EASY ON THE EYES as well as the pocketbook, the PM-38 outperforms boats costing hundreds of dollars more and runs like a racer's dream with just 28 horses clamped to the transom. This streamlined 13-ft., 9-in. runabout can be described in just four words - maximum return, minimum expense.

What's the secret? Since everyone knows that weight is one of the most important performance factors, our designer laid out plans for a fast planing hull and then hacked off weight wherever possible. The result is an agile 200-lb. boat designed for use with a relatively small motor. However, strength and safety were not sacrificed for speed. In addition to the two full frames and transom, two "half frames" were added to provide extra rigidity. Where necessary, joints were reinforced with strong but light gussets.

For economy, all parts of the hull fit into cutting diagrams which leave almost no waste. This makes accurate cutting very important, so we suggest that you use full-size paper patterns wherever possible. Incidentally, you can make a perfect tracing wheel for transferring these patterns to the wood by salvaging a gear from a discarded alarm clock and mounting it between the legs of a wooden clothespin with a nail.

Even the construction is streamlined. You won't need any complex building forms to build the PM-38. Two simple A-frames made from scrap lumber are used to support the framing during construction, Fig. 10. While this means that a certain amount of extra care is necessary to make sure that all parts of the frame remain in proper alignment, it cuts down building time.

Cut the transom back from ½-in. plywood, Figs. 9 and 11, and use this piece as a template to saw the 1 x 4 framing members and the 1 x 8 face plate to fit. Before mounting, notch the bottom framing member for the bottom battens and the face plate for the deck battens. The transom cross beam will be approximately 61 in. long. After cutting this from the 16-ft. length of 2 x 4, saw the remainder length-
wise to form the keelson and two outer
dock battens. Fig. 12.

Assemble the frame on the plywood back,
using waterproof glue (Weldwood, or simi-
lar) and 1 1/4-in. ring-groove nails. For ad-
ditional resistance to corrosion, you might con-
sider substituting serrated bronze nails
(Stronghold, Anchorfast, etc.), though they
are somewhat more expensive. (This also
holds true for all screws used in the boat.)
Fasten the 2 x 4 cross beam from the out-
side with 1 1/4-in. No. 8 flatheaded screws,
countersinking them slightly so that they
can be masked with wood putty.

Frames 1 and 3 aren’t actually complete
frames since each consists of just a beam
and two brackets, Fig. 9. These will be in-
stalled later, once the side planking has been
completed. Frames 2 and 4 utilize 1/4-in.
plywood gussets between the side and bot-
tom members to gain additional strength.
Coat all contacting surfaces at each joint
with glue and secure with two 1 1/4-in. No. 8
screws per joint.

Note that the bottom of frame 2 is made
in two pieces which are linked by a third.
Glue and screw the chine joints first, then
fasten the third member between them
with six 1 1/4-in. No. 8 screws and glue.
After the glue has hardened, notch this
third piece to receive the keelson.

Cut the two-piece stem from a 5-ft. length
of 2 x 10. Fig. 2. Assemble the two parts
temporarily to make sure that you have a
tight even joint and trim if necessary, then
nail the two pieces together with two 2-in.
nails, one through the top and the other
through the bottom. To further strengthen
this joint, fasten 1 1/4-in. plywood gussets to
each side with glue and 1 1/4-in. nails, Figs.
1, 5 and 10.

Lay the stem aside until the glue has
hardened (about 24 hrs.). The outer edges
must be beveled according to sections A
and B, Fig. 2. Don’t continue the bevel be-
low B, since this will be done later when
you attach the keelson, at which time the
bevels will be faired into the keelson.

POPULAR MECHANICS
Attach the fore end of the keelson to the notched portion of the stem with three 2½-in. No. 10 screws and glue. Notch the transom to accept the aft end, but before attaching the keelson, cut the transom knee from the 2 x 10 from which you obtained the stem, Fig. 2, 3 and 5. This piece must be notched for the 1 x 4 bottom frame member in order to fit flat against the plywood transom back under the beam.

Temporarily assemble the transom knee, transom and keelson to make sure that all mating surfaces fit tightly together and trim if necessary. Then coat all contacting surfaces of knee, beam and transom back with glue, and fasten the knee in position using two 1½-in. No. 8 screws through the plywood and one 2½-in. No. 10 screw down through the beam into the knee. Countersink exterior fastenings. Finally, fit the keelson into the transom notch and secure it to the transom knee with glue and two 2½-in. No. 10 screws.

Turn the stem-keelson-transom unit upside down on the floor and measure off the locations for frames 2 and 4, Fig. 5. After marking these locations on the keelson, assemble the A-frames which provide rigid support for the hull during the remainder of construction. The bottom of frame 4 must be notched to accept the keelson. Erect the hull framing, using the A-frames and temporary supports at the stem and transom. The 1 x 4 deck support, Fig. 8, should be notched, drilled (to lighten it) and installed at this time. The keelson must be perfectly flat. As the work of framing and planking progresses, check periodi-

**TRAILERING** the PM-38 is a breeze. The light 200-lb. hull is exceptionally easy to launch and retrieve.
cally to make sure that it remains flat, especially from the transom forward to frame 4, since this will effect the operation of the boat. Attach frames 2 and 4 to the keelson with one 2½-in. No. 10 screw each.

Cut the two chine logs from one 1 x 4, sawing at a 35-deg. angle, Fig. 12. Then saw off a 1-in. cross section and use this to outline chine notches in the frames, Figs. 9 and 10. Saw out these notches squarely, and after temporarily clamping the chine logs in position along the hull framing, run a hand saw between the logs and frames to seat them snugly in the notches. Trim the fore ends to fit flush to the stem. Use glue and one 1¾-in. No. 8 screw at each joint.

While fastening the chine logs to the frame, check frequently with a carpenter's square to make sure that frames and transom remain square to the keelson. Also, check the keelson for flatness, and if you discover any curve, no matter how slight, correct it with shims or by securing the A-frames more rigidly to the floor.

The four bottom batters are obtained by sawing two 8-ft. lengths of 1 x 4 in half lengthwise. Place two on each side of the keelson, spacing them evenly between it and the chine logs. These fit into the notches in the inside bottom frame member of the transom and against the plywood back, but simply lay across frames 2 and 4. Use glue and one 1¾-in. No. 8 screw per joint to fasten them in place.

Once you have installed the bottom batters, complete the stem beveling and fair the rest of the frame. Plane or sand down any irregularities so that the plywood planking will fit flat against the frame at all points. Before you begin planking the bottom, cover the exposed ends of the chine logs and keelson with the 1 x 4 outside bottom frame piece, first coating contacting surfaces with caulking compound. Fasten
in place with twelve 1%-in. No. 8 screws.

Clamp the ¾-in. plywood panel on the frame so it projects 3 in. beyond the 1 x 4 outside bottom framing of the transom. After marking the chine outline on the panel, remove it and cut to shape, sawing along the outside of the line to allow for final fitting after securing it to the frame. Also, saw a center slit 30 in. long in the fore end of the panel to accommodate the curve of the hull at this point. After sawing the panel, clamp it over the framing again to check the fit, then crawl under the frame and mark the location of chines, keelson, battens, etc. Remove the panel and drill lead holes at 12-in. intervals along the centerline of the outline of each member. Then turn the panel over and countersink each hole slightly. Be sure to replace the panel in exactly the same location so that screws and nails will be positioned in the center of each frame member. (Text continues)
DESIGNED BY ALAN SCOTT
DRAWINGS BY GEORGE BLOW

FRAME NO. 2
STEM PIECES AND TRANSMO KNEE CUT FROM 2 x 10 x .5

DECK BATTEN
FRAME NO. 1

STEM PIECE
JOIN

1/2 PLYWOOD GUSSETS

JOINT

1/2 PLYWOOD FOR DECK

1/4 PLYWOOD GUSSETS JOINING STEM PIECES

1/2 PLYWOOD BACKING FOR BOTTOM JOINT

SIDE VIEW OF BOTTOM PLANKING JOINT

BACKING

1/4 PLY, 1/2 PLY.

SEAT HEAD

FRAME NO. 3

1/2 PLY, SEAT BACK

4 1/2

SEAT

4 1/2

SEAT BENCH

4 1/2 x 1/4 STRIPS

SPRAY RAIL

BEAM

1/2 PLYWOOD TRANSMO BACK

KEELSON

BETTENS

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Before attaching the bottom planking, coat both the bottom of the transom and the mating surface of the plywood planking with caulk compound. Then apply glue to the bottom surfaces of the frame members and the mating areas of the plywood planking. Finally, fasten the planking in place, using a double row of 1½-in. nails spaced 2 in. apart at the transom and 1-in. No. 8 screws spaced 4 in. apart along the battens, chines and keelson. Use a double row of screws along the slit in the fore part of the planking.

The rest of the bottom planking is ¾-in. plywood and will require steaming or soaking to bend to the hull curves. To facilitate bending, place a wet towel on the exterior surface and run a hot iron over it. Coat contacting surfaces with glue and fasten with 1½-in. nails along the stem and 1-in. No. 8 screws at the chines.

Note that the ¾-in. fore planking overlaps the ½-in. rear planking approximately at frame 8, Fig. 1. Cut backing blocks to reinforce this joint from ½-in. plywood and glue them in place inside the hull. Screws should go through both pieces of planking and into these blocks. Space all fore planking fastenings about 2 in. apart.

Use the same procedure when planking the sides as you did when installing the bottom planking. Calk the joints between side planking, chine and transom, but coat all other mating surfaces with glue. Attach the planking with 1½-in. nails spaced 2 in. apart. Use glue and 1½-in. nails to secure the ½-in. plywood backing plate for the butt joint. Drive these nails from the outside through the planking and backing plate. Since they are slightly long for this joint, you'll have to clinch the ends which protrude through the backing plate.

Before turning the hull right side up, cut and install the skid rails, Figs. 8 and 13. Taper and round the fore end of each rail to reduce drag. Use caulk compound when mounting the rails, and secure them to the hull with 1-in. No. 8 screws through the planking and into the outer bottom battens. Countersink these screws slightly and fill the holes with wood putty.

To complete the bottom, plane the stem planking joint flat and install the stem band. Figs. 5 and 6, using caulk compound and 1-in. No. 8 screws spaced 6 in. apart. Soaking the stem band in hot water for a short time will make bending easier.

Now turn the hull over and rest it on padded saw horses. Cut the two sheer rails and spray rails from a 1 x 4, Fig. 12. The sheer rails should be mounted first, starting at the bow. Coat all contacting surfaces with glue and fasten the rails from inside the hull with 1-in. No. 8 screws at 8-in. intervals. Following the same procedure, secure the spray rails 3 in. above chines.

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Next, install the beams and brackets which make up frames 1 and 3. Secure brackets to beams with glue and two 1\(\frac{3}{4}\)-in. No. 8 screws per joint. To mount the half frames, drive two 1-in. No. 8 screws through the side planking into each bracket, countersinking each slightly.

Notch the deck beams of frames 1, 2 and 3 for the 1 x 4 center deck batten. The fore end of this batten will have to be notched also to fit around the stem. Use two 1\(\frac{3}{4}\)-in. No. 8 screws and glue to attach this batten at each joint. To complete the deck framing, install the two outer deck battens, fitting them into notches cut in frames 2, 3, 4 and the transom. Bevel the fore end of each to fit against the side planking. Secure with glue and one 1\(\frac{3}{4}\)-in. No. 8 screw per joint.

Before planking the deck, plane the edges of sheer rails and plywood side planking to conform to the curvature of the deck beams and transom.

Plank the deck as you did the sides, using glue and 1\(\frac{3}{4}\)-in. nails spaced 2 in. apart. Fig. 7. Utilize scrap 3\(\frac{3}{8}\)-in. plywood from the bottom planking panel as backing plates for the bunt joints. Fig. 12.

Mount the seat risers first, Figs. 5 and 8, attaching them with glue and one 1\(\frac{3}{4}\)-in. No. 8 screw per joint. Since the seat bench is made from scraps cut from the same panel as the seat itself, saw out the seat before making up the bench. If necessary, you can adjust the dimensions of the bench. Fig. 4. Use glue and nails to assemble the bench and mount it on the keelson. Fasten the seat to the risers and bench with 1-in. No. 8 screws and glue, then secure the seat back to the seat bottom with three inside corner plates and 1-in. No. 8 screws. Finally, trim the seat head to fit, attach it to the top of frame 4 and cover the joint with a trim strip obtained from the waste of the keelson 2 x 4.

Either make up the motor board from scraps of 1\(\frac{3}{4}\)-in. plywood left over from the deck planking panel, or (preferably) from a 10 in. x 16-in. scrap from another project. To elevate the motor to the proper height, glue and screw a 1 in. x 1\(\frac{1}{2}\)-in. block to the top of the transom. If possible, reinforce this with a cap made by bending a piece of scrap aluminum, Fig. 13.

While we normally recommend fiberglassing seams before painting, this isn't absolutely necessary and it will make the boat more costly. After painting, all that remains is to install the windshield, controls and motor before loading the boat on your trailer and heading for the nearest water.