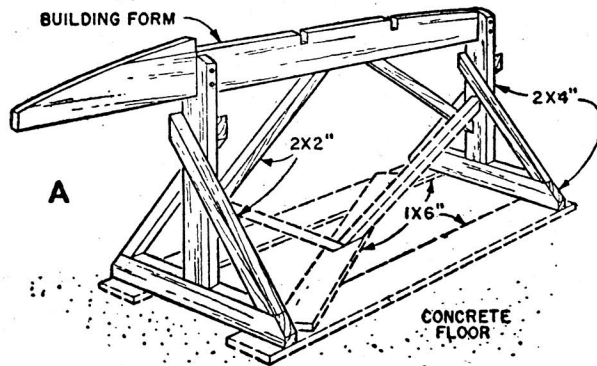


with glue and three #8 x 1½ in. flathead (fh) screws at each joint. Fasten transom frame pieces to ⅜-*in.* plywood transom with glue and #6 x 1 in. fh screws spaced 3 in. apart and driven through from plywood side. Stagger screws slightly to avoid splitting frame stock. When the glue has dried, cut notches in all frames for keel, floor member and chines. Cut the notches slightly undersize and when assembling, run a saw along-side members to enlarge notches for a snug fit.

Transfer the stem drawing to a piece of 1½ in. thick stock. Saw to shape and rabbet as indicated by making a saw cut and then chiseling to size. Cut two chines with beveled edges from a single piece of ¾ x 2⅝ in. stock (Fig. 9) by rip sawing at a 40° angle.

You are now ready to start assembling the frame on the building form. Begin by clamping the stem to the end of the form with a piece of scrap 1 x 3 in. stock on each side (Fig. 2). Clamp the transom in position to the rear leg of the building form and place the frames in the notches cut in the form. Align the frames and temporarily clamp to the form with a cross brace, and to the floor as in Fig. 3.

Fit and fasten the aft keel, extending from the



transom to the top side of the aft-keel tie bar (Fig. 5), with two #8 x 1½ in. fh screws to each joint. Follow by fastening the fore keel first to the stem then to #1 frame notch as you did the aft keel. Leave the step end of the fore keel extend beyond #2 frame about 3 in. for the time being and mark, cut and fit the fore keel filler from 1½ in. thick soft fir. Filler extends from #1 frame to #2 frame between fore and aft keels (Figs. 5 and 7). Check with a straightedge as in Fig. 10 to determine height of filler block. Do not fasten the keel filler permanently in place at this time, merely clamp the two keels and filler together and continue by placing the chines in position. Bevel the chines to fit against the stem and recut the notches in each frame if needed. Fasten the chines to each frame alternately with

Outboard Racing Speed Hints

UPON first trying out Spitfire we clocked only 35 mph with a Mercury Hurricane and Hydro-Quickie™ lower unit, which is very poor performance in any category. We first cut the motor board down to 10½ in. The motor rev'ed up beautifully but the speed only went up to 40 mph. Now the Merc with a hydroquickie lower unit requires a motor-board height of 13 in. and higher if possible. Our problem was—why must we run the motor so deep, creating that extra drag to gain 5 mph. After carefully analyzing the problem, we came to the conclusion that the fin because of its length and depth was causing considerable turbulence around the propeller. We then cut the fin down to the size shown in Fig. 11 and raised the motor to 13 in. The speed increased to 43 mph. After raising the motor to 13½ in. the speed increased to 48 mph, and this with a "dinged" propeller. With a new prop 50 mph was achieved.

To obtain the utmost speed from Spitfire, or any high-speed outboard craft for that matter, some experimenting must be done. Following are some suggestions:

NUMBER 1: Install a water speedometer so you can be sure of the effect each adjustment you make has on speed.

NUMBER 2: Try various motor angles until you find the one that works best. One notch of motor tilt on the original Spitfire was the difference between poor and excellent performance.

NUMBER 3: Jack up the motor as high as it will go without cavitating (sucking air from the surface of the water). In rough water you may need to lower the

motor about ¼ in. So have a supply of plywood shims ⅛, ¼ and ⅜ in. thick and the size of the top edge of the motor board with you. Use these shims under the motor bracket to raise or lower the motor to obtain best speed for water conditions.

NUMBER 4: Experiment with different types of propellers. Use the one that gives you the utmost acceleration as well as speed. If you intend to race seriously, have one prop for competition and one for knocking around.

NUMBER 5: Try different types of spark plugs in your motor to find the kind that works best for you. Also try various spark-lever settings. The wide open setting, ordinarily required for average boats, may not be best. You may be able to pick up a mile or so by retarding the spark slightly.

NUMBER 6: For fuel, use straight gasoline of the non-leaded type, 72 octane or better. Mix with highly refined and filtered S.A.E. #30 or #40 grade oil containing no detergents to the proportions of 1½ pts. of oil to 1 gal gasoline.

NUMBER 7: Our last item to secure slightly higher speed is to alter the bottom of the motor. Mercury Hydro Quick-Silver lower units are equipped with a small aluminum skeg to protect the propeller when setting the motor down. If this skeg is sawed off just below the gear case (be very careful not to cut into the gear case) the speed may be boosted up to 1 or 2 mph more. However, when this skeg is eliminated scant protection is afforded the propeller. The propeller, of course, can be removed when the motor is transported.