

The Merrymaker

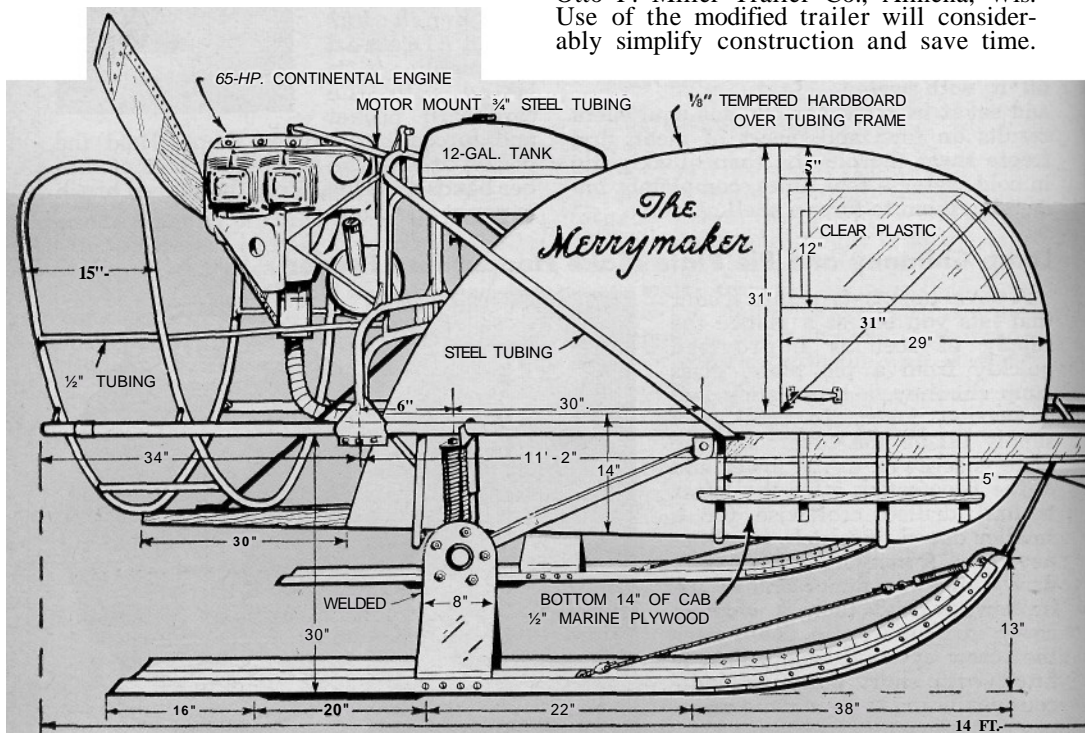
SNOWMOBILE

By Wayne M. Judy



Changing the versatile Merrymaker from a snowmobile to a "self contained" trailer that can be hauled at highway speeds behind a car takes only minutes

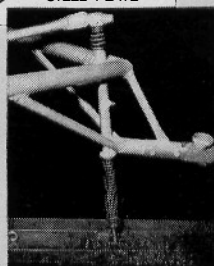
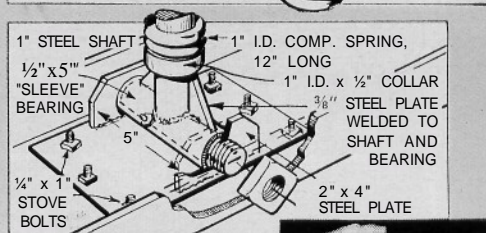
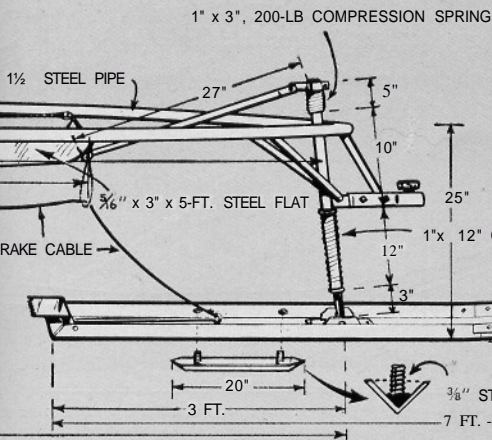
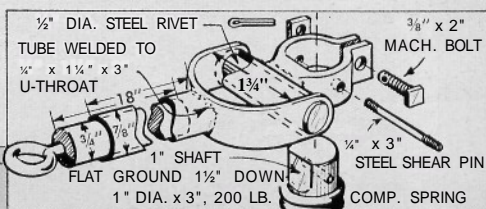
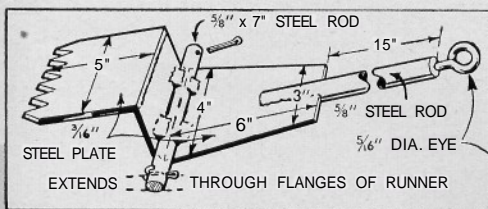
FOUR WINTERS of hard use around International Falls, Minn., and also in neighboring Canada have proved the Merrymaker snowmobile to be a practical, rugged vehicle ideal for cold climates. The thrust of a propeller driven by a Continental aircraft engine drives the vehicle over snow and ice and, when it is necessary to transport the snowmobile over dry highways, it becomes a "self contained" trailer. In about 15 minutes two men can remove the three runners, install two wheels and the unit hooks to a trailer hitch on a car for quick change of locations at highway speeds. The easy transition from snowmobile to trailer was made possible on the original because it is built on a modified boat-trailer frame. Although it is possible to build the snowmobile from the ground up by using the dimensions and drawings in this article, the modified trailer, which includes the steering mechanism and adjustable clamps for holding the mount of the aircraft motor is available from the Otto P. Miller Trailer Co., Almena, Wis. Use of the modified trailer will considerably simplify construction and save time.



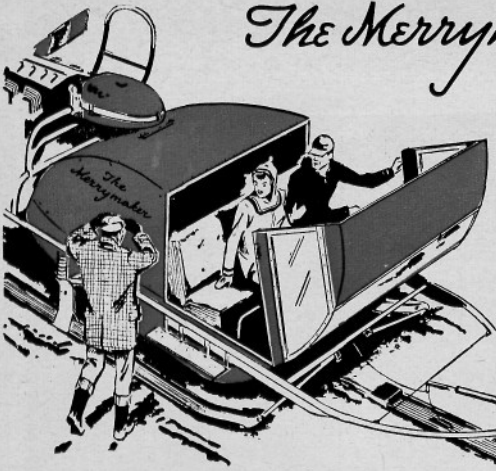


Standard Ford automobile wheels will fit the trailer hubs, and the runners are made to fit on the same hubs. The cab of the snowmobile is made by screwing sheets of hardboard to a frame welded from thin-wall conduit. The lower portion of the cab, as indicated, is made like a boat, of 1/2-in. marine plywood, so the snowmobile will float if it should break through ice and drop into water. Because the greatest amount of weight—the engine, runners and cab—are located to the rear of the vehicle, it will sink down toward the rear.

For this reason it is suggested that the joints at the rear of the cab be sealed with strips of glass-fiber cloth saturated with epoxy-resin. The complete snowmobile with full gasoline tank weighs 840 lb., the "boat hull" portion of the cab will support about 1700 lb. The brake on the steering or "tiller" runner is operated by a heavy nylon cord from the cab. It is slack enough to allow a full swing of the runner. Control of the front runner is by means of cables and a steering-wheel-and-drum assembly designed for a boat. The throttle control



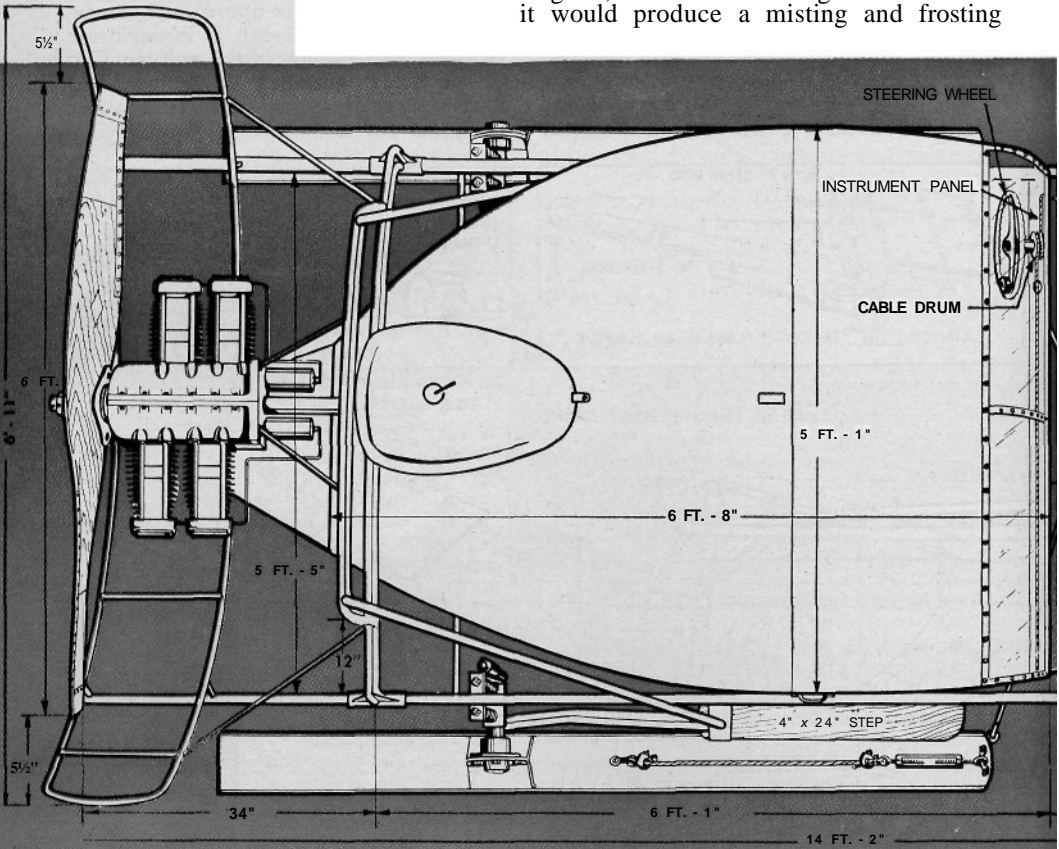
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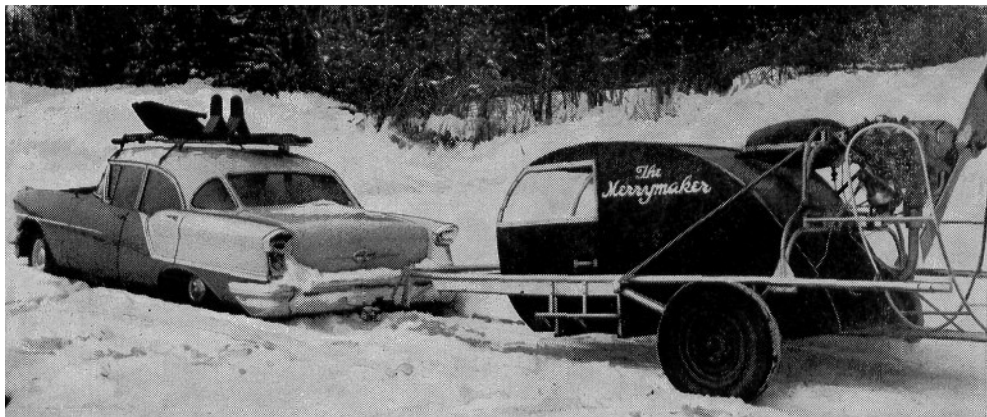


from them with a hammer. Wooden runners would require a lot of scraping.

The bends in the runners are made by first cutting a series of slots 1.687 in. deep, $1\frac{3}{4}$ in. apart. Steel cables and turn-buckles are used to pull the curves into the runners and hold them. When the forming is complete, a $1/8 \times 1\frac{1}{4}$ -in. flat-steel strip is bolted to the outside of each flange to strengthen the bent metal. If cold-forming equipment is available, the notching is not necessary. The turnbuckles and cables are needed on the side runners to counteract the strain of the "tie rods" that run from the tips of the runners to the cross member ahead of the cab. The forward end of the cab that tilts to permit entrance is fitted with a piano-type hinge across its full width. Neither generator nor starter is used, in the interest of saving weight. The engine starts at 40 below zero by hand-spinning the propeller, the twin-impulse magnetos of the engine furnishing excellent ignition even under the extreme temperature conditions on the Canadian border. No heater is used on the original, both to save weight and because it would produce a misting and frosting

also is the type used in a boat, and is spring-loaded to close automatically when released. All three runners are shaped from No. 6061-T6 aluminum-alloy channels. The channels are 7 in. wide with $2\frac{1}{8}$ -in. flanges, and have a web thickness of .230 in. Aluminum is used for the runners rather than wood, as the metal polishes smooth with use, and ice can be knocked

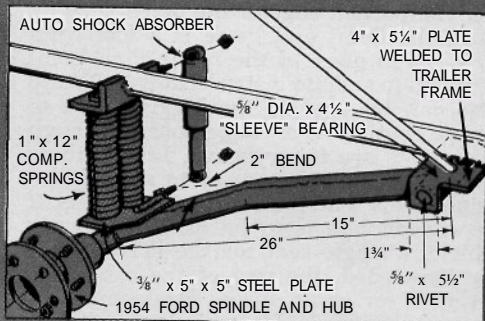
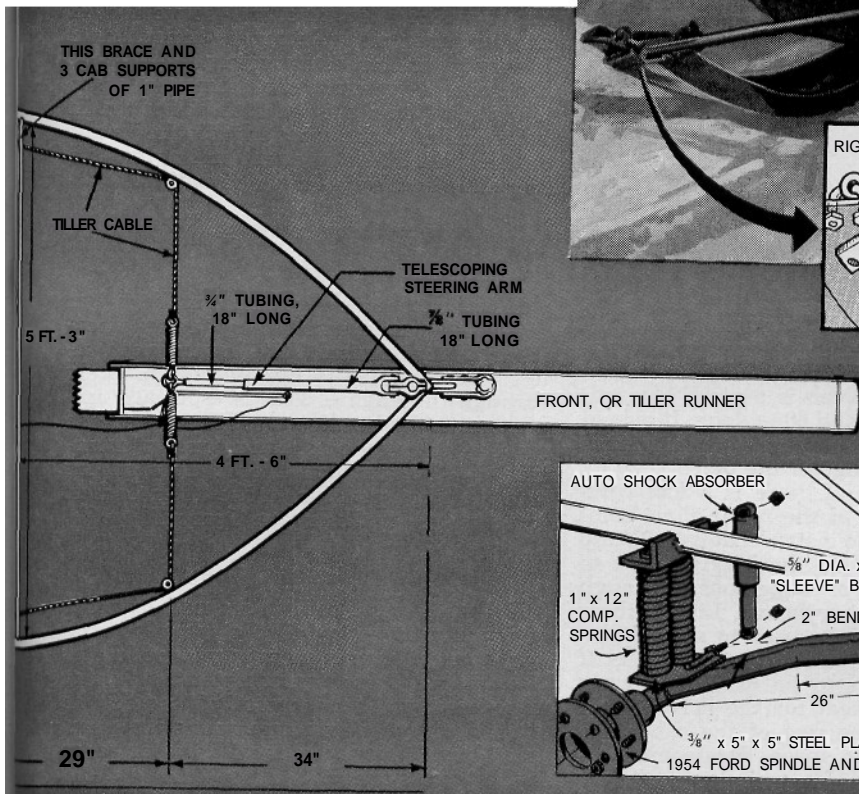
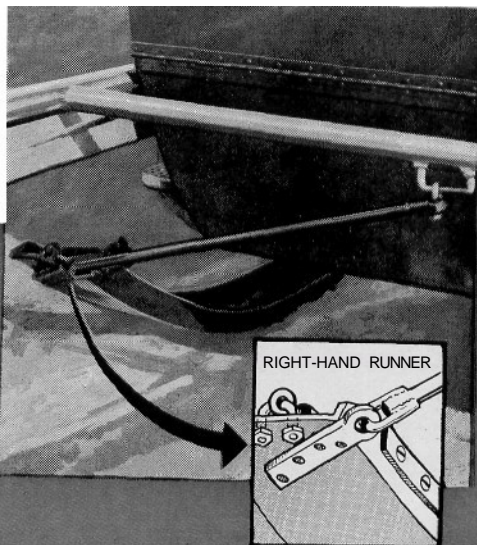


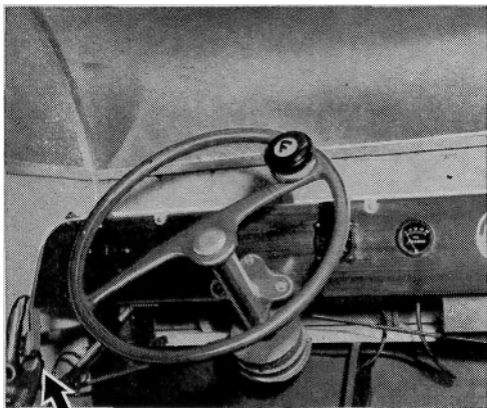


Above, with runners on auto-top carrier and wheels on the hubs of the Merry-maker, the snowmobile is trailered to new location. Below are shown details

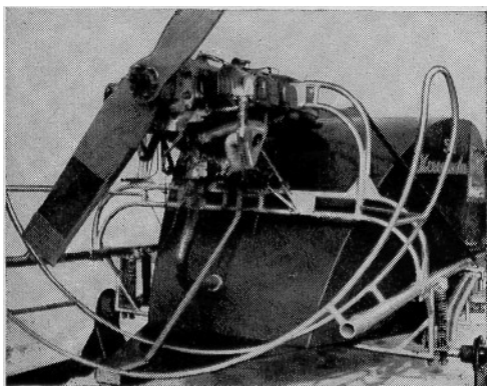
of side-runner "tie rods" and suspension system for the hubs. Suspension system is part of unit when trailer is purchased from the manufacturer

problem on windows and windshield. It is possible that a heater drawing fresh air from outside the cab would eliminate the frosting problem. Items such as this will require experimentation by individual builders. The gasoline tank is the type used on farm tractors and has a capacity of 12 gal. A power propeller is used, being 72





Above and left, steering and throttle mechanisms are types used in boats. Throttle is spring-loaded so it closes when released. In photo below, exhaust is piped through cabin to provide heat. Heater was removed as it caused frost on windshield.



in. long, with a 24 pitch and stainless-steel tips. Banks-Maxwell has this propeller under catalogue Number 670-24. The instrument panel of the cab is a piece of hardwood 5½ in. wide and 60 in. long. It is held in place by a length of 1/8x ¾-in. aluminum flat. The bottom edge of the panel is 20 in. above the floor, and there is a tool compartment in place of the usual glove compartment in an auto instrument panel. Auto seats can be used in the Merry-maker to permit seating 4 or 5 persons, although these seats are fairly heavy. Light tubing and plywood could be used to make lightweight seats with foam-rubber cushions. If the snowmobile is to be used as a work vehicle, a single seat for the driver is all that is needed, the rest of the cab being left open for cargo space. Stretchers convert snowmobile to an ambulance. * * *