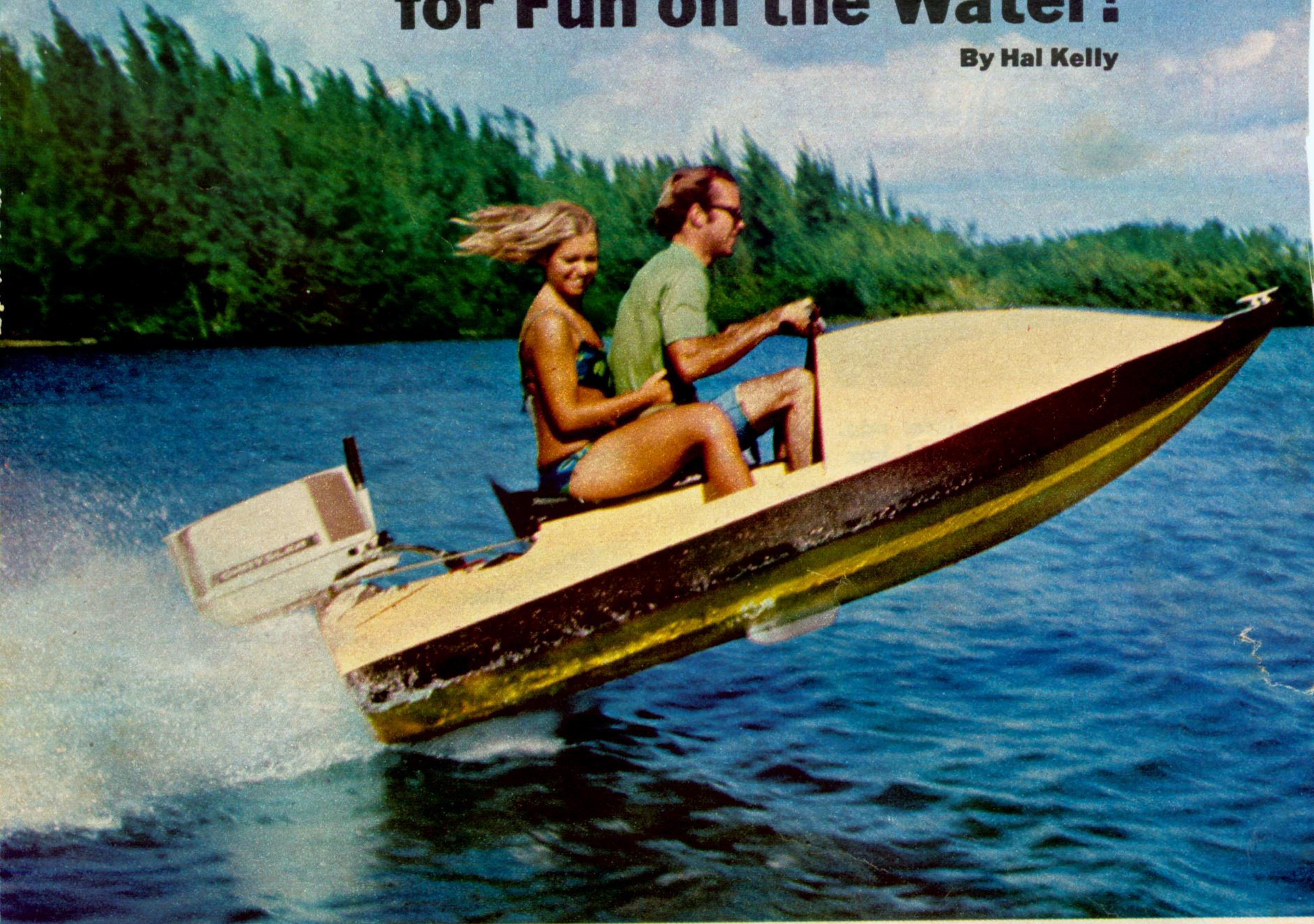


# Build Our Aquarail for Fun on the Water!

By Hal Kelly



**W**HAT'S an Aquarail? It's a scatty little boat, that's what! In drag racing they have a type of car that is fastest of all. It's referred to as a rail job. So, since our bug is a boat that goes quickly, we call it an Aquarail. We might have called it a Girlcatcher, since the girls we know seem to want to ride on it, but we thought that carrying things a little far. You'll notice that the picture above doesn't have the red and white striping as the cover picture does. The striping is 3M reflective tape and we added it for looks.

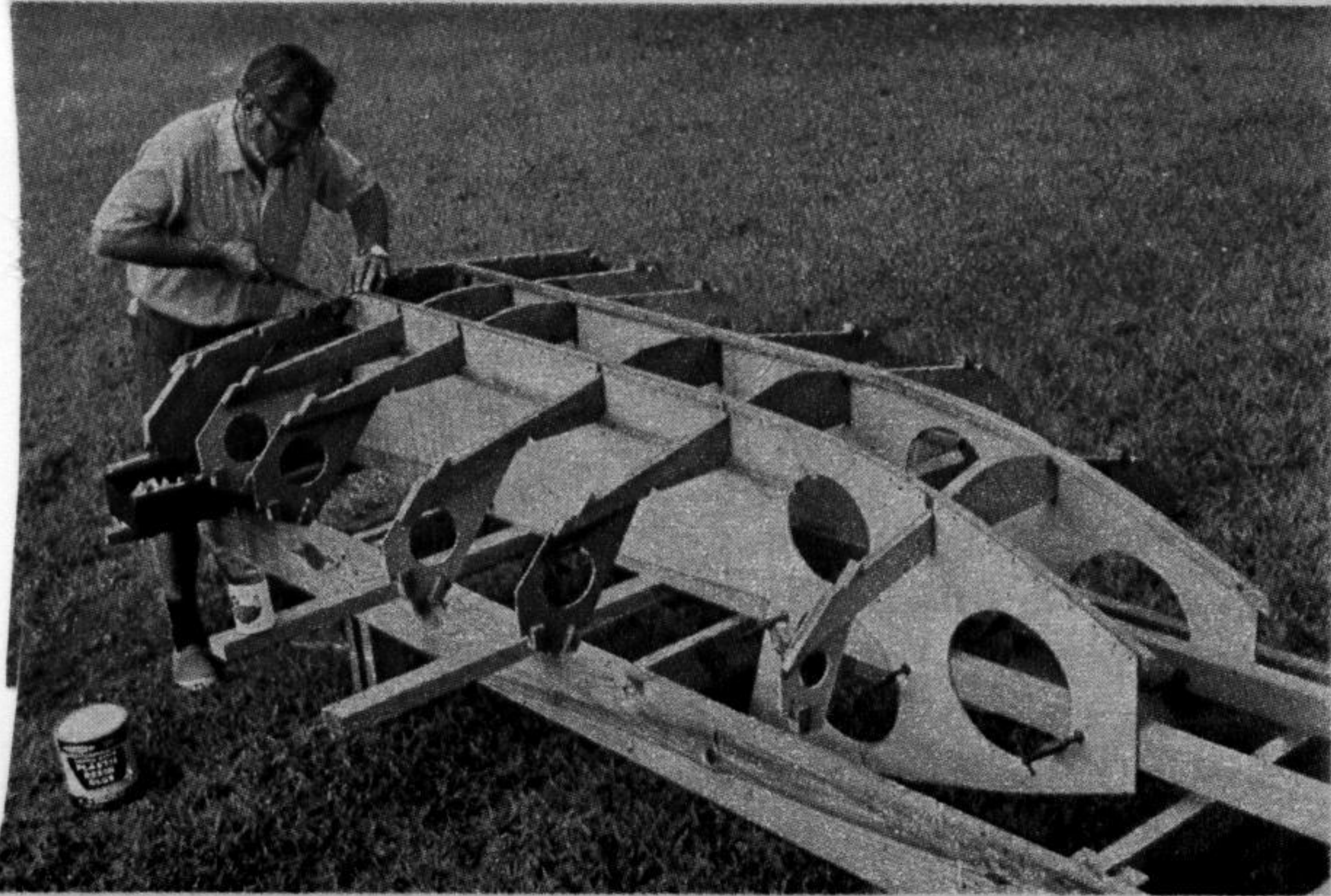
The most attractive feature of Aquarail, though, is that she's a fast, highly maneuverable yet safe boat. With a high-pitch, two-blade prop on our 20-hp Chrysler outboard she does more than 35 mph carrying one person and more than 30 carrying two. With a lower prop

pitch she would pull a water skier at close to 30 mph.

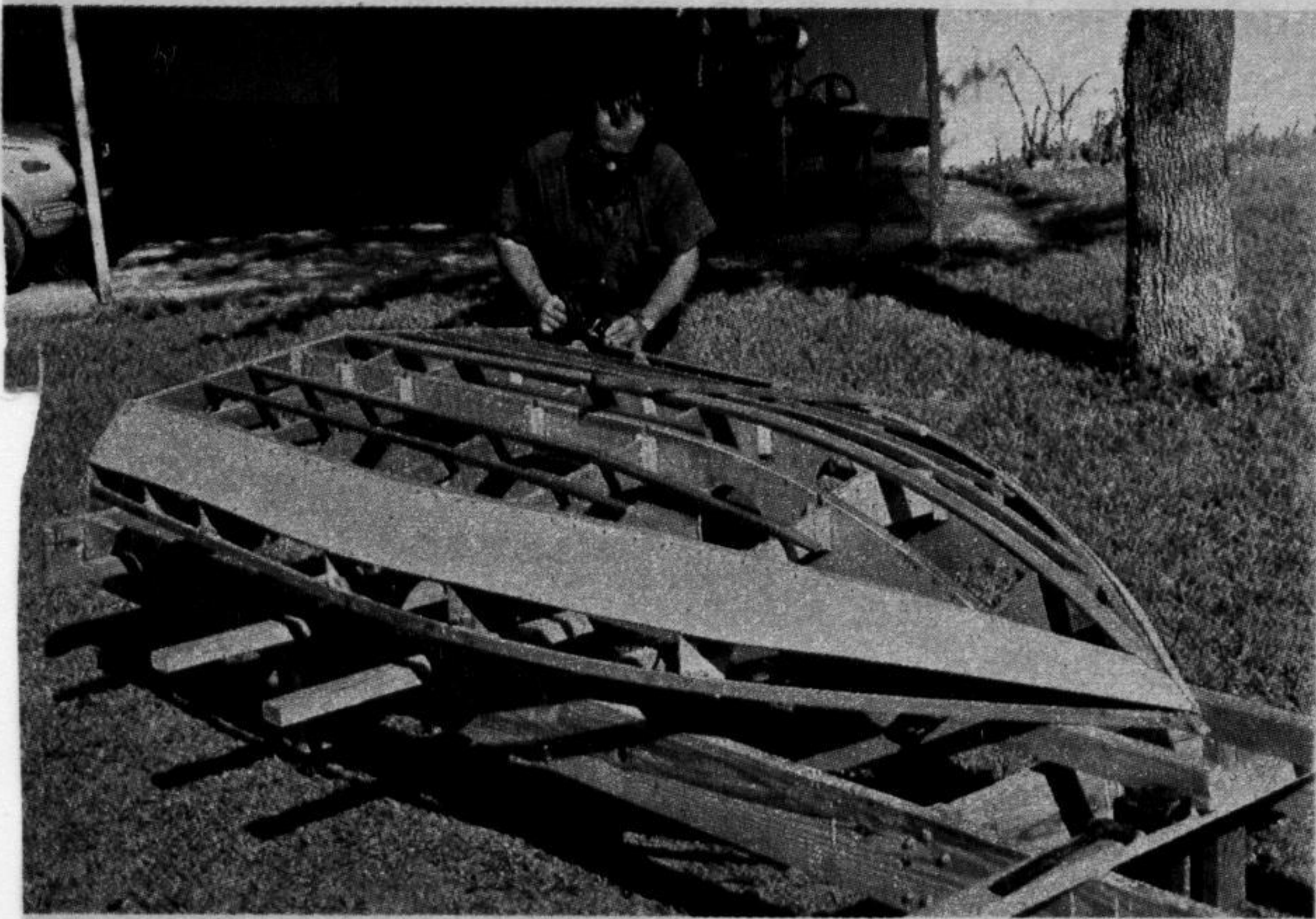
But Aquarail is not a boat short on functionality. There's plenty of room under the padded seat to tote such picnic comestibles as sandwiches and beer. And towels, bathing suits or tackle boxes easily fit along the foot well. Total cost for Aquarail—including the fiberglass bottom—runs under \$100. Hull weight finishes out at roughly 140 lbs. That comes to around 75 cents a pound and you can't even buy hamburger for that anymore.

But Aquarail has yet another attractive feature. Practically any motor up to around 35 hp will fit on her. Even the small motors give her a nice zip. So, if you already have a small boat with motor you can interchange power plants at will and have another different





**NOTCH** transom, ribs to take battens, keel, chines, etc. Notch girders to take ribs.



**SPLIT** keel along thickest part so it will bend easily to take the shape at front.

**TAKE** dashboard dimensions directly from the boat and fair in curve. Use template.



boat altogether for just an extra \$100.

Before ordering the materials it's a good idea to study the drawings and photos. We tried to standardize on all materials. For glue we used Wilhold Marine Grade Plastic Resin Glue. A 5-lb. can will do the trick and costs around \$3.50. For planking we used five 4 by 8 sheets of mahogany plywood, exterior grade, which cost \$4.80 a sheet. Since the boat is 9 ft. long we had to splice about 14 in. to the bottom and sides. All splices are made at the front and none is more than 12 in. wide. Make these splices simply by mitering the edges of the plywood and gluing to form an overlapping joint of about 2 in.

All framing is 1-in. cedar 12 ft. long. Order it in 8-in. or 12-in. widths and rip the battens to proper width from it. All nails are  $\frac{7}{8}$ -in. No. 12 bronze boat nails. You'll need about 3 lbs. All screws are  $1\frac{1}{4}$ -in., No. 8 flathead bronze screws. Buy a box of 100.

Splicing is simple. Clamp the plywood to a board and plane a 2-in. interfacing miter cut on both pieces. Cut two scrap pieces of wood the length of the splice and about 3 in. wide. Lay brown paper on one piece. Coat both faces of the splice with glue and lay the piece of wood along the inside of the splice with the paper between it and the joint. Use small copper tacks to nail the splice together—one at top and one at bottom. These are only to keep the joint from slipping. Use the other block of wood and paper on the other side and clamp the blocks. The paper is only to keep the glue from setting on the blocks. When dry, remove the clamps and sand the joint.

First step in construction is to cut the two girders. Follow the drawings for size and shape. Some of the scrap can be used for gusset material. Notch the girders for the ribs and cut the lightening holes. Draw all ribs full size on wrapping paper. You need draw only one side since the ribs are symmetrical. Just flop the drawing for the other side.

Glue and nail the plywood to the ribs after it's cut to shape. Small  $\frac{3}{4}$ -in. sq. by  $1\frac{1}{2}$  in. blocks are glued and nailed to the plywood gussets. This will let you screw the battens to the ribs.

Then do the transom. Lap-joint the



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transom frame at the ends and notch it for all battens, etc. The  $\frac{1}{4}$ -in. transom is glued and nailed to this frame. Glue and nail a  $\frac{3}{4}$ x1-in. piece to the bottom of the transom for the 1-in. afterplane. Since the transom has a  $14^\circ$  angle it is best to cut the transom at the proper angle before setting it against the girders. This will save you a lot of fairing.

The two girders are set  $12\frac{1}{4}$  in. apart inside. Thus the jig is simple. Set up two 2 by 4s  $12\frac{1}{4}$  in. apart (outside measurement). They can be nailed to any sort of a platform at a workable height. It needn't be as intricate as the one shown. Clamp the girders to these 2 by 4s, then just slip the ribs and transom in place.

Glue and nail the girders to two  $\frac{3}{4}$ -in. sq. battens inside of the girders. Then screw these to all ribs. Fasten the ribs to the girders with glue blocks and  $1\frac{1}{4}$ -in. finishing nails.

The keel is next. It will take the bend up front quite easily if you slit it with a saw across the thickness. Coat the slit with glue and after you have the proper shape clamp it until it's dry.

Then come the chines. Like the keel, they are glued and screwed to the transom and ribs. Also glue and screw them to the front of the keel. Then put on the  $\frac{3}{4}$ -in. sq. bottom battens and the  $\frac{3}{4}$ -in. sheer.

After all the battens, etc., are dry, fair the framing. If properly set up only the chines and keel will need this. Check from time to time with a straight edge to make sure the plywood planking will lay snugly on all battens, keel, etc.

The non-trip chines are next. (We say non-trip because it's not a sharp chine line and the boat won't "trip" on it making a sharp turn.) We find using cardboard for a pattern saves time and material. (Cardboard mattress boxes are ideal.) The front section will have to have a piece spliced to it so it will run the full length of the boat.

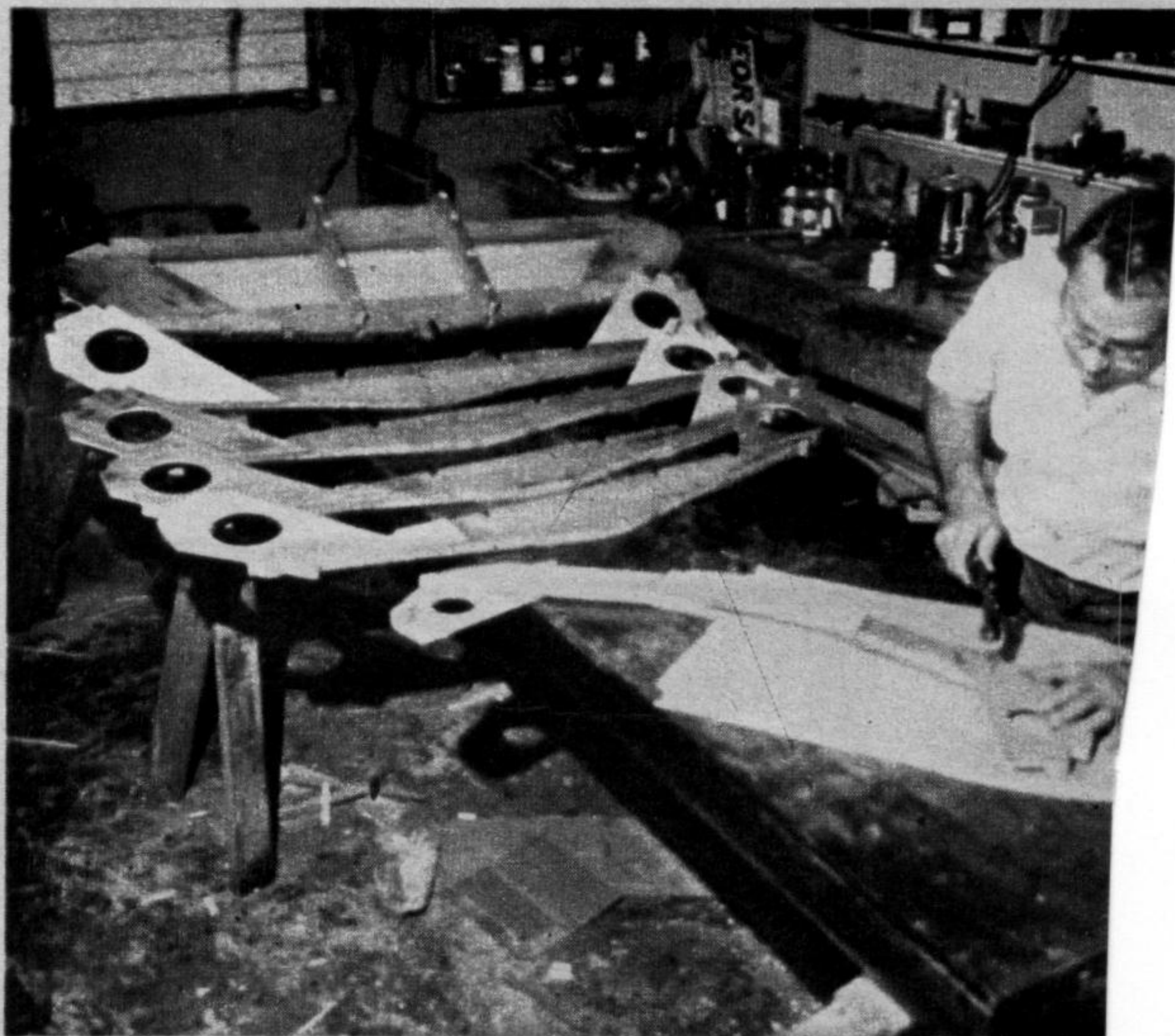
After the non-trip planking has been glued and nailed to the transom, chine and stem, fair at the chine for a good bottom fit. Note that the non-trip chine and bottom planking butt together for the front 3 in. From there to the transom the bottom fastens over the non-

trip planking.

The bottom is in two sections. Temporarily screw it in place and fair it for a good fit, especially up front where the non-trip planking and the bottom butt. Then mark on the inside bottom where all the battens, chine, keel and transom will make contact. Remove and drill pilot holes for all the nails. This will save you a lot of unnecessary pounding and you will know the nails are going into the frame.

Put a glue coating on both the frame and the bottom sections that contact each other. Using the temporary screws as guides, line up the bottom true to the framing and nail it in place. In some sections you'll have to hold a weight under the battens so the nails will pull the bottom snugly up to the battens.

At the top of the non-trip, glue and clamp a  $\frac{3}{4}$ -in. sq. batten. When dry, remove the clamps and fair it so the sides can be glued and nailed to it. Use the rib drawings to check for the shape of this batten. Putting it on the outside will give you a full length spray rail. Glue and nail the sides of this batten and the sheer. Plane the sides flush with the outside batten.

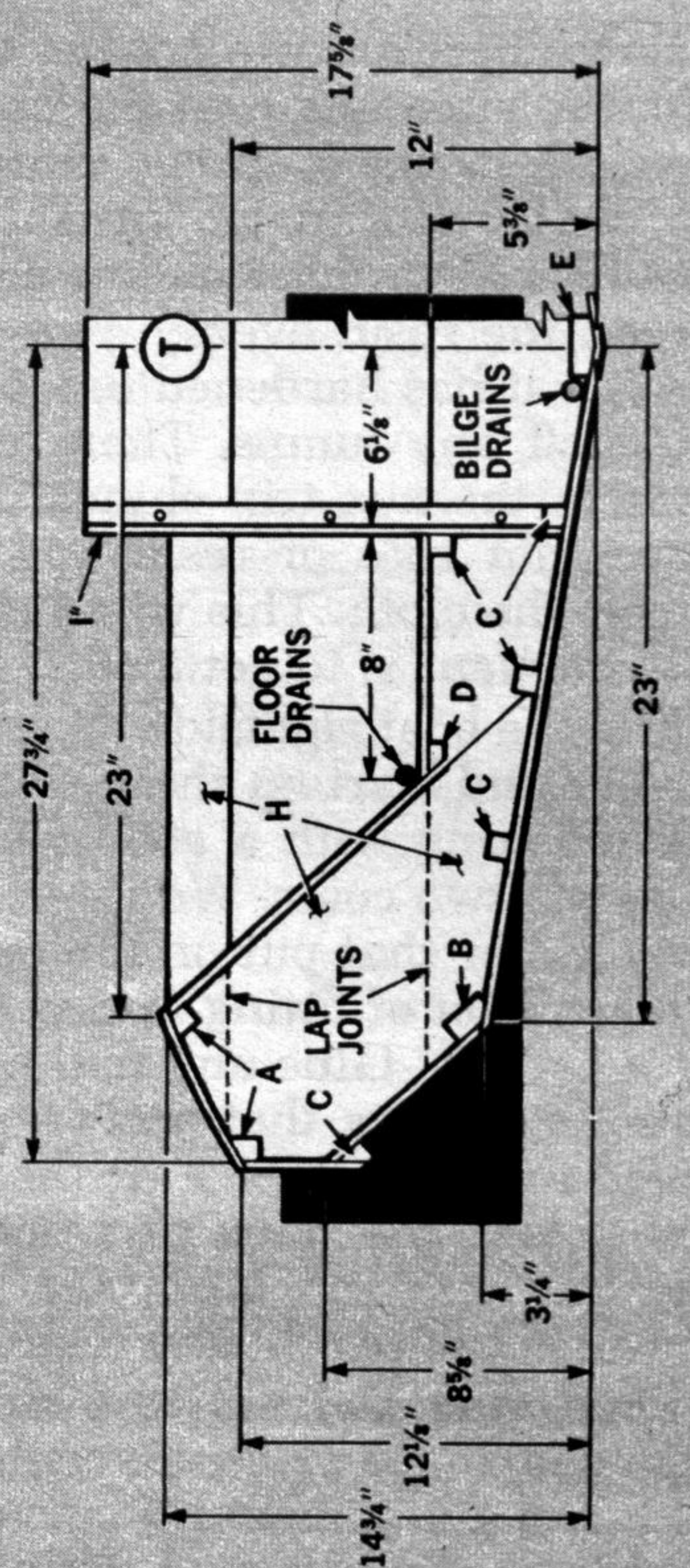
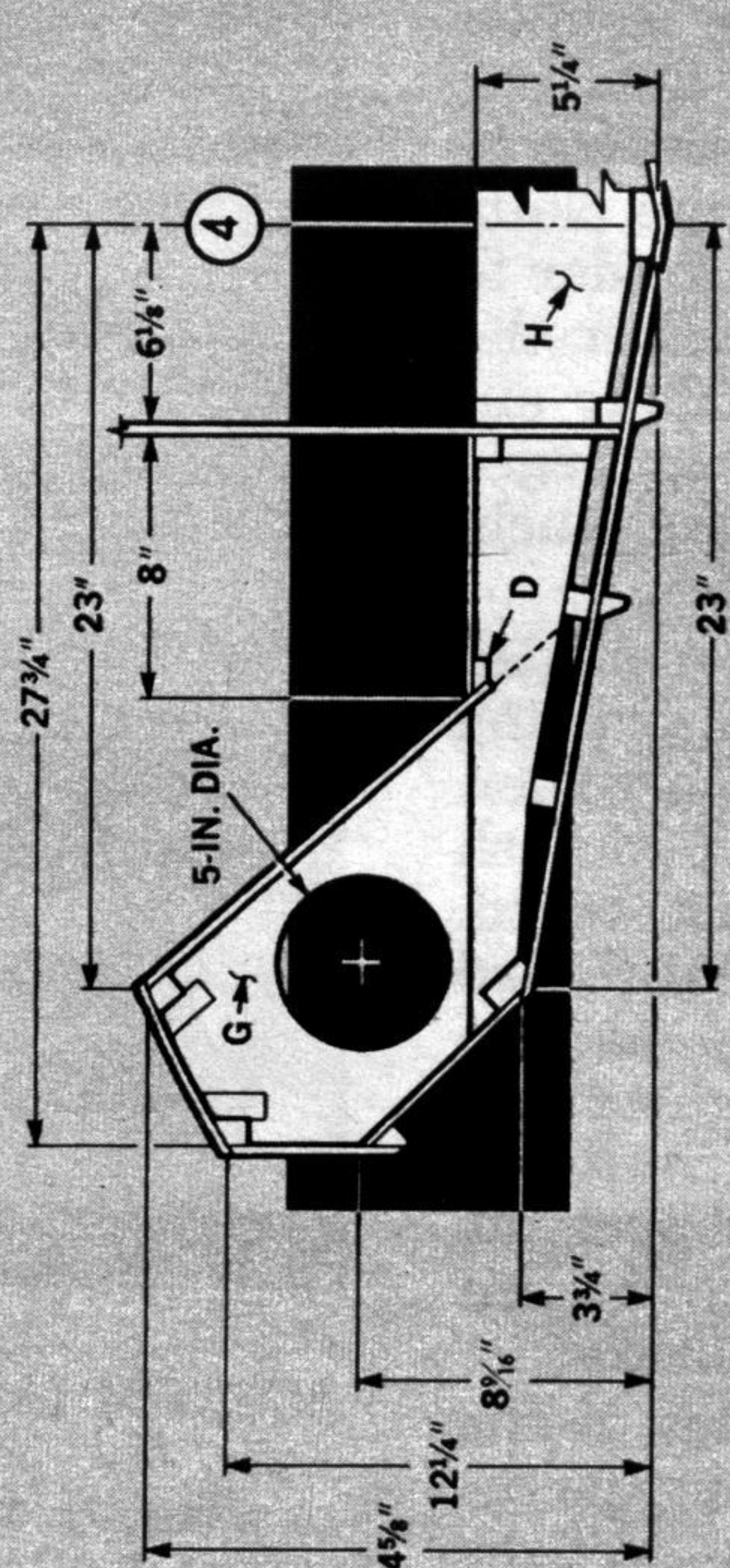
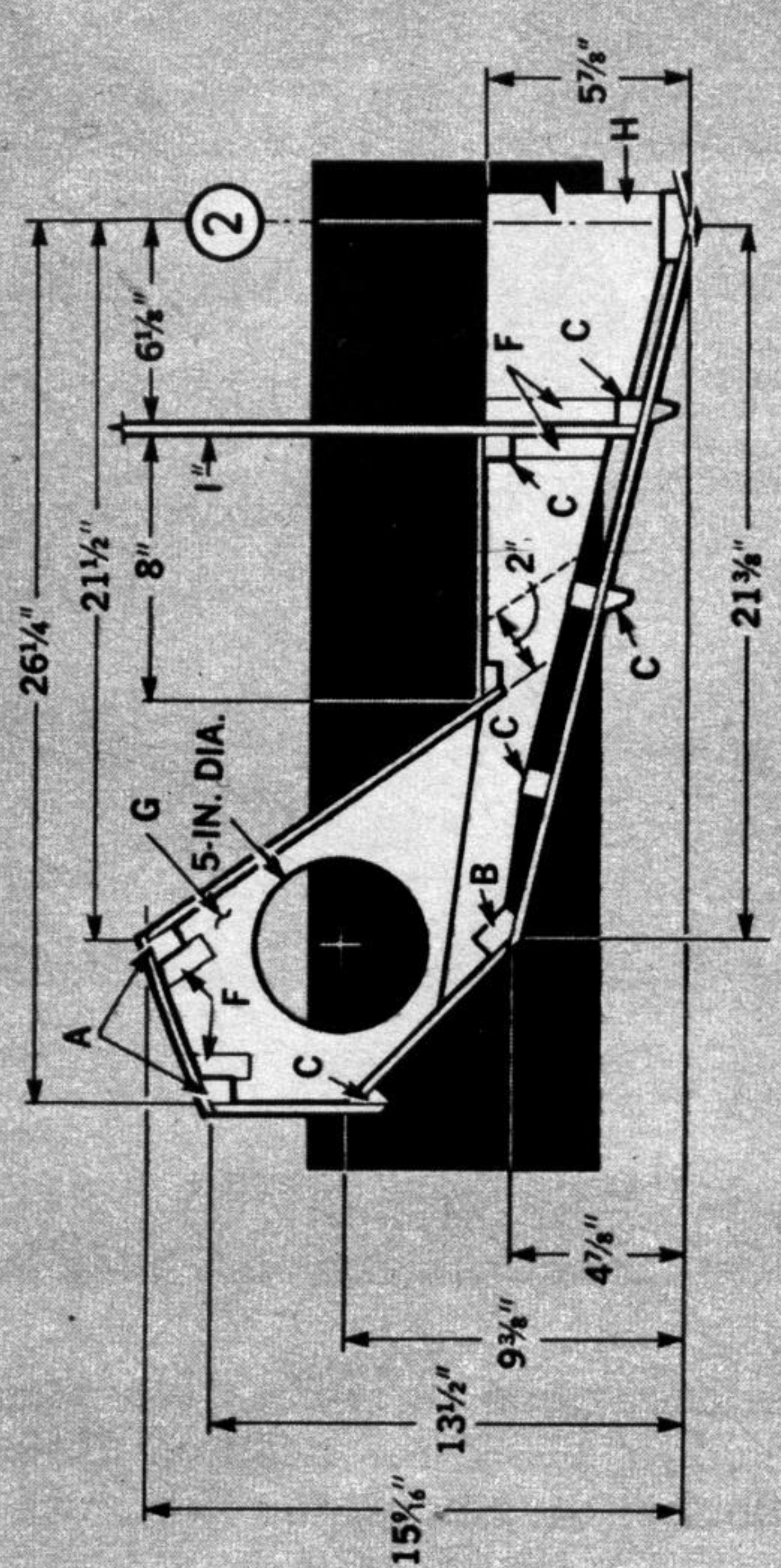
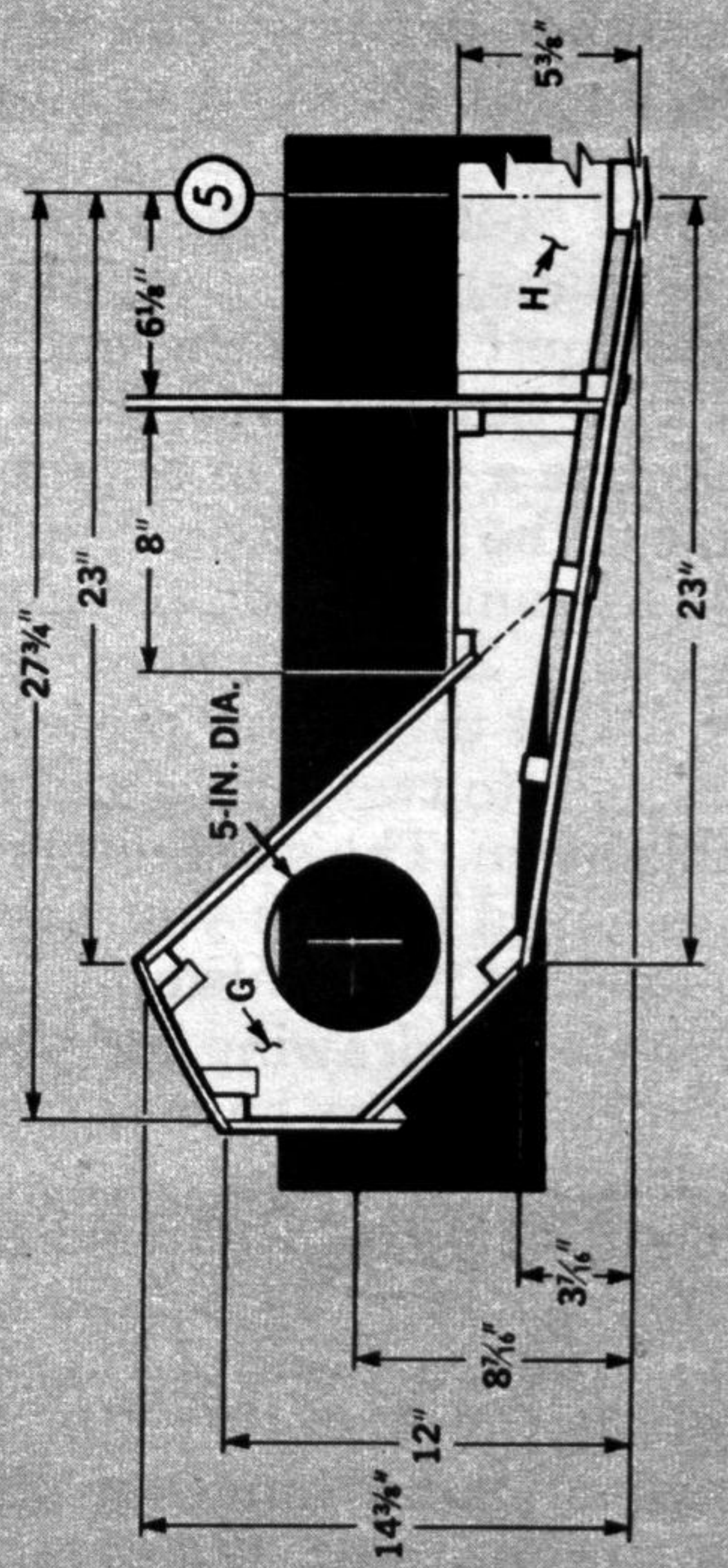
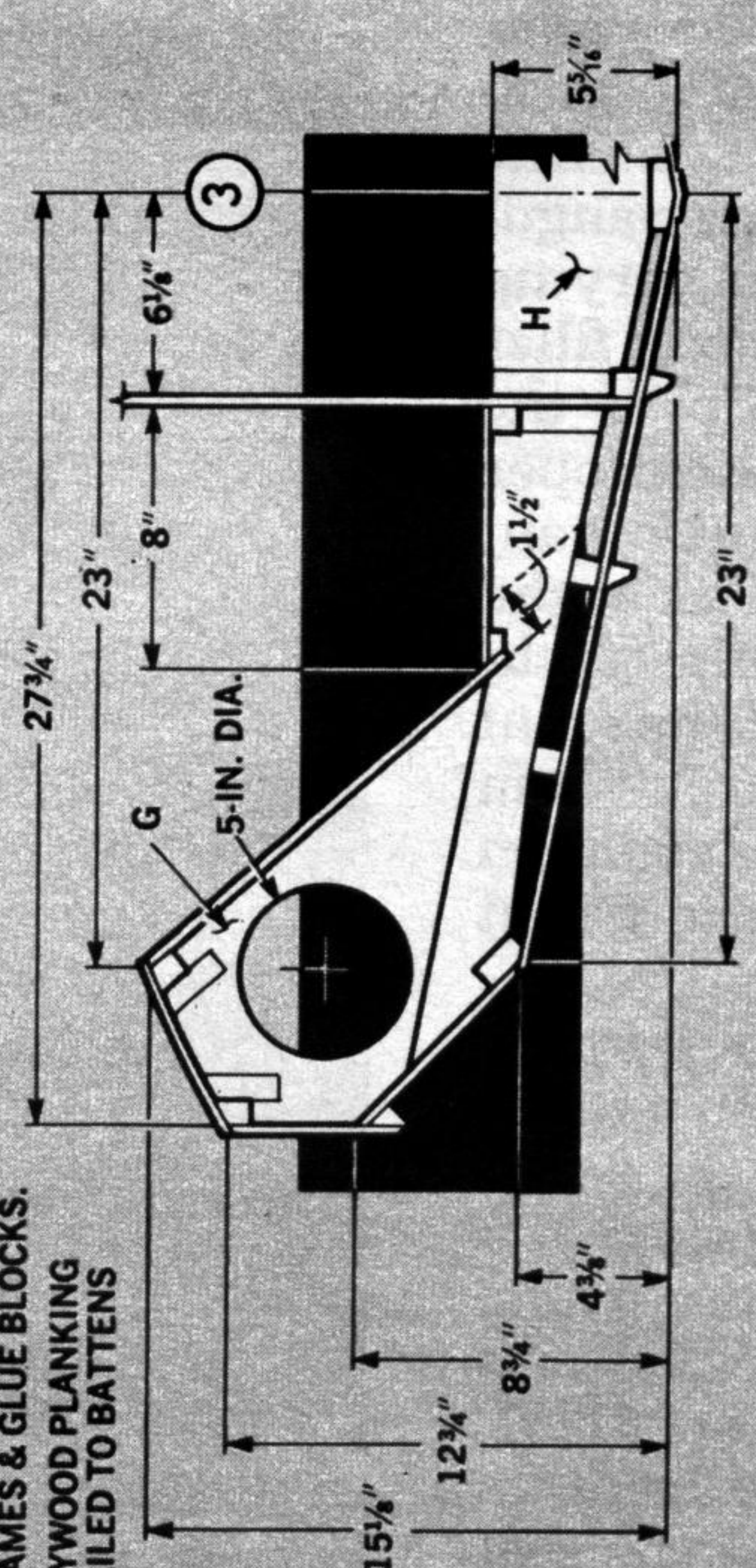
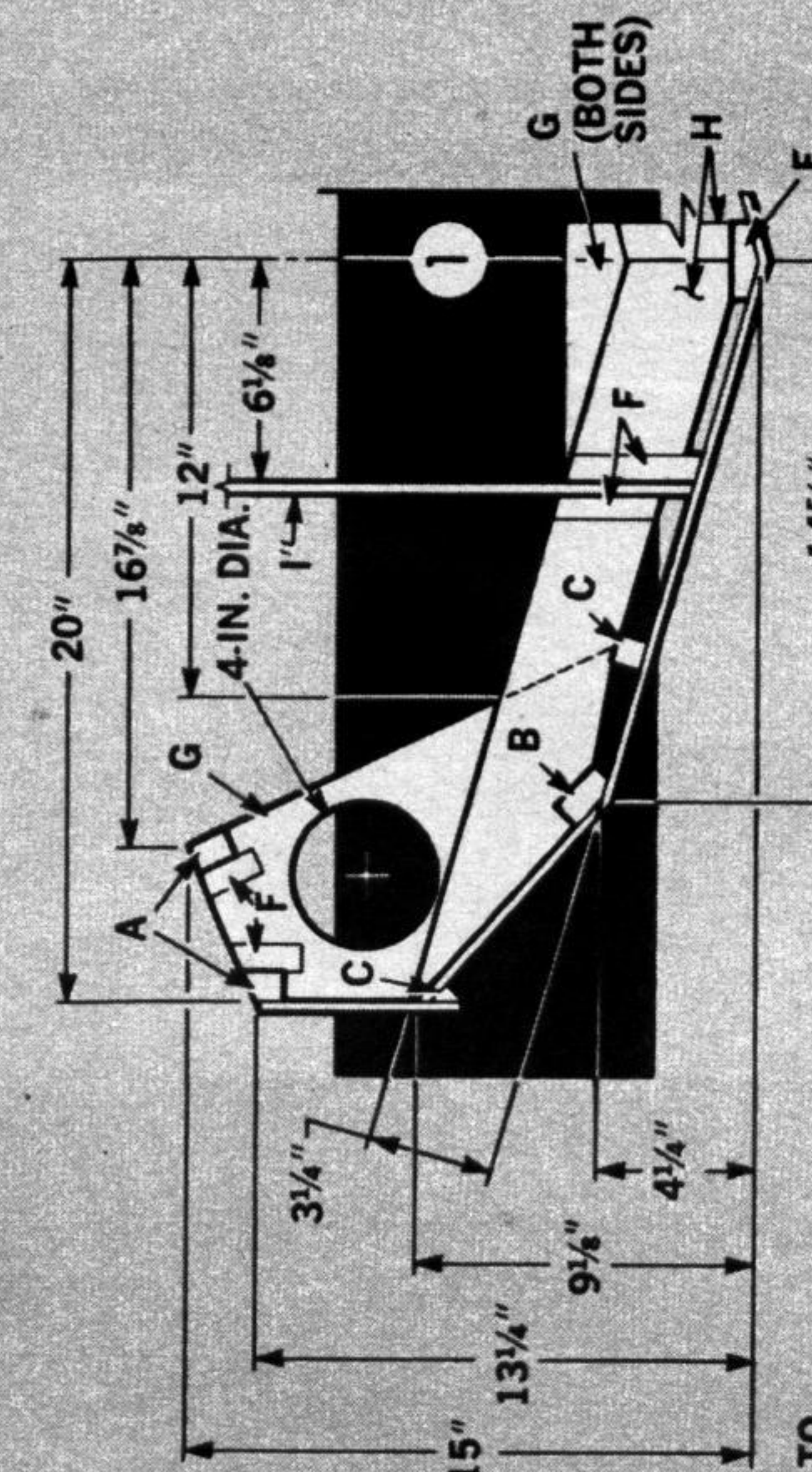


CUT ribs and transom from 1-in. stock and use cardboard template to get shape. Note the use of glue blocks at the ends of ribs.



- A 3/4x1"
- B 3/4x1 1/2"
- C 3/4x3/4"
- D 1/2x1"
- E 3/4x2"
- F GLUE BLOCKS
- G 3/4-IN. PLYWOOD GUSSETS
- H 1-IN. CEDAR FRAMES
- I 1/4-IN. PLYWOOD GIRDER

BATTENS SCREWED TO FRAMES & GLUE BLOCKS.  
 PLYWOOD PLANKING NAILED TO BATTENS





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Now fiberglass the bottom. Mix color with the resin and coat the bottom. Lay the cloth in place, spread more resin on the cloth with an old brush, then use about a 12-in. wide window squeegee to spread the resin evenly over the cloth.

After it has hardened use a sander to grind off any lumps. Then feather the cloth to the non-trip chines. Apply another thin coat of resin and squeegee it over the cloth. This won't take much. All you want is to get a slick finish.

Flip the boat rightside up on a padded surface and start on the inside, framing and planking with a good wood sealer. Give her two coats. We used XIM flash bond. After that put on the dash board. It takes a bit of fitting, so use cardboard for a pattern. Glue and nail the dash to  $\frac{3}{4}$ -in. sq. pieces that you've glued and nailed to the girders. Fair the front section to take the  $\frac{1}{4}$ -in. plywood decking. The quickest and best way to do this fairing is to use a husky disk sander.

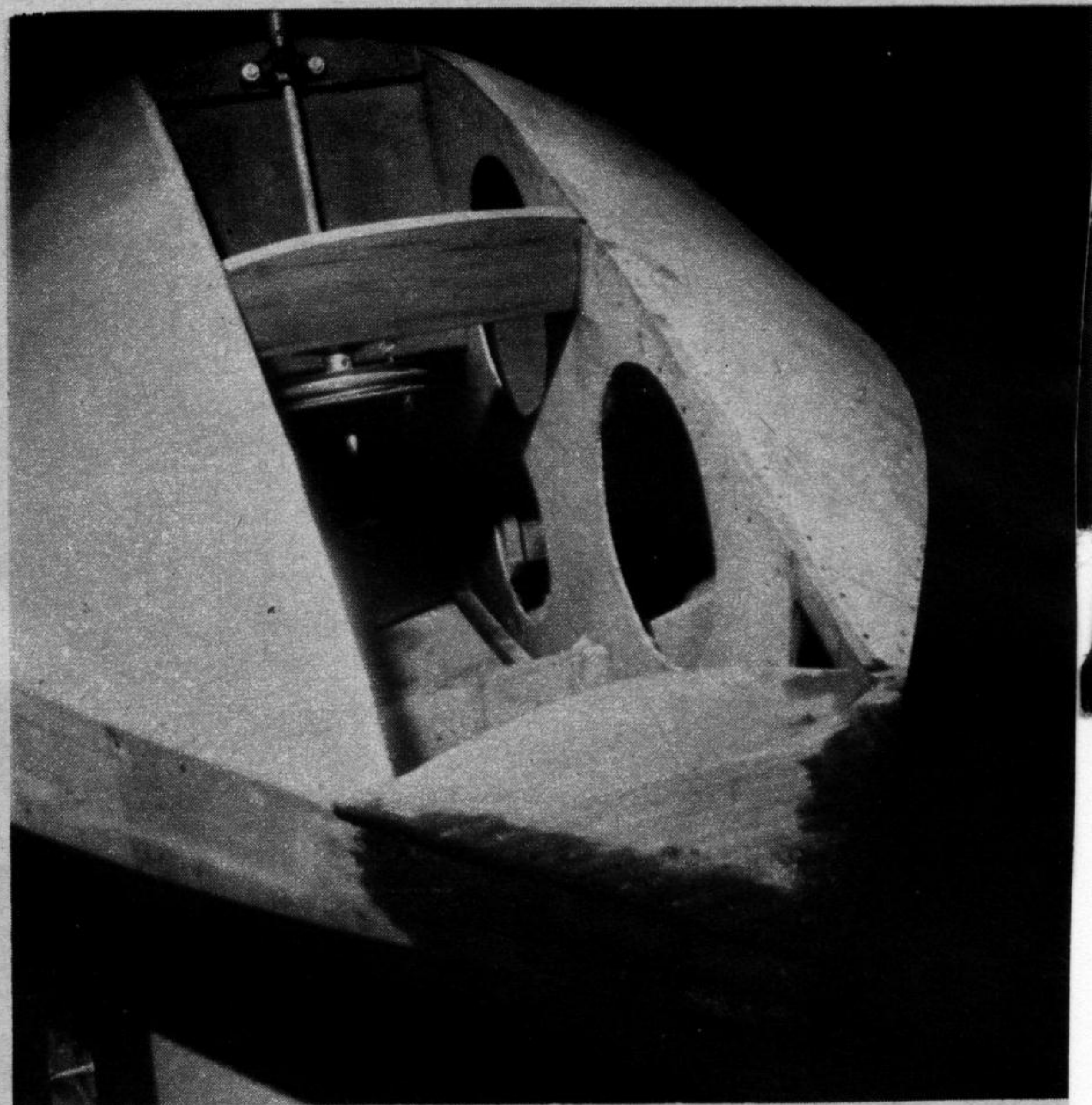
Then glue and nail the sides of the front decking in place. Since these pieces have a slight compound curve, wet the outside of the plywood with hot water to facilitate bending. You can use a temporary strut attached to Rib 1 to push out the curve until the glue dries. Glue and nail  $\frac{1}{4}$ -in. plywood (almost triangular in shape) to the sheer at the very tip of the front deck. Trim and fair a filler block to support this front tip of the deck. Use a sander to obtain the proper shape of the filler block. You'll also want to fit a beam between the girders at the top about 22 in. forward of the dashboard. Cut the center piece of the front decking into two pieces and screw them to this beam. The smaller piece can then be removed in case you have to get at the steering mechanism.

Check the drawing for your steering controls. You may have to fasten a steering bar to the motor. But this can be made up at your local welding shop.

You can buy the handle bar throttle from Western Control Co., 2533 South West St., Box 1202, Wichita, Kan. 67201. Install a piano hinge at the front to swing up the seat. We covered the seat with 3-in. padding and a black vinyl. The gas tank will fit at the rear. ●

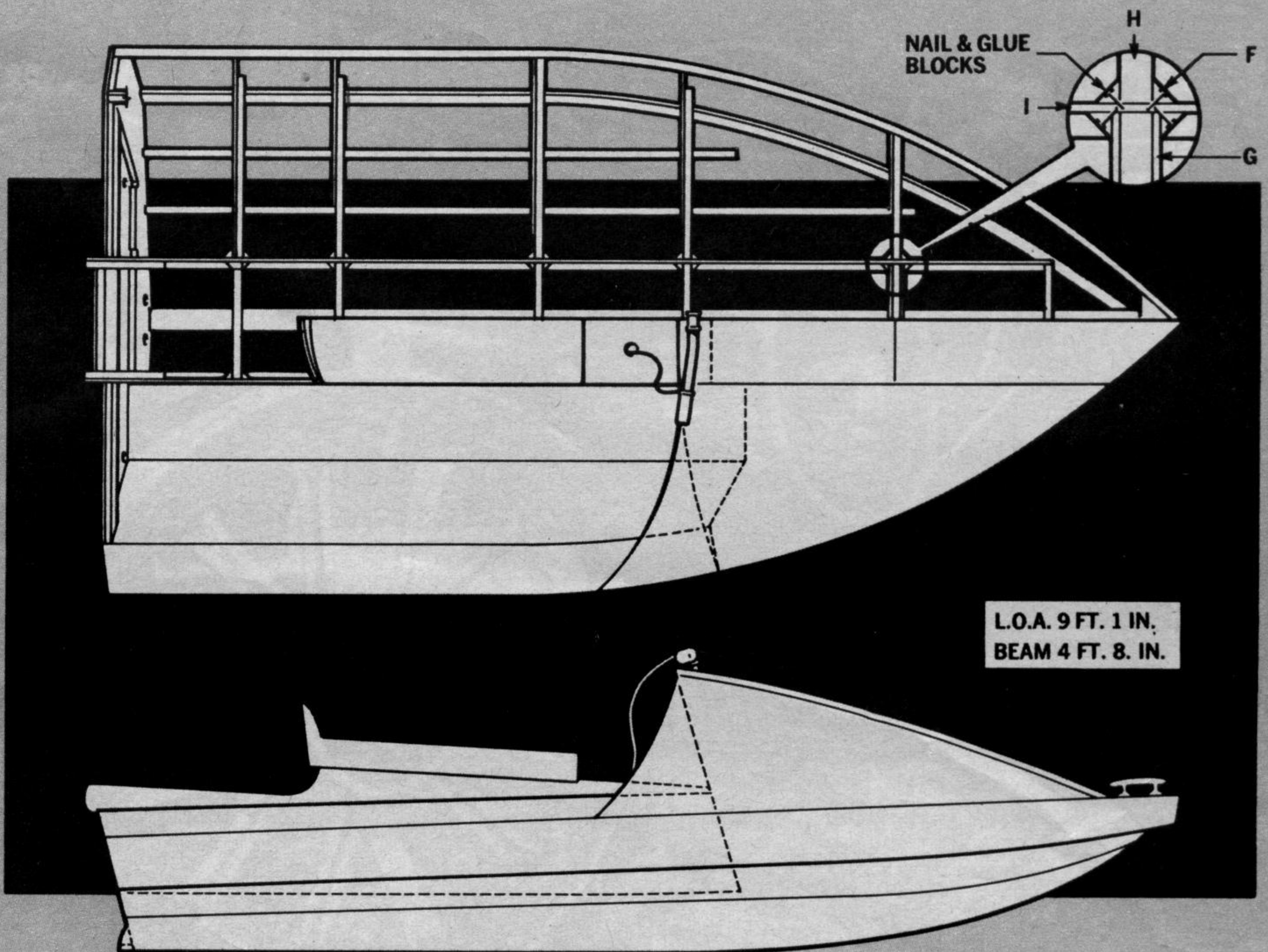


**BOTTOM** planking goes on with glue and nails. Use backing block for nailing. Note reinforcing blocks at rib/girder juncture.



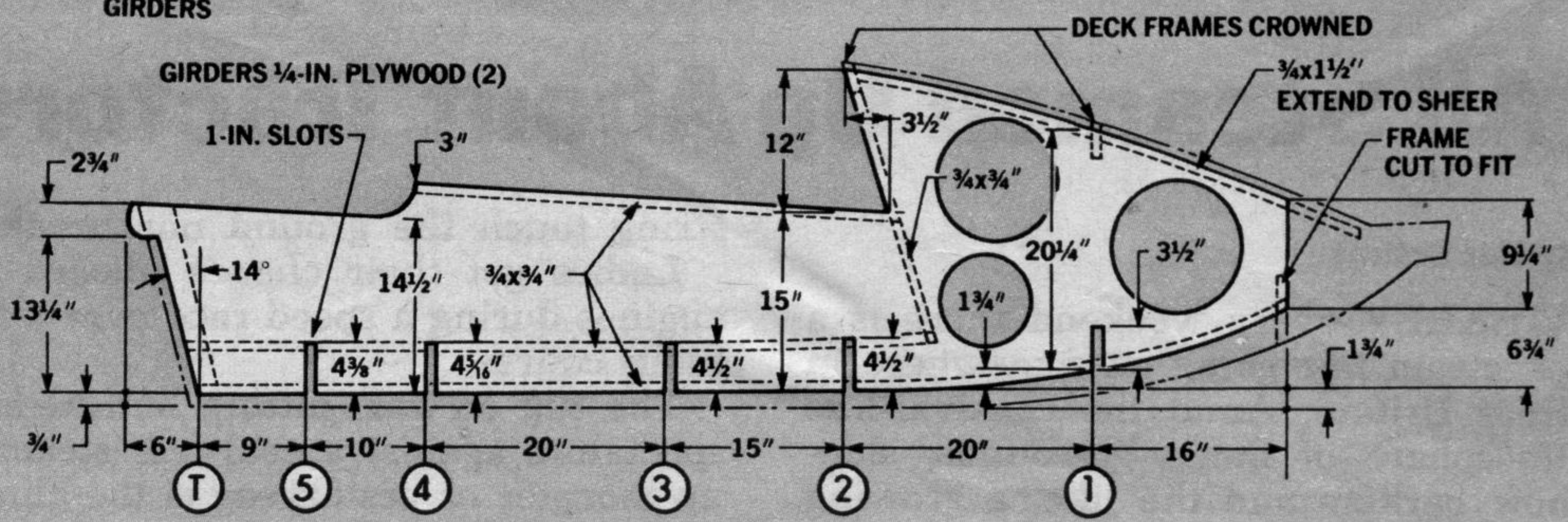
**TRIANGULAR** piece at front deck tip requires extra fairing. There's a filler block that goes beneath it for additional support.



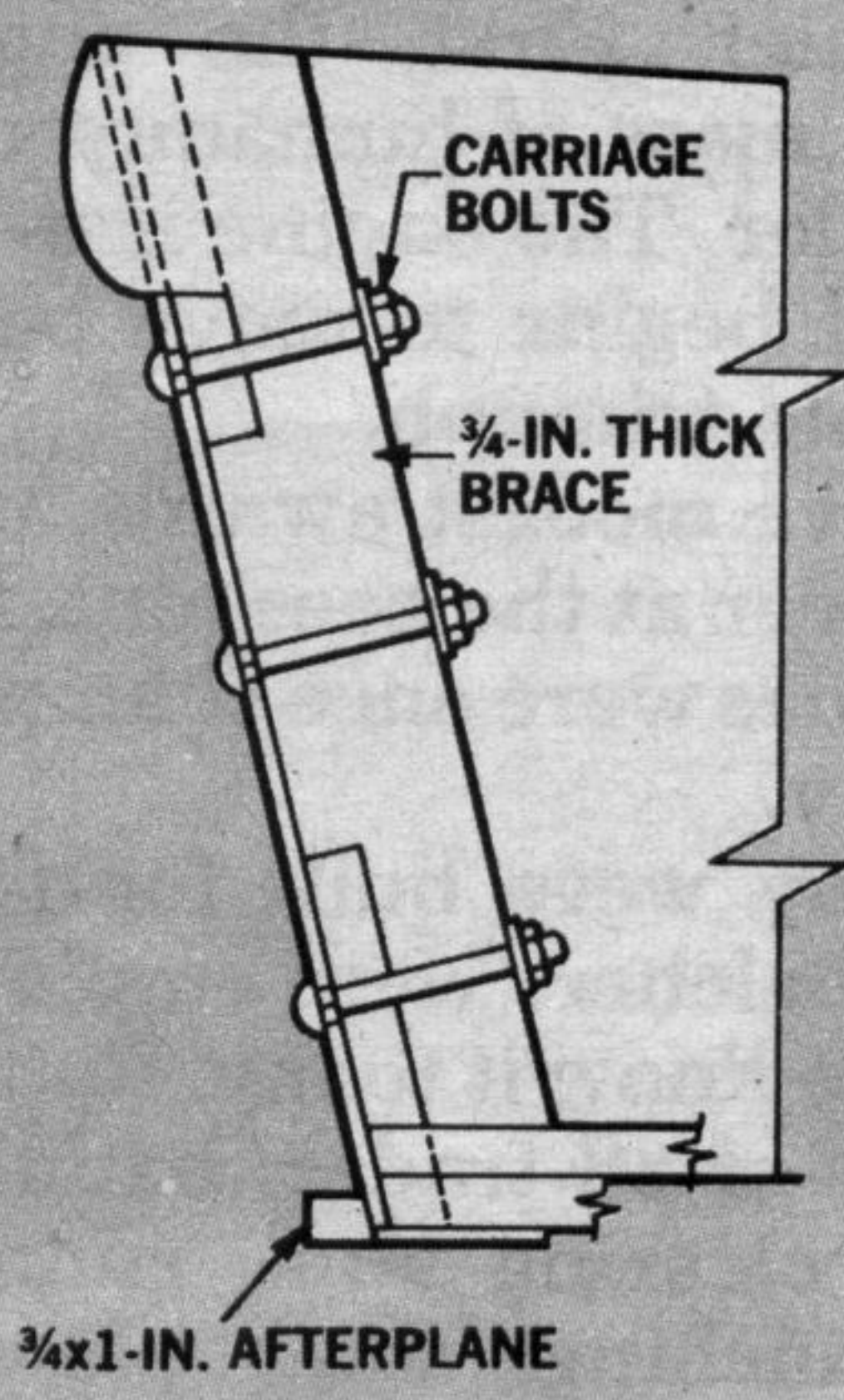


L.O.A. 9 FT. 1 IN.  
BEAM 4 FT. 8. IN.

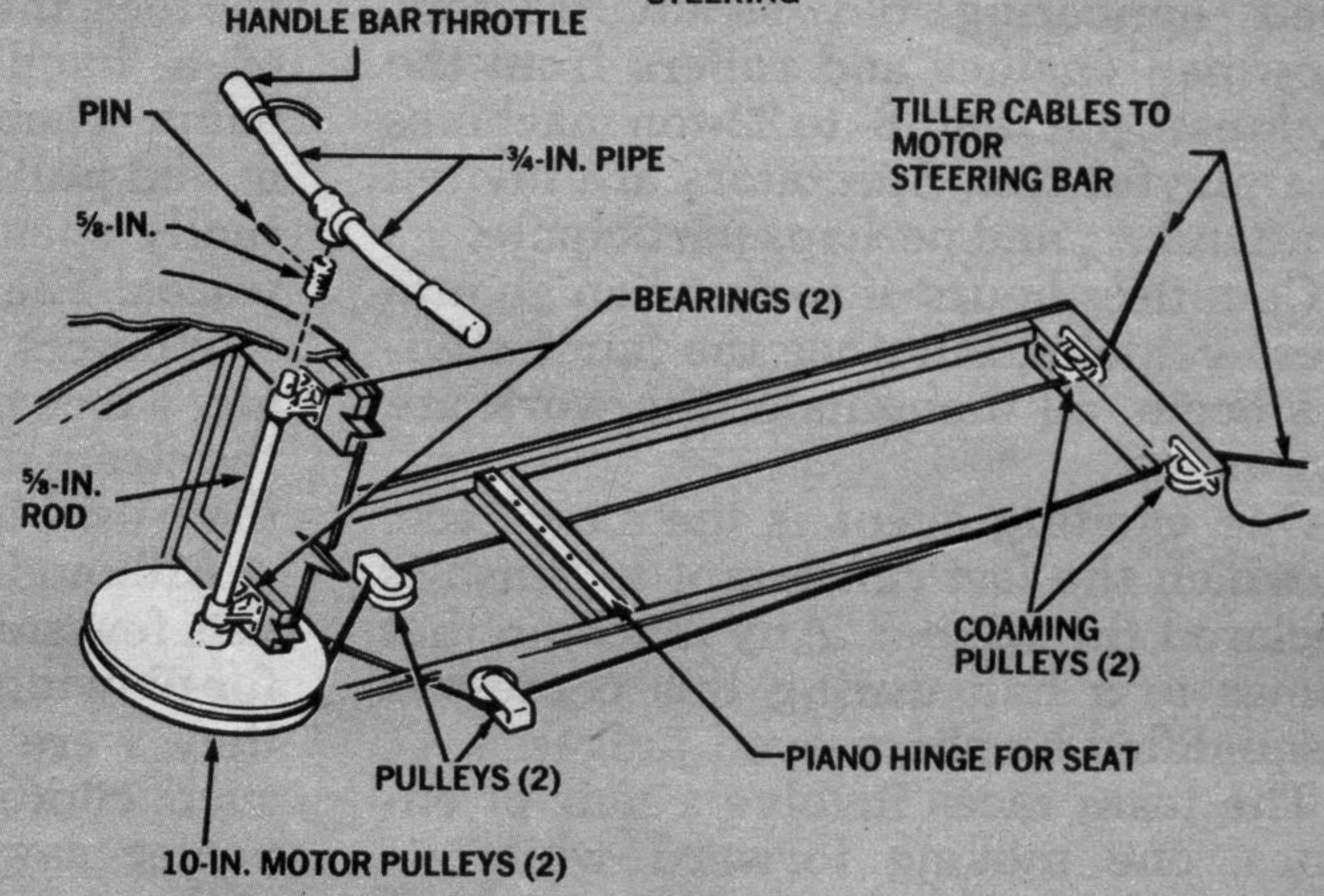
**GIRDERS**



**TRANSOM**



**STEERING**



U G I I I  
THOMPSON



