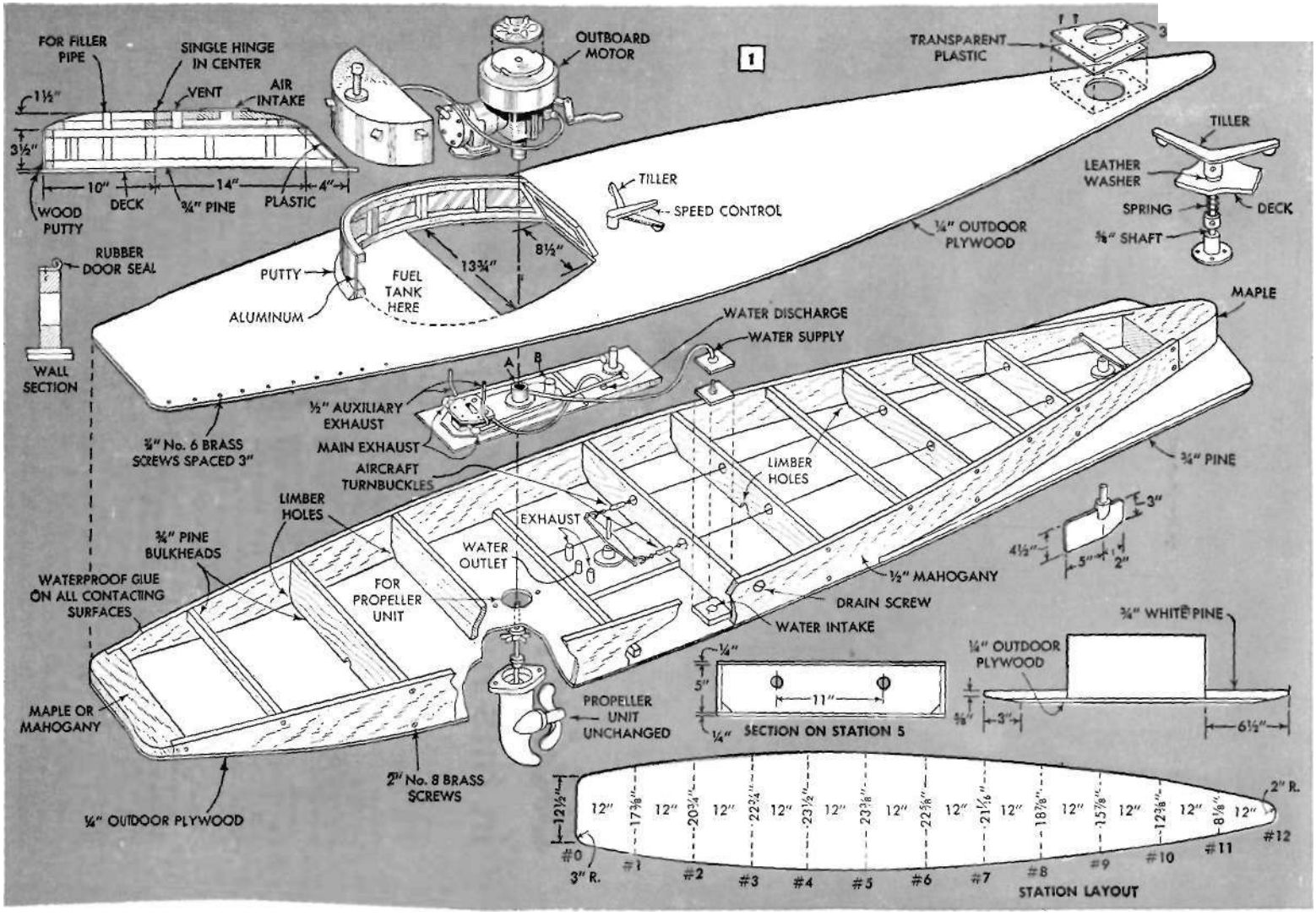
Skim the Waves

in this motor-driven *paddle board*

THERE'S something new in water-sports equipment — a motor-driven paddle board. It combines the common characteristics and seaworthiness of the surfboard and paddle board, but, more than that, it's power driven by a conventional outboard motor. That's the new angle. Smooth, sweeping "hull" lines, crowned deck and low motor hatch make this the sleekest, trimmest little craft you ever looked at. Light enough to be easily launched by one person, it rides rough water like a cork.

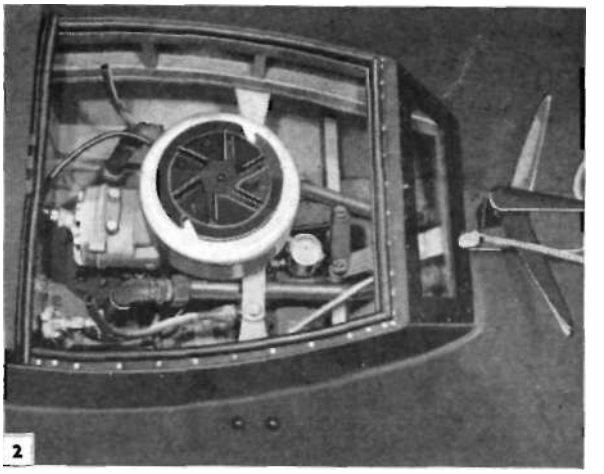
The hull, or board, itself is constructed just like the nonpower jobs, except that it is 5Vi in. deep instead of the usual 3 in. or so on the conventional surfboard and paddle board. Deck and outboard plan views shown in Fig. 3 give the general over-all dimensions. Note that the motor hatch is placed well forward, giving ample room for a tall man to lie full length aft of it. Controls consist of tiller and speed lever, and a clear plastic transom permits a view inside the "engine room" from the rear. This, together with a midget headlight, could be lighted from a small storage battery for night cruising. General arrangement of the hull is shown in Fig. 1. Note that three of the bulkheads are only about half the width of the others and serve as deck beams. In the engine compartment is another half-bulkhead on the bottom, and the only one that is not spaced 12 in. on centers. The location of this is determined by the particular outboard motor you select.

In laying out the board, follow the dimensions given in the station layout, Fig. 1, which shows the stations all spaced 12 in. apart. To achieve a true curve, use a %-in.-square spruce or pine batten, and, by bringing pressure at the ends, let it take a natural bend. Drive nails into the plywood


FOR FILLER PIPE
SINGLE HINGE IN CENTER
VENT
AIR INTAKE
1½"
3½"
10"
DECK
14"
¾" PINE
4"
PLASTIC
WOOD PUTTY
OUTBOARD MOTOR
1
TRANSPARENT PLASTIC
TILLER
LEATHER WASHER
SPRING
DECK
⅝" SHAFT
TILLER
SPEED CONTROL
¼" OUTDOOR PLYWOOD
RUBBER DOOR SEAL
PUTTY
ALUMINUM
FUEL TANK HERE
13¾"
8½"
WALL SECTION
MAPLE
WATER DISCHARGE
WATER SUPPLY
A
B
½" AUXILIARY EXHAUST
MAIN EXHAUST
AIRCRAFT TURNBUCKLES
¾" No. 6 BRASS SCREWS SPACED 3"
¾" PINE
LIMBER HOLES
LIMBER HOLES
EXHAUST
WATER OUTLET
¾" PINE BULKHEADS
WATERPROOF GLUE ON ALL CONTACTING SURFACES
FOR PROPELLER UNIT
½" MAHOGANY
DRAIN SCREW
WATER INTAKE
3"
4½"
5"
2"
¾" WHITE PINE
¼" OUTDOOR PLYWOOD
¼"
5"
11"
¼"
SECTION ON STATION 5
⅜"
3"
6½"
MAPLE OR MAHOGANY
PROPELLER UNIT UNCHANGED
2" No. 8 BRASS SCREWS
¼" OUTDOOR PLYWOOD
12½"
12"
17⅜"
20¾"
22¾"
23½"
23⅜"
22⅝"
21⅛"
18⅞"
15⅞"
12⅜"
8⅛"
2" R.
3" R.
#0
#1
#2
#3
#4
#5
#6
#7
#8
#9
#10
#11
#12
STATION LAYOUT

bottom *Vs* in. outside the station dimensions so that nails will not mar the panel, and at the same time leave material for trimming. The mark should be on the inside of the batten. The deck only is completely streamlined, the bottom having extensions aft which act as planes.

Details of construction are shown in Fig. 1. Side members of mahogany are notched into both nose and stern blocks after bulkheads have been installed. The latter are of soft pine, % in. thick, with lower corners cut away for limber holes to permit any bilge water seeping in to flow from one compartment to another. Drain holes plugged with roundhead brass screws are located just forward of bulkhead No. 3 and aft of No. 5. When necessary these screws are removed and the hull tipped to drain.



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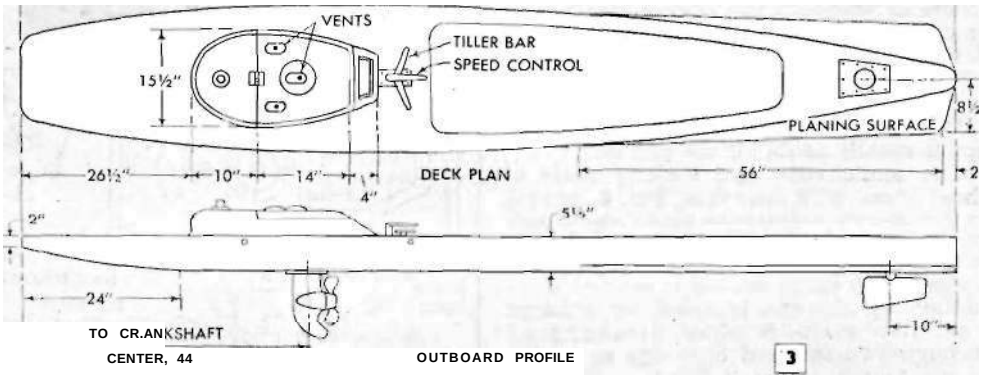
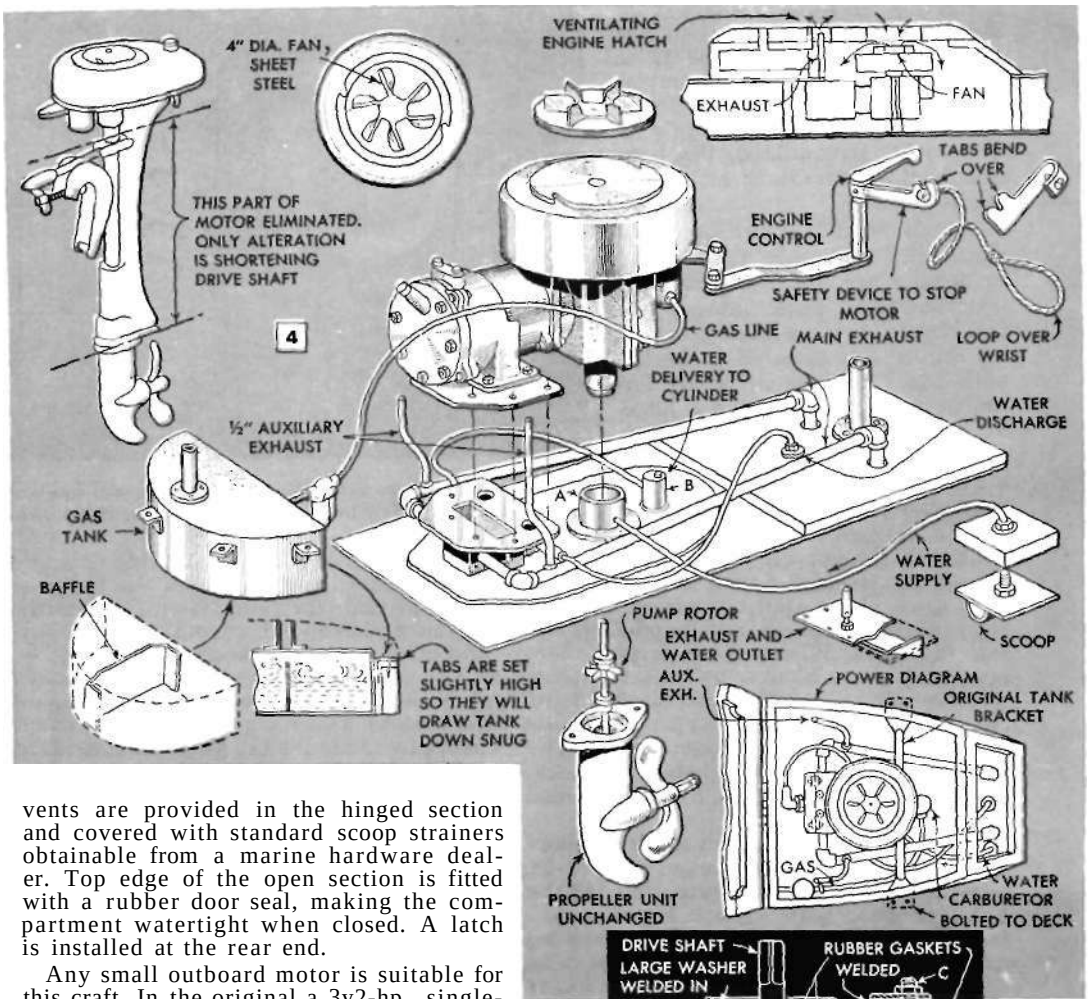
Down view into engine hatch showing all fittings and flywheel fan in place. Note safety cord which attaches to the rider's wrisl

In assembling, apply casein glue to all edges of the bulkheads and on edges of the side members. Where these parts contact nose and stern blocks, use marine glue. Brass or galvanized flat-head screws, 2-in., No. 8 size, are used to fasten parts to bulkheads and to nose and stern blocks. The bottom, which is installed before the deck, is fastened with %-in. No. 6 screws spaced 3 in. apart.

Extensions of the bottom serve as planing surfaces and are reinforced with %-in. soft-pine stock glued to extensions of the Vi-in. plywood bottom piece. Holes are cut in the full-size bulkheads for the steering cables, as indicated, and should be the same distance apart in each, in this case 11 in., or the width of the cable arms. An opening in the bottom for the propeller unit and various pipe fittings is cut later on. Steering is opposite that of a bicycle. Pulling the right end of the tiller back causes the board to turn left and vice versa. If one prefers the bicycle arrangement, cross the cables, cutting holes in the bulkheads accordingly.

The deck is cut from y4-in. waterproof plywood, the same material as is used for the bottom. There are two openings in the deck piece, one for the engine hatch and a circular hole at the stern for steering gear inspection, to be covered with clear plastic and a brass plate secured with roundhead brass screws. Aluminum bent around a scrollsawed framework forms the wall of the superstructure, with the plastic panel in the after end covered with a brass frame and waterproofed with aquarium cement. At the juncture of wall and deck a fillet is made of wood putty, Fig. 1. The forward top is stationary, with a hole for the gas-tank filler cap. The rear end is hinged, and both are neatly rounded. Three

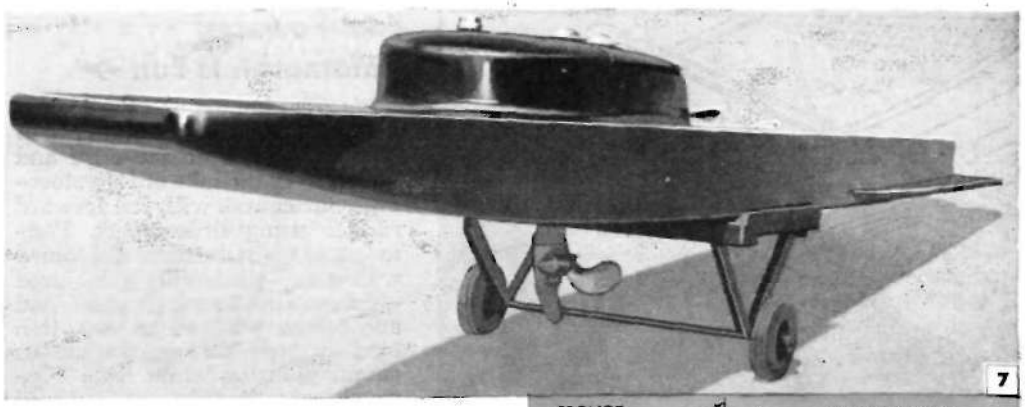




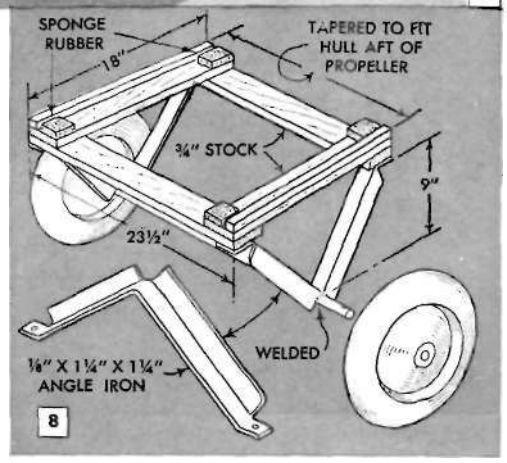
vents are provided in the hinged section and covered with standard scoop strainers obtainable from a marine hardware dealer. Top edge of the open section is fitted with a rubber door seal, making the compartment watertight when closed. A latch is installed at the rear end.

Any small outboard motor is suitable for this craft. In the original a 3y2-hp., single-cylinder, 2-cycle motor was used. No alterations were required except removing the parts shown in Fig. 4 and cutting off the drive shaft and filing the end square. A 4-in.-dia. fan bent from sheet steel is bolted to the top of the starting disk on the flywheel to ventilate the engine hatch. The engine control unit is fitted with a safety device consisting of a notched arm to which the starting cord is attached. A loop of the cord is put over the wrist. If the rider slips overboard the tug on the cord automatically shuts off the power.

The semicircular gas tank is made of sheet brass, with four tabs, Fig. 4, located so that they will draw the tank down onugly on the deck. A baffle is installed with corners cut away. The filler cap is simply a pipe with a flange brazed to the top. Ventilation by the fan is aided by exhaust from two auxiliary pipes discharging through two forward openings as in the upper right-hand detail, Fig. 4.



Because of the propeller-shaft extension a launching dolly is necessary. This is designed to fit the hull snugly and makes the craft easily portable on dry land



In order to keep the engine as low as possible, a special base is made upon whi,ch to mount it, incorporating connections for water and exhaust, Fig. 7. This is a welding job on %2-in. steel plate and makes a very compact unit to which the engine is bolted. It rests upon a brass plate bolted to the bottom. A similar plate has the exhaust and water outlets brazed in. Assembly of connections on these two units is shown in Fig. 4. Exhaust pipes are installed as indicated, with an auxiliary exhaust of V2-in. copper tubing in each adding to the power of the motor by relieving back pressure of the underwater exhaust. The underwater outlets are covered by a reverse scoop into which the cooling water also discharges. The scoop is bolted through the plywood bottom, the brass plate upon which the outlets are brazed, and also through a board on top. This assembly is just forward of bulkhead No. 5.

Water is drawn into part A, Fig. 4, from the intake scoop through copper tubing, delivered from B, Fig. 5, into the engine base, then up around the cylinder and out again to the outlet between the exhaust pipes. All brass-tube fittings are silver-soldered. The housing of the crankshaft bearing fits down in part A and the pump rotor is directly under it in the flange of the propeller unit, Fig. 5. The plywood bottom is cut away to receive this streamlined flange, and is bolted through the brass plate and steel engine base. The rear bolt C, Fig. 5, also passes through part B. The latter consists of a section of pipe with the top welded on and a nut also welded to it. This is offset to allow for the water opening at the bottom, Figs. 5 and 6. Part B is drawn down on a synthetic-rubber gasket. This material is impervious *to* oil. Washers of this same material are used around the drive shaft above and below a brass washer, part A, forming a watertight joint. Part A is a section of pipe with a washer welded just below the top, forming a cup for the accommodation of the crankshaft bearing hub. Another sectional view of part B is shown in Fig. 5, indicating where the welds are made.

A down view of the power plant is shown in Figs. 2 and 4, indicating how the engine is braced crosswise by extensions on the original tank bracket bolted to the deck.

The tiller consists of a handle bar of heavy sheet metal bent as in Fig. 1 and welded to a collar which in turn is bolted to a %-in. shaft. Below deck is another collar with a spring above it. The latter holds the tiller down against a rubber washer, making a watertight joint. The tube for the engine control shaft is high enough above the deck to keep water out.

A simple but sturdy dolly for launching is built as in Figs. 7 and 8 and mounted on balloon-tired wheels for running over sand. The axle is welded to the angle-bar brackets, which in turn are bolted to the cradle. The latter tapers to fit the hull just aft of the propeller, and balances the craft nicely so that it is very easy to handle. Finish hull with two coats of enamel and then wax.