depth at stem	49″
Depth amidships	43″
Depth at transom	36″
Transom width	80″
Displacement	
Outboard	1700#
Inboard	2200#-2400#
Draft	18″

Sea Angler



First, draw full-size patterns of the frames, stem, and sheer plates on building paper, using the dimensions shown in Fig. 3 and Fig. 4. Transfer the lines from paper to the wood stock with a dressmaker's toothed wheel. At this time you can also make your patterns for the other structural members shown in Fig. 4, and for the plywood panels, as shown in Fig. 5.

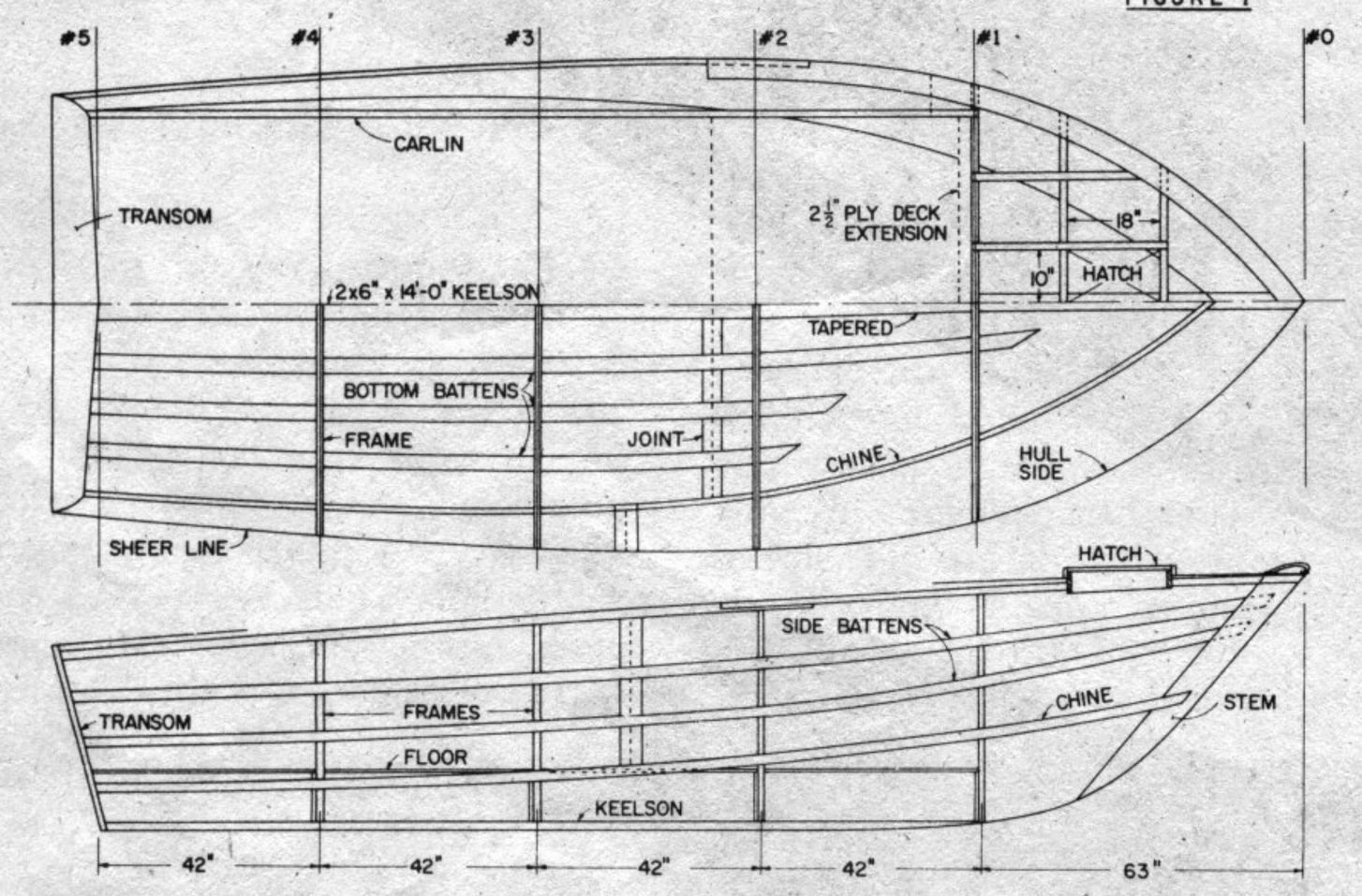
Cut out the frame members, and assemble the frames with plywood gussets glued and nailed or screwed to the frames, as shown in Fig. 3. Make up the stem assembly, as shown in Fig. 4, and be sure that it is mortised between frame #1 and frame #2 to take the keelson.

Fasten lengths of 2x4 to each frame so that when the frames are in position, upside down on the floor, the keelson will lie absolutely straight in its notches. The dimensions given for the extension shown in Fig. 3 are approximate, as you must take imperfections in the floor into consideration. If necessary, you can use shims under the extensions to get the correct alignment. Note that 2x2 crosspieces are attached between the sides of frames, #2, #3, and #4, to prevent any misalignment during construction.

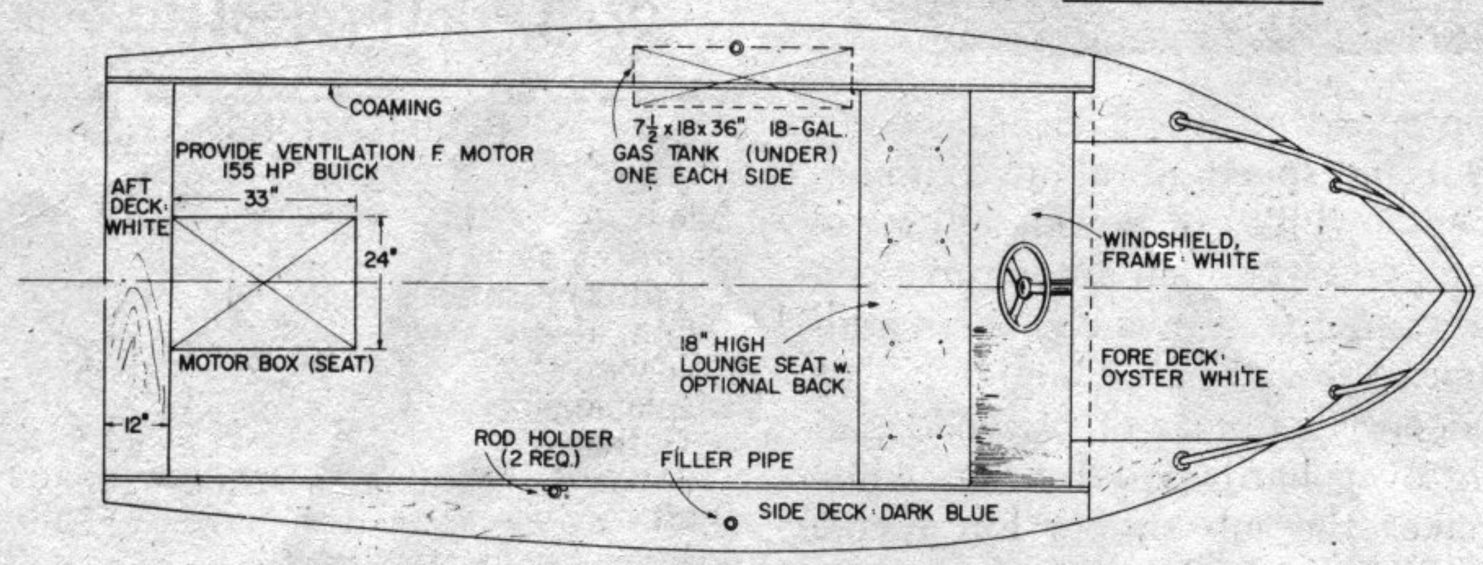
Notch each frame for the keelson, and notch partially for the chines, sheer clamps, and side battens. These notches will be completed, as work progresses, by running a hand saw alongside the longitudinal member as it's held in position. Notch #1 frame for the bottom batten closest to the keel, on each side. A single notch, almost the full width of each bottom half, is used for the three bottom battens on the remaining frames as shown on Fig. 4.

Make up the keelson from a 14-ft. length of 2x6. Taper it between frame #2 and frame #1, as shown in Fig. 2. Cut out the transom from two pieces of ⅝" plywood. Glue and screw them together, and glue and

FIGURE 1



ARRANGEMENT PLAN



PROFILE

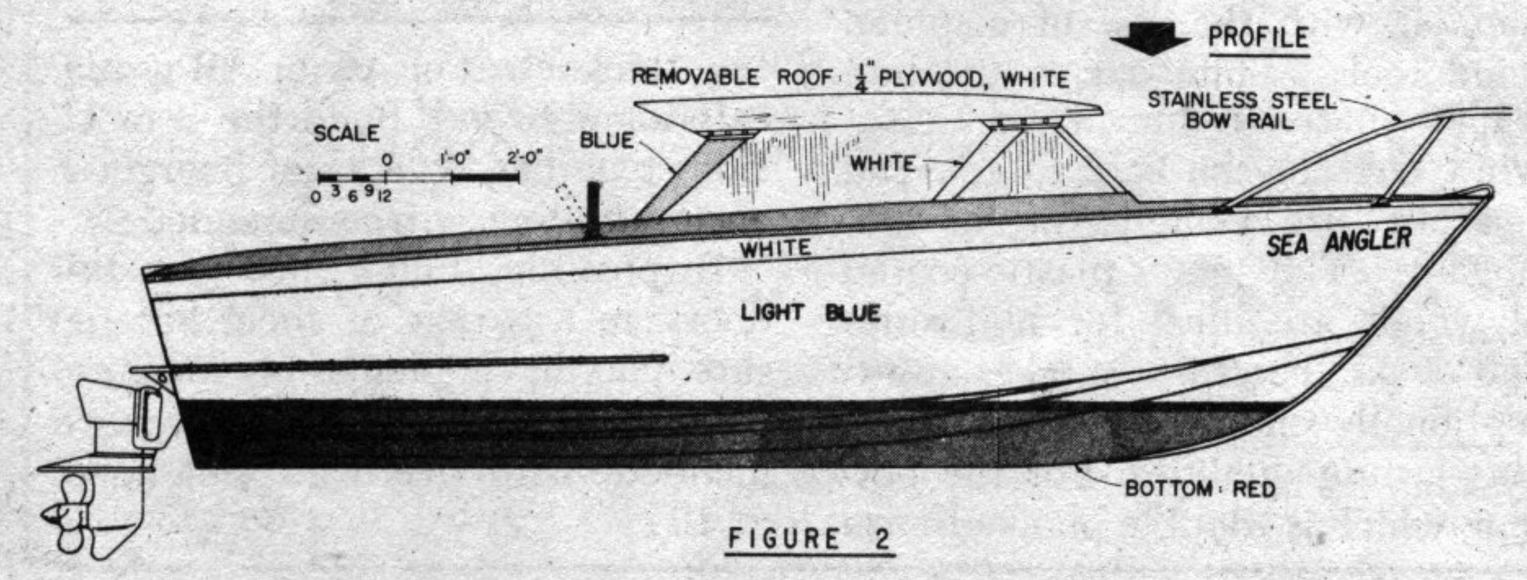


FIGURE 2

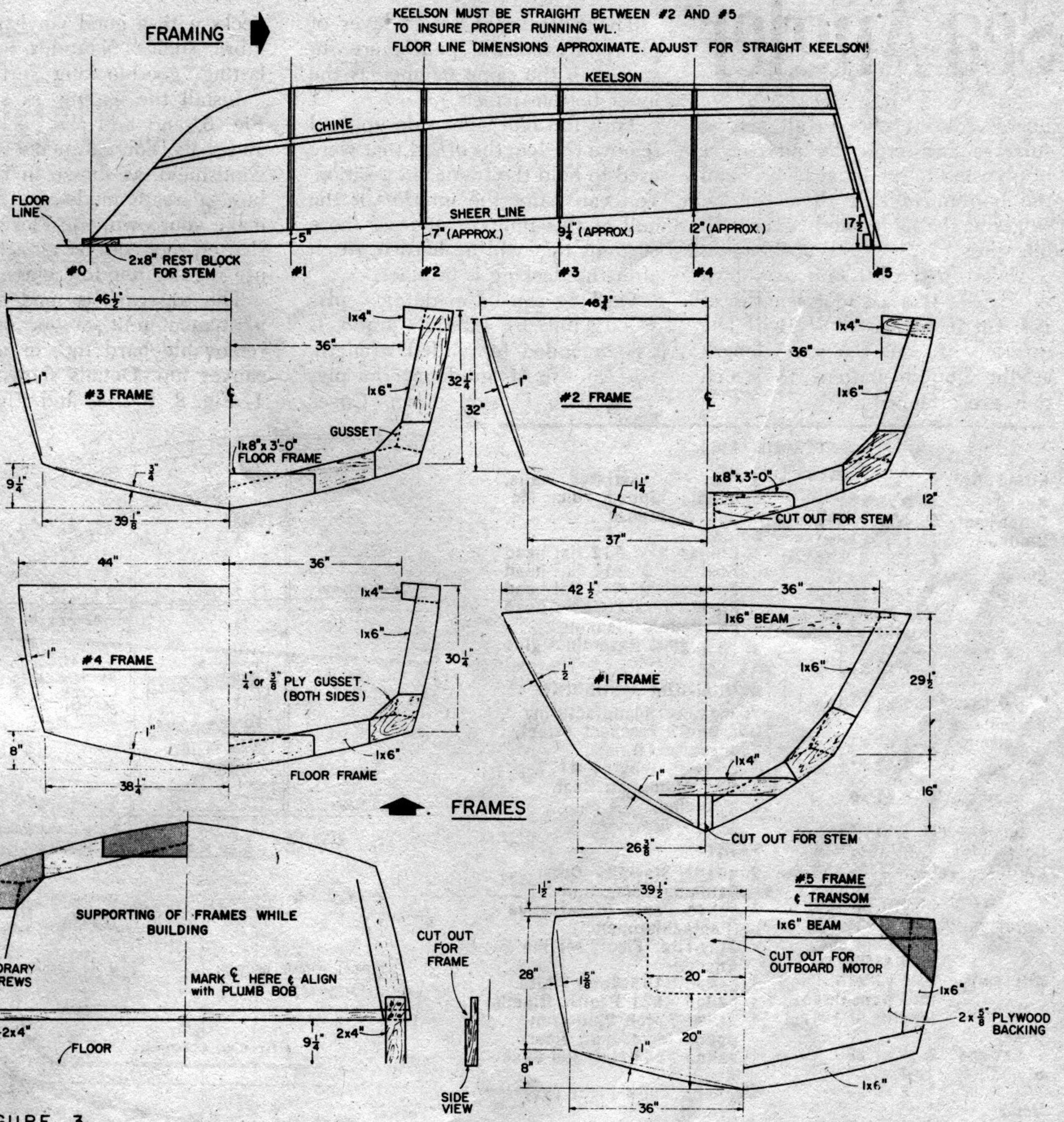


FIGURE 3

screw the plywood lamination to frame #5. Use large clamps to hold the assembly while the glue is setting.

Set up the transom, frames, and stem in position, and align them. Install the keelson, fastening it to each frame with 3" #12 flat head screws. Be sure to countersink the screws at #1 frame quite deep, as the keelson must be faired in to the stem piece. Use resorcinol glue on all mating surfaces before putting in the fastenings.

Bevel the forward ends of the chines so they will fit flush against the stem, and fasten them to the stem with 2½" #12 screws. Work aft, one frame at a time, and install the chines to the frames with 2½" #12 screws after cutting each notch so the chines fit flush with the outer edges of the frame. Install the sheer clamps, side battens, and bottom battens in the same manner. The transom can be notched clear through for all longitudinals, which are trimmed flush with the transom, and the entire assembly then fiberglassed.

Cut the large plywood pieces for the inner bottom "planking," and install in place. Provide butt blocks, as shown in Fig. 4, that extend the full distance between bottom battens (see Fig. 2). Cut out the small plywood pieces that make up the outer skin. It's a good idea to lightly tack these outer pieces in place before applying glue to make sure all joints are trimmed to provide clean, snug joints. Apply a

liberal coat of glue to all mating surfaces, and screw the outer layer of plywood to the inner layer. Sand the bottom so that there are no ridges at the joints, and cover with fiberglass.

Make up the lift rails as shown in Fig. 4. Use 16 foot lengths of 1x4, cut in half as illustrated. The lift rails are cut the same length as the bottom battens to which they are attached.

The sides are a single layer of plywood, and the panels are installed in the same manner as the inner bottom panels.

Turn the hull right side up, and remove the lengths of 2x4 that were used to hold the frames in position. You can paint the interior of the hull at this time, or at least those portions that will be hard to reach after the decking is in place.

Decking can be made of ⅜" plywood, but ½" exterior grade is recommended for added strength. You can use AC grade exterior plywood with C side down. Cover decks with a good vinyl-supported fabric, such as Nautolex, for a long-lasting, good-looking surface.

Install the engine, as shown in Fig. 6, and add the cockpit trim and seats. You can make your own windshield, as shown in Fig. 4, or buy a ready-made unit. If you make your own, use Plexiglas or a shatterproof safety glass. Do not use regular window glass.

The top can be made up as a permanent unit, or you can use a removable hard top, or a folding canvas top. Details shown in Fig. 1, Fig. 2, Fig. 4, and Fig. 6. ■

MATERIALS LIST

LUMBER

Keelson	1—2"x6"x14'
Outer keel	1—¾"x1½"x12'
Chines	2—1¼"x2½"x14'
	2—1¼"x2½"x6'
Sheer clamps	4—¾"x1⅝"x12' (cut from two lengths of 1x4)
Deck plates	2—1"x8"x14'
	2—1"x8"x10'
Side battens	4—1"x4"x10'
Bottom battens	2—1"x4"x16'
	4—1"x4"x12'
Floor beams	4—1"x4"x8'
Floor longerons	6—1"x4"x14'
Coamings	2—⅝"x5½"x16'
Carlins	2—¾"x1⅝"x16' (cut from one length of 1x4)
Spray rails	2—1½"x3½"x6' (cut from one 2"x4"x12')
Lift rails	6—1"x2"x16' (cut from three lengths of 1x4)
Deck battens	4—1"x4"x8'
Stem	1—2"x8"x6'
	1—2"x6"x6'
Deck beams	2—1"x6"x8'
#1 Frame	1—1"x6"x8'
	1—1"x6"x12'
#2, #3, #4 Frames	6—1"x6"x8'
#5 Frame	3—1"x8"x10'
	1—1"x6"x8'
	1—1"x6"x12'

PLYWOOD

4—4'x10'x¼" or ⅜"
2—4'x12'x¼" or ⅜"
4—4"x8'x¼" or ⅜"
1—4"x8'x¼"
1—4"x8'x¼"
2—4'x7'x⅝" (use doubled)
1—4'x8'x¾"

FASTENINGS

5 lbs. 1¼" serrated nails, double dipped zinc, Monel, or bronze
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Screws

Chines 2½" #12 flat head
Keel 3" #12 flat head
Battens 2" #10 flat head
Planking 1¼" #8 flat head
For double planking
2 gals. Resorcinol glue

ALUIMINUM MOULDING

Youngstown Manufacturing Co., 66-67 Prospect Street, Youngstown, Ohio.
5—10-ft. lengths #177 1¼" Aluminum Boat Moulding.

PAINT

2 quarts Stay-Tite Butyl Caulking Compound.
1 gallon Penta Preservative (Pentachlorphenol)
Stay-Tite "Fleet" Marine Enamel
1 gallon #155 Satin White.
1 gallon #831 Pacific Blue.
1 qt. #80 Non Skid Compound for cockpit floor.
1 gallon #544 Hull and Deck Red.
3 gallons #258 Light Gray Primer.
1 quart #18V Clear Urethane Varnish (for natural finish parts)

DECK COVERING

Textileather Div. General Tire & Rubber Co., 3729 Twining St., Toledo, Ohio.
Nautolex—54" wide. 2 yds. White, 3 yds. dark blue, or Satisfactory color combinations.
Also sufficient #88 Nautolex Adhesive for cementing to ply deck.

FIBERGLASS

12 yards 50" width, heavy duty weight fiberglass cloth
5 gallons resin

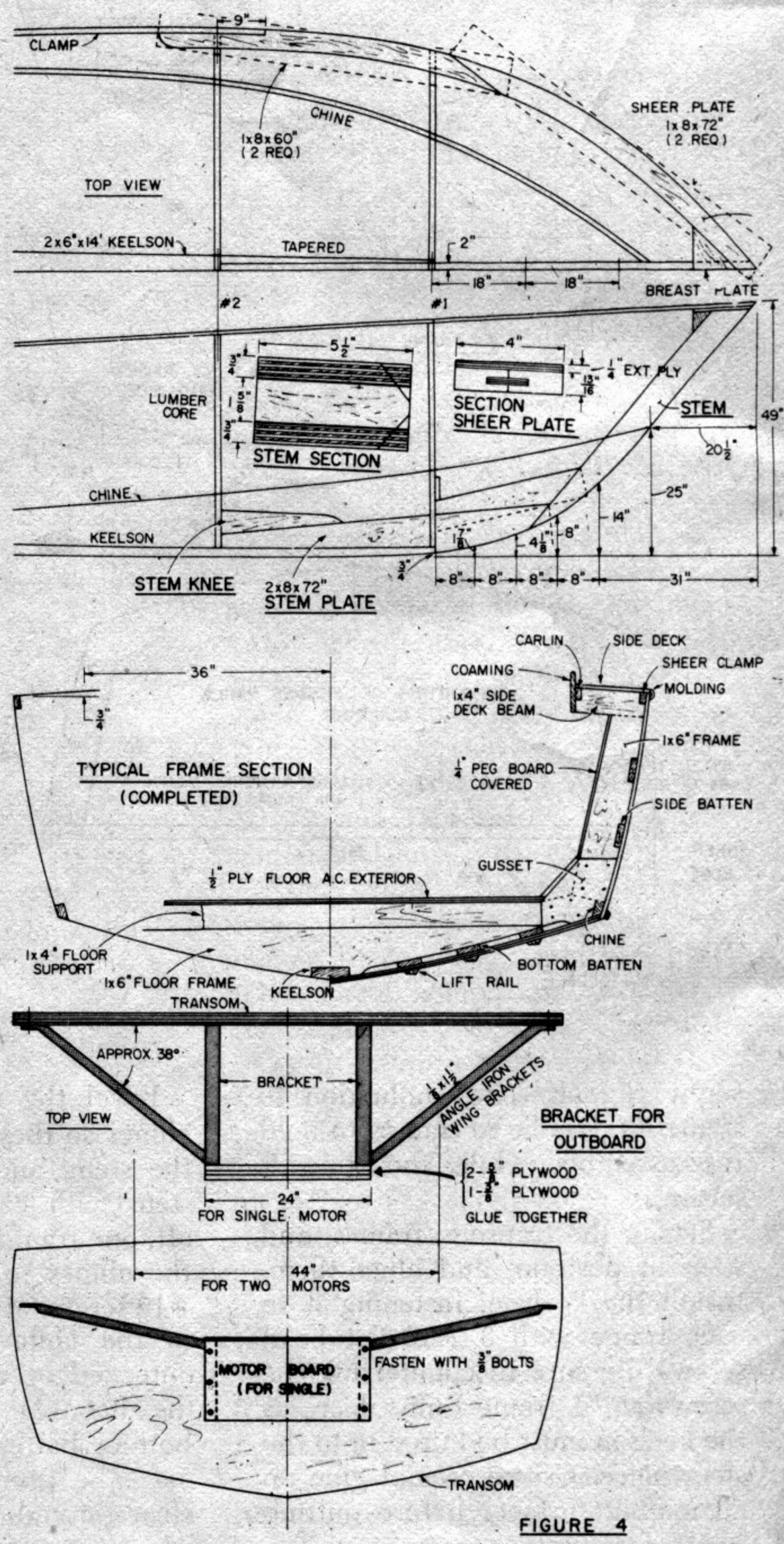
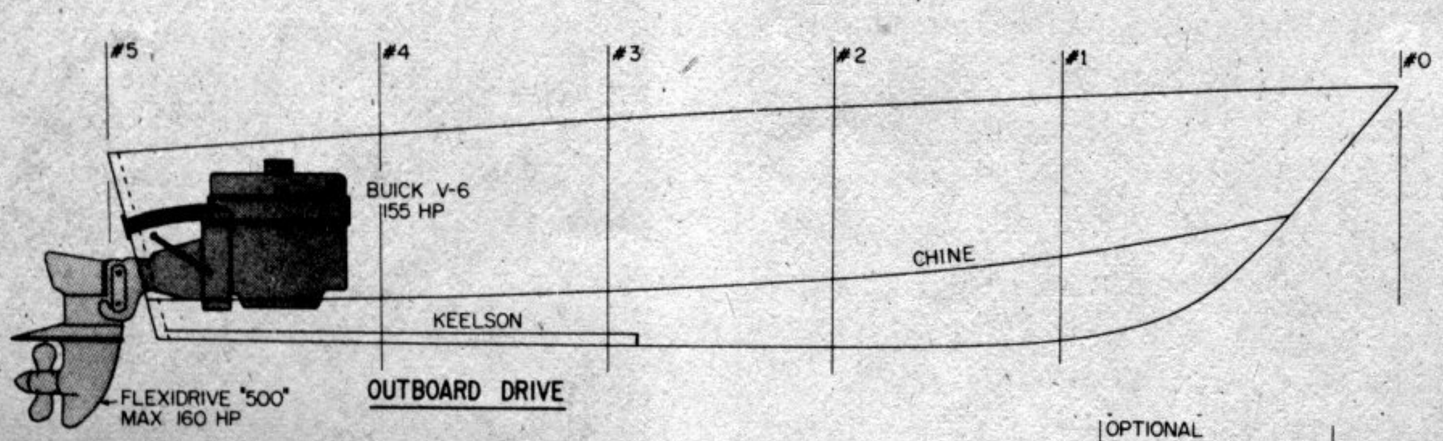
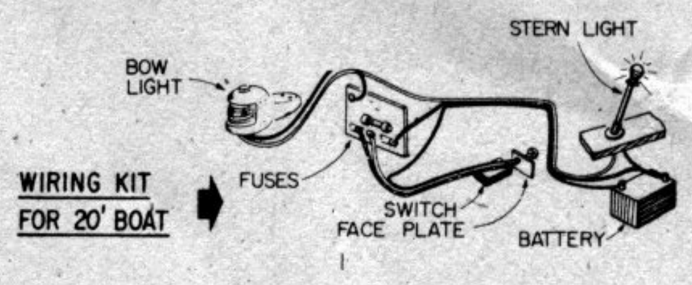


FIGURE 4





WIRING KIT
FOR 20' BOAT

• To obtain enlarged plan for building Sea Angler, Craft Print No. 360, see handy order form on last page of this issue.

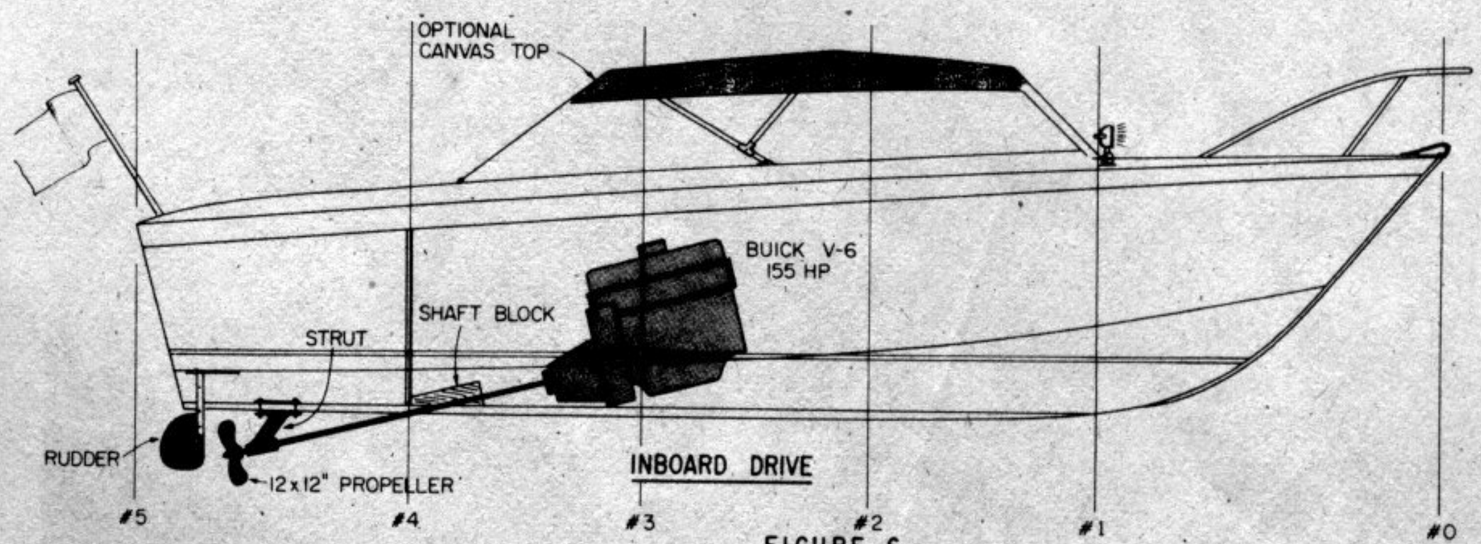
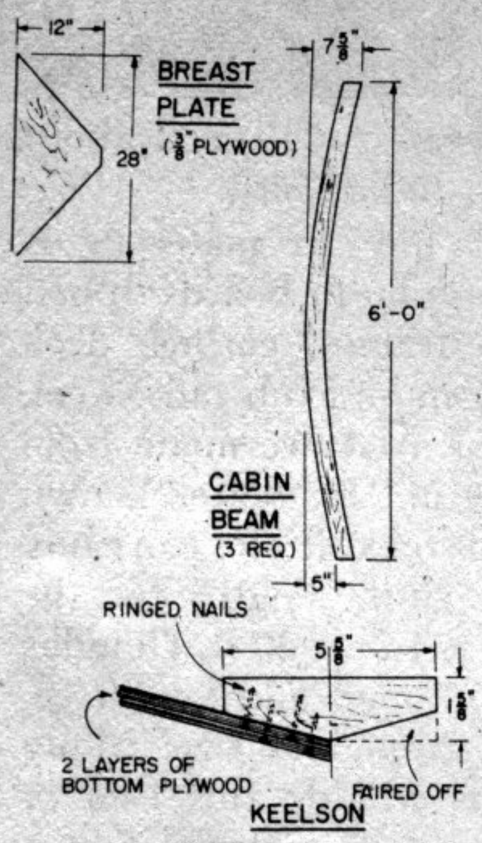
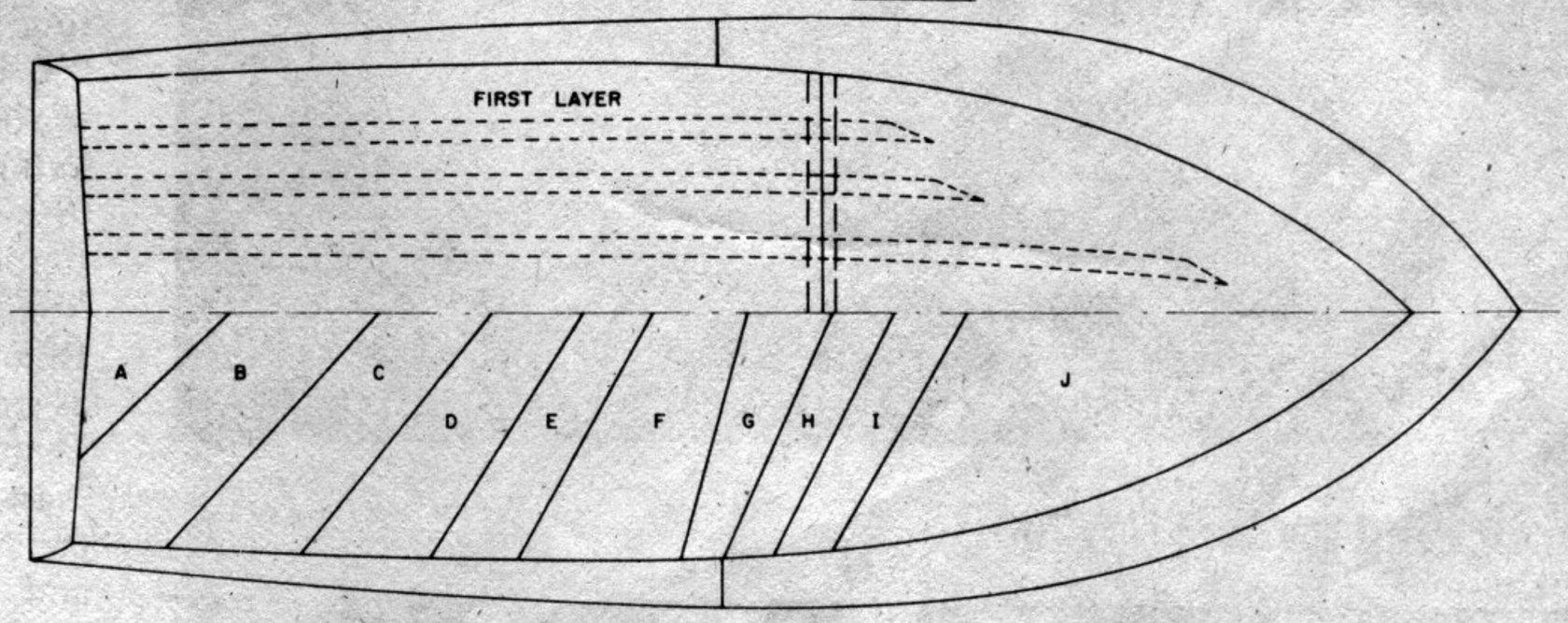


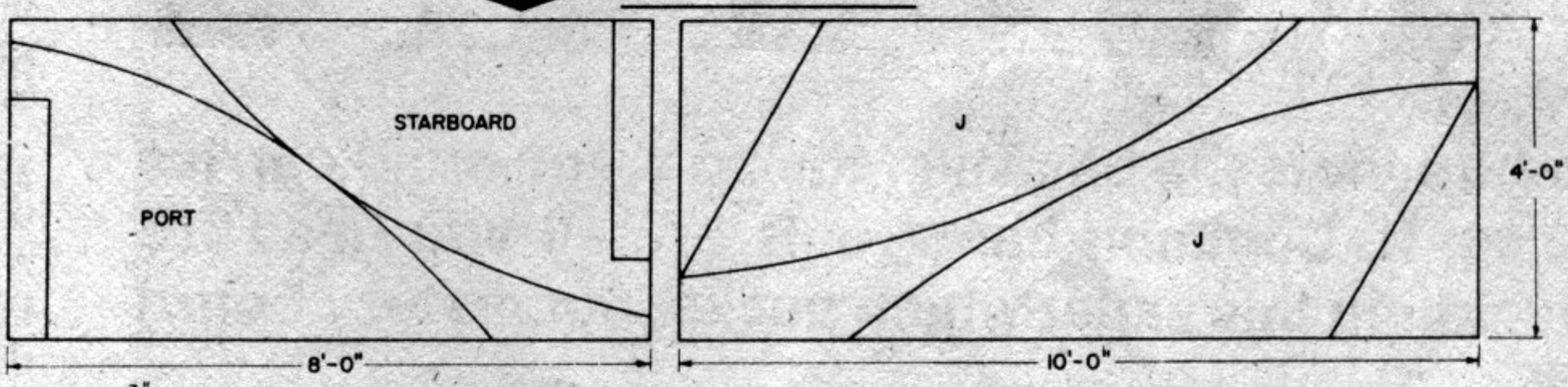
FIGURE 6

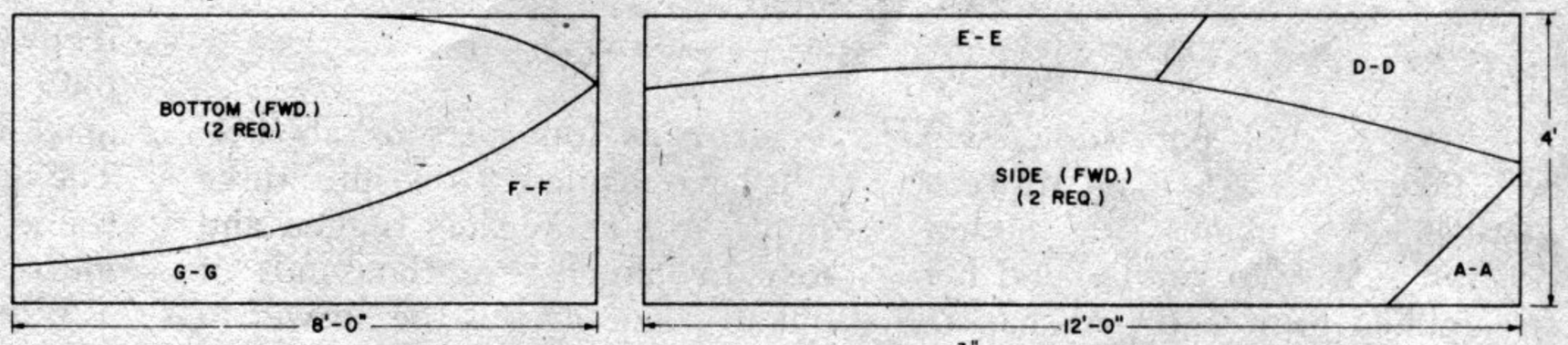


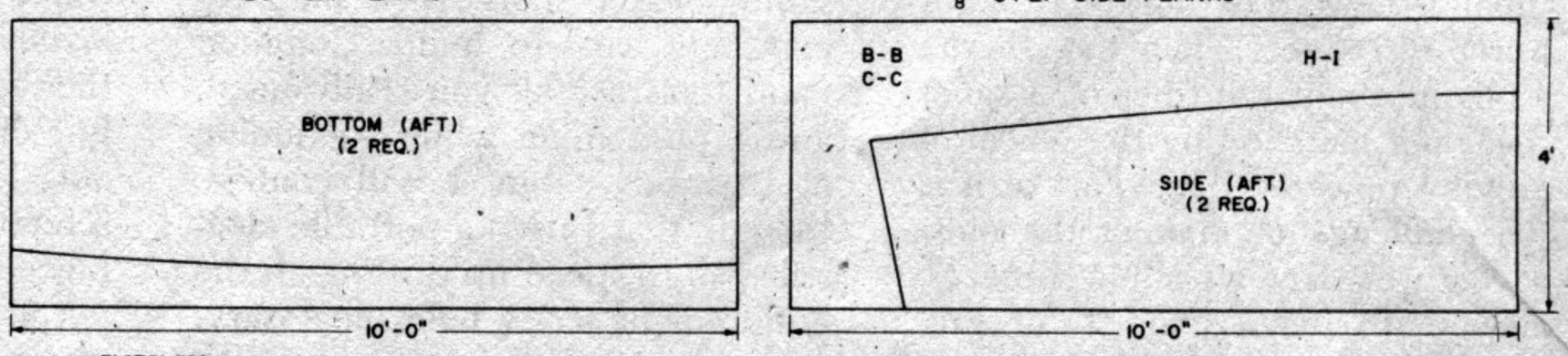


PLANKING PATTERN

CUTTING PATTERNS



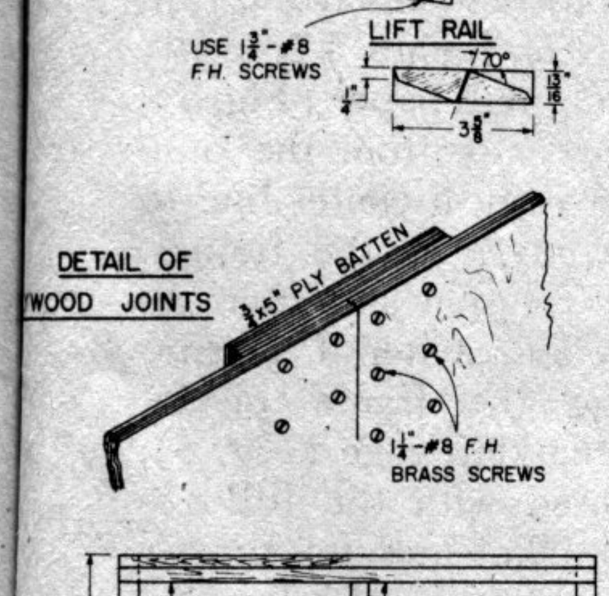




FASTENERS:
1. LAYER : 1" RINGED NAILS
2. -"- : 1 1/2" -"-
NAIL AND GLUE!

PLYWOOD PLANKING:
OUTBOARDS TO 150 HP — 2-1/4" LAYERS
INBOARDS TO 300 HP — 2-3/8" LAYERS

FIGURE 5



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