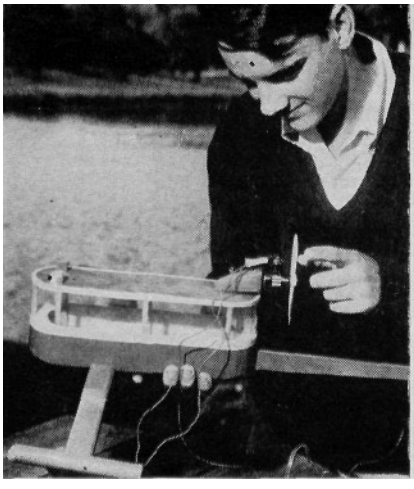
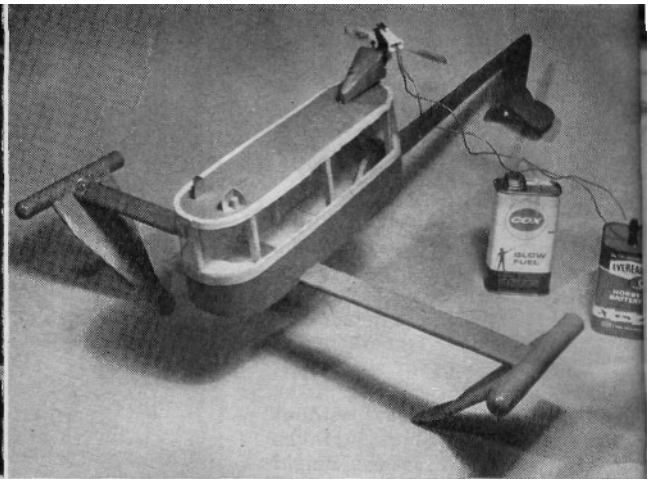




Conventional model-plane power plant pushes little craft over water, and standard model-plane techniques are used to build the craft from balsa. The nacelle accepts most .020-049 radial-mount engines.

MODEL HYDROPLANE Skims

Pusher prop spun by model-plane engine gives high performance. Construction is easy and fast

By ROY L. CLOUGH JR.

Hydrofoils have been around for some time, but even so, nothing on the boating scene draws every eye like a hydroplane lifting out of the water as it gains speed. Even the U.S. Navy has been attracted to foils, and has tested them on its fast PT boats.

The PS model shown here can be completed in a couple of work sessions. Surface-piercing foils and air-prop drive give it speed and stability with minimum complexity. Construction is far simpler than you'd guess from the performance.

Basically, these craft deliver greater speed because resistance against several small areas (foils) is considerably lower than against a complete, submerged hull. Resistance declines as the craft rises.

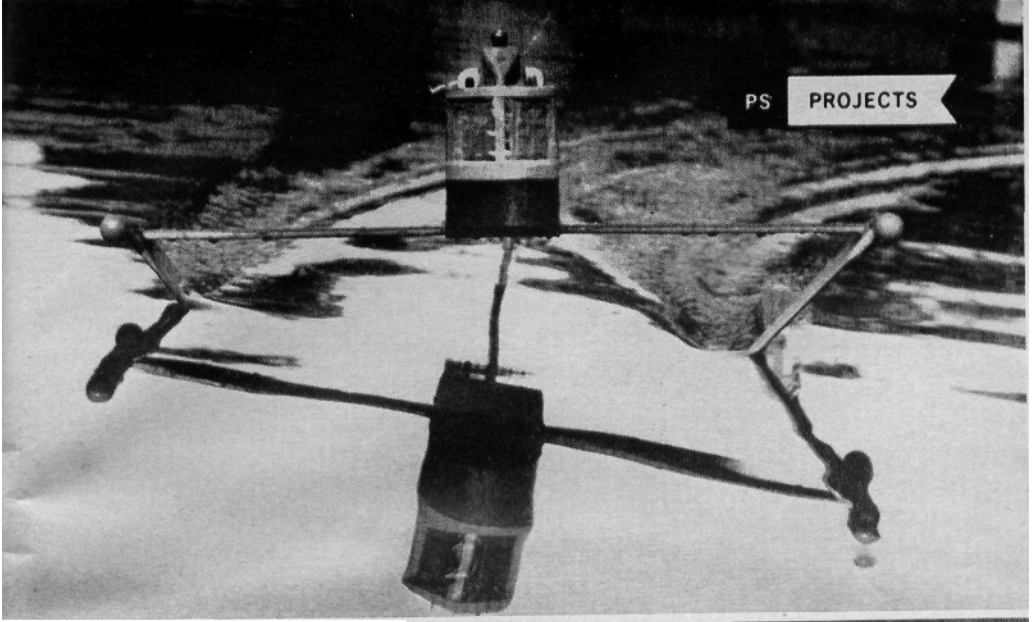
Completely submerged foils are the most efficient, but they require sensing and control systems to keep them at proper depth. Surface-piercing foils automatically adjust for depth—but they also have a tendency to create air bubbles that reduce lift. The PS model uses a foil design that minimizes this undesirable side effect.

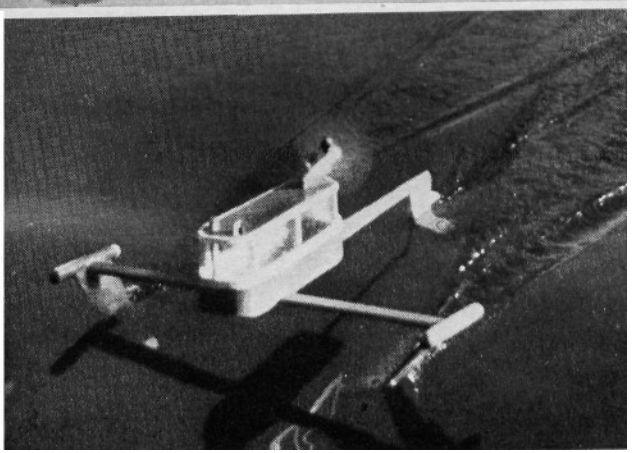
Instabilities can develop in either type of foil. This is particularly true of models. Simply put, the angle necessary to make the foils "fly" at low speed can also make them hop out of the water at high speed and spill the boat. The model has a designed-in, relatively steep foil incidence and a high thrust line to minimize the possibility of this happening.

Building the model. Typical model-plane construction techniques are used. But keep in mind two important construction hints: Cut all parts very accurately. Use ordinary pins to hold the components while the glue dries.

Build the cabin first, complete with tail boom and rear foils. Cover the lower half of the cabin with lightweight model tissue before doping, for a smooth and watertight finish. The windows are simply clear plastic (I cut mine from bubble-type packaging).

Next, make up the front foils, floats,





A large lake or a broad river will serve as a suitable playground for the model. Run it on a tether around your boat, or turn it loose for a "free flight" if there's enough water area to do so safely.

the Water

and crossbeam as a unit, and cut them into the cabin floor at the correct angle. Shape and fasten the motor-mount nacelle; the one shown on the blueprint will accept most .020-.049 radial-mount engines. To be safe, check your engine before shaping the part. Mount the engine to the plywood firewall during assembly; epoxy cement is best here and a good-size dab on the nuts holding the mounting screws is recommended.

The pusher engine. If you use a reed-valve type you can use a standard prop-but be sure to put it on backward. If your engine has a rotary valve, use a left-hand pusher prop of the type used for air-drive model race cars.

Important: The model should balance when fingertip-held between the points shown on the blueprint. Though a little tail heaviness is allowable, a nose-heavy model puts you out of business.

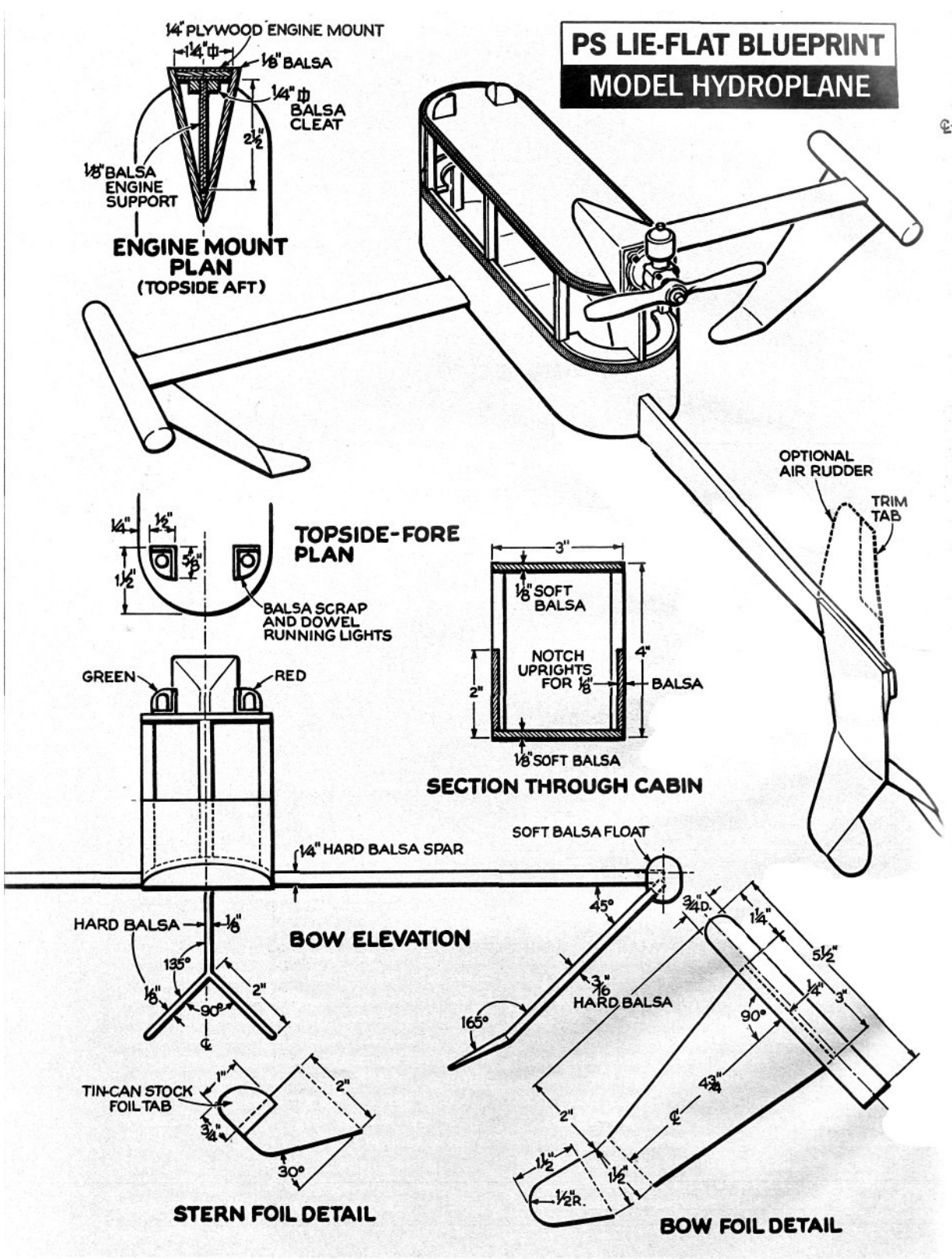
Double-check all foil angles before making a test run. The rear, inverted-V foil is fitted with bendable tabs, which control heading and raise or lower the nose, much like the elevators on an airplane.

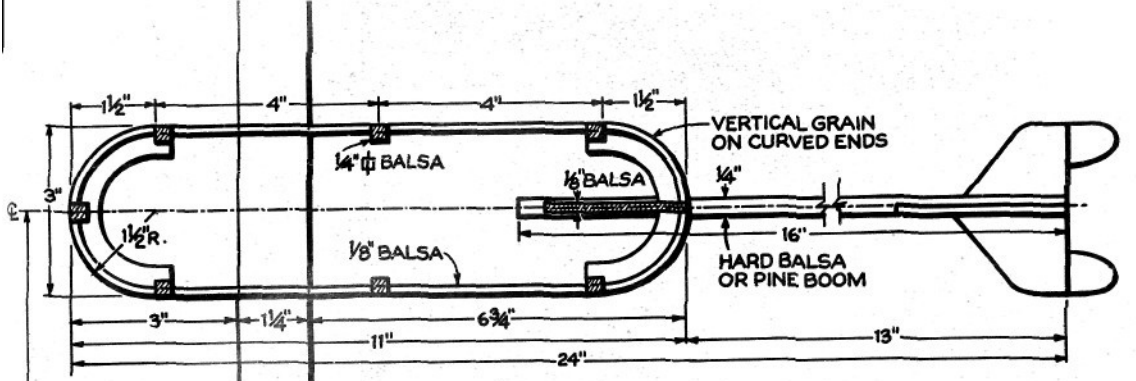
For your shakedown cruise, bend the trim tabs up at the rear edge until the model rises up on its foils and scoots. To get maximum speed, bend the tabs upward to the minimum that will make the craft "fly." Direction is controlled by differential bending of the tabs.

I flew the model on a large lake, chasing it with a boat. But you might also fly it on a tether around a boat.

Turn the page for PS lie-flat blueprint

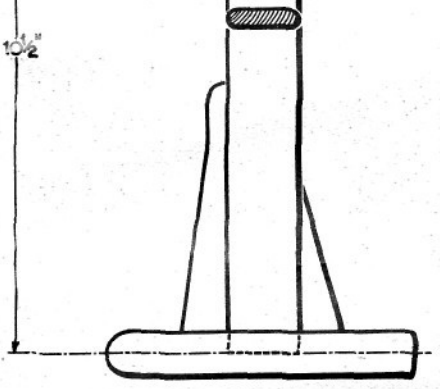
PS LIE-FLAT BLUEPRINT
MODEL HYDROPLANE

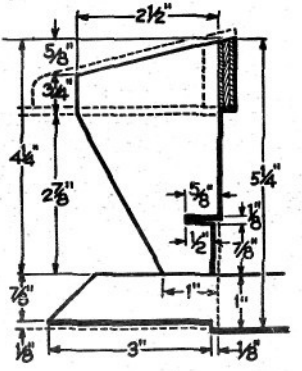


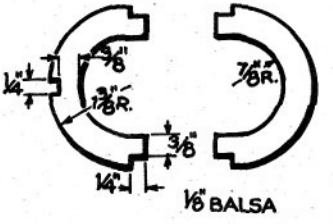


PLAN

SEE UPPER LEFT FOR PLAN OF ENGINE MOUNT



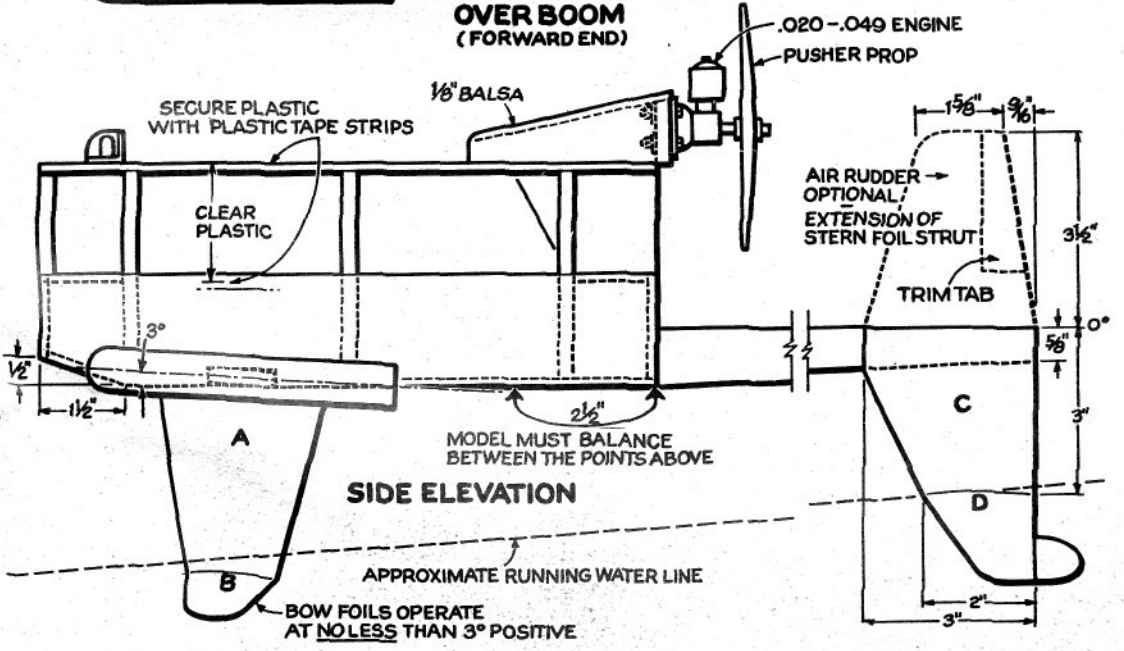




BOW STERN

WINDOW SILLS

ENGINE SUPPORT OVER BOOM
(FORWARD END)



SIDE ELEVATION

APPROXIMATE RUNNING WATER LINE

BOW FOILS OPERATE AT NO LESS THAN 3° POSITIVE

FOIL CROSS SECTIONS