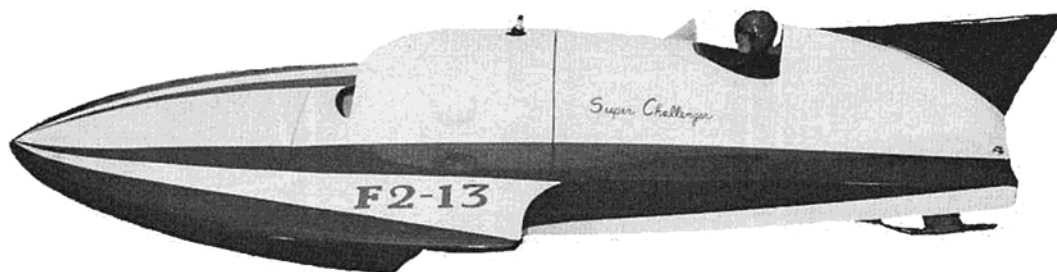


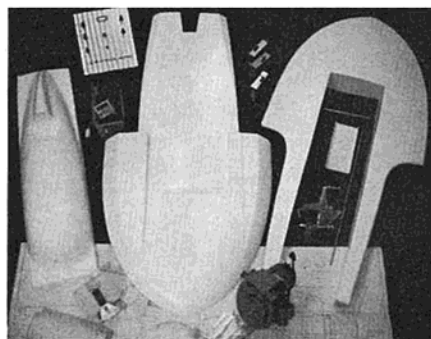
Building The G.E.M. SUPER CHALLENGER



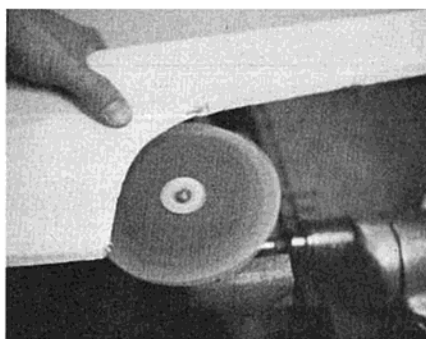
By **GARY PREUSSE** and **EARL MUNDT**

A step-by-step "how-to" article for a record smashing hydro

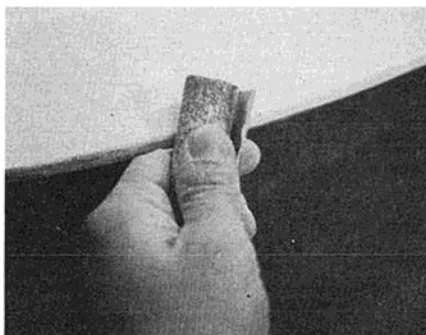
Super Challenger kit by G.E.M. with all necessary equipment to make it perform.



Disc Sander being used to remove the lip on the deck behind each sponson.



Coarse sandpaper is used to roughen the edges of the molded parts before bonding.



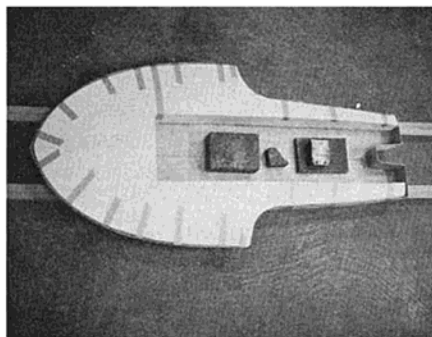
Upon an initial inspection of the fiberglass hull and deck contained in the G.E.M. Challenger Sr. kit, these units appeared to be quite flexible. This is due to the fact that just enough resin is used to wet the glass fibre, allowing a high strength, light-weight and puncture proof hydro. When the deck and hull are bonded together, they form a rigid, welded unit.

Before actual assembly can begin, it will be necessary to remove excess fiberglass from the deck lip to assure a uniform fit without any distortion. A hand file is adequate, but a sanding disc on an electric drill will speed this chore. Carefully remove the lip which hangs from the curved edges behind each step. If the deck sets too high in the hull, trim the engine well a little at a time. It may be necessary to remove approximately 1/16" of material from the top edge of the hull so that the curved edges behind the step may lie flush with both sides of the hull. Check the lip and the bow carefully to insure a proper fit.

Due to the smoothness of the exterior surface, it is very important to roughen with coarse sandpaper any part that is to be bonded. All of the exterior, which is to be later painted with epoxy, should also be sanded with #200-#400 wet-or-dry paper. The interior surface is purposely left with a rough finish so that you may bond directly to it without the necessity for sanding.

If an O&R engine is to be installed, the engine mount must be mounted before the deck and hull are joined. Using a soft black pencil, mark off the thrust line on the outside of the engine compartment, maintaining a 13-14 degree angle with the bottom

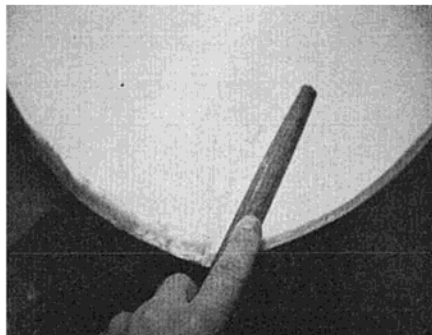
Preparation of the hull before applying putty in the "V-groove."



Actual application of putty in the "V-groove."



Neatness in applying putty will greatly reduce the chore of finishing the deck edge.



CHALLENGER, SR.

(Continued from Page 33)

bottom of the hull. After the putty sets up, carefully remove the engine mount and finish filling in under the pads with putty. Apply a layer of cloth (4" x 3") and resin down each side of the engine compartment, over its respective mounting pad, and over the bottom of the boat. Add another coat of resin and let set at least 24 hours.

Cut a piece of 1/8" plywood for mounting inside the transom to support the steering strut drive unit. Drill the necessary holes through the transom and the plywood panel for attaching the steering strut. Glass the plywood panel in place. Add the transom knees and secure with an appropriate amount of cloth and resin. Cut the necessary holes in the bottom of the boat for the drive shaft to pass through. Slip the shaft into position to check alignment. We recommend the stuffing box be made from a 5" long, 3/8" O.D. piece of Perfect brass tubing with a 3/16" I.D. needle bearing crimped at its center. Remove the shaft and enlarge the hole, if necessary, to clear the stuffing box. Re-install the shaft with the stuffing box in place and check for any binding or deflecting of the shaft.

We highly recommend using G.E.M.'s special stainless steel racing fins on this and all other racing boats to assure turning the boat in a small radius. These fins run through the water at a 45° angle as shown in the illustration. Because they are bolted to the bottom of the hull, and the hull has positive incidence when it is riding on three points, the bases of the fins must be 1/4" closer at the back than they are at the front in order to allow them to be parallel when the boat is riding on three points. This is not a difficult thing to do. All that is required is to draw a line on the bottom of the hull from the center of the strut cutout to the center of the hull at the back of the steps. Using this line as a guide, the fins are easily positioned and mounting holes may be drilled accordingly.

If you desire to add a fin to the fibreglass hatch, it should be cut from 1/8" plywood. Cut the shape you desire and carefully sand it to match the contour of the headrest. (Sand the headrest vigorously to assure a bond between the fin and the hatch.) The fin may be held in place with

tape. With an eyedropper, apply some resin to the fin and the headrest and let it set up. Remove the tape and add some fibreglass putty in the form of a fillet. You may use a finger to trowel it out if you keep wetting your finger in thinner in order to keep the putty from adhering. Sand the putty and apply resin to the plywood to seal the surface.

Cut the air intake opening with a saw and sand smooth. Drill a 1/4" hole for the spark plug and use a round file to obtain adequate clearance.

The boat should be carefully sanded to remove any gloss, oil, finger prints, etc., before painting with epoxy paint. The parting lines of your color scheme should be lightly penciled in on the white hull to aid in applying the masking. (Use cellophane tape.) Follow the manufacturer's instructions with the particular brand of epoxy that you purchase. I will re-emphasize that you use epoxy paint **not** butyrate dope. After the paint dries you may rub the boat's finish with fine rubbing compound and apply a coat of paste wax. The hardware and radio may now be re-installed and your boat is ready for the water.

TRIMMING INSTRUCTIONS

It will be noted that we are showing fins on the right and left-hand side of the boat. This will allow high speed turns to the right or the left without the necessity of throttling down and losing a race. These fins allow the inboard step to remain in the water to give the boat "traction" to resist centrifugal force. The fins may be moved slightly forward or backward to obtain different turning characteristics. Moving the fins forward will cause the boat to turn more tightly.

The trend today is to right-hand pylon racing. With this in mind, the left fin may be left off to reduce drag and increase speed during a race. Just remember to secure the bolts in the hull to plug the holes.

On the plans you will see the running position on the tips of the sponsons and on the aluminum plate of the steering strut. The angle at which the plate lays in relationship to the water will determine how much the boat will rise out on it. By pointing the rear of the plate up, the boat will ride wetter at the rear and pointing it down will raise the back end out of the water.

In your initial running of the Super Challenger, bolt the strut directly to the hull with no shims and balance as shown. If this is your first high speed boat, become familiar with its speed. Then adjust the strut angle and balance point to minimize spray from the sponsons and transom.

Now that you have your boat trimmed and ready for the water — Good Luck and Happy Sailing!
