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Riviera is designed for the boat builder who is looking for a dependable boat that has power and class to spare.

# RIVIERA

## a 17-Ft. Inboard Runabout

**Six-place luxury boat designed for ski towing and all water sports is powered by your choice of 100- to 225-*hp* auto engines converted for marine use**

By WILLIAM D. JACKSON
Naval Architect

YOU can do more than just wish that you had a sleek, powerful, mahogany-decked runabout like Riviera. By constructing it yourself you can turn out this eye-appealing 38-*mph* boat that will be the pride of the lake and a treat to ride in, yet spend only ⅓ the price of even modest boats of the same size and power. You can further fit Riviera to your pocketbook by bargain hunting and using just the amount of trim you wish.

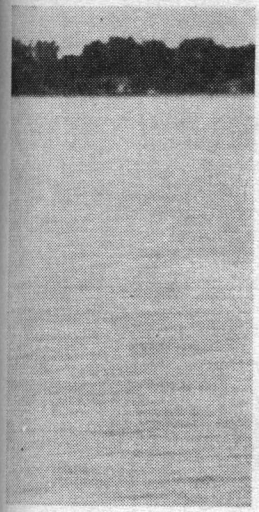
Although Riviera is up to date in design and is built to provide years of dependable service, I have used the same construction techniques that have proven themselves over and over in handbook boat projects.

First draw the centerline of the transom directly on ¾-in. fir exterior plywood and lay it out full-size as in Fig. 3, using the technique in Fig. 4 to draw the top and bottom arcs. To draw the faired curves at the frame sides, mark the end and center points and drive finishing nails partway at these marks. Bend a ¾-in.-sq. wooden batten against the nails as a guide when drawing the lines.

Next mark the shape of the bottom, side, and top framepieces, in that order, on 1 x 4 oak or fir stock, clamping it in place and tracing the transom edges on it. Cut the framepieces to shape, coat the contacting surfaces with glue, and attach them to the transom with #8 x 1½-in. flathead (*fh*) screws spaced 3 in. apart in a staggered double row. Also cut and fasten the center framepiece and the reinforcing blocks in the same way.

Next, using 6-ft. lengths of building paper and one of the 4 x 8-ft. plywood panels as a drawing board, draw centerlines and lay out each frame and deck beam full-size as in Fig. 3. Draw the arcs and faired lines with the same method used to lay out the transom.

To transfer the shape of the frame parts, slide the stock under the pattern and line up one edge with a straight line. Crease the paper slightly to keep the stock aligned while you run a toothed dressmaker's wheel along the pattern lines. Be sure to mark the centerlines of the assembly on each horizontal



framepiece.

To assemble the frames, lay the parts in place on the pattern to check their fit. Then insert triangular or, as in frames #1 and #2, rectangular pieces of ¼-in. plywood as gussets at the frame joints and trace the shape of the ¾-in. stock on them. Now coat the contacting surfaces with glue and drive three #8 x 1¾-in. *fh* screws through each joint. Fasten the exposed corners of the plywood gussets with 1-in. ringed nails and trim the outer edges flush with the frames.

**Deck Beams.** Frames #1, #4, and #5 have deck beams which are positioned and attached in the same way. Also frames #1 and #2 have 2-piece bottom members that are joined by ¾-in.-thick lumber plates attached with glue and #8 x 1½-in. *fh* screws.

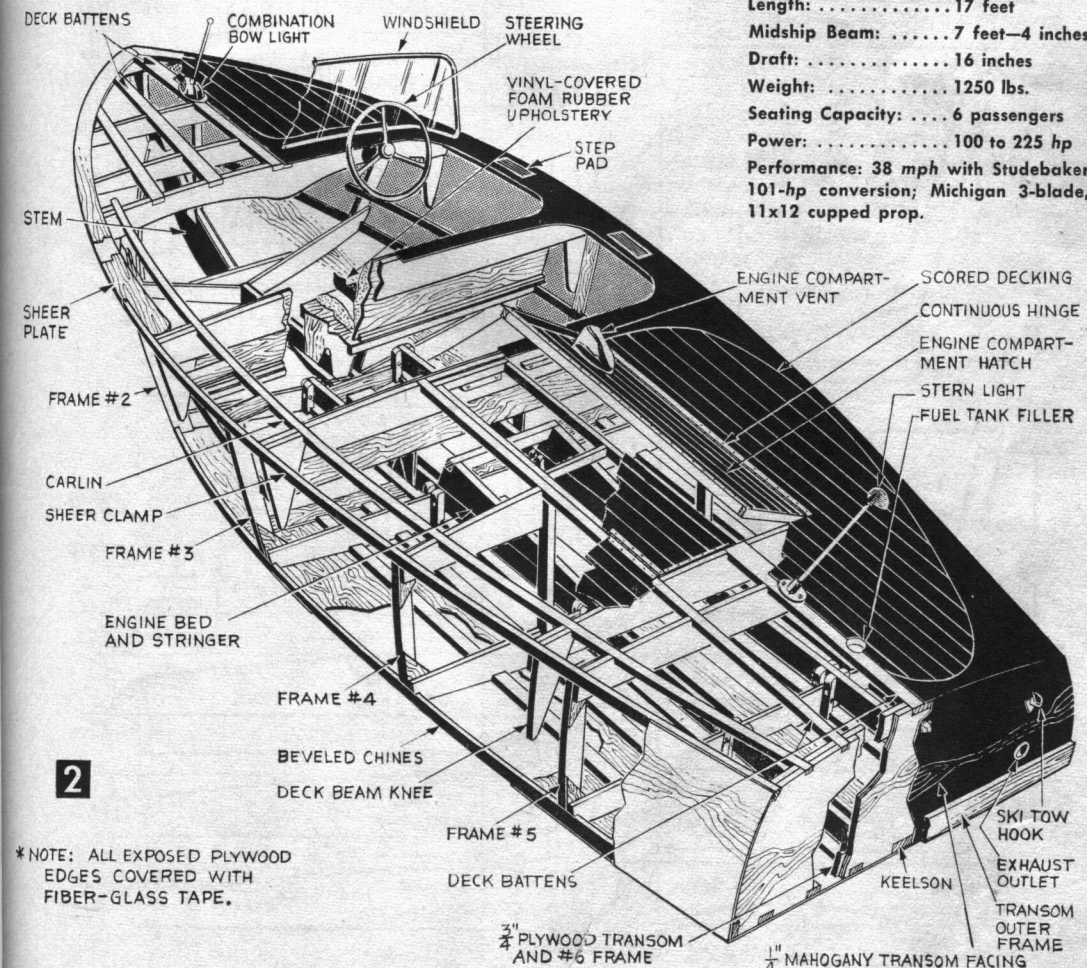
When all frames are assembled, mark the location of the keelson, stringer, and seat riser notches and, also, of the prop shaft and beam cutouts in frame #4. Do not cut these notches, however, until assembly.

The stem assembly is made up of 1⅝-in.-thick lumber joined with a spline and covered on both sides with ¼-in. plywood facings. Lay out the stem full-size on building paper by first drawing the base and vertical reference lines as in Fig. 6A. Then draw the stem and chine knee locating lines and the ordi-

**Craft Print Project No. 327**

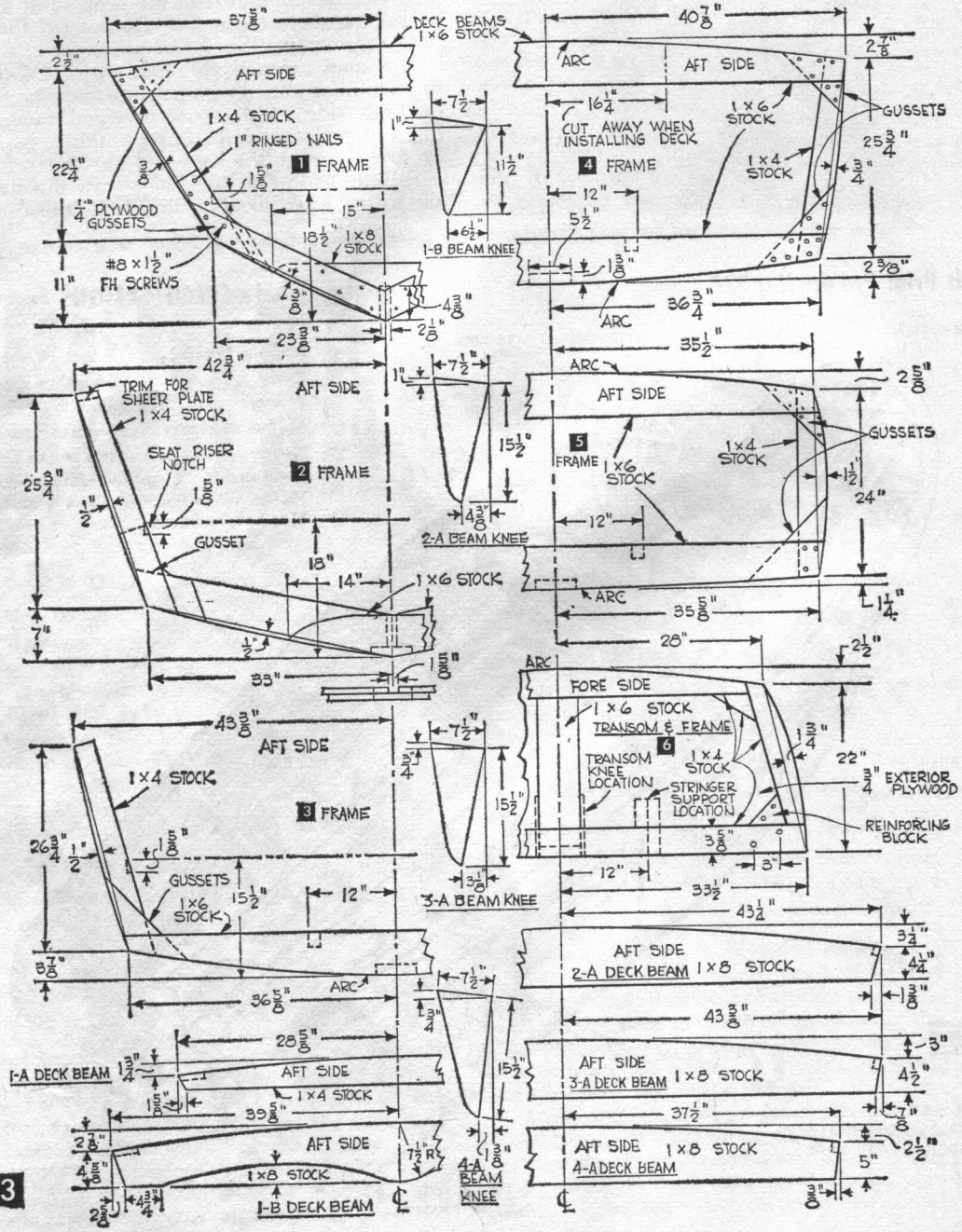
## SPECIFICATIONS

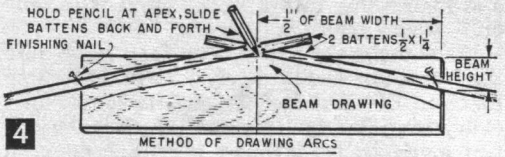
**Length:** . . . . . 17 feet
**Midship Beam:** . . . . . 7 feet—4 inches
**Draft:** . . . . . 16 inches
**Weight:** . . . . . 1250 lbs.
**Seating Capacity:** . . . . 6 passengers
**Power:** . . . . . 100 to 225 *hp*
**Performance:** 38 *mph* with Studebaker 101-*hp* conversion; Michigan 3-blade, 11x12 cupped prop.



nates used to lay out the curve. Draw in the curve with the aid of a wooden batten and mark the location of the plywood facing with colored pencil. When finished, transfer the shape of the stem parts to the stock and cut them out. Make the splined joint as in Fig. 6B. Cut the grooves for the spline with a dado head on a circular saw or by making a series of side-by-side cuts with a regular saw blade. Coat the contacting surfaces of the stem parts and spline with glue and assemble them along with the lower stem knee on a flat surface using #12 x 2¼-in. *fh* screws. Many of these screws will be removed later to allow the stem parts to be faired.

Next, using the lumber core as a template, make the plywood facings and attach these with glue and 1-in. ringed nails. When the





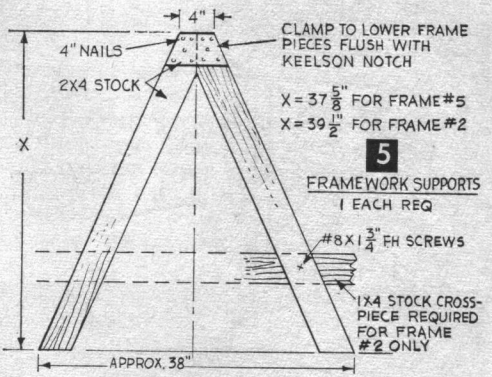

glue has dried, locate and cut the chine and keelson notches.

**Cut the Upper Stem** (Fig. 8B) from 2 x 6 stock, beveling and tapering it as in Fig. 6C. Fasten this to the stem assembly with glue and three #10 x 2¼-in. *fh* screws. Then cut and attach the upper stem knee (Fig. 6A), mounting it flush with the end of the stem.

Make the keelson (Figs. 8B and C) from a 10-ft. length of 2 x 6 stock that has been planed down to 1⅜ in. at the lumberyard. Taper the keelson from full width to 24 in. from the fore end to 2¼-in. where it fits the stem notch. Then, measuring from the fore end, lay out and number the positions for the frames according to Fig. 8. Coat the contacting surfaces of the stem and keelson with glue and assemble them, centerlines aligned, with three #12 x 2¼-in. *fh* screws.

Now with the keelson and stem assembly upside down, place #2 frame in position so the aft end of the stem butts against the plate and the frame is evenly divided over the locating line. Frames #1 and #2 are notched now to fit the stem and keelson assembly.

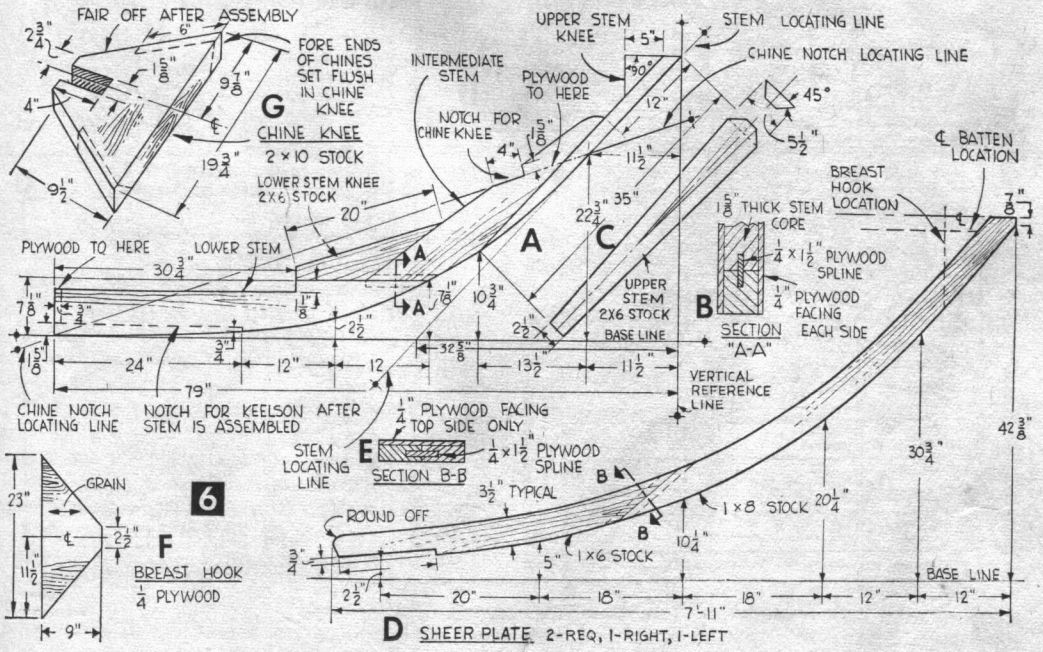
Be sure that frame #2 is at 90° to the top and edges of the keelson. When the frame fits well, remove it and coat the contacting surfaces with glue. Fasten the frame to the

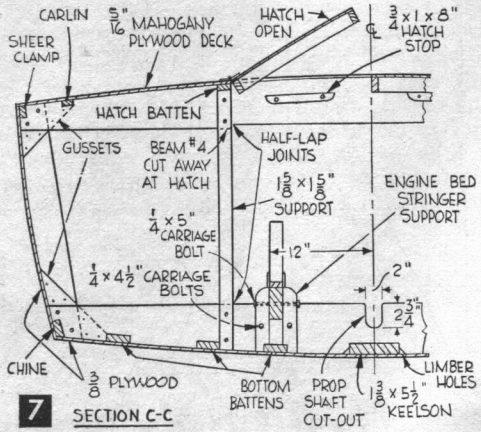



keelson with two #12 x 2¼-in. *fh* screws, countersinking the heads ⅛ in. Next install frame #1 in the same way, driving an additional screw through the plate into the stem and checking to be sure this frame is parallel to frame #2.

When the glue has dried, remove as many screws as necessary from the keelson and stem assembly so you can fair the stem curve as in Fig. 8B, using a wood rasp, jack plane, or power sander. When finished, redrive the screws, countersinking their heads ⅛ in.

**Sheer Plates.** Next lay out one sheer plate as in Fig. 6D directly on ¼-in. plywood and use this as a template to make the other sheer plate and a pair of ¾-in.-thick lumber cores. Then attach the facings to the cores with glue and 1-in. ringed nails. Cut the breast hook (Fig. 6F) from ¼-in. plywood



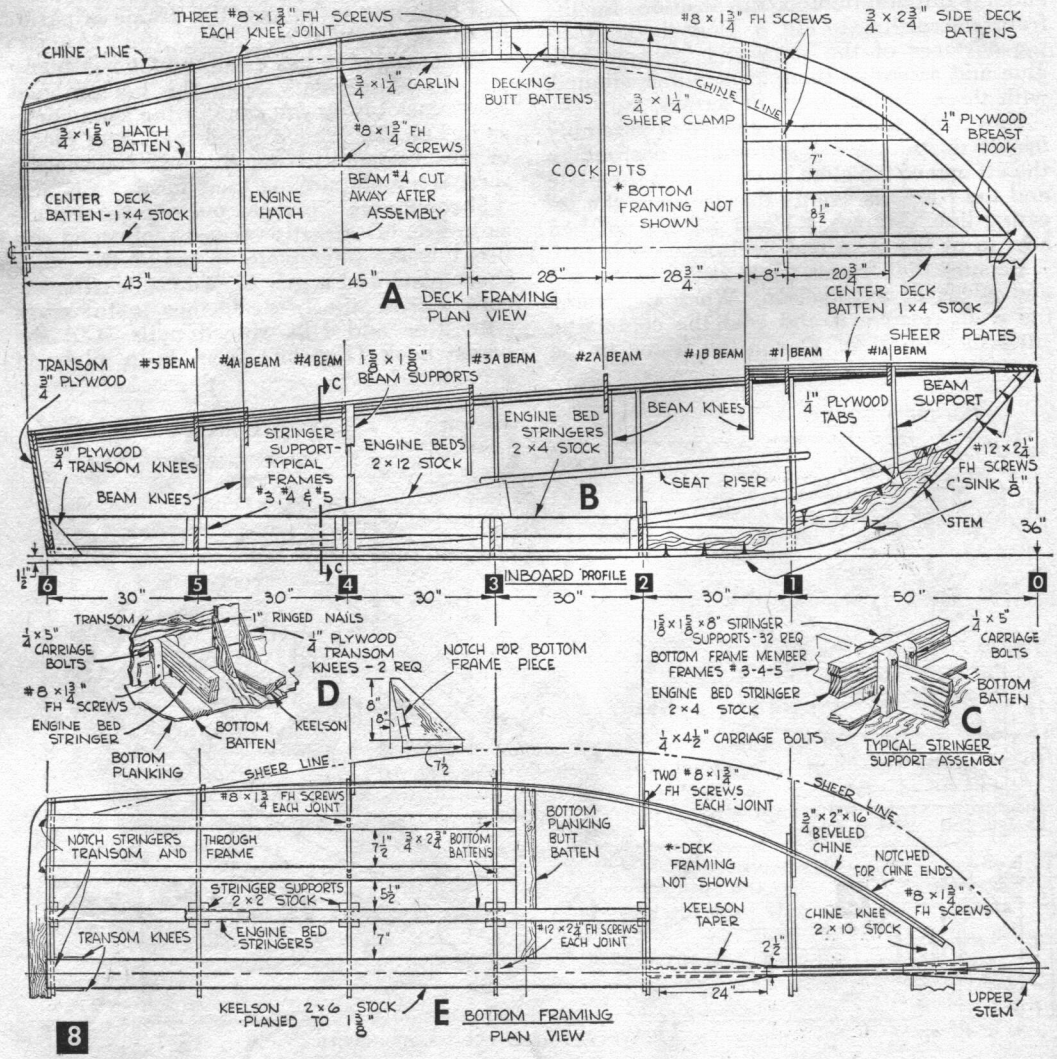



and fasten this to the upper stem with glue and #8 x 1¾-in. *fh* screws.

Place the sheer plates, with facings up, into the frame notches to check their fit and clamp them to the beam of #1 frame to see that everything fits well. It may be necessary to run a hand saw through the joint between the plates to provide a close fit. Now unclamp the plates and, working from the breasthook aft, coat the contacting surfaces with glue. Secure the plates to the stem and frames with #8 x 1½-in. *fh* screws.

Next cut the patterns for the intermediate deck beams (Fig. 3) and knees from paper and arrange them on 1 x 8 stock so they can be cut with the least waste. Transfer the shape of these parts to the stock, cut them, and fit the sheer plate notches.

Now measure back 8 in. from the fore side



of beam #1 (Fig. 8) and fasten beam #1B flush with the sheer plates, using two #8 x 2-in. screws to each joint. The beam knees are not installed at this time. Place #1A beam so its fore side is 20 in. forward of beam #1. Support this beam with a vertical strut that is fastened to the beam with glue and one #8 x 1¾-in. *fh* screw and whose lower end is notched into the stem (Fig. 8B) and secured with plywood tabs, glue, and nails.

Next notch the beams for the centerline deck batten (Fig. 8A) and, after fitting the fore end to the sheer plate joint and inserting

MATERIALS LIST—RIVIERA (Framing Only)

(Parentheses indicate nominal sizes used when ordering lumber)

| Amt. Req. | Size and Description | Use |
|---|---|---|
| 2 | (1x4) x 16′ oak, fir, pine | chines, carlins, seat framing |
| 10 | (1x4) x 12′ oak, fir, pine | seat risers, #1 beam supports, sheer clamps, frames, beams, hatch framing |
| 6 | (1x6) x 12′ oak, fir, pine | frames, sheer plates, beams, deck battens |
| 6 | (1x8) x 8′ oak, fir, pine | frames, beams, beam knees, sheer plate |
| 3 | (2x4) x 12′ oak, fir, pine | engine stringers, frame supports |
| 2 | (2x6) x 12′ oak, fir, pine | keelson, stem, beam supports |
| 1 | (2x8) x 4′ oak, fir, pine | lower stem |
| 1 | (2x10) x 2′ oak, fir, pine | chine knee |
| 1 | (2x12) x 8′ oak, fir, pine | engine beds |
| 1 | ¾ x 28 x 72″ fir EXT plywood | gussets, breast hook, facings, splines |
| 1 | ¼″ x 4′ x 8′ fir EXT plywood | transom |

FASTENING AND MISCELLANEOUS

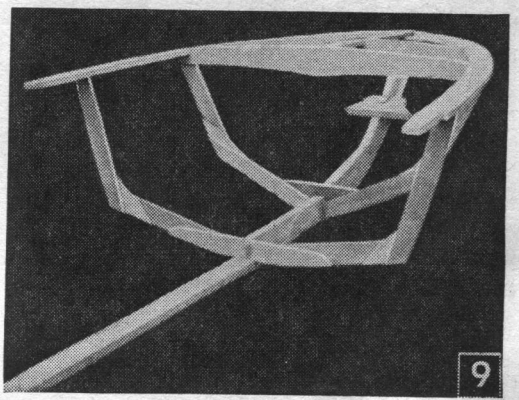
| | |
|---|---|
| 50 ft. | 36″ red rosin building paper |
| 5 lbs. | Weldwood glue powder |
| 3 gr. | #7 x 1″ *fh* brass or monel woodscrews |
| 5 gr. | #8 x 1¼″ *fh* brass or monel woodscrews |
| 2 gr. | #8 x 1½″ *fh* brass or monel woodscrews |
| 1 gr. | #8 x 1¾″ *fh* brass or monel woodscrews |
| 3 doz. | #12 x 2″ *fh* brass or monel woodscrews |
| 3 doz. | #12 x 2¼″ *fh* brass or monel woodscrews |
| 1 lb. | 1″ *Anchorfast* boat nails |

a filler to bring the top side of the batten flush with the plates, attach it to the beam with glue and two #8 x 1¾-in. *fh* screws and to the breast hook with glue and three #8 x 1½-in. *fh* screws.

Make one each of the supports as in Fig. 5, and temporarily attach the longer one to frame #2 with a crossbrace and #8 x 1¾-in. screws. Attach the other support in the same way to frame #5, but omit the crossbrace.

Now cut and bevel the keelson notch in frame #5 so the frame will sit parallel to frame #2, and attach it with glue and two #12 x 2¼-in. *fh* screws. When the glue has dried, turn the subassembly upside down so it rests on the supports. Then attach the frames #3 and #4 in the same way, beveling the keelson notches as necessary so the frames will hang vertical and be parallel to the other frames.

Next attach the transom (Fig. 8B), obtaining the proper angle by attaching ¼-in. plywood transom knees to the center framepiece and keelson with glue and 1-in. ringed nails. Then drive two #12 screws through the keelson into the transom and trim the keelson



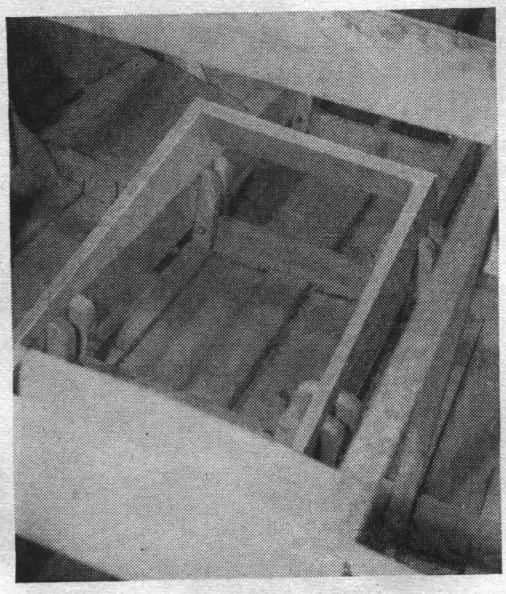

**Subassembly, consisting of stem, forward frames, and sheer plates, gives first promise of Riviera's beamy eye-catching lines.**

flush with the aft edge.

Rip the chines (Fig. 7) from 1 x 4 stock and cut their notches in the lower corner of each frame, using a short piece of chine stock as a gauge so the chine will fit flush. Then clamp the chines at the transom, bend them in, and clamp again at the chine knee. Run an 8-pt. saw between the chine and the notch to fit the frames to the curve of the chine. When the chines fit along their entire length, fasten them to the frames with glue and one #8 x 1¾-in. *fh* screw to each joint, and to the chine knees with two screws to each side. When finished and the glue has dried, install the sheer clamps (Fig. 7) in the same way. Use 1¾-in. stock, however, and begin fitting them in the notches of the sheer plate.

Next rip the bottom stringers (Fig. 8) from 1 x 6 stock and, after locating them as in Fig. 7, notch them flush into the frames and secure them with glue and two #8 x 1¾-in. *fh* screws to each joint.

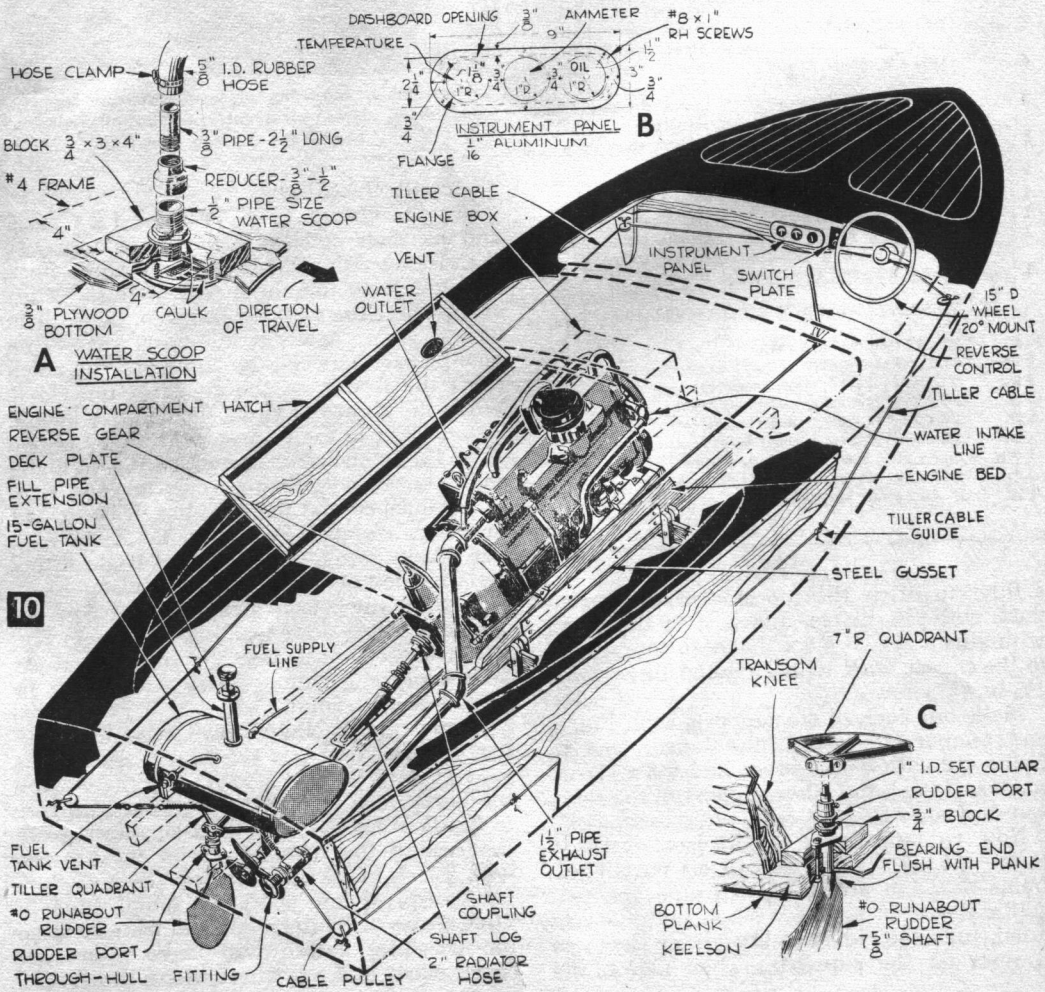
**Framework Is Now Faired** prior to planking, using several ¼ x 1¼-in. wooden battens ranging 4- to 16-ft. in length. Lay these along the framework and across the bilge stringers to locate areas that are ¼ in. or more above the rest of the framing. Trim these areas with a jack plane or a Stanley (Sear's) *Surform* rasp. If low spots are found, glue in filler pieces or "dutchmen" and trim these so the checking batten will make a smooth curve when laid anywhere along the frame.

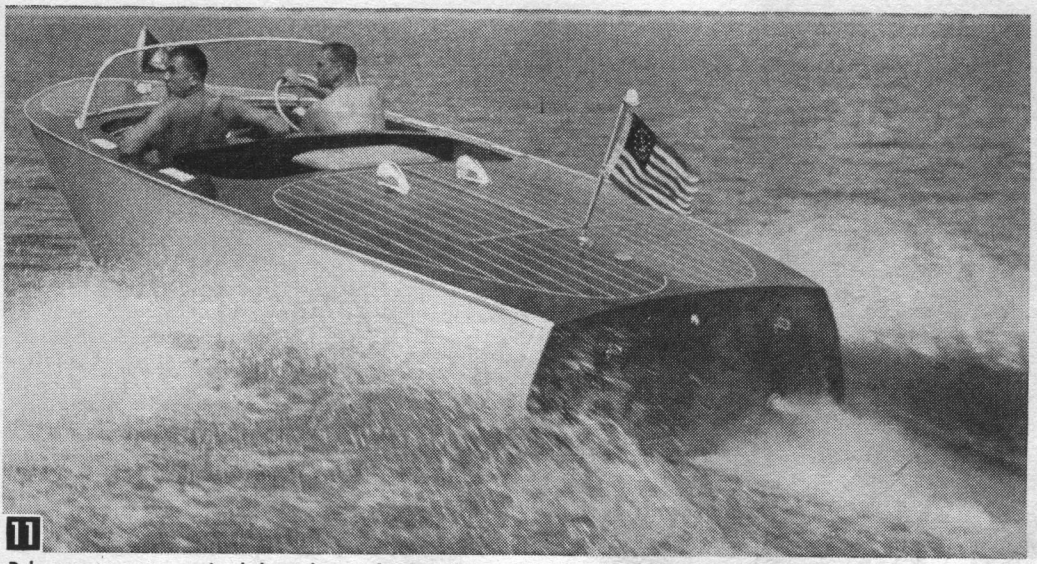




Rudder and strut, shown under finished boat, have close clearances which work out quite well. Shape of rudder is best for ready maneuverability and skiing.

Closeup view showing engine beds cut from 2 x 12 stock in position on 2 x 4 stringers firmly held by several sets of stringer supports.





**Deluxe appearance, gained through use of rich mahogany deck and simulated planking, increases both the value of your runabout and your enjoyment of it.**

Having completed the frame, you are ready to attach the plywood planking. The original Riviera used a three-ply, plastic-overlayed plywood (See Materials List, p. 60) for the sides and bottom which will take a glass-like finish and resist checking when painted with marine paints. Also, for smart appearance and increased value, five-ply African mahogany, scored and filled to simulate individual planks, was used for the deck. For economy, however, fir exterior plywood of the same thicknesses may be substituted without lessening quality.

First cover the transom with a ¼-in. mahogany plywood facing and a 3-in.-wide outer frame. Rabbet the frame (Fig. 13D) to hold the lower edge of the facing and fasten it to the transom with glue and #8 x 1¾-in. *fh* screws spaced 3 in. apart. Now set the plywood in the rabbet and trace the outline of the transom on it. Saw this to shape and, after coating the mating surfaces with glue, clamp the facing in place. For economy, this facing can be omitted and the transom covered with fiber glass.

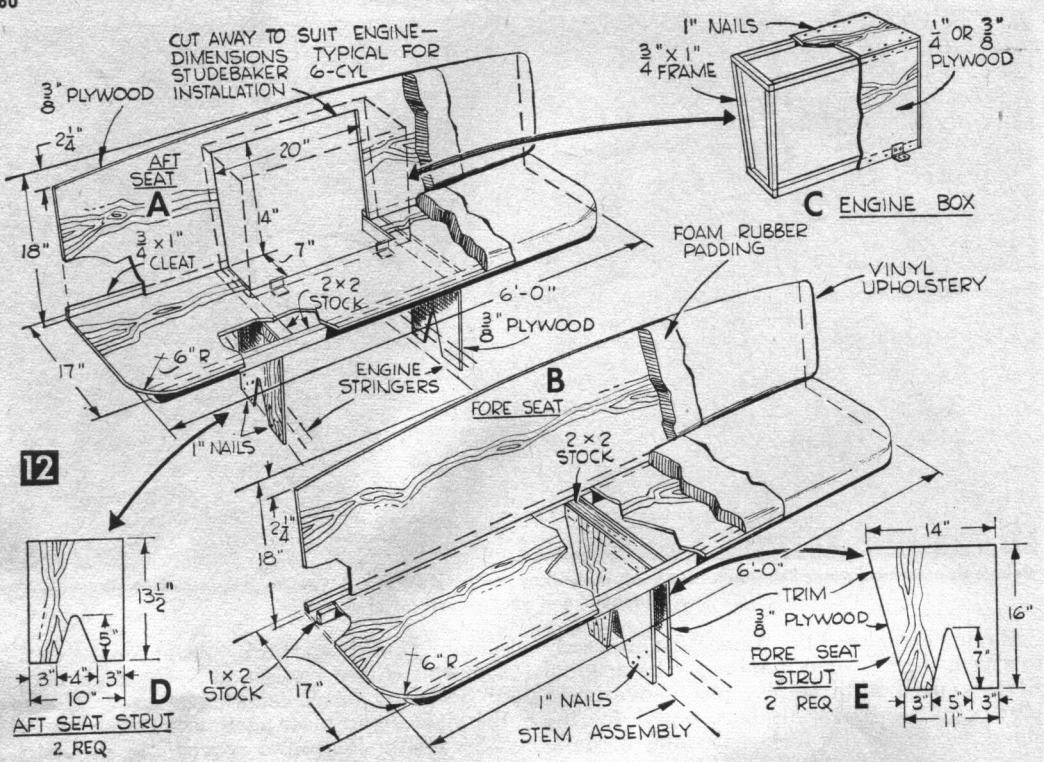
**Start Planking the Hull** by clamping entire 4 x 8-ft. plywood panels to the aft bottom of the framework so the 8-ft. edges meet along the centerline of the keelson (Fig. 13A) and the aft edges are flush with the transom. Make a pencil line along the sheer, chine, and transom, then trace in the outlines of the keelson and bottom battens. Remove the panel and drill #4 lead holes at 12-in. intervals in these outlines. Connect these holes with a pencil line on the outside of the panel so you can locate and drive the planking screws.

Now saw the marked planks to shape and apply glue to the contacting surfaces of the planking and framework, except for the transom and chines—where a 1/16-in.-thick layer of *Stay-Tite* butyl caulking is used. Clamp the planking in place again and fasten it with #8 x 1¼-in. *fh* screws spaced 2½ in. apart, driving a double row along the transom, and countersinking all screw heads 1/16-in. below the surface. Attach butt battens (Fig. 13F) to the fore edge of the installed planks so their centerlines coincide with the plywood edges.

Use a cardboard pattern to determine the shape of the fore-bottom planks. Line up the edges of the cardboard with the keelson centerline and butt batten, and mark it along the stem and chines. After cutting this to shape, transfer the outline to plywood, allowing ½ in. along the chine and stem lines for fitting. Cover the fore end of the planks with wet burlap and run a hot electric iron over this to steam the plywood and make it pliable. Prepare both fore-bottom planks so they can be clamped in place at the same time and attached as were the bottom planks.

**Side Planks.** Before installing the side planks, the bottom planking must be trimmed (Fig. 13B) so it will butt against the edges of the side planks 54 in. along the seams. First mark the centerline on each chine, then cut through the plywood and trim it away. Aft of this area the side planks lap the bottom planks (Fig. 13C).

After shaping and installing the side planks (Fig. 13A) in the same way as you did the bottom planks, trim the seams along the bow to take the outer stem (Fig. 13G). Attach the ½ x 1¼-in. stock with glue and #8 x 1¾-in. *fh* screws. When the glue is dry, remove the screws and fair off the fore end of the stock so a tapered piece of 1 x 4 stock will fit tight-




# MATERIALS LIST—RIVIERA

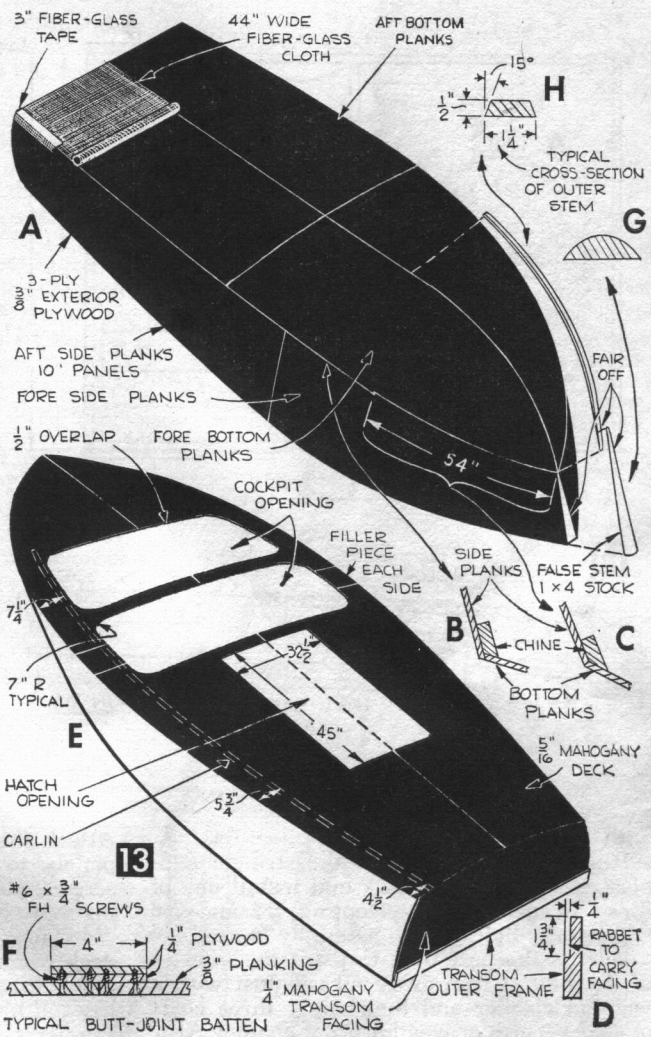
| No. Req. | Size and Description | Use |
|---|---|---|
| 6 | 3/8"x4'x8' plastic-overlaid 3-ply plywood | side and bottom planks |
| 2 | 3/8"x4'x10' plastic-overlaid 3-ply plywood | aft side planks |
| 4 | 5/16"x4x8' African *Mufumbi* 5-ply mahogany plywood | deck |
| 1 | 1/4x24x72" African *Mufumbi* mahogany plywood | transom facing |
| (Above materials available from Harbor Sales, Baltimore, 30, Md.) | | |
| 1 | 1/8"x4x8' tempered hardboard | routing templates |
| 2 | 2x18x72" foam rubber billets | seat cushions |
| 4 yds. | 36" vinyl plastic | upholstery |
| 2 | 1/16x2x18" brass strip | tumble-home trim |
| 2 | 1/16x1" steel strap | fuel tank strap |
| 2 | 1/16x3x30" flat steel | engine bed gussets |
| 1 | 1/16x3x9" aluminum sheet | instrument panel |
| 1 | 1 1/2x72" black iron pipe | exhaust pipe |
| 2 | 1 1/2"x45° black iron pipe elbows | exhaust pipe |
| 1 | 2" I.D.x5" radiator hose and clamps | exhaust pipe connection |
| 8 ft. | 5/8" I.D. heater hose with clamps | water connection |
| 1 | 15-gal. auto fuel tank | fuel tank |
| 2 qt. | Firzite plywood sealer | |
| 2 gal | spar varnish | |
| 1 qt. | Stay-Tite butyl caulking | |
| Misc. | Spackle powder, flat white paint, turpentine, wood putty, hook-up wire, 3/8" pipe fittings, rubber and copper tubing, lag screws, bolts | |
| 1 | 12x65" windshield with mounting | |
| 1 | *Elgin* steering wheel and cable kit | |
| 1 | *Elgin* 3" fiber glass tape kit | |
| 12 yds | 44" fiber-glass cloth | |
| 2 gal. | resin | |
| (Above materials available from Sears Roebuck and Co.) | | |

| No. Req. | Size and Description | Use |
|---|---|---|
| 1 | *Dyna-Jet* 11x12, *Michalloy-K*, 3-blade, cupped propeller | |
| 1 | 15° self-aligning shaft log with mounting bolts | |
| 1 | 1" bore, 6" drop, strut with mounting bolts | |
| 1 | 1" dia.x45" propeller shaft with nut, machined to suit prop | |
| 1 | #0 runabout rudder with 1x7 5/8" post | |
| 1 | rudder port with mounting screws | |
| 1 | 7" radius rudder quadrant | |
| 1 | 1" I.D. set collar with setscrew | |
| 1 | 3/8" fuel tank vent | |
| 1 | 1 1/2" through-hull exhaust fitting | |
| 1 | 1/2" water intake fitting | |
| 1 | reverse gear control | |
| 1 | throttle control | |
| 1 | choke control | |
| 1 | battery holder with cables | |
| 1 | switch panel | |
| 1 | 30-amp. ammeter | |
| 1 | 80-*psi* oil pressure gauge | |
| 1 | 100-212°F water temperature gauge | |
| 2 | 3" cable tighteners | |
| 4 | cable guides | |
| 2 | 1/4x3" turnbuckles | |
| 1 | combination bow light | |
| 1 | stern light | |
| 2 | clam shell ventilators | |
| 4 | step plates | |
| 1 | 1 1/2" deck filler cap | |
| 2 | 48" piano-type hatch hinges | |
| 1 | deck fittings set | |
| 3 | 1"x12" half-oval aluminum sheer molding | |
| 2 | 1/16x1 1/2x60" brass hatch trim | |
| 1 qt. | Pettit's light mahogany semi-paste wood filler | |
| 3 qt. | Pettit's ***Polypoxy*** exterior paint | |
| (Above materials available from Stoke's Marine Supply Co., Coldwater, Mich.) | | |

ly against the upper stem. Attach this in the same way, again removing the screws to fair and shape the assembly (Fig. 13H). When finished, redrive the screws at the stem and go on to round the edges of the planking so fiber-glass cloth can be applied without damage.

**Fiber-glass Protection.** Cover the bottom of the hull on each side of the centerline with a piece of 44-in.-wide fiber-glass cloth, trimming it along the chines (Fig. 13A). Roll the cloth on a mailing tube for easy handling; then, starting at the transom and working forward, apply resin according to the manufacturer's instructions, laying on the cloth 18 in. at a time. When the bottom is covered and the first coat of resin applied, cover the chine edges from the transom to the stem with 3-in.-wide fiber-glass tape. For the most durable finish, apply four coats of resin, allowing each to cure before applying the next.

Now get the gang together and make any promises you must to get some help in turning the hull. You've got a pretty good-size boat on your hands now and it will take plenty of muscle and careful maneuvering to turn it over without putting undue strain on the hull or the helpers.

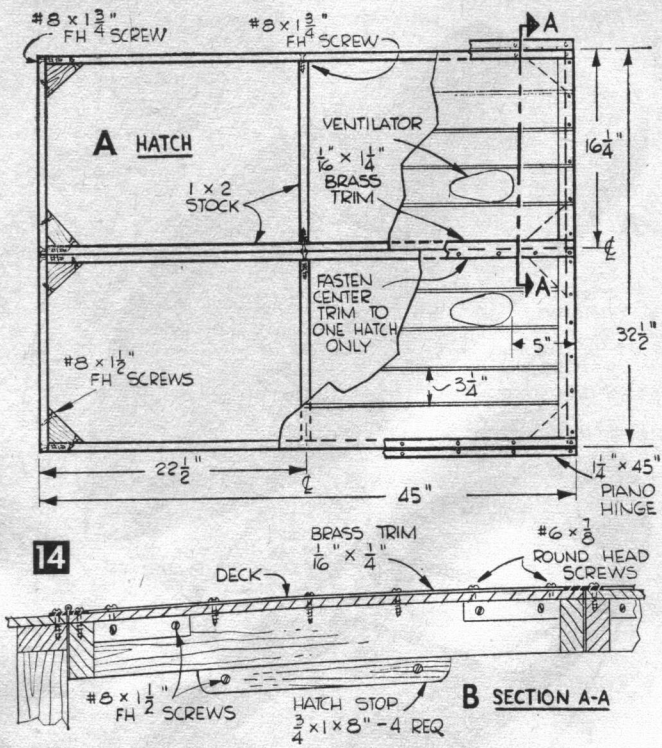



**When the Hull is Turned** and supported in a well-padded cradle so you can work on it without danger of tipping, you are ready to install the deck beam knees as in Figs. 2 and 3. After notching them to fit the sheer plate or clamps, position the knees and trace around them to locate lead holes in the side planks. Then attach the knees to the planks with glue and #8 x 1½-in. *fh* screws and to the beams with three #8 x 1½-in. *fh* screws at each end.

Next rip and shape the stock as necessary for the deck and hatch battens as in Fig. 8. Clamp these in place on the deck beams as in Fig. 2, locating the outboard edge of the carlins 4 in. from the sheer clamps and sighting along them to be sure they form a fair curve. Mark the location of these parts on the beams and cut notches for them. The notches at the transom are cut through the ¾-in. framing and plywood only, not through the mahogany facing. Attach the deck framing with glue and #8 x 1¾-in. *fh* screws.

Install the 12-ft. engine stringers (Fig. 8), notching the frame members 1⅝-in. deep (Fig. 7) and locating the outboard edges of the stringer notches 12 in. on each side of the hull centerline. Cut and fit these notches carefully, because the stringers must absorb all of the engine stress and transmit it as evenly as possible to the frames. Cutting the hatch opening (Fig. 8A) in #4 beam now will make it possible to get the stringers into the framework.

**Cut the Engine Beds** from one piece of 2 x 12 stock and attach them to the stringers with glue and ⅜ x 4-in. lag screws, countersinking these as necessary. After installing the crosspieces with half-lapped joints at each end, make up 1/16-in. steel gussets (Fig. 15D) and fasten these to both sides of each bed




template as a guide to route the outlines into the panels. When the outlines are finished, use a 3¼-in.-wide strip of hardboard as a guide to cut the simulated plank seams (Fig. 17C).

When all four panels are scored, lay out and cut the hatch and cockpit openings (Fig. 15A). Attach the decking with glue and #17 x 1-in. *fh* screws, countersinking the heads 1/32 in. Use the remaining pieces of mahogany plywood to fill in the space amidships (Fig. 13E) and to face #1B beam, which will be your dashboard. Use a cardboard pattern here to make a good fit and attach the facing with glue and countersunk #7 x 1-in. *fh* screws spaced 6 in. apart.

Now cut and install the 1⅝-in.-sq. supports (Fig. 7) for the inboard ends of #4 beam and use the cut-away portion of this beam to make six hatch beams (Fig. 14B). Rip the rest of the hatch framing from 1 x 4 stock and assemble it (Fig. 14A) with glue and 1¾-in. *fh* screws. Attach the cut-away portion of the aft deck panels to the framing with #7 x 1-in. *fh* screws, placing the screws between the scoring. Attach hatch stops to beams #3A and #4A, making sure the hatch is flush with the deck when resting on these stops. Install the hatch hinges next, driving only six screws in each hinge to hold them while you check the fit by opening and closing the hatch, adjusting the hinges and trimming the inboard edges of the hatch as necessary. When the hinges work smoothly, drive the rest of the screws.

Sand the deck with 3/0 sandpaper, holding a bright light just above the surface so you can see unwanted ripples clearly. When the surface is as smooth as you can sand it, use a vacuum cleaner to draw the sawdust from the scoring.

Now dilute semi-paste mahogany wood filler with thinner until it becomes the consistency of paint. Apply this to the deck with a brush, covering small areas at a time and, after waiting about 20 minutes, wipe it off across the grain with burlap. When the entire deck has been filled, allow a 4-hour drying period, then rub the deck with burlap again, this time rubbing with the grain in long, smooth strokes.

Let the deck dry for 10 hours, then apply two coats of *Firzite* sealer, waiting until the

with #8 x 1½-in. *rh* screws.

Rip the 1⅝-in. stock for the stringer support assemblies (Fig. 8C) and install one of these at each frame, excepting #2 and #6 where only half of each assembly is used.

Now is the best time to paint the interior of the hull. Clean away all sawdust with a vacuum cleaner and then apply three coats of spar varnish or weatherproof enamel. Also, using a light wooden batten as you did when fairing the framework for planking, prepare the deck framing to be covered with plywood.

**Attaching the Deck.** Clamp two panels of the 5/16-in. plywood in place at the bow (Fig. 13E) to mark and cut them as you did the planking. Two more 4 x 8-ft. panels are shaped in the same way after aligning the edges with the aft edge of the transom. This leaves a section amidships that is not covered with plywood but which will be filled in later with the material cut away to form the cockpit openings.

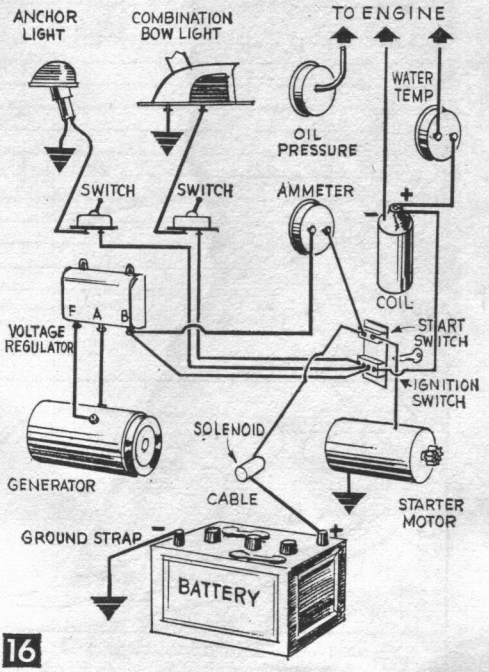
Lay out the routing templates in Fig. 17A on 1/8-in. oil-tempered hardboard. After cutting these and placing the shaped deck panels on saw horses to provide a comfortable working position, locate the templates as in Fig. 15A and hold them temporarily in place with tacks. Now set the bitt of a portable router to cut 1/16 in. into the decking and, after making a few trial runs in scrap plywood, use the

first coat is dry to the touch before adding the second. The filled and sealed deck is now allowed to age while you complete the rest of the boat.

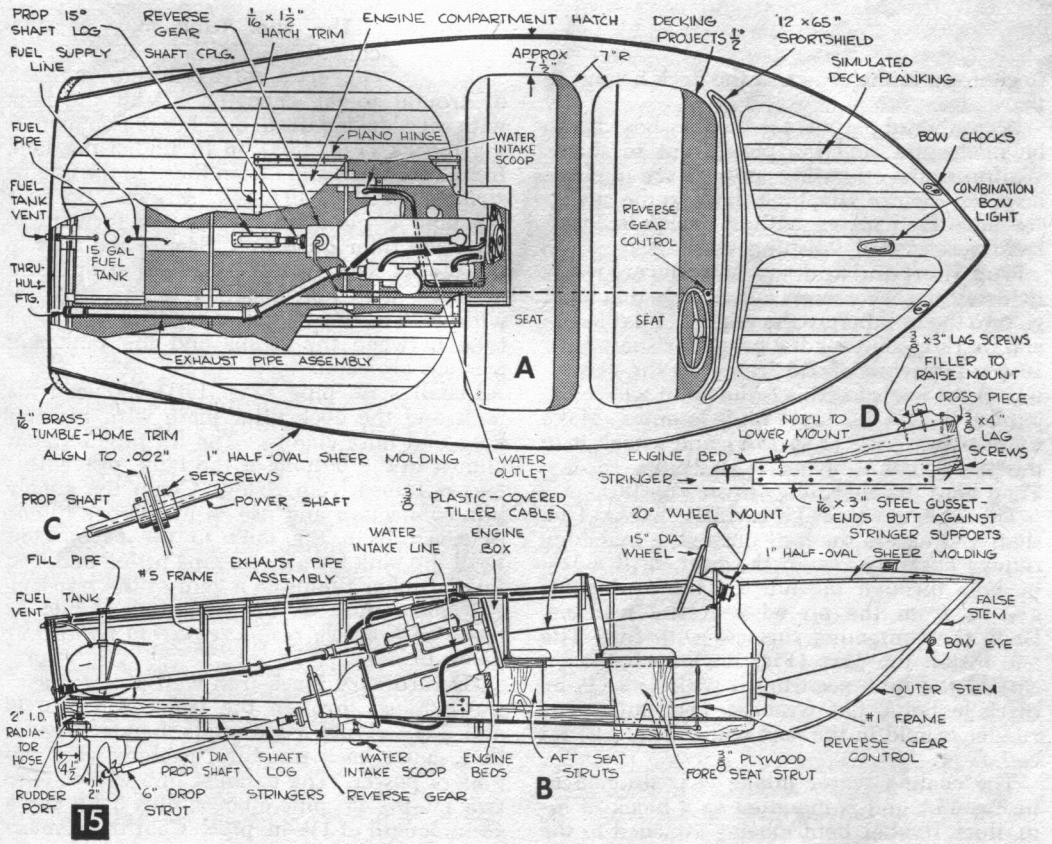
Install the seat risers by ripping a 66-in. piece of 1 x 4 stock in half lengthwise and notch these pieces partway into the frames at the locations in Fig. 3. Attach these with glue and one #8 x 1¾-in. *fh* screw to each joint.

**Installing the Seats.** Cut the seat bottoms and backs according to the dimensions in Fig. 12 and attach the 1 x 2 and 2 x 2 stock for framing. Then cut a pair of seat struts for each seat, checking the fit of the parts by temporary assembly, then attach the struts to the keelson and the seat bottoms to the risers and struts with #8 x 1¾-in. screws.

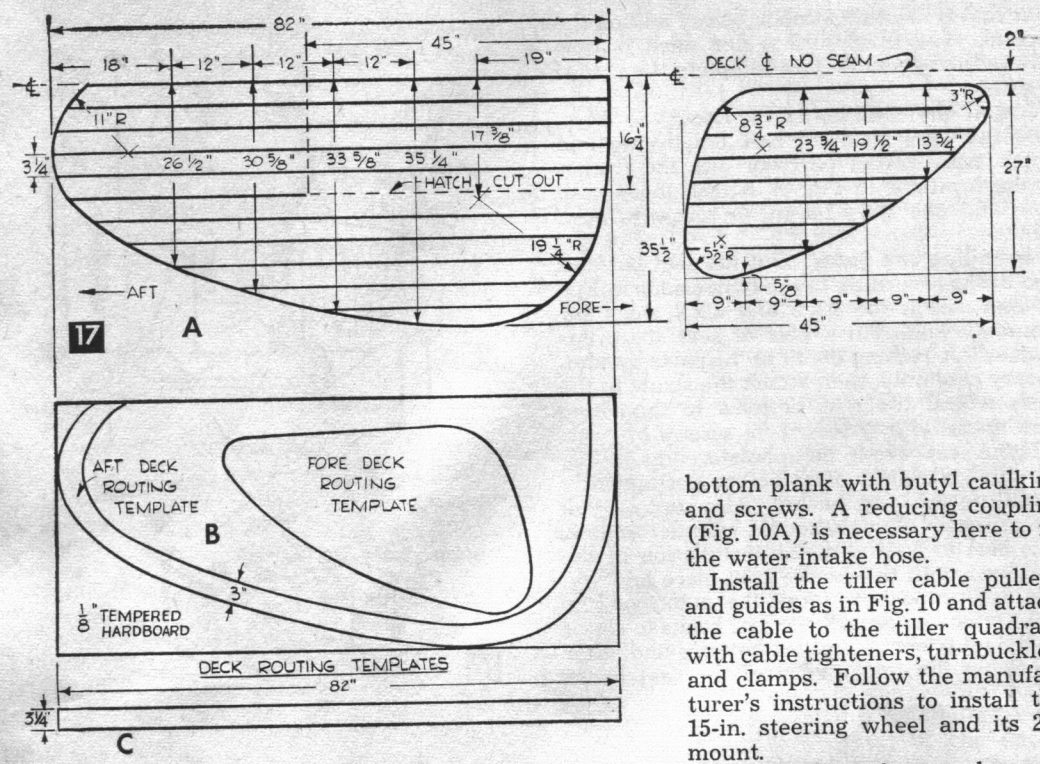
If the seats are to be upholstered as in Fig. 12, this should be done before permanently installing the seat backs.. Also, unless you are using the Studebaker six-cylinder engine, it is best to wait with the installation of the rear seat until the engine is in place and you can determine how large the cutouts (Fig. 13A) must be. Attach the seat backs to cleats on the aft edges of the seat bottoms and, after trimming the upper edge of the seat backs




16




15




to conform to the crown of the deck beams, to these also.

A cardboard pattern for the floorboards can be made now and the panels cut to shape. Wait until the operating controls are in place, however, before attaching these to the stringers and floor plates with #8 x 1¾-in. oval-head screws and finishing washers.

**Prop Shaft and Rudder.** You now are ready to install the accessories and fittings that must go into the hull before the engine. First locate and mark a point for the propeller shaft alley 10½ in. forward of #5 frame on the centerline of the keelson. This is the point where the pilot of the 1⅛-in. auger bit is to enter. Make up the boring jib (Fig. 18A) and attach it to the keelson with two #12 x 2¼-in. screws. Then bore the shaft alley as in Fig. 18B.

The rudder used (Fig. 15B) has a 1-in. shaft and enters the hull through a matching rudder port. To install the port, drill a 1½-in. hole through the hull on the centerline, 4½ in. from the aft edge of the transom. Daub the contacting surfaces with Stay-Tite and install the port (Fig. 10C) from the inside of the hull, securing it with ⅜ x 1½-in. carriage bolts, flat washers, and nuts. The rudder is held in the port with a 1-in. I.D. set collar.

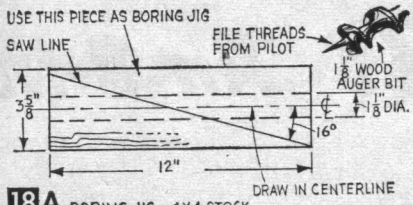
The cooling water intake is positioned as in Fig. 15A and is mounted on a block of ¾-in.-thick lumber before being attached to the bottom plank with butyl caulking and screws. A reducing coupling (Fig. 10A) is necessary here to fit the water intake hose.

Install the tiller cable pulleys and guides as in Fig. 10 and attach the cable to the tiller quadrant with cable tighteners, turnbuckles, and clamps. Follow the manufacturer's instructions to install the 15-in. steering wheel and its 20° mount.

**The Fuel Tank** may be purchased ready-made or you can convert a salvaged auto gas tank of around 15-gal. capacity. Clean the tank with sal soda and drain dry. Make two mounting blocks (Fig. 15B) to fit under the tank from 2 x 4 stock and fasten these to the engine stringers with #10 x 2-in. screws. Be sure the tank is mounted far enough forward to clear the tiller quadrant. Secure the tank to the blocks with 1/16 x 1¼-in. steel straps bent over the tank and fastened to the stringers with #10 x 2-in. *rh* screws. Strips of inner tube between the straps and the tank will prevent abrasion.

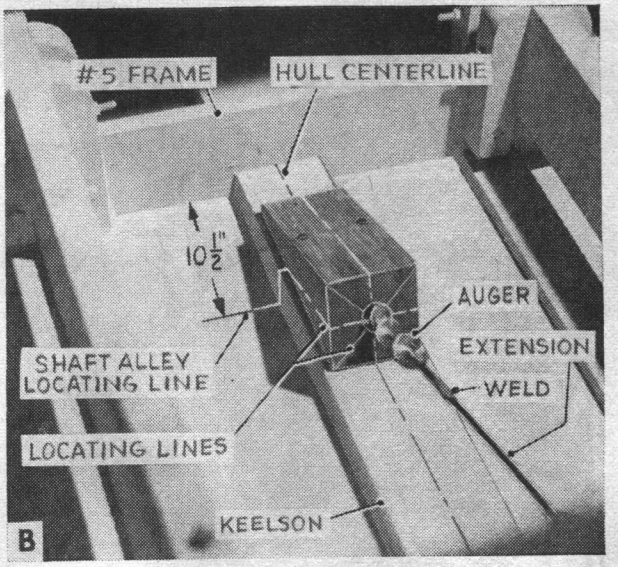
Install a fill pipe (Fig. 15B) between the tank and the deck filler plate with radiator hose and hose clamps. The fill pipe extends almost to the bottom of the tank, preventing excess fumes from rising. Clean the supply line connection and use ⅜-in. copper tubing to reach from the tank to the carburetor. Drill the tank for a ⅛-in. pipe fitting and lead ¼-in. rubber tubing to a vent at the transom. *All connections on the fuel tank should be made with epoxy resins requiring no heat or flame to use.*

Use ordinary black-iron well pipe to carry the exhaust through the transom (Figs. 10 and 15). Avoid right-angle bends here as they cause back pressure, robbing your engine of power. The exhaust line will require two 1½-in., 45° pipe elbows, plus a 12- and a 48-in. length of 1½-in. pipe. Coat the connec-




**18A** BORING JIG, 4X4 STOCK

**After drilling and cutting from 4 x 4 stock, mark the centerline of the guide hole on the outside of the jig. Then align this with a pencil line drawn through the shaft alley location and fasten the jig to the keelson with two #12 x 2¼-in. screws. File the threads from the pilot screw of a 1⅛-in. wood auger, to which a 15-in. length of ⅜-in. steel rod has been welded, allowing it to be used in a medium-speed ½-in. electric drill. When finished boring, remove the jig and smooth the hole with a coarse file. Then coat the alley and the surrounding area with the same resin used to apply fiber glass.**




tions with Stay-Tite when installing the through-hull fitting, then secure it with the lock nut. Make the connections on the inside of the hull with hose clamps and temporarily support the fore end of the 4-ft. pipe until the engine is installed.

Now coat the contacting surfaces of the shaft log (Fig. 15A) and the keelson with Stay-Tite and assemble these with #12 x 2¼-in. *rh* screws. Insert the propeller shaft in the log and place the strut (Fig. 15B) over the shaft on the underside of the hull. Position the strut so the shaft turns freely, then mark the location of the bolt holes on the keelson. Attach the strut with four ⅝16 x 2½-in. machine bolts, flat washers, and nuts.

**Installing the Engine.** The safest method and often the least expensive is to hire a tow truck to hoist the engine aboard, because two or three fittings may be required before the engine is ready to be bolted down.

When the engine on the beds and the coupling halves (Fig. 15C) in place on the transmission and propellor shafts, check engine alignment by bringing the coupling tightly together over three pieces of paper spaced at equal distances around it. If any of these papers can be removed without tearing, the engine must be shifted slightly in that direction. To raise an engine mount, fit a wooden wedge or shim between the mount and the engine bed; to lower, cut away the bed beneath the mount (Fig. 15D). When the correct alignment is obtained, secure the engine with ⅜ x 4-in. lag screws.

Now install the propeller, checking to see that there is at least 2 in. between the propellor and the rudder (Fig. 15). Further repositioning of the engine may be necessary to obtain this clearance.

Now make up the shift control (Fig. 15) from ¼-in. steel rod to reach from the gear box lever to the control lever mounted between the fore seats. Attach this at each end with clevis pins. The throttle control is a flexible cable running along the hull to the lever mounted at the starboard side of the cockpit.

After connecting the 4-ft. exhaust pipe to the manifold, Riviera is ready to run, needing only two coats of paint, the fittings, and a white filling for the scored deck seams.

To make this, mix spackling compound and flat white paint, adding thinner until you get a putty-like consistency. Use a spatula to force this mixture into the routed seams, allowing as little as possible to get on the finished plywood. Remove excess filler carefully with a cloth dampened in thinner. When finished, apply two more coats of Firzite and two coats of spar varnish. Sand all but the last coat with 3/0 waterproof sandpaper and water.

Finally attach the fittings and lights as in Figs. 2 and 15, bedding each part in butyl caulking compound.

**Make Your Test Run,** carefully checking the operating temperature and oil pressure before attempting higher speeds. Also note and correct any vibrations that would indicate misalignment of the engine or strut and detract from your enjoyment of Riviera's performance.

● Craft Print No. 327 in enlarged size for building Riviera is available at $2. To avoid possible loss of coin or currency in mails, remit by check or money order (no CODs or stamps) to Craft Print Dept. 2196, SCIENCE and MECHANICS, 505 Park Ave., New York 22, N. Y. Now available, our new illustrated catalog of "194 Do It Yourself Plans," 25¢ (refundable on first order).

## Construction Procedure

YOU can do more than just wish that you had a sleek, powerful, mahogany-decked runabout like Riviera. By constructing it yourself you can turn out this eye-appealing 38-*mph* boat that will be the pride of the lake and a treat to ride in, yet spend only ⅙ the price of even modest boats of the same size and power. You can further fit Riviera to your pocketbook by bargain hunting and using just the amount of trim you wish.

Although Riviera is up to date in design and is built to provide years of dependable service, I have used the same construction techniques that have proven themselves over and over in handbook boat projects.

First draw the centerline of the transom directly on ¾-in. fir exterior plywood and lay it out full-size as in Fig. 3, using the technique in Fig. 4 to draw the top and bottom arcs. To draw the faired curves at the frame sides, mark the end and center points and drive finishing nails partway at these marks. Bend a ¾-in.-sq. wooden batten against the nails as a guide when drawing the lines.

Next mark the shape of the bottom, side, and top framepieces, in that order, on 1 x 4 oak or fir stock, clamping it in place and tracing the transom edges on it. Cut the framepieces to shape, coat the contacting surfaces with glue, and attach them to the transom with #8 x 1½-in. flathead (*fh*) screws spaced 3 in. apart in a staggered double row. Also cut and fasten the center framepiece and the reinforcing blocks in the same way.

Next, using 6-ft. lengths of building paper and one of the 4 x 8-ft. plywood panels as a drawing board, draw centerlines and lay out each frame and deck beam full-size as in Fig. 3. Draw the arcs and faired lines with the same method used to lay out the transom.

To transfer the shape of the frame parts, slide the stock under the pattern and line up one edge with a straight line. Crease the paper slightly to keep the stock aligned while you run a toothed dressmaker's wheel along the pattern lines. Be sure to mark the centerlines of the assembly on each horizontal framepiece.

To assemble the frames, lay the parts in place on the pattern to check their fit. Then insert triangular or, as in frames #1 and #2, rectangular pieces of ¼-in. plywood as gussets at the frame joints and trace the shape of the ¾-in. stock on them. Now coat the contacting surfaces with glue and drive three #8 x 1¾-in. *fh* screws through each joint. Fasten the exposed corners of the plywood gussets with 1-in. ringed nails and trim the outer edges flush with the frames.

**Deck Beams.** Frames #1, #4, and #5 have deck beams which are positioned and attached in the same way. Also frames #1 and #2 have 2-piece bottom members that are joined by ¾-in.-thick lumber plates attached with glue and #8 x 1½-in. *fh* screws.

When all frames are assembled, mark the location of the keelson, stringer, and seat riser notches and, also, of the prop shaft and beam cutouts in frame #4. Do not cut these notches, however, until assembly.

The stem assembly is made up of 1⅝-in.-thick lumber joined with a spline and covered on both sides with ¼-in. plywood facings. Lay out the stem full-size on building paper by first drawing the base and vertical reference lines as in Fig. 6A. Then draw the stem and chine knee locating lines and the ordinates used to lay out the curve. Draw in the curve with the aid of a wooden batten and mark the location of the plywood facing with colored pencil. When finished, transfer the shape of the stem parts to the stock and cut them out. Make the splined joint as in Fig. 6B. Cut the grooves for the spline with a dado head on a circular saw or by making a series of side-by-side cuts with a regular saw blade. Coat the contacting surfaces of the stem parts and spline with glue and assemble them along with the lower stem knee on a flat surface using #12 x 2¼-in. *fh* screws. Many of these screws will be removed later to allow the stem parts to be faired.

Next, using the lumber core as a template, make the plywood facings and attach these with glue and 1-in. ringed nails. When the glue has dried, locate and cut the chine and keelson notches.

**Cut the Upper Stem** (Fig. 8B) from 2 x 6 stock, beveling and tapering it as in Fig. 6C. Fasten this to the stem assembly with glue and three #10 x 2¼-in. *fh* screws. Then cut and attach the upper stem knee (Fig. 6A), mounting it flush with the end of the stem.

Make the keelson (Figs. 8B and C) from a 10-ft. length of 2 x 6 stock that has been planed down to 1⅜ in. at the lumberyard. Taper the keelson from full width to 24 in. from the fore end to 2¼-in. where it fits the stem notch. Then, measuring from the fore end, lay out and number the positions for the frames according to Fig. 8. Coat the contacting surfaces of the stem and keelson with glue and assemble them, centerlines aligned, with three #12 x 2¼-in. *fh* screws.

Now with the keelson and stem assembly upside down, place #2 frame in position so the aft end of the stem butts against the plate and the frame is evenly divided over the locating line. Frames #1 and #2 are notched now to fit the stem and keelson assembly.

Be sure that frame #2 is at 90° to the top and edges of the keelson. When the frame fits well, remove it and coat the contacting surfaces with glue. Fasten the frame to the keelson with two #12 x 2¼-in. *fh* screws, countersinking the heads ⅛ in. Next install frame #1 in the same way, driving an additional screw through the plate into the stem and checking to be sure this frame is parallel to frame #2.

When the glue has dried, remove as many screws as necessary from the keelson and stem assembly so you can fair the stem curve as in Fig. 8B, using a wood rasp, jack plane, or power sander. When finished, redrive the screws, countersinking their heads ⅛ in.

**Sheer Plates.** Next lay out one sheer plate as in Fig. 6D directly on ¼-in. plywood and use this as a template to make the other sheer plate and a pair of ¾-in.-thick lumber cores. Then attach the facings to the cores with glue and 1-in. ringed nails. Cut the breast hook (Fig. 6F) from ¼-in. plywood and fasten this to the upper stem with glue and #8 x 1¾-in. *fh* screws.

Place the sheer plates, with facings up, into the frame notches to check their fit and clamp them to the beam of #1 frame to see that everything fits well. It may be necessary to run a hand saw through the joint between the plates to provide a close fit. Now unclamp the plates and, working from the breasthook aft, coat the contacting surfaces with glue. Secure the plates to the stem and frames with #8 x 1½-in. *fh* screws.

Next cut the patterns for the intermediate deck beams (Fig. 3) and knees from paper and arrange them on 1 x 8 stock so they can be cut with the least waste. Transfer the shape of these parts to the stock, cut them, and fit the sheer plate notches.

Now measure back 8 in. from the fore side of beam #1 (Fig. 8) and fasten beam #1B flush with the sheer plates, using two #8 x 2-in. screws to each joint. The beam knees are not installed at this time. Place #1A beam so its fore side is 20 in. forward of beam #1. Support this beam with a vertical strut that is fastened to the beam with glue and one #8 x 1¾-in. *fh* screw and whose lower end is notched into the stem (Fig. 8B) and secured with plywood tabs, glue, and nails.

Next notch the beams for the centerline deck batten (Fig. 8A) and, after fitting the fore end to the sheer plate joint and inserting a filler to bring the top side of the batten flush with the plates, attach it to the beam with glue and two #8 x 1¾-in. *fh* screws and to the breast hook with glue and three #8 x 1½-in. *fh* screws.

Make one each of the supports as in Fig. 5, and temporarily attach the longer one to frame #2 with a crossbrace and #8 x 1¾-in. screws. Attach the other support in the same way to frame #5, but omit the crossbrace.

Now cut and bevel the keelson notch in frame #5 so the frame will sit parallel to frame #2, and attach it with glue and two #12 x 2¼-in. *fh* screws. When the glue has dried, turn the subassembly upside down so it rests on the supports. Then attach the frames #3 and #4 in the same way, beveling the keelson notches as necessary so the frames will hang vertical and be parallel to the other frames.

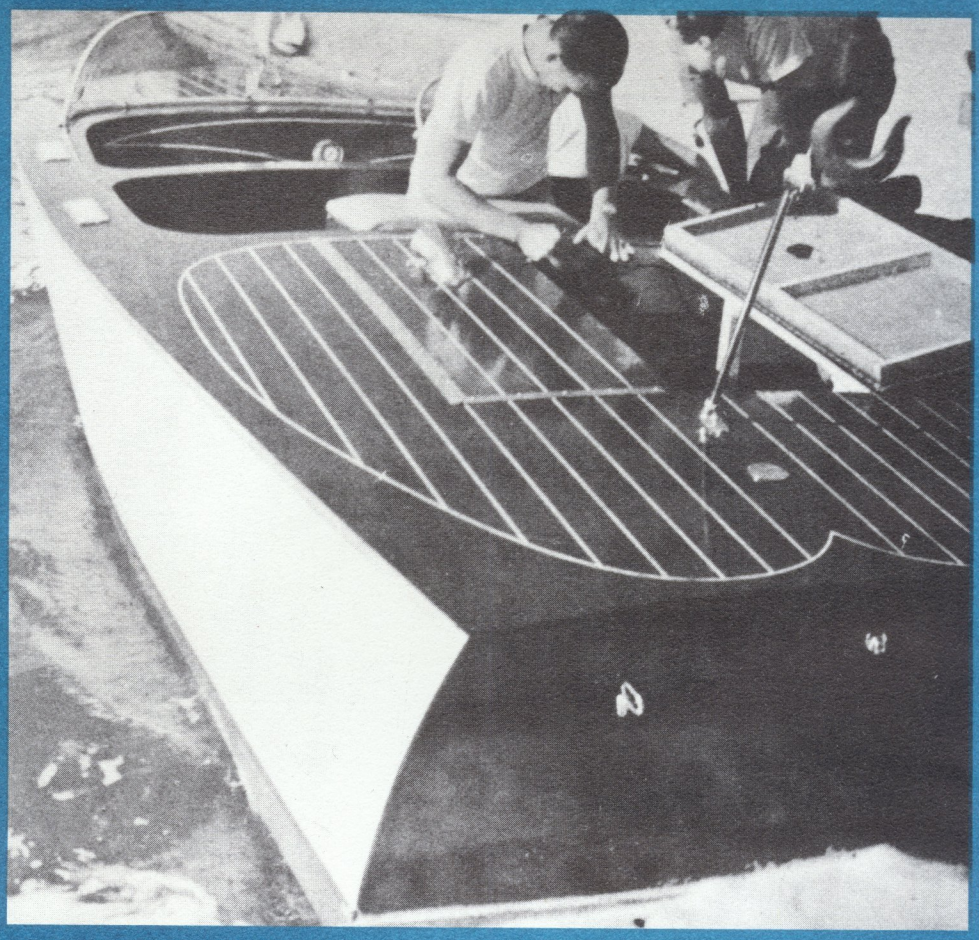
Next attach the transom (Fig. 8B), obtaining the proper angle by attaching ¼-in. plywood transom knees to the center framepiece and keelson with glue and 1-in. ringed nails. Then drive two #12 screws through the keelson into the transom and trim the keelson flush with the aft edge.

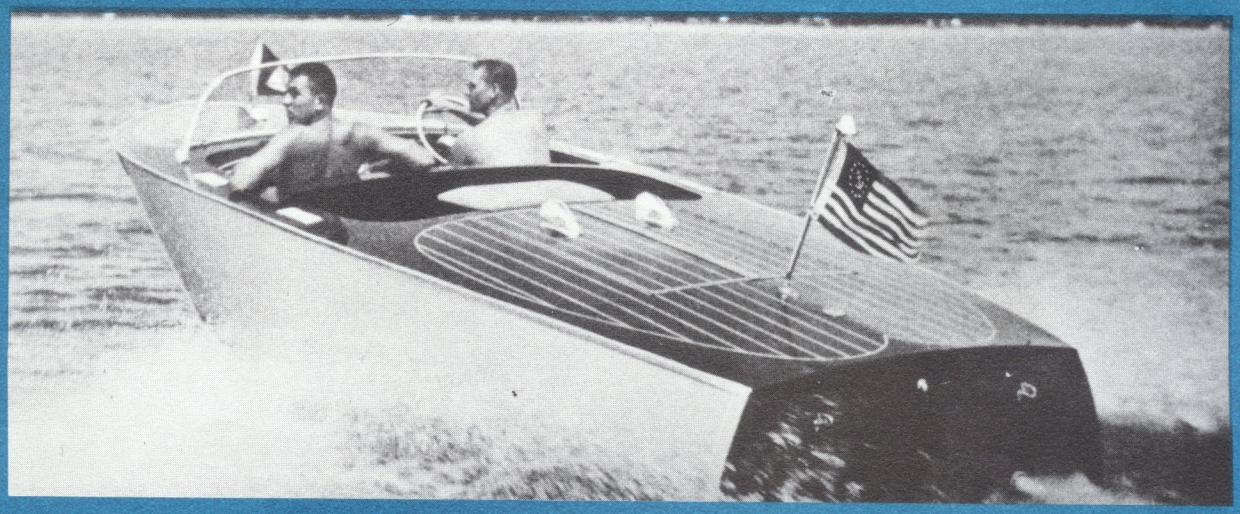
Rip the chines (Fig. 7) from 1 x 4 stock and cut their notches in the lower corner of each frame, using a short piece of chine stock as a gauge so the chine will fit flush. Then clamp the chines at the transom, bend them in, and clamp again at the chine knee. Run an 8-pt. saw between the chine and the notch to fit the frames to the curve of the chine. When the chines fit along their entire length, fasten them to the frames with glue and one #8 x 1¾-in. *fh* screw to each joint, and to the chine knees with two screws to each side. When finished and the glue has dried, install the sheer clamps (Fig. 7) in the same way. Use 1¾-in. stock, however, and begin fitting them in the notches of the sheer plate.

Next rip the bottom stringers (Fig. 8) from

SHEET
1 OF 3

# RIVIERA






**BOAT BUILDER**

229 Park Avenue South New York, N.Y. 10003

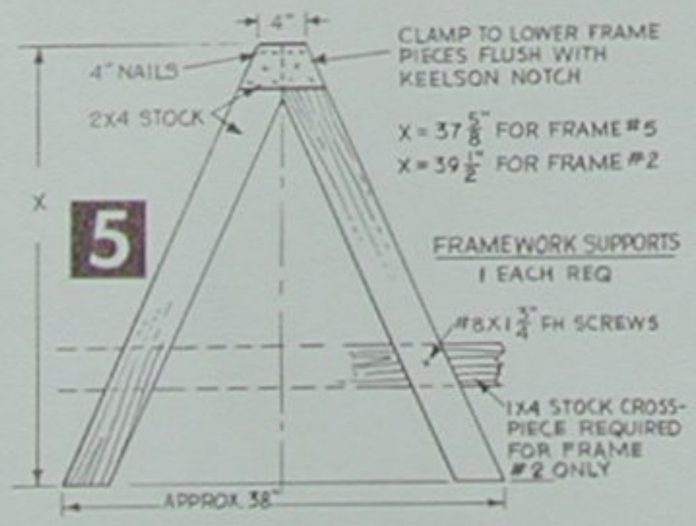
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CRAFT PRINT 327

DECK BATTENS
COMBINATION BOW LIGHT
WINDSHIELD
STEERING WHEEL
VINYL-COVERED FOAM RUBBER UPHOLSTERY
STEP PAD
STEM
SHEER PLATE
FRAME #2
CARLIN
SHEER CLAMP
FRAME #3
ENGINE BED AND STRINGER
FRAME #4
BEVELED CHINES
DECK BEAM KNEE
FRAME #5
DECK BATTENS
ENGINE COMPART-MENT VENT
SCORED DECKING
CONTINUOUS HINGE
ENGINE COMPART-MENT HATCH
STERN LIGHT
FUEL TANK FILLER
SKI TOW HOOK
EXHAUST OUTLET
TRANSOM OUTER FRAME
KEELSON
$\frac{1}{4}$" MAHOGANY TRANSOM FACING
$\frac{3}{4}$" PLYWOOD TRANSOM AND #6 FRAME

**2**

*NOTE: ALL EXPOSED PLYWOOD EDGES COVERED WITH FIBER-GLASS TAPE.




**5**

TO ENGINE

# MATERIALS LIST—RIVIERA

| No. Req. | Size and Description | Use |
|---|---|---|
| 6 | 3/8″x4′x8′ plastic-overlaid 3-ply plywood | side and bottom planks |
| 2 | 3/8″x4′x10′ plastic-overlaid 3-ply plywood | aft side planks |
| 4 | 5/16″x4x8′ African *Mufumbi* 5-ply mahogany plywood | deck |
| 1 | 1/4x24x72″ African *Mufumbi* mahogany plywood | transom facing |

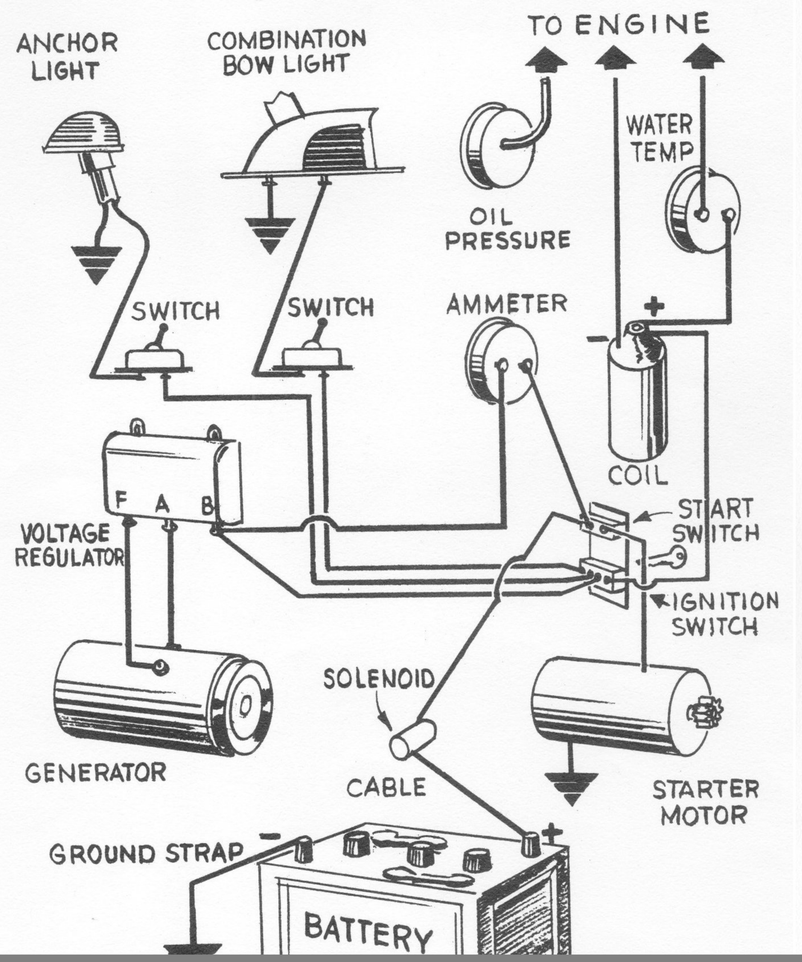
(Above materials available from Harbor Sales, Baltimore, 30, Md.)

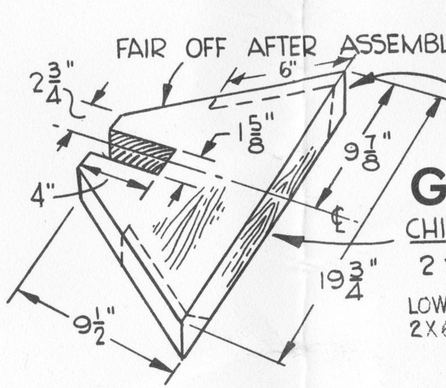
| | | |
|---|---|---|
| 1 | 1/8″x4x8′ tempered hardboard | routing templates |
| 2 | 2x18x72″ foam rubber billets | seat cushions |
| 4 yds. | 36″ vinyl plastic | upholstery |
| 2 | 1/16x2x18″ brass strip | tumble-home trim |
| 2 | 1/16x1″ steel strap | fuel tank strap |
| 2 | 1/16x3x30″ flat steel | engine bed gussets |
| 1 | 1/16x3x9″ aluminum sheet | instrument panel |
| 1 | 1 1/2x72″ black iron pipe | exhaust pipe |
| 2 | 1 1/2″x45° black iron pipe elbows | exhaust pipe |
| 1 | 2″ I.D.x5″ radiator hose and clamps | exhaust pipe connection |
| 8 ft. | 5/8″ I.D. heater hose with clamps | water connection |
| 1 | 15-gal. auto fuel tank | fuel tank |
| 2 qt. | Firzite plywood sealer | |
| 2 gal | spar varnish | |
| 1 qt. | Stay-Tite butyl caulking | |
| Misc. | Spackle powder, flat white paint, turpentine, wood putty, hook-up wire, 3/8″ pipe fittings, rubber and copper tubing, lag screws, bolts | |
| 1 | 12x65″ windshield with mounting | |
| 1 | *Elgin* steering wheel and cable kit | |
| 1 | *Elgin* 3″ fiber glass tape kit | |
| 12 yds | 44″ fiber-glass cloth | |
| 2 gal. | resin | |

(Above materials available from Sears Roebuck and Co.)

| No. Req. | Size and Description | Use |
|---|---|---|
| 1 | *Dyna-Jet* 11x12, *Michalloy-K*, 3-blade, cupped propeller | |
| 1 | 15° self-aligning shaft log with mounting bolts | |
| 1 | 1″ bore, 6″ drop, strut with mounting bolts | |
| 1 | 1″ dia.x45″ propeller shaft with nut, machined to suit prop | |
| 1 | #0 runabout rudder with 1x7 5/8″ post | |
| 1 | rudder port with mounting screws | |
| 1 | 7″ radius rudder quadrant | |
| 1 | 1″ I.D. set collar with setscrew | |
| 1 | 3/8″ fuel tank vent | |
| 1 | 1 1/2″ through-hull exhaust fitting | |
| 1 | 1/2″ water intake fitting | |
| 1 | reverse gear control | |
| 1 | throttle control | |
| 1 | choke control | |
| 1 | battery holder with cables | |
| 1 | switch panel | |
| 1 | 30-amp. ammeter | |
| 1 | 80-*psi* oil pressure gauge | |
| 1 | 100-212°F water temperature gauge | |
| 2 | 3″ cable tighteners | |
| 4 | cable guides | |
| 2 | 1/4x3″ turnbuckles | |
| 1 | combination bow light | |
| 1 | stern light | |
| 2 | clam shell ventilators | |
| 4 | step plates | |
| 1 | 1 1/2″ deck filler cap | |
| 2 | 48″ piano-type hatch hinges | |
| 1 | deck fittings set | |
| 3 | 1″x12″ half-oval aluminum sheer molding | |
| 2 | 1/16x1 1/2x60″ brass hatch trim | |
| 1 qt. | Pettit's light mahogany semi-paste wood filler | |
| 3 qt. | Pettit's ***Polypoxy*** exterior paint | |

(Above materials available from Stoke's Marine Supply Co., Coldwater, Mich.)


ANCHOR LIGHT
COMBINATION BOW LIGHT
TO ENGINE
WATER TEMP
OIL PRESSURE
SWITCH
SWITCH
AMMETER
COIL
F A B
VOLTAGE REGULATOR
START SWITCH
IGNITION SWITCH
SOLENOID
GENERATOR
CABLE
STARTER MOTOR
GROUND STRAP
BATTERY


FAIR OFF AFTER ASSEMBLY
6"
2 3/4"
1 5/8"
9 7/8"
4"
19 3/4"
9 1/2"
FORE ENDS OF CHINES SET FLUSH IN CHINE KNEE
G
CHINE KNEE
2 × 10 STOCK


UPPER STEM KNEE
5"
STEM LOCATING LINE
CHINE NOTCH LOCATING LINE
INTERMEDIATE STEM
PLYWOOD TO HERE
90°
45°
12"
NOTCH FOR CHINE KNEE
4"
1 5/8"
11 1/2"
5 1/2"
LOWER STEM KNEE 2X6 STOCK
20"
22 3/4"
35"
A
C
¢ BATTEN LOCATION
BREAST HOOK LOCATION
7/8"
1 5/8" THICK STEM CORE
1/4 × 1 1/2" PLYWOOD SPLINE
1/4" PLYWOOD FACING EACH SIDE
B
SECTION "A-A"
PLYWOOD TO HERE
LOWER STEM
30 3/4"
7/8"
3/4"
1 1/8"
2 1/2"
3/4"
1 5/8"
24"
12"
12
79"
32 5/8"
13 1/2"
11 1/2"
BASE LINE
VERTICAL REFERENCE LINE
CHINE NOTCH LOCATING LINE
NOTCH FOR KEELSON AFTER STEM IS ASSEMBLED
1/4" PLYWOOD FACING TOP SIDE ONLY
STEM LOCATING LINE
E
1/4 × 1 1/2" PLYWOOD SPLINE
SECTION B-B
3 1/2" TYPICAL
1 × 8 STOCK 20 1/4"
42 3/8"
30 3/4"
10 1/4"
ROUND OFF
3/4"
5"
1 × 6 STOCK
20"
18"
18"
12"
12"


23"
GRAIN
¢
2 1/2"
11 1/2"
F
BREAST HOOK

6

1 x 6 stock and, after locating them as in Fig. 7, notch them flush into the frames and secure them with glue and two #8 x 1¾-in. *fh* screws to each joint.

**Framework Is Now Faired** prior to planking, using several ¼ x 1¼-in. wooden battens ranging 4- to 16-ft. in length. Lay these along the framework and across the bilge stringers to locate areas that are ¼ in. or more above the rest of the framing. Trim these areas with a jack plane or a Stanley (Sear's) *Surform* rasp. If low spots are found, glue in filler pieces or "dutchmen" and trim these so the checking batten will make a smooth curve when laid anywhere along the frame.

You are now ready to attach the plywood planking. The original Riviera used a three-ply, plastic-overlayed plywood (See Materials List) for the sides and bottom which will take a glass-like finish and resist checking when painted with marine paints. Also, for smart appearance and increased value, five-ply African mahogany, scored and filled to simulate individual planks, was used for the deck. For economy, however, fir exterior plywood of the same thicknesses may be substituted.

First cover the transom with a ¼-in. mahogany plywood facing and a 3-in.-wide outer frame. Rabbet the frame (Fig. 13D) to hold the lower edge of the facing and fasten it to the transom with glue and #8 x 1¾-in. *fh* screws spaced 3 in. apart. Now set the plywood in the rabbet and trace the outline of the transom on it. Saw this to shape and, after coating the mating surfaces with glue, clamp the facing in place. For economy, this facing can be omitted and the transom covered with fiber glass.

**Start Planking the Hull** by clamping entire 4 x 8-ft. plywood panels to the aft bottom of the framework so the 8-ft. edges meet along the centerline of the keelson (Fig. 13A) and the aft edges are flush with the transom. Make a pencil line along the sheer, chine, and transom, then trace in the outlines of the keelson and bottom battens. Remove the panel and drill #4 lead holes at 12-in. intervals in these outlines. Connect these holes with a pencil line on the outside of the panel so you can locate and drive the planking screws.

Now saw the marked planks to shape and apply glue to the contacting surfaces of the planking and framework, except for the transom and chines—where a 1/16-in.-thick layer of *Stay-Tite* butyl caulking is used. Clamp the planking in place again and fasten it with #8 x 1¼-in. *fh* screws spaced 2½ in. apart, driving a double row along the transom, and countersinking all screw heads 1/16-in. below the surface. Attach butt battens (Fig. 13F) to the fore edge of the installed planks so their centerlines coincide with the plywood edges.

Use a cardboard pattern to determine the shape of the fore-bottom planks. Line up the edges of the cardboard with the keelson centerline and butt batten, and mark it along the stem and chines. After cutting this to shape, transfer the outline to plywood, allowing ½ in. along the chine and stem lines for fitting. Cover the fore end of the planks with wet burlap and run a hot electric iron over this to steam the plywood and make it pliable. Prepare both fore-bottom planks so they can be clamped in place at the same time and attached as were the bottom planks.

2 x 12 stock and attach them to the stringers with glue and ⅜ x 4-in. lag screws, countersinking these as necessary. After installing the crosspieces with half-lapped joints at each end, make up 1/16-in. steel gussets (Fig. 15D) and fasten these to both sides of each bed with #8 x 1½-in. *rh* screws.

Rip the 1⅝-in. stock for the stringer support assemblies (Fig. 8C) and install one of these at each frame, excepting #2 and #6 where only half of each assembly is used.

Now is the best time to paint the interior of the hull. Clean away all sawdust with a vacuum cleaner and then apply three coats of spar varnish or weatherproof enamel. Also, using a light wooden batten as you did when fairing the framework for planking, prepare the deck framing to be covered with plywood.

**Attaching the Deck.** Clamp two panels of the 5/16-in. plywood in place at the bow (Fig. 13E) to mark and cut them as you did the planking. Two more 4 x 8-ft. panels are shaped in the same way after aligning the edges with the aft edge of the transom. This leaves a section amidships that is not covered with plywood but which will be filled in later with the material cut away to form the cockpit openings.

Lay out the routing templates in Fig. 17A on ⅛-in. oil-tempered hardboard. After cutting these and placing the shaped deck panels on saw horses to provide a comfortable working position, locate the templates as in Fig. 15A and hold them temporarily in place with tacks. Now set the bitt of a portable router to cut 1/16 in. into the decking and, after making a few trial runs in scrap plywood, use the template as a guide to route the outlines into the panels. When the outlines are finished, use a 3¼-in.-wide strip of hardboard as a guide to cut the simulated plank seams (Fig. 17C).

When all four panels are scored, lay out and cut the hatch and cockpit openings (Fig. 15A). Attach the decking with glue and #17 x 1-in. *fh* screws, countersinking the heads 1/32 in. Use the remaining pieces of mahogany plywood to fill in the space amidships (Fig. 13E) and to face #1B beam, which will be your dashboard. Use a cardboard pattern here to make a good fit and attach the facing with glue and countersunk #7 x 1-in. *fh* screws spaced 6 in. apart.

Now cut and install the 1⅝-in.-sq. supports (Fig. 7) for the inboard ends of #4 beam and use the cut-away portion of this beam to make six hatch beams (Fig. 14B). Rip the rest of the hatch framing from 1 x 4 stock and assemble it (Fig. 14A) with glue and 1¾-in. *fh* screws. Attach the cut-away portion of the aft deck panels to the framing with #7 x 1-in. *fh* screws, placing the screws between the scoring. Attach hatch stops to beams #3A and #4A, making sure the hatch is flush with the deck when resting on these stops. Install the hatch hinges next, driving only six screws in each hinge to hold them while you check the fit by opening and closing the hatch, adjusting the hinges and trimming the inboard edges of the hatch as necessary. When the hinges work smoothly, drive the rest of the screws.

Sand the deck with 3/0 sandpaper, holding a bright light just above the surface so you can see unwanted ripples clearly. When the surface is as smooth as you can sand it, use a vacuum cleaner to draw the sawdust from the scoring.

Now dilute semi-paste mahogany wood

and its 20° mount.

**The Fuel Tank** may be purchased ready-made or you can convert a salvaged auto gas tank of around 15-gal. capacity. Clean the tank with sal soda and drain dry. Make two mounting blocks (Fig. 15B) to fit under the tank from 2 x 4 stock and fasten these to the engine stringers with #10 x 2-in. screws. Be sure the tank is mounted far enough forward to clear the tiller quadrant. Secure the tank to the blocks with 1/16 x 1¼-in. steel straps bent over the tank and fastened to the stringers with #10 x 2-in. *rh* screws. Strips of inner tube between the straps and the tank will prevent abrasion.

Install a fill pipe (Fig. 15B) between the tank and the deck filler plate with radiator hose and hose clamps. The fill pipe extends almost to the bottom of the tank, preventing excess fumes from rising. Clean the supply line connection and use ⅜-in. copper tubing to reach from the tank to the carburetor. Drill the tank for a ⅛-in. pipe fitting and lead ¼-in. rubber tubing to a vent at the transom. *All connections on the fuel tank should be made with epoxy resins requiring no heat or flame to use.*

Use ordinary black-iron well pipe to carry the exhaust through the transom (Figs. 10 and 15). Avoid right-angle bends here as they cause back pressure, robbing your engine of power. The exhaust line will require two 1½-in., 45° pipe elbows, plus a 12- and a 48-in. length of 1½-in. pipe. Coat the connections with Stay-Tite when installing the through-hull fitting, then secure it with the lock nut. Make the connections on the inside of the hull with hose clamps and temporarily support the fore end of the 4-ft. pipe until the engine is installed.

Now coat the contacting surfaces of the shaft log (Fig. 15A) and the keelson with Stay-Tite and assemble these with #12 x 2¼-in. *rh* screws. Insert the propeller shaft in the log and place the strut (Fig. 15B) over the shaft on the underside of the hull. Position the strut so the shaft turns freely, then mark the location of the bolt holes on the keelson. Attach the strut with four 5/16 x 2½-in. machine bolts, flat washers, and nuts.

**Installing the Engine.** The safest method and often the least expensive is to hire a tow truck to hoist the engine aboard, because two or three fittings may be required before the engine is ready to be bolted down.

When the engine on the beds and the coupling halves (Fig. 15C) in place on the transmission and propellor shafts, check engine alignment by bringing the coupling tightly together over three pieces of paper spaced at equal distances around it. If any of these papers can be removed without tearing, the engine must be shifted slightly in that direction. To raise an engine mount, fit a wooden wedge or shim between the mount and the engine bed; to lower, cut away the bed beneath the mount (Fig. 15D). When the correct alignment is obtained, secure the engine with ⅜ x 4-in. lag screws.

Now install the propeller, checking to see that there is at least 2 in. between the propellor and the rudder (Fig. 15). Further repositioning of the engine may be necessary to obtain this clearance.

Now make up the shift control (Fig. 15) from ¼-in. steel rod to reach from the gear box lever to the control lever mounted between the fore seats. Attach this at each end

**Side Planks.** Before installing the side planks, the bottom planking must be trimmed (Fig. 13B) so it will butt against the edges of the side planks 54 in. along the seams. First mark the centerline on each chine, then cut through the plywood and trim it away. Aft of this area the side planks lap the bottom planks (Fig. 13C).

After shaping and installing the side planks (Fig. 13A) in the same way as you did the bottom planks, trim the seams along the bow to take the outer stem (Fig. 13G). Attach the ½ x 1¼-in. stock with glue and #8 x 1¾-in. *fh* screws. When the glue is dry, remove the screws and fair off the fore end of the stock so a tapered piece of 1 x 4 stock will fit tightly against the upper stem. Attach this in the same way, again removing the screws to fair and shape the assembly (Fig. 13H). When finished, redrive the screws at the stem and go on to round the edges of the planking so fiber-glass cloth can be applied without damage.

**Fiber-glass Protection.** Cover the bottom of the hull on each side of the centerline with a piece of 44-in.-wide fiber-glass cloth, trimming it along the chines (Fig. 13A). Roll the cloth on a mailing tube for easy handling; then, starting at the transom and working forward, apply resin according to the manufacturer's instructions, laying on the cloth 18 in. at a time. When the bottom is covered and the first coat of resin applied, cover the chine edges from the transom to the stem with 3-in.-wide fiber-glass tape. For the most durable finish, apply four coats of resin, allowing each to cure before applying the next.

Now get the gang together and make any promises you must to get some help in turning the hull. You've got a pretty good-size boat on your hands now and it will take plenty of muscle and careful maneuvering to turn it over without putting undue strain on the hull or the helpers.

**When the Hull is Turned** and supported in a well-padded cradle so you can work on it without danger of tipping, you are ready to install the deck beam knees (Figs. 2 and 3). After notching them to fit the sheer plate or clamps, position the knees and trace around them to locate lead holes in the side planks. Then attach the knees to the planks with glue and #8 x 1½-in. *fh* screws and to the beams with three #8 x 1½-in. *fh* screws at each end.

Next rip and shape the stock as necessary for the deck and hatch battens as in Fig. 8. Clamp these in place on the deck beams as in Fig. 2, locating the outboard edge of the carlins 4 in. from the sheer clamps and sighting along them to be sure they form a fair curve. Mark the location of these parts on the beams and cut notches for them. The notches at the transom are cut through the ¾-in. framing and plywood only, not through the mahogany facing. Attach the deck framing with glue and #8 x 1¾-in. *fh* screws.

Install the 12-ft. engine stringers (Fig. 8), notching the frame members 1⅝-in. deep (Fig. 7) and locating the outboard edges of the stringer notches 12 in. on each side of the hull centerline. Cut and fit these notches carefully, because the stringers must absorb all of the engine stress and transmit it as evenly as possible to the frames. Cutting the hatch opening (Fig. 8A) in #4 beam now will make it possible to get the stringers into the framework.

**Cut the Engine Beds** from one piece of filler with thinner until it becomes the consistency of paint. Apply this to the deck with a brush, covering small areas at a time and, after waiting about 20 minutes, wipe it off across the grain with burlap. When the entire deck has been filled, allow a 4-hour drying period, then rub the deck with burlap again, this time rubbing with the grain in long, smooth strokes.

Let the deck dry for 10 hours, then apply two coats of *Firzite* sealer, waiting until the first coat is dry to the touch before adding the second. The filled and sealed deck is now allowed to age while you complete the rest of the boat.

Install the seat risers by ripping a 66-in. piece of 1 x 4 stock in half lengthwise and notch these pieces partway into the frames at the locations in Fig. 3. Attach these with glue and one #8 x 1¾-in. *fh* screw to each joint.

**Installing the Seats.** Cut the seat bottoms and backs according to the dimensions in Fig. 12 and attach the 1 x 2 and 2 x 2 stock for framing. Then cut a pair of seat struts for each seat, checking the fit of the parts by temporary assembly, then attach the struts to the keelson and the seat bottoms to the risers and struts with #8 x 1¾-in. screws.

If the seats are to be upholstered as in Fig. 12, this should be done before permanently installing the seat backs.. Also, unless you are using the Studebaker six-cylinder engine, it is best to wait with the installation of the rear seat until the engine is in place and you can determine how large the cutouts (Fig. 13A) must be. Attach the seat backs to cleats on the aft edges of the seat bottoms and, after trimming the upper edge of the seat backs to conform to the crown of the deck beams, to these also.

A cardboard pattern for the floorboards can be made now and the panels cut to shape. Wait until the operating controls are in place, however, before attaching these to the stringers and floor plates with #8 x 1¾-in. oval-head screws and finishing washers.

**Prop Shaft and Rudder.** You now are ready to install the accessories and fittings that must go into the hull before the engine. First locate and mark a point for the propeller shaft alley 10½ in. forward of #5 frame on the centerline of the keelson. This is the point where the pilot of the 1⅛-in. auger bit is to enter. Make up the boring jib (Fig. 18A) and attach it to the keelson with two #12 x 2¼-in. screws. Then bore the shaft alley as in Fig. 18B.

The rudder used (Fig. 15B) has a 1-in. shaft and enters the hull through a matching rudder port. To install the port, drill a 1½-in. hole through the hull on the centerline, 4½ in. from the aft edge of the transom. Daub the contacting surfaces with Stay-Tite and install the port (Fig. 10C) from the inside of the hull. securing it with. ⅜ x 1½-in. carriage bolts, flat washers, and nuts. The rudder is held in the port with a 1-in. I.D. set collar.

The cooling water intake is positioned as in Fig. 15A and is mounted on a block of ¾-in.-thick lumber before being attached to the bottom plank with butyl caulking and screws. A reducing coupling (Fig. 11A) is necessary here to fit the water intake hose.

Install the tiller cable pulleys and guides as in Fig. 11 and attach the cable to the tiller quadrant with cable tighteners, turnbuckles, and clamps. Follow the manufacturer's instructions to install the 15-in. steering wheel with clevis pins. The throttle control is a flexible cable running along the hull to the lever mounted at the starboard side of the cockpit.

After connecting the 4-ft. exhaust pipe to the manifold, Riviera is ready to run, needing only two coats of paint, the fittings, and a white filling for the scored deck seams.

To make this, mix spackling compound and flat white paint, adding thinner until you get a putty-like consistency. Use a spatula to force this mixture into the routed seams, allowing as little as possible to get on the finished plywood. Remove excess filler carefully with a cloth dampened in thinner. When finished, apply two more coats of Firzite and two coats of spar varnish. Sand all but the last coat with 3/0 waterproof sandpaper and water.

Finally attach the fittings and lights as in Figs. 2 and 15, bedding each part in butyl caulking compound.

**Make Your Test Run,** carefully checking the operating temperature and oil pressure before attempting higher speeds. Also note and correct any vibrations that would indicate misalignment of the engine or strut and detract from your enjoyment of Riviera's performance.

## SPECIFICATIONS

**Length:** ..... **17 feet**
**Midship Beam:** ..... **7 feet—4 inches**
**Draft:** ..... **16 inches**
**Weight:** ..... **1250 lbs.**
**Seating Capacity:** .... **6 passengers**
**Power:** ..... **100 to 225 *hp***
**Performance: 38 *mph* with Studebaker 101-*hp* conversion; Michigan 3-blade, 11x12 cupped prop.**

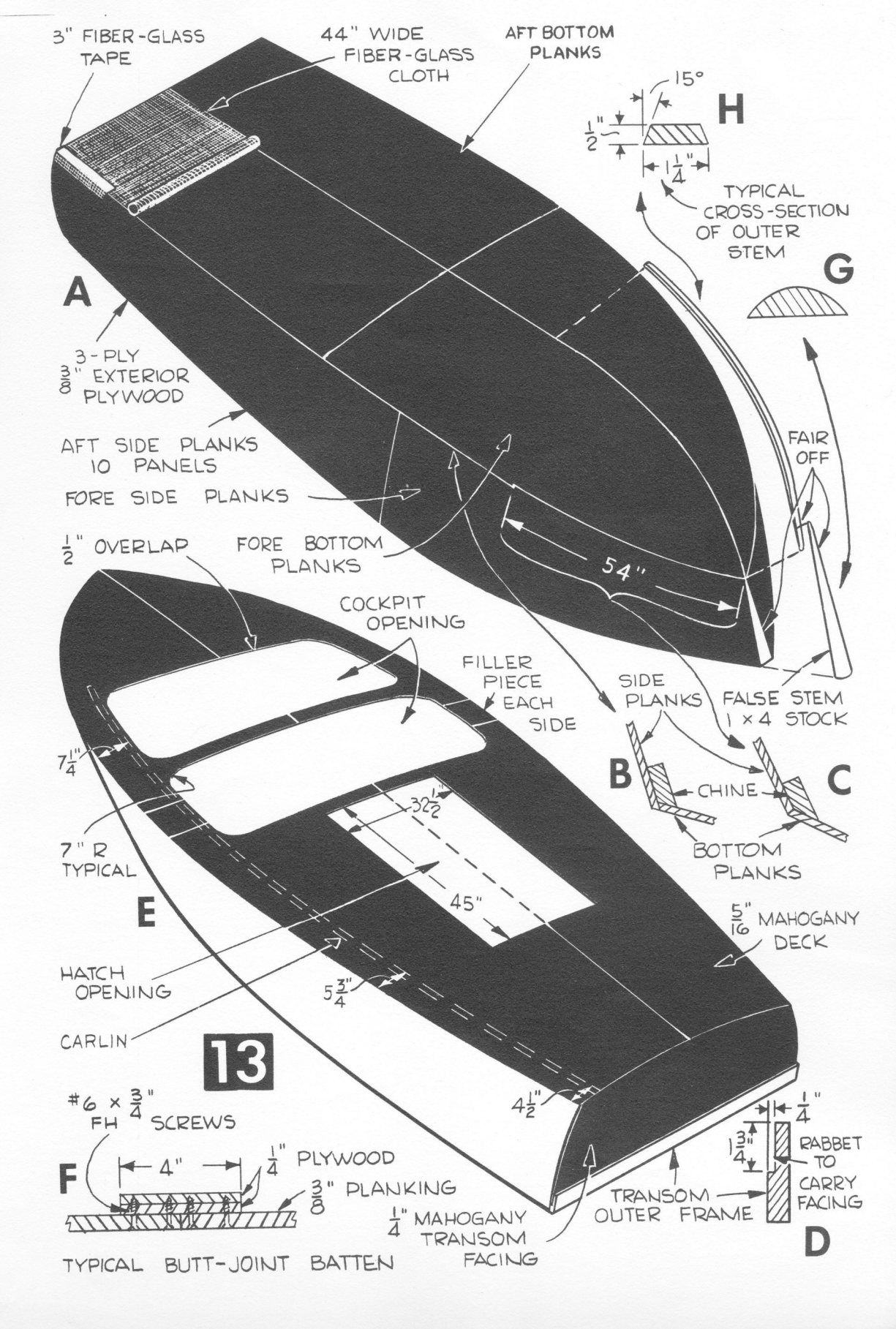
### MATERIALS LIST—RIVIERA (Framing Only)

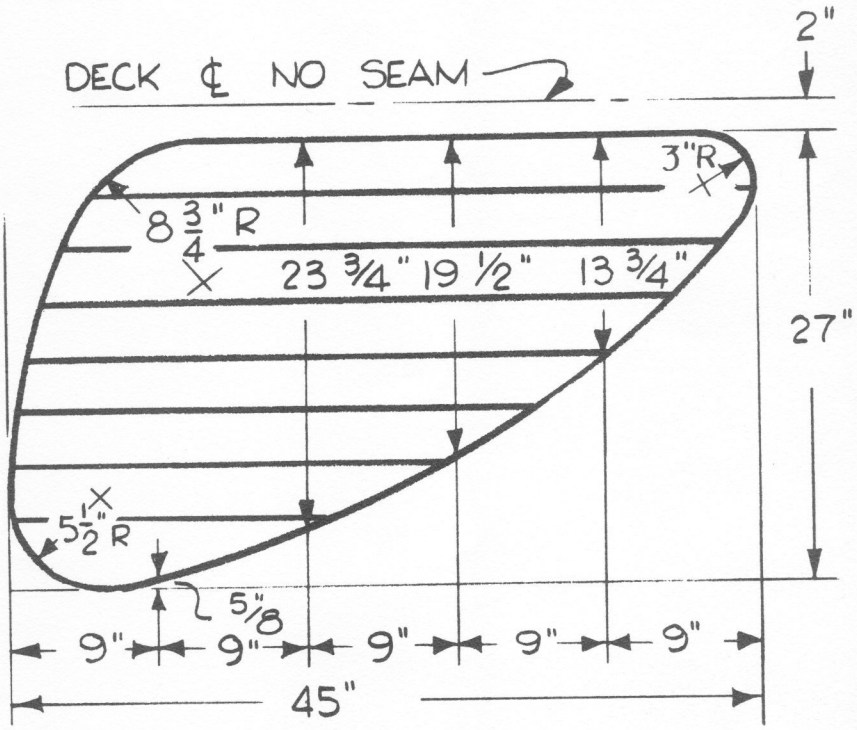
(Parentheses indicate nominal sizes used when ordering lumber)

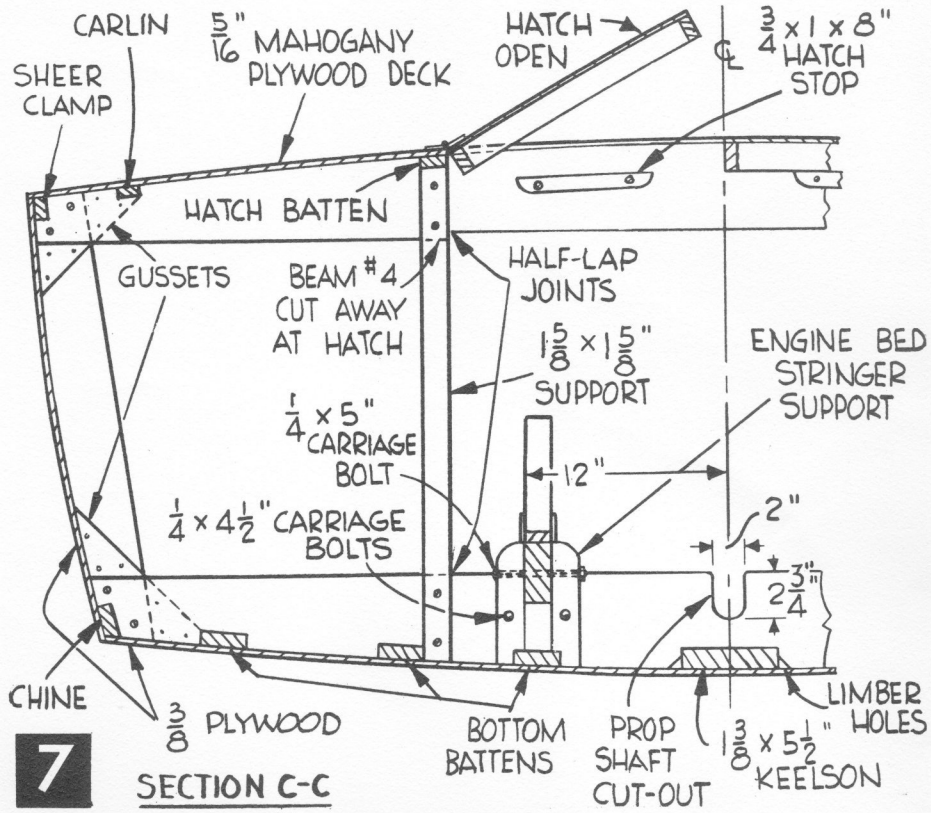
| Amt. Req. | Size and Description | Use |
|---|---|---|
| 2 | (1x4) x 16′ oak, fir, pine | chines, carlins, seat framing |
| 10 | (1x4) x 12′ oak, fir, pine | seat risers, #1 beam supports, sheer clamps, frames, beams, hatch framing |
| 6 | (1x6) x 12′ oak, fir, pine | frames, sheer plates, beams, deck battens |
| 6 | (1x8) x 8′ oak, fir, pine | frames, beams, beam knees, sheer plate |
| 3 | (2x4) x 12′ oak, fir, pine | engine stringers, frame supports |
| 2 | (2x6) x 12′ oak, fir, pine | keelson, stem, beam supports |
| 1 | (2x8) x 4′ oak, fir, pine | lower stem |
| 1 | (2x10) x 2′ oak, fir, pine | chine knee |
| 1 | (2x12) x 8′ oak, fir, pine | engine beds |
| 1 | ¾ x 28 x 72″ fir EXT plywood | gussets, breast hook, facings, splines |
| 1 | ¼″ x 4′ x 8′ fir EXT plywood | transom |

### FASTENING AND MISCELLANEOUS

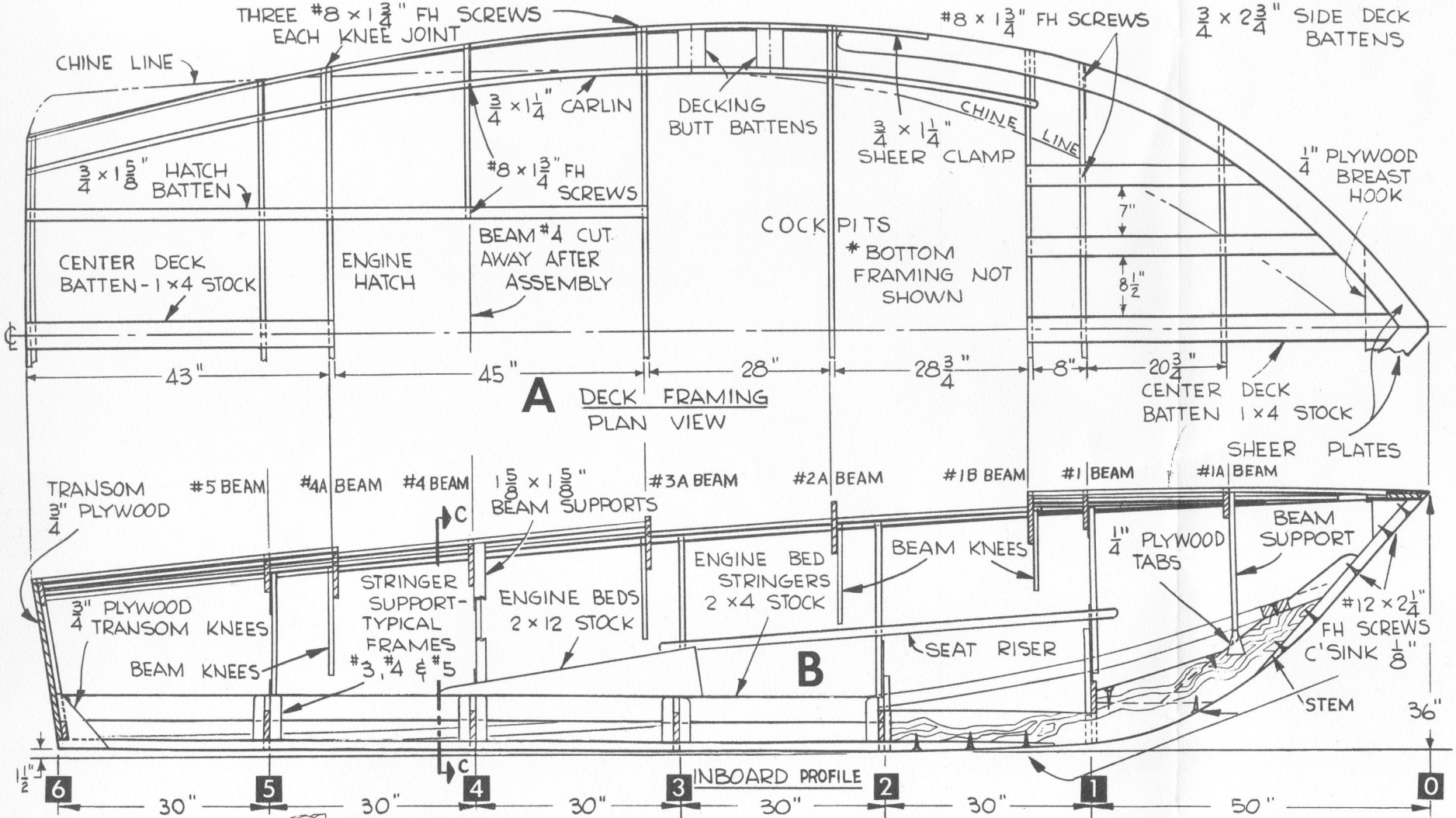
| | |
|---|---|
| 50 ft. | 36″ red rosin building paper |
| 5 lbs. | Weldwood glue powder |
| 3 gr. | #7 x 1″ *fh* brass or monel woodscrews |
| 5 gr. | #8 x 1¼″ *fh* brass or monel woodscrews |
| 2 gr. | #8 x 1½″ *fh* brass or monel woodscrews |
| 1 gr. | #8 x 1¾″ *fh* brass or monel woodscrews |
| 3 doz. | #12 x 2″ *fh* brass or monel woodscrews |
| 3 doz. | #12 x 2¼″ *fh* brass or monel woodscrews |
| 1 lb. | 1″ *Anchorfast* boat nails |

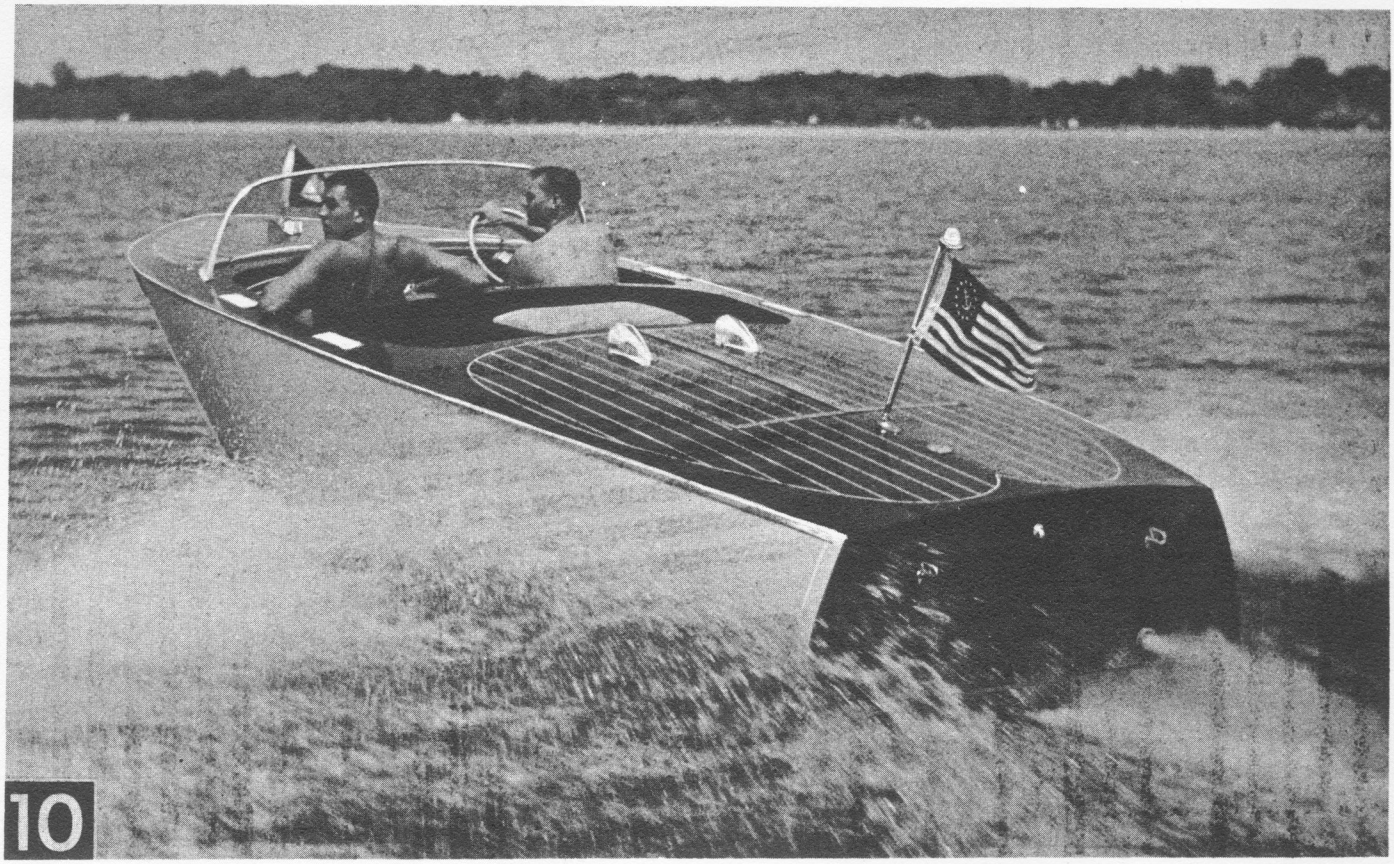

3" FIBER-GLASS TAPE
44" WIDE FIBER-GLASS CLOTH
AFT BOTTOM PLANKS
15°
H
1/2"
1 1/4"
TYPICAL CROSS-SECTION OF OUTER STEM
G
A
3/8" 3-PLY EXTERIOR PLYWOOD
AFT SIDE PLANKS 10 PANELS
FORE SIDE PLANKS
FAIR OFF
1/2" OVERLAP
FORE BOTTOM PLANKS
54"
COCKPIT OPENING
FILLER PIECE EACH SIDE
SIDE PLANKS
FALSE STEM 1 x 4 STOCK
B
CHINE
C
BOTTOM PLANKS
7 1/4"
7" R TYPICAL
32 1/2"
45"
E
5/16" MAHOGANY DECK
HATCH OPENING
5 3/4"
CARLIN
13
#6 x 3/4" FH SCREWS
4 1/2"
1/4"
1 3/4"
RABBET TO CARRY FACING
F
4"
1/4" PLYWOOD
3/8" PLANKING
1/4" MAHOGANY TRANSOM FACING
TRANSOM OUTER FRAME
D
TYPICAL BUTT-JOINT BATTEN


DECK ℄ NO SEAM
2"
3"R
8 3/4" R
23 3/4" 19 1/2" 13 3/4"
27"
5 1/2" R
5/8"
9" 9" 9" 9" 9"
45"


CARLIN
SHEER CLAMP
5/16" MAHOGANY PLYWOOD DECK
HATCH OPEN
℄
3/4 x 1 x 8" HATCH STOP
HATCH BATTEN
GUSSETS
BEAM #4 CUT AWAY AT HATCH
HALF-LAP JOINTS
1 5/8 x 1 5/8" SUPPORT
ENGINE BED STRINGER SUPPORT
1/4 x 5" CARRIAGE BOLT
12"
1/4 x 4 1/2" CARRIAGE BOLTS
2"
2 3/4"
CHINE
3/8 PLYWOOD
BOTTOM BATTENS
PROP SHAFT CUT-OUT
1 3/8 x 5 1/2" KEELSON
LIMBER HOLES

7 SECTION C-C


THREE #8 × 1¾" FH SCREWS EACH KNEE JOINT
CHINE LINE
¾ × 1¼" CARLIN
#8 × 1¾" FH SCREWS
DECKING BUTT BATTENS
¾ × 1¼" SHEER CLAMP
#8 × 1¾" FH SCREWS
¾ × 2¾" SIDE DECK BATTENS
CHINE LINE
¾ × 1⅝" HATCH BATTEN
¼" PLYWOOD BREAST HOOK
7"
8½"
CENTER DECK BATTEN - 1×4 STOCK
ENGINE HATCH
BEAM #4 CUT AWAY AFTER ASSEMBLY
COCK PITS
* BOTTOM FRAMING NOT SHOWN
43"
45"
28"
28¾"
8"
20¾"
CENTER DECK BATTEN 1×4 STOCK
SHEER PLATES
A DECK FRAMING PLAN VIEW
TRANSOM ¾" PLYWOOD
#5 BEAM
#4A BEAM
#4 BEAM
1⅝ × 1⅝" BEAM SUPPORTS
#3A BEAM
#2A BEAM
#1B BEAM
#1 BEAM
#1A BEAM
C
¾" PLYWOOD TRANSOM KNEES
BEAM KNEES
STRINGER SUPPORT - TYPICAL FRAMES #3, #4 & #5
ENGINE BEDS 2×12 STOCK
ENGINE BED STRINGERS 2×4 STOCK
BEAM KNEES
¼" PLYWOOD TABS
BEAM SUPPORT
#12 × 2¼" FH SCREWS C'SINK ⅛"
SEAT RISER
B
STEM
36"
1½"
6
5
4
3
2
1
0
30"
30"
30"
30"
30"
50"
INBOARD PROFILE





# NEW BOAT PLANS CATALOG

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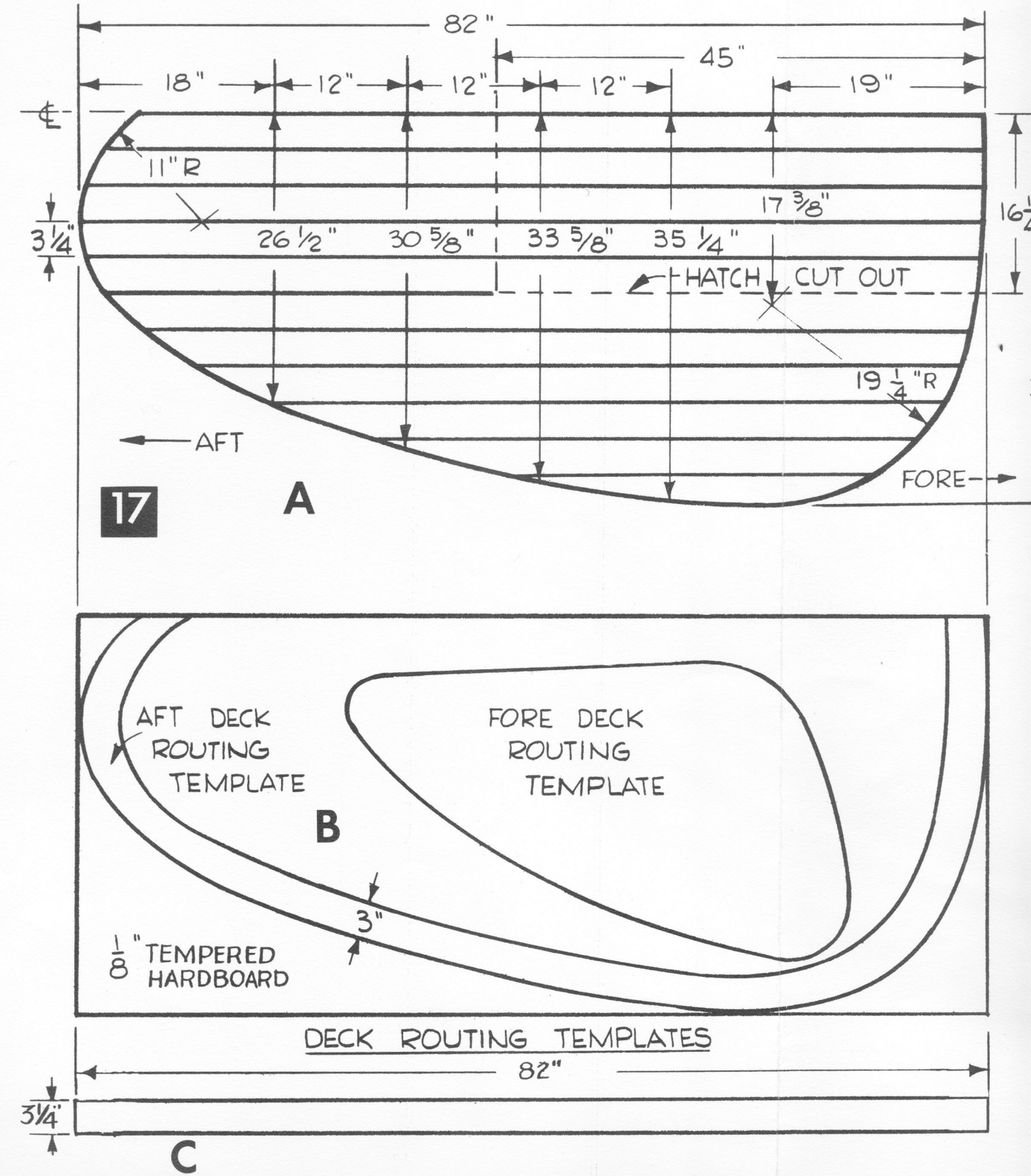
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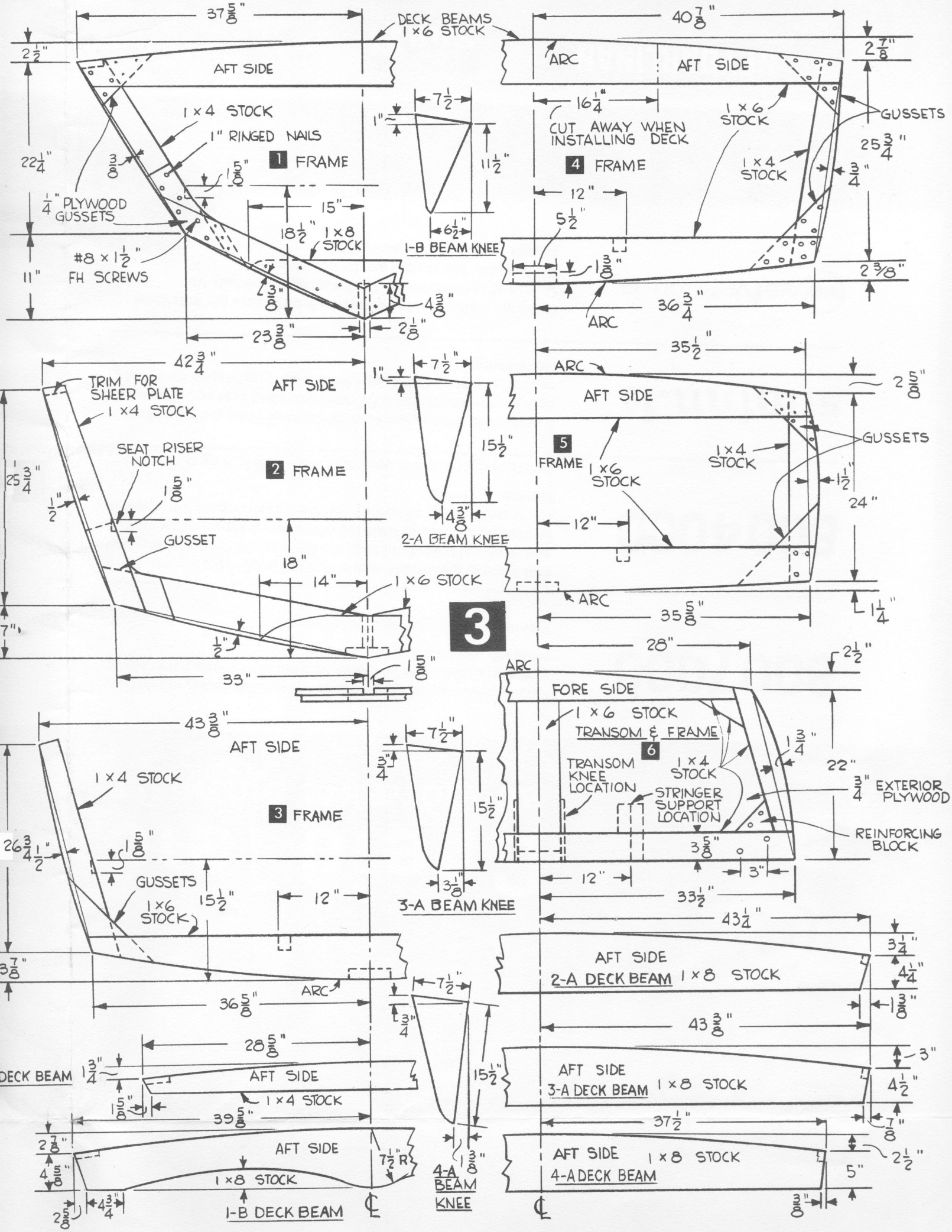
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**Name** _____
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82"
45"
18"
12"
12"
12"
19"
℄
11" R
17 3/8"
16 1/2"
3 1/4"
26 1/2"
30 5/8"
33 5/8"
35 1/4"
HATCH CUT OUT
19 1/4" R
AFT
FORE
17
A
AFT DECK ROUTING TEMPLATE
FORE DECK ROUTING TEMPLATE
B
3"
1/8" TEMPERED HARDBOARD
DECK ROUTING TEMPLATES
82"
3 1/4"
C


DECK BEAMS 1×6 STOCK
AFT SIDE
1×4 STOCK
1" RINGED NAILS
1 FRAME
¼" PLYWOOD GUSSETS
#8 × 1½" FH SCREWS
1×8 STOCK
1-B BEAM KNEE
ARC
AFT SIDE
1×6 STOCK
GUSSETS
CUT AWAY WHEN INSTALLING DECK
4 FRAME
1×4 STOCK
TRIM FOR SHEER PLATE
SEAT RISER NOTCH
2 FRAME
GUSSET
2-A BEAM KNEE
1×6 STOCK
5 FRAME
3
FORE SIDE
TRANSOM & FRAME
6
TRANSOM KNEE LOCATION
STRINGER SUPPORT LOCATION
¾" EXTERIOR PLYWOOD
REINFORCING BLOCK
3 FRAME
GUSSETS
3-A BEAM KNEE
2-A DECK BEAM 1×8 STOCK
3-A DECK BEAM 1×8 STOCK
1-B DECK BEAM
4-A BEAM KNEE
4-A DECK BEAM

HOSE CLAMP
5/8" I.D. RUBBER HOSE
BLOCK 3/4 × 3 × 4"
3/8" PIPE - 2 1/2" LONG
#4 FRAME
REDUCER - 3/8" - 1/2"
1/2" PIPE SIZE WATER SCOOP
4"
4"
3/8" PLYWOOD BOTTOM
CAULK
DIRECTION OF TRAVEL

**A** WATER SCOOP INSTALLATION

DASHBOARD OPENING
3/8"
AMMETER
#8 × 1" RH SCREWS
TEMPERATURE
9"
1 1/2"
2 1/4"
1 1/8"
3/4"
1"R
OIL
3"
3/4"
FLANGE
INSTRUMENT PANEL 1/16" ALUMINUM

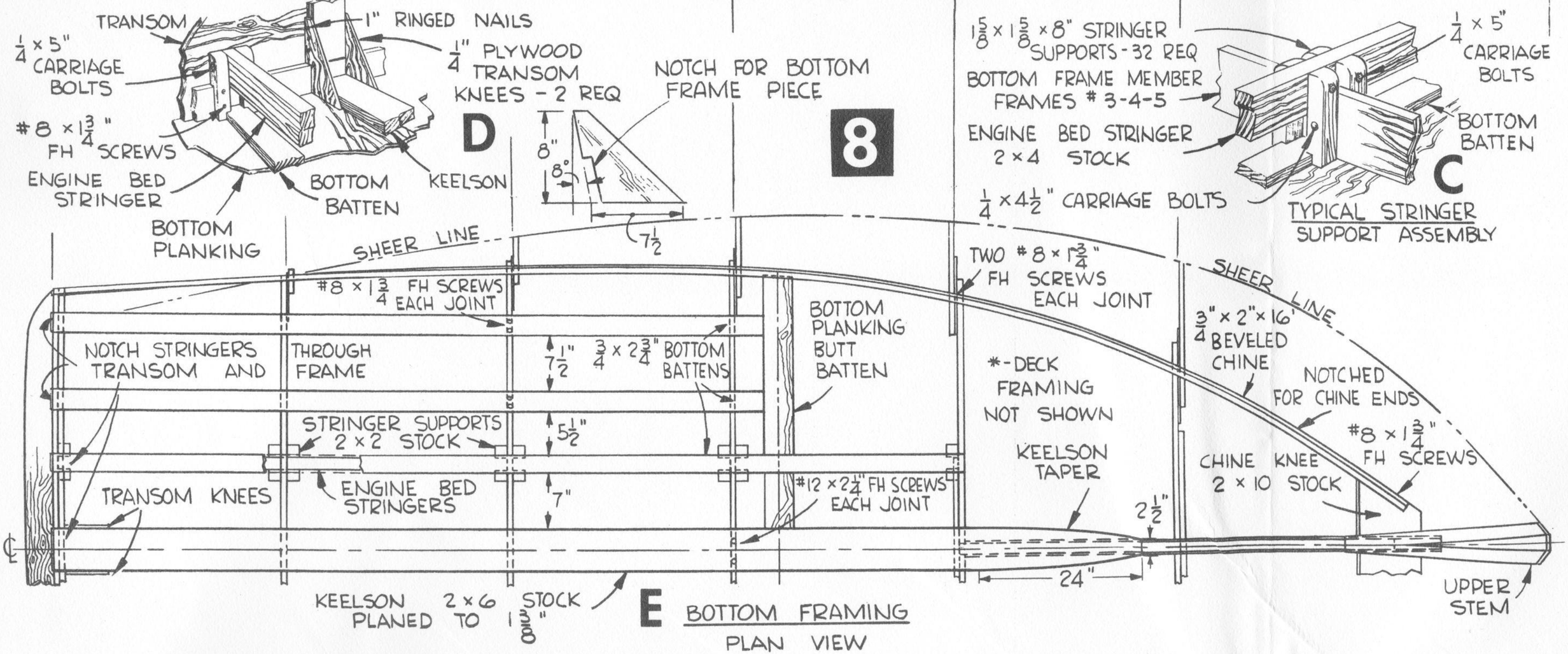
**B**

TILLER CABLE
ENGINE BOX
VENT
WATER OUTLET
INSTRUMENT PANEL
SWITCH PLATE
15" D WHEEL 20° MOUNT
REVERSE CONTROL
TILLER CABLE
WATER INTAKE LINE
ENGINE BED
TILLER CABLE GUIDE
STEEL GUSSET
ENGINE COMPARTMENT
HATCH
REVERSE GEAR
DECK PLATE
FILL PIPE EXTENSION
15-GALLON FUEL TANK
FUEL SUPPLY LINE
FUEL TANK VENT
TILLER QUADRANT
#0 RUNABOUT RUDDER
RUDDER PORT
THROUGH-HULL FITTING
CABLE PULLEY
SHAFT COUPLING
SHAFT LOG
2" RADIATOR HOSE
1 1/2" PIPE EXHAUST OUTLET

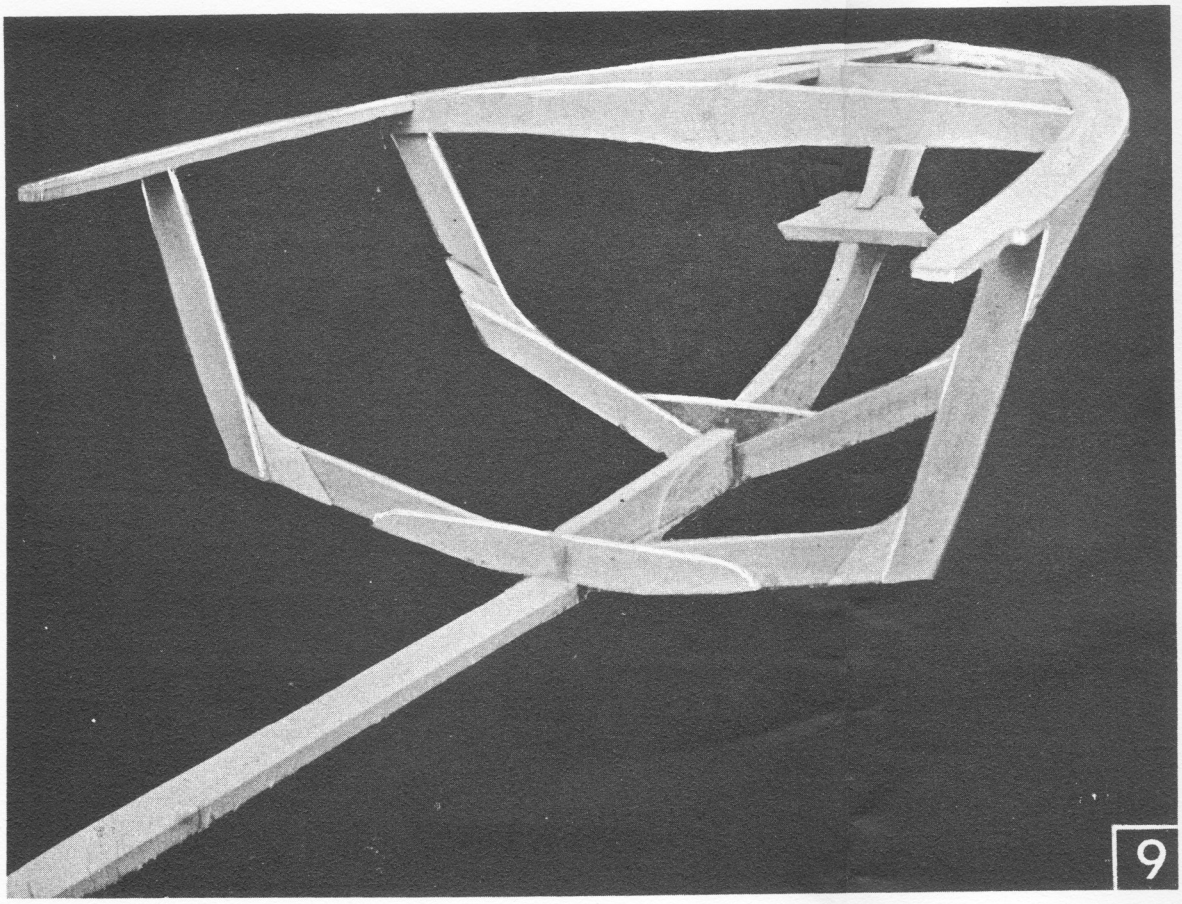
7" R QUADRANT
TRANSOM KNEE

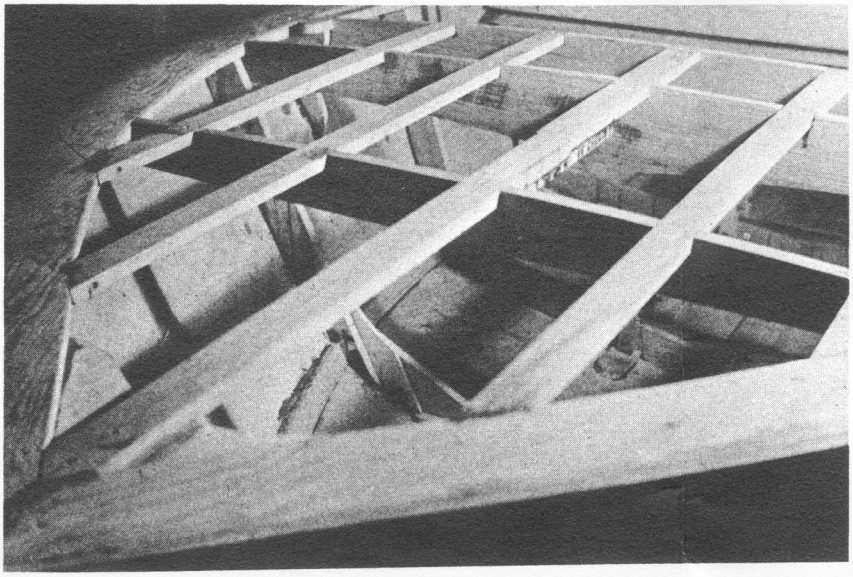
**C**

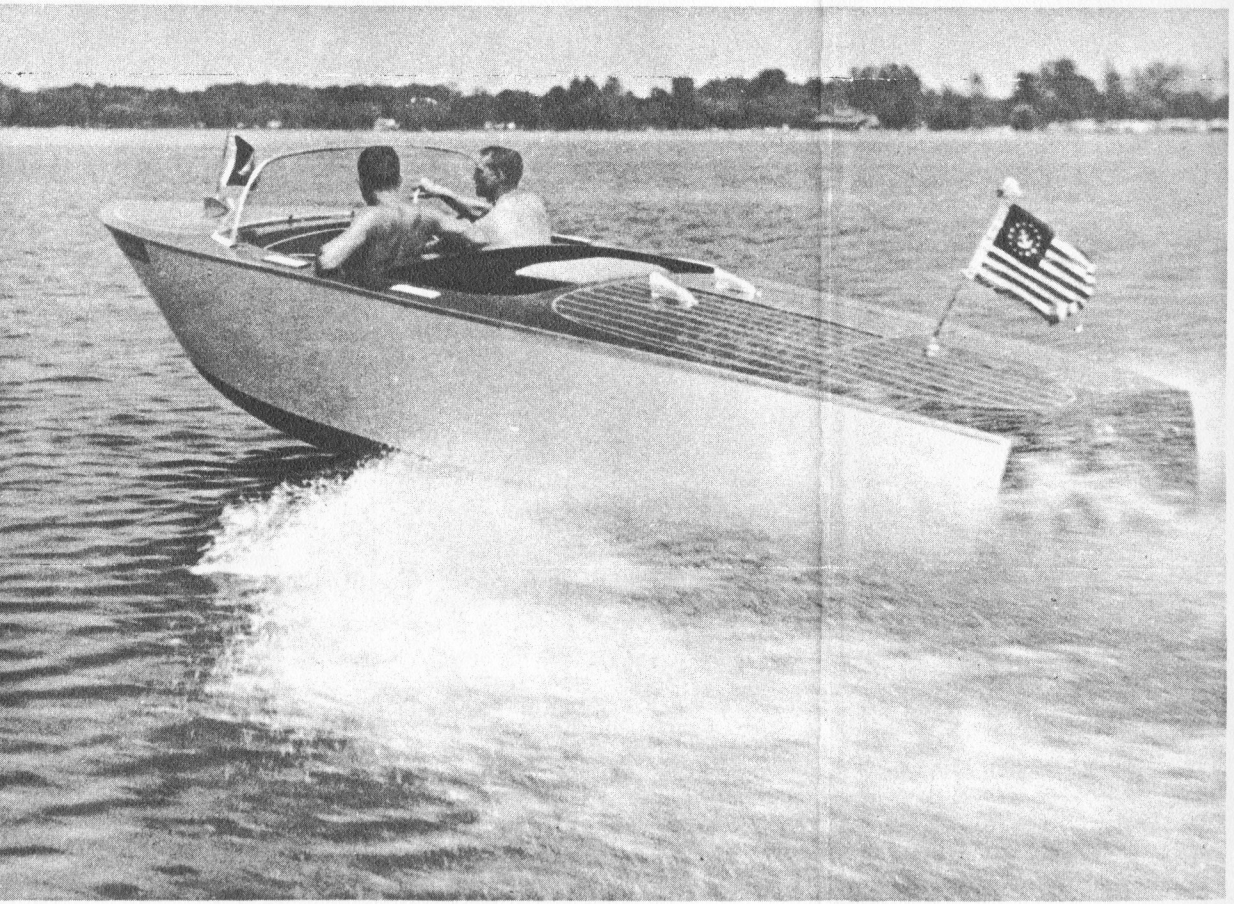
1" I.D. SET COLLAR
RUDDER PORT
3/4" BLOCK
BEARING END FLUSH WITH PLANK
BOTTOM PLANK
KEELSON
#0 RUNABOUT RUDDER
7 5/8" SHAFT

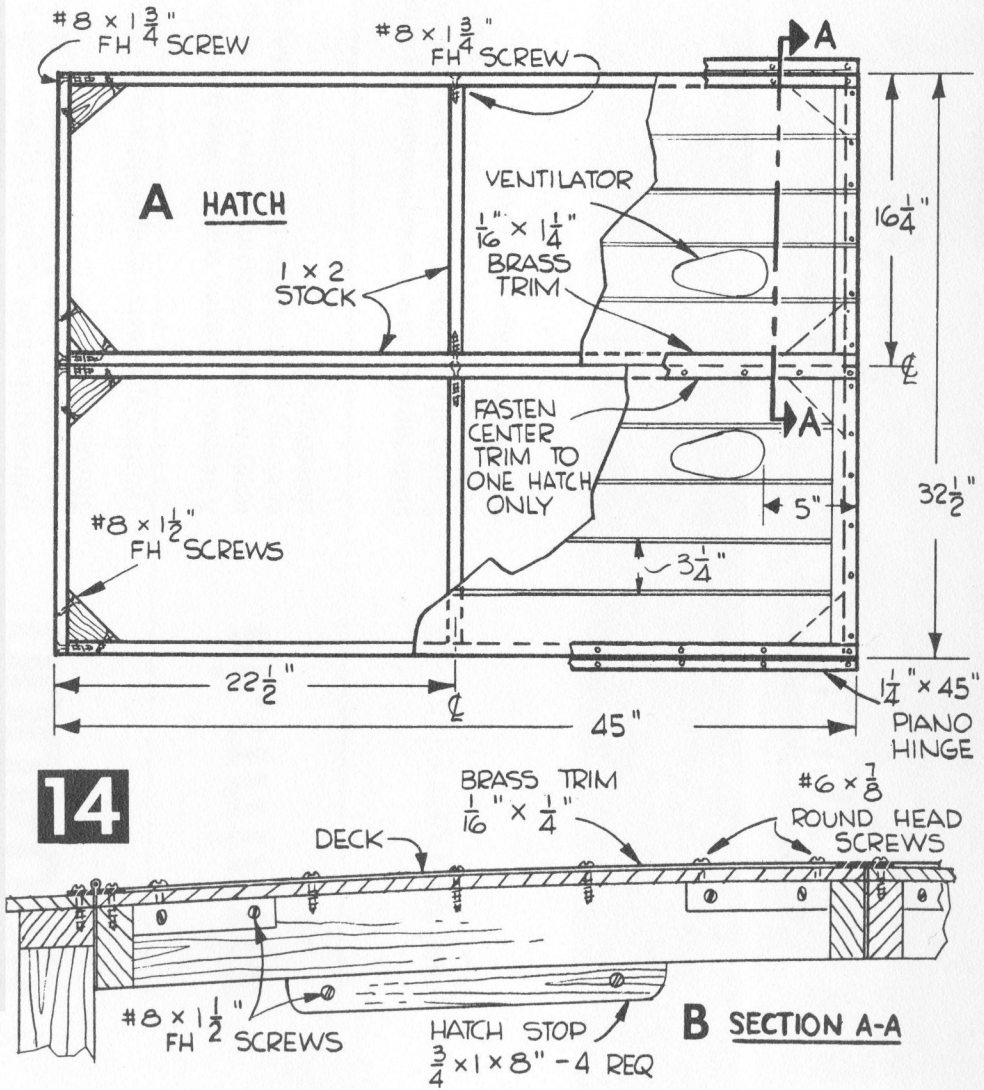

TRANSOM
1" RINGED NAILS
¼ × 5" CARRIAGE BOLTS
¼" PLYWOOD TRANSOM KNEES - 2 REQ
#8 × 1¾" FH SCREWS
ENGINE BED STRINGER
BOTTOM BATTEN
KEELSON
BOTTOM PLANKING
D
NOTCH FOR BOTTOM FRAME PIECE
8"
8°
7½
8
1⅝ × 1⅝ × 8" STRINGER SUPPORTS - 32 REQ
¼ × 5" CARRIAGE BOLTS
BOTTOM FRAME MEMBER FRAMES # 3-4-5
ENGINE BED STRINGER 2 × 4 STOCK
BOTTOM BATTEN
¼ × 4½" CARRIAGE BOLTS
C
TYPICAL STRINGER SUPPORT ASSEMBLY
SHEER LINE
#8 × 1¾ FH SCREWS EACH JOINT
NOTCH STRINGERS TRANSOM AND THROUGH FRAME
7½"
¾ × 2¾" BOTTOM BATTENS
BOTTOM PLANKING BUTT BATTEN
STRINGER SUPPORTS 2 × 2 STOCK
5½"
TRANSOM KNEES
ENGINE BED STRINGERS
7"
#12 × 2¼" FH SCREWS EACH JOINT
KEELSON 2 × 6 STOCK PLANED TO 1⅛"
E
BOTTOM FRAMING PLAN VIEW
TWO #8 × 1¾" FH SCREWS EACH JOINT
SHEER LINE
¾" × 2" × 16' BEVELED CHINE
NOTCHED FOR CHINE ENDS
*-DECK FRAMING NOT SHOWN
KEELSON TAPER
2½"
#8 × 1¾" FH SCREWS
CHINE KNEE 2 × 10 STOCK
24"
UPPER STEM

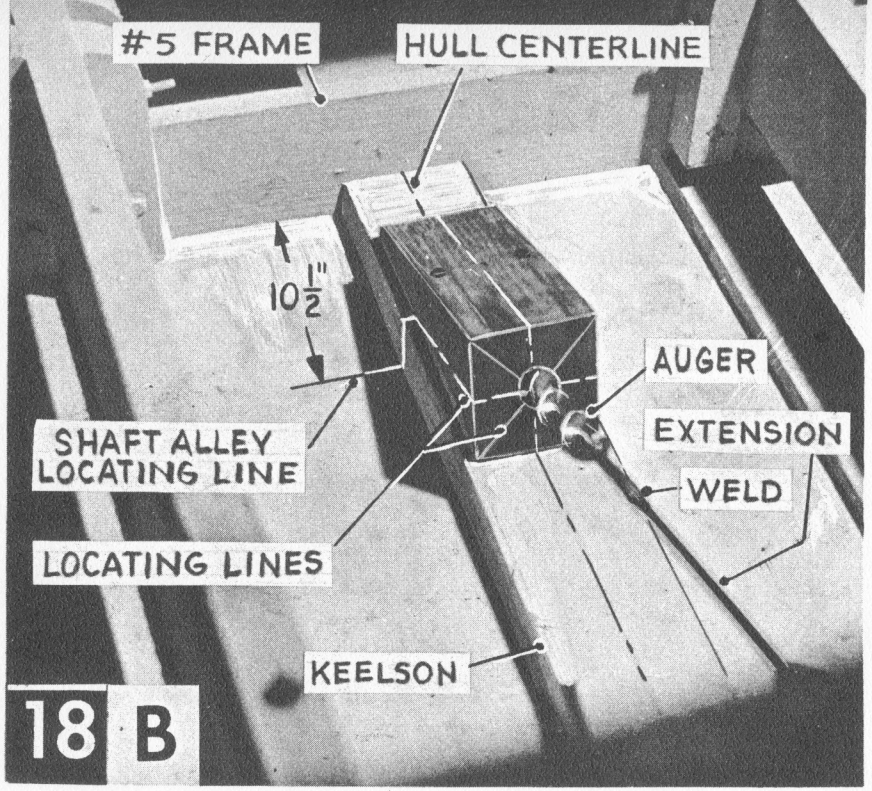
Subassembly, consisting of stem, forward frames, and sheer plates, gives first promise of Riviera's beamy eye-catching lines.



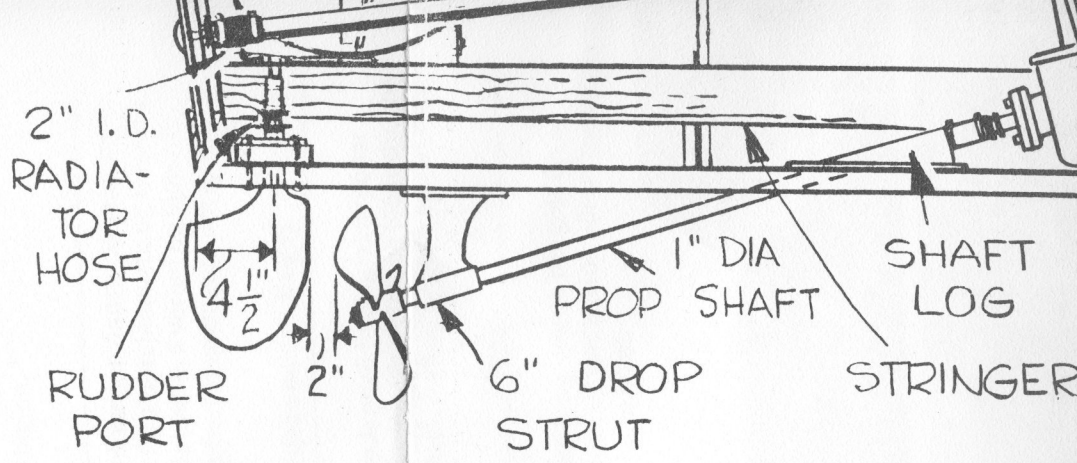



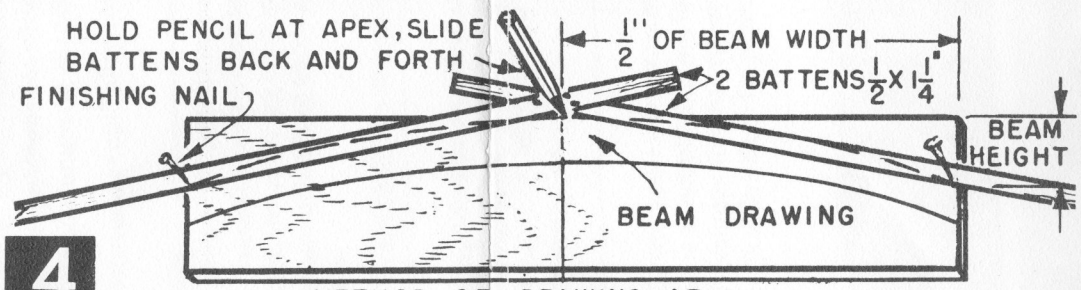



#8 × 1 3/4" FH SCREW
#8 × 1 3/4" FH SCREW
A
A HATCH
VENTILATOR
1/16" × 1 1/4" BRASS TRIM
1 × 2 STOCK
16 1/4"
℄
FASTEN CENTER TRIM TO ONE HATCH ONLY
A
5"
32 1/2"
#8 × 1 1/2" FH SCREWS
3 1/4"
22 1/2"
℄
45"
1/4" × 45" PIANO HINGE
14
BRASS TRIM 1/16" × 1/4"
#6 × 7/8 ROUND HEAD SCREWS
DECK
#8 × 1 1/2" FH SCREWS
HATCH STOP 3/4 × 1 × 8" - 4 REQ
B SECTION A-A



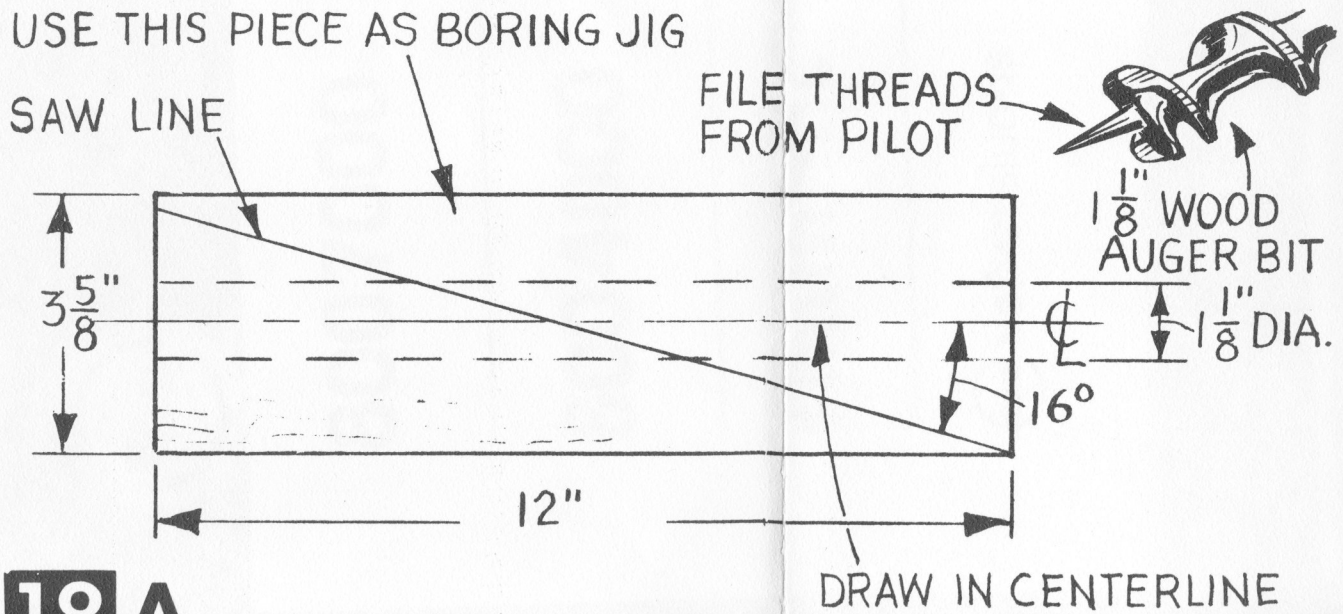

**18 B**



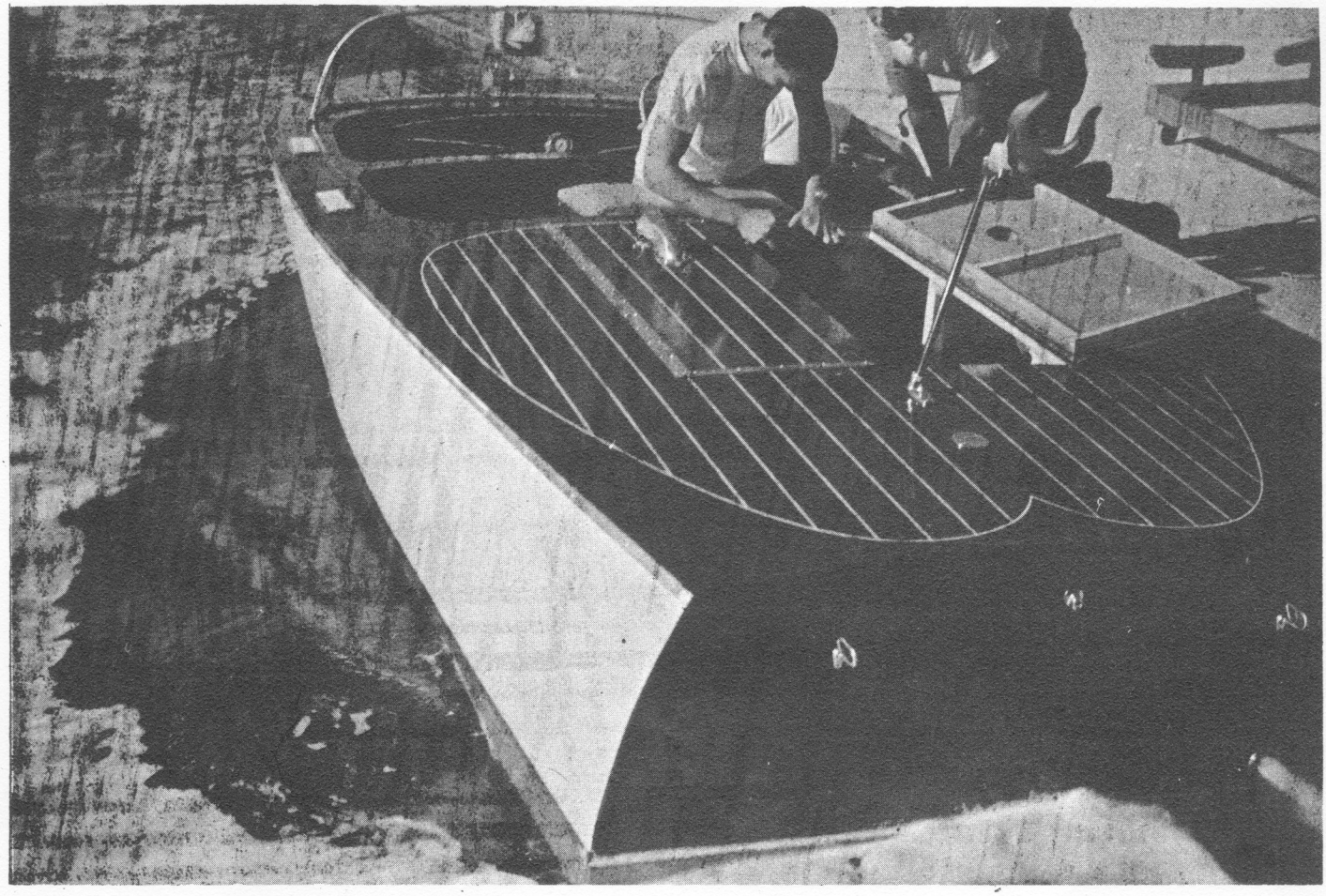




**4** METHOD OF DRAWING ARCS

After drilling and cutting from 4 x 4 stock, mark the centerline of the guide hole on the outside of the jig. Then align this with a pencil line drawn through the shaft alley location and fasten the jig to the keelson with two #12 x 2¼-in. screws. File the threads from the pilot screw of a 1⅛-in. wood auger, to which a 15-in. length of ⅜-in. steel rod has been welded, allowing it to be used in a medium-speed ½-in. electric drill. When finished boring, remove the jig and smooth the hole with a coarse file. Then coat the alley and the surrounding area with the same resin used to apply fiber glass.




**18 A** BORING JIG, 4X4 STOCK




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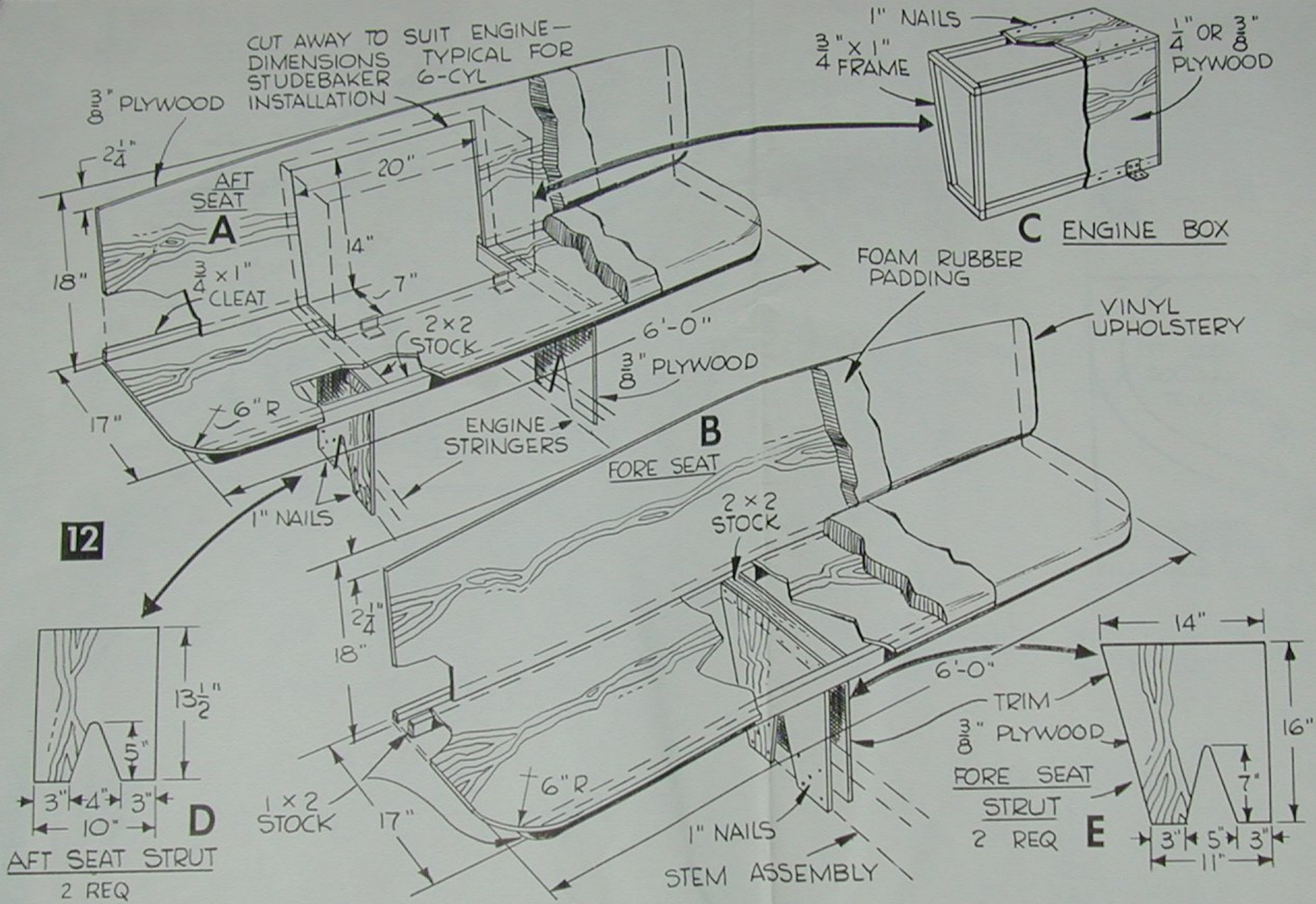
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CUT AWAY TO SUIT ENGINE— DIMENSIONS TYPICAL FOR STUDEBAKER 6-CYL INSTALLATION
3/8" PLYWOOD
2 1/4"
AFT SEAT
A
20"
14"
7"
18"
3/4 x 1" CLEAT
2x2 STOCK
6'-0"
3/8" PLYWOOD
6" R
17"
ENGINE STRINGERS
1" NAILS
B
FORE SEAT
2x2 STOCK
FOAM RUBBER PADDING
VINYL UPHOLSTERY
1" NAILS
3/4" x 1" FRAME
1/4" OR 3/8" PLYWOOD
C ENGINE BOX
2 1/4"
18"
1x2 STOCK
17"
6" R
1" NAILS
STEM ASSEMBLY
6'-0"
TRIM
3/8" PLYWOOD
FORE SEAT STRUT
2 REQ
E
14"
16"
7"
3" 5" 3"
11"
13 1/2"
5"
3" 4" 3"
10"
D
AFT SEAT STRUT
2 REQ

PROP 15° SHAFT LOG
FUEL SUPPLY LINE
REVERSE GEAR SHAFT CPLG.
1/16 x 1 1/2" HATCH TRIM
ENGINE COMPARTMENT HATCH
DECKING PROJECTS 1/2"
12 x 65" SPORTSHIELD
APPROX 7 1/2"
7" R
SIMULATED DECK PLANKING
FUEL PIPE
PIANO HINGE
WATER INTAKE SCOOP
BOW CHOCKS
FUEL TANK VENT
COMBINATION BOW LIGHT
REVERSE GEAR CONTROL
15 GAL FUEL TANK
THRU-HULL FTG.
SEAT
SEAT
A
EXHAUST PIPE ASSEMBLY
1/16" BRASS TUMBLE-HOME TRIM
ALIGN TO .002"
1" HALF-OVAL SHEER MOLDING
WATER OUTLET
3/8 x 3" LAG SCREWS
FILLER TO RAISE MOUNT
CROSS PIECE
NOTCH TO LOWER MOUNT
D
3/8 x 4" LAG SCREWS
ENGINE BED
STRINGER
1/16 x 3" STEEL GUSSET - ENDS BUTT AGAINST STRINGER SUPPORTS
SETSCREWS
PROP SHAFT
POWER SHAFT
C
3/8" PLASTIC-COVERED TILLER CABLE
20° WHEEL MOUNT
WATER INTAKE LINE
ENGINE BOX
15" DIA WHEEL
1" HALF-OVAL SHEER MOLDING
FILL PIPE
#5 FRAME
EXHAUST PIPE ASSEMBLY
FUEL TANK VENT
FALSE STEM
BOW EYE
OUTER STEM
2" I.D. RADIATOR HOSE
#1 FRAME
REVERSE GEAR CONTROL
4 1/2"
1" DIA PROP SHAFT
SHAFT LOG
WATER INTAKE SCOOP
ENGINE BEDS
AFT SEAT STRUTS
3/8" PLYWOOD FORE SEAT STRUT
RUDDER PORT
2"
6" DROP STRUT
STRINGERS
REVERSE GEAR
B

