

MATERIALS LIST—HYDRO-KART

Amt. Req.	Size and Description	Use	Amt. Req.	Size and Description	Use
PLYWOOD (mahogany or fir)					
2	1/8" x 4' x 8' EXT plywood	planking, decks, fin sponson planks, transom seat, sponson chines	2	1/8 x 3 x 11" aluminum	trim tabs
1	1/4" x 4' x 8' EXT plywood		4	Bost-Bronz #FB-810-6	steering and rudder brgs.
1	3/8" x 24 x 36" EXT plywood		1	Bost-Bronz #B1220-8	shaft log bearings
	Plywood available from Harbor Sales Co., 1501 S. Warner, Baltimore, Md.		2	Bear-N-Bronz #M1214-8	strut bearings
LUMBER					
(Parentheses indicate stock sizes used when ordering lumber only).					
1	(1 x 10) x 12' spruce or fir	frames, stringers	1	Azusa #1805 or #1801 steering wheel	
2	(1 x 8) x 8' spruce or fir	bow plate, frames	1	3/4" d x 42 3/4" monel, bronze, or c.r. steel shaft machined to match prop	
4	(1 x 6) x 10' spruce or fir	frames, coaming's, keelson	1	Michigan Wheel Co., 7 x 10", 2-blade racing prop	
1	(2 x 6) x 6' spruce or fir	engine bed logs	18 ft.	1/4" plastic-covered tiller cable	
1	(2 x 4) x 6' spruce or fir	bending form, steering pulley	2	2 1/2" cable pulleys	
1	1 x 6 x 30" oak or similar hardwood	engine bed	2	coaming pulleys	
HARDWARE					
1	1/8 x 2 1/2 x 5" c.r. (cold-roll) steel	strut mounting plate	2	cable tensioners	
1	1/8 x 3 1/2 x 3 1/2" c.r. steel	strut	2	1/4" cable clamps	
1	1/8 x 6 x 9" c.r. steel	rudder blade	2	2" "S" hooks	
1	1/8 x 2 x 4" c.r. steel	steering shaft plate	10 ft.	1 1/4" flat metal molding	
1	1/8 x 4 1/2 x 9" c.r. steel	shaft log plate	2	1/2" x 5' half-oval molding	
1	1/8 x 1 x 14 1/2 h.r. (hot-roll) steel	throttle bracket	(For prices on above karting and marine hardware, write Ison Engineering, 5203 Scenic Dr., South Bend, Ind.)		
1	1/8 x 3/4 x 18" h.r. steel	rudder support	FASTENINGS AND MISCELLANEOUS		
1	1/8 x 1 1/2 x 3" h.r. steel	rudder support plate	1	1/4" id radiator hose with two clamps	
1	3/16 x 1 x 21" h.r. steel	steering bar	1	1/16 x 3 1/4 x 9" cork gasket stock	
1	1/2" d x 11 1/16" c.r. steel	rudder shaft	2	1/4" clevis with pins	
1	1 1/8" d x 2 1/4" c.r. steel	strut bearing carrier	2	1/4 x 10" brass continuous hinge	
1	1" d x 1" c.r. steel	steering bar bushing	1 1/2 lb.	1" galvanized ringed nails	
1	1/4" d x 6 1/4" c.r. steel	throttle shaft	1 gr.	#8 x 1 3/4" fh galvanized screws	
2	1/4" d x 5 1/2" c.r. steel	trim tab adjustment	1 gr.	#8 x 1" fh galvanized screws	
1	1/2" id flat steel washer	rudder shaft spacer	18	#6 x 3/4" fh galvanized screws	
1	1 1/4" od x 7" steel tubing	shaft log	2	1/4 x 6 1/2" carriage bolts, nuts, and washers	
1	1/2" black steel pipe x 8 7/8"	rudder shaft tube	2	1/4 x 5 1/2" carriage bolts, nuts, and washers	
1	1/16 x 28 x 30" aluminum	cowl	3	1/4 x 2" carriage bolts, nuts, and washers	
1	1/16 x 5 x 40" aluminum	air traps	2	1/4 x 1 3/4" carriage bolts, nuts, and washers	
2	1/8 x 1 x 1 x 32" aluminum angle	air trap mounts	10	1/4 x 1 1/2" carriage bolts, nuts, and washers	
1	1/4 x 1 x 19" aluminum	engine bed support	1	1/2 x 3 1/2" machine bolt with self-locking nut	
			1	1/4 x 2 1/4" fh stove bolts, nuts, and washers	
			8	1/4 x 1 1/2" machine bolts, nuts, and washers	
			14	6-32 x 1/4" machine bolts, nuts, and washers	
			8	1/8" d x 1/4" fh aluminum rivets	
			3 lb.	Weldwood waterproof glue powder	
			1 qt.	pentachlorophenol sealer (Penta)	
			3 qt.	marine or porch-and-deck enamel	

pattern to cover the entire fore end of the cockpit (Fig. 3H), transfer this to 1/16-in. aluminum, and cut it out.

Cut the forming pieces for the fin from 3/4-in. stock and attach the plywood fin sides (Fig. 6D) to them. After cutting the hatch to overlap the aft and side decks by 1 1/2 in., fasten the fin to the hatch centerline. Install the assembly temporarily with #8 x 1 3/4-in. rh screws driven into the coaming and #2 frame.

Before installing the rudder and tiller (Fig. 3E), attach the sheer moldings and cover all exposed plywood edges with 8-in. fiberglass tape and resin. Then apply two coats of sealer and a coat of enamel to the hull. Trim your Hydro-Kart in a contrasting color and finish with a coat of clear plastic varnish. When the paint is dry, attach flat metal molding along the bow plate edge.

Engines and Drive. Mount the bearing carrier for the fore end of the prop shaft on the bottom centerline of the hardwood engine bed (Fig. 2). Then insert the shaft, and clamp it in place while you align the strut (Fig. 6) and engine bed so the shaft turns freely. Mark the locations of the parts and then drill two 1/4-in. holes at each end of the bed and insert 1/4 x 6 1/2-in. carriage bolts from the un-

derside of the hull. After securing the strut, fine adjustments can be made by loosening the screws at the shaft log and retightening them while rotating the prop shaft.

On the original Hydro-Kart, two Power-Products 6.5-hp. kart engines were used, driving the prop shaft at a 2.5 to 1.0 ratio through individual #35 kart chains. For easier starting, kart clutches can be used. A Michigan Wheel Co. propeller was used, but, when running with other engines or sprocket ratios, you may want to experiment with similar props.

For further tuning after the hull is complete, make up and install the trim tabs (Fig. 3C) from aluminum stock. Turnbuckle adjustments are provided to help you maintain planing trim regardless of minor shifts in balance.

Full-Scale Patterns Available

● Craft Print No. 337 in enlarged size, including full-scale patterns for building Hydro-Kart, are available at \$5. To avoid possible loss of coin or currency, remit by check or money order (no stamps or C.O.D.'s) to Craft Print Division, Dept. 2000, SCIENCE and MECHANICS, 505 Park Ave., New York 22, N.Y. Now available, our new illustrated catalog of "194 Do-It-Yourself Plans," 25¢ (Refundable on first order).