

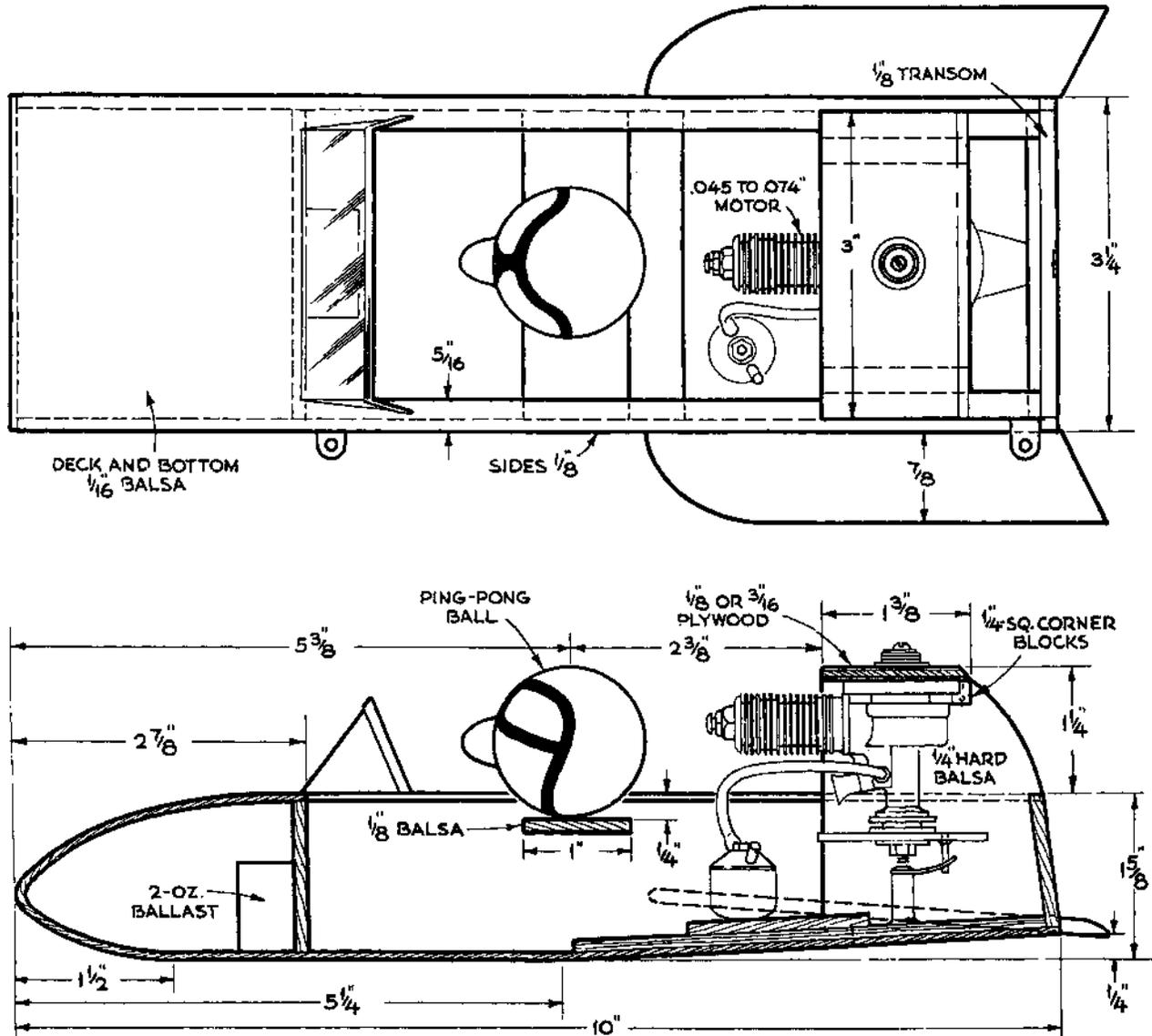
# Hydrojet Powers Little

Newest thing in nautical propulsion, this clever midget boat has no weed-snagging paddles or prop—won't nip unwary fingers.

By Roy Clough

HERE'S a little boat that skims over the water like a speedy sea sled, riding high on two rocket-like chine planes. Yet when you pick it up you'll find no finger-nipping propeller underneath. The only clue to its hidden power is the intake port on the bottom, and an exhaust port directly behind

it at the stern. Housed in a casing between them is a rotary pump, which draws in water and kicks it backward at high speed. Reaction to this stream drives the boat. **The hull.** Use 1/8" sheet balsa for the sides, bulkhead, transom (stern), pilot's-head support and chine planes. Thinner balsa serves for the bottom, deck and gunwales. Before decking in the bow be sure to

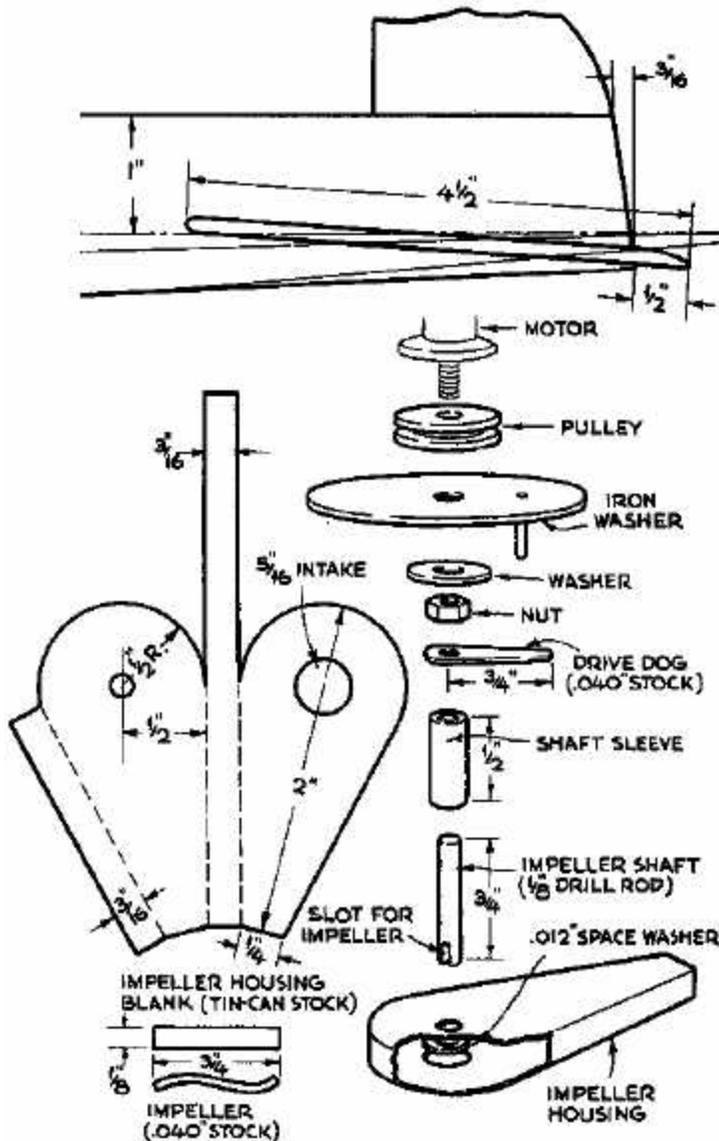


# Speedster

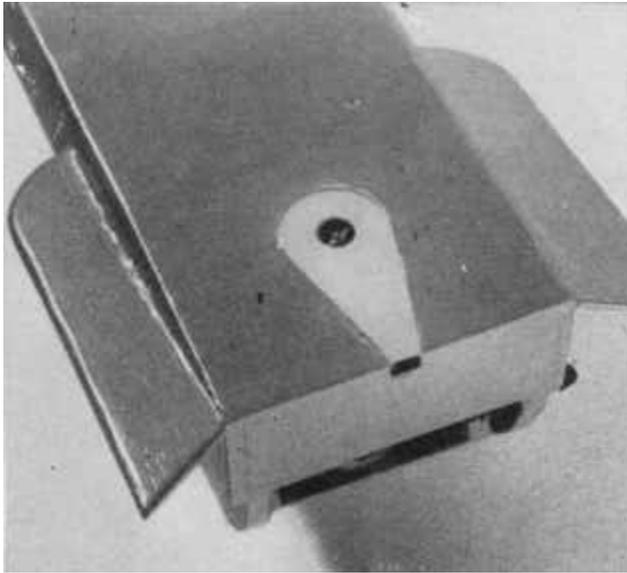


cement a couple of ounces of ballast to the front of the bulkhead. A ping-pong ball forms the pilot's head, and the windshield is a scrap of acetate sheeting edged with tin. To finish off the hull, sand down the assembly and cover it with model tissue, then paint with hot-fuel-proof dope.

**Pump and housing.** Before building an engine mount, the driving unit should be



**OFF TO A FLYING START**, the hydrojet speedster is already climbing. Top and side elevations on opposite page are half size for a boat powered by an .047 displacement engine. The upper detail drawing at left indicates the planing angle; the exploded section below it, the pump-housing pattern and impeller-and-shaft assembly.



**OPENING AT BOTTOM OF PUMP HOUSING** takes in water, which is kicked back through rectangular port at the stern. The planing angle of the hull eliminates need for a water scoop.

assembled and placed in the hull. The pump housing is made from a single piece of tin-can stock (see detail drawing). Dotted lines are right-angle bends, and the tab extension between the pear-shaped bottom and top sections is curved around the rotor end to form a continuation of the sides. Butting edges are soldered, starting at the nozzle to insure good alignment. Make sure that the bearing hole is centered with the larger water-intake hole. A short piece of tubing should be soldered over the bearing hole to keep the impeller shaft aligned. This impeller shaft has a slot sawed in one end to receive the blade, which is a strip of thin brass stock curved in the form of a shallow S.

Before mounting the blade in the housing, solder a short arm, or "dog," to the top of the impeller shaft. Then tin both the slotted end of the shaft and the blade, scraping off just enough solder to let the notch slip firmly over the center of the blade. To mount, turn the housing upside down and press the shaft through the bearing from below. Drop a small washer through the water-intake hole and over the notched shaft end. Slip the blade through the nozzle with tweezers and press it onto the shaft. Rotate the shaft to make sure the blade doesn't scrape against the housing, then solder it in position.

**Engine.** The power plant is a miniature gas engine, suspended in a U frame of  $\frac{1}{8}$ " sheet balsa directly above the impeller shaft. For the slightly angled coupling between the engine and shaft, a pin on a flywheel engages the shaft dog. The flywheel is a large iron washer backed up by a small V-groove pulley turned from hardwood. Mount the fuel tank on one side of the cockpit floor and connect it to the engine with plastic hose.

**Operation.** The hydrojet boat is started by winding a number of turns of string around the grooved pulley and then hauling the twine sharply back through the engine frame.

If you don't want to chase the craft with a rowboat, tether it to a line from five to six feet long. One end of the line is attached to an upright post, the other to the side of the hull nearest the fuel tank. Otherwise centrifugal force would starve the engine.

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