



Lightweight hovercraft is made mostly of wood, "and lots of glue," says Kevin Mollenbeck.

## Home-Built Hovercraft

The Mollenbeck family knows how to have fun and they like building things together. As a result, this St. Gregor, Sask. farm family is enjoying the six-passenger hovercraft that son Kevin built from scratch, with the help of brother Dennis and dad, Wilfred.

"Hovercrafts are great for recreation because you can travel across land, water and snow, all while floating on a cushion of air. The fun part is the challenge of trying to control it. It keeps a guy on edge because it's harder to control than most things," Kevin says. "My dad has always wanted to build one and a friend of ours found an Internet website where you could order the plans, and he gave us the info."

The family ordered building plans two years ago for the model UH17T Hovercraft from Universal Hovercraft. They paid \$30 (U.S.). The price for these plans is now \$49.95 (U.S.).

The family worked on the project here and there in their spare time. In all, they say it probably took them about 3 1/2 months to complete it.

The lightweight vehicle is made mostly of wood, "and lots of glue," according to Kevin. "We used a lot of 1 by 4-in. lumber, cut and glued together. The skin is 1/8-in. plywood and all of the seams are fiberglassed to seal them off," he explains. "It weighs about 1,000 lbs. and can carry an additional 1,200 lbs. It's important to balance out your passengers. The driver sits in the middle."

The unit is fully watertight and has 146 1-gal. milk jugs hidden inside the body so it would float if you happened to puncture the body while traveling on water.

Kevin says that on one of first days out with the newly finished hovercraft, he panicked at the controls due to unfamiliarity using them, and hit a concrete post. Thankfully, there was no damage, he adds.

"We've had it cruising at 60 mph. The plans say it is recommended for pulling water skiers, but we haven't done that yet. It will be interesting because it doesn't make any

waves, just water bubbles and a lot of wind," Kevin says.

The rig has a 7 by 18-ft. steel tube cabin that detaches for summer fishing.

An 18-hp gas motor turns a 34-in. dia., four-blade fan that Kevin carved from laminated 1 by 6's. This fan pushes air under the hovercraft, filling up a skirt made from regular tarp material, and lifting the unit's hull on a 1-ft. cushion of air.

A 100-hp Subaru motor, recycled from a car, is used to power another propeller in the back, for propulsion.

"You steer and throttle the rear motor with one lever, and the other motor is wide open when you're driving," Kevin says. "The hovercraft also has three rudders and an elevator at the back. The elevator isn't effective until you're going over 40 mph. Its purpose is to level you out."

He says that while the main structural information for the body is provided in the plans, some aspects such as the cab, are left entirely up to the builder.

When it comes to using the hovercraft, Kevin warns that, "you can't panic in a tight corner – you can't cut back on the power, because you need even more power to keep your steering in the turn. If you try to turn without enough power, you'll change the position of the craft but not the direction of motion."

"To stop it, you turn it 180° and use full engine thrust to slow you down as you're sliding backwards to a stop," he adds.

The family used mainly materials that they already had around, but say that if they would have had to buy the motors and the wood, the project would have cost between \$5,000 and \$6,000.

Anyone interested in hovercrafts or buying plans to make one can visit [www.universalthovercraft.com](http://www.universalthovercraft.com) or phone 815 943-1200.

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An 18 hp gas engine turns a 34-in. dia., four-blade fan carved from laminated 1 by 6's. Fan pushes air under the hovercraft.

## Home-Built Windmill Works "Better Than New"

Stan McDonald's friend hated running a long cable from his farmstead to a remote shed that houses tractor batteries and a small workshop. McDonald, of Foxboro, Ontario, suggested building a windmill that would provide free electricity.

McDonald ended up doing the job himself at no charge just to see if "the damn thing worked." It did. Better than he ever imagined and cost less than commercial units which are high speed low voltage DC units which are a lot less efficient and have a shorter life span, says McDonald, who tailored the home-built windmill to average local wind speeds.

To find accurate information, he contacted the national weather service and the local military base for the local average wind speed and also bought a wind speed indicator to double check it.

He constructed a 40 ft. steel tower. The 20-ft. long vanes are wooden because he says they were less expensive to make than aluminum ones and more reliable than fiberglass.

He also made his own generator. "I took an electric motor apart, took all the crap out of it and used the motor's case with my own windings and rotor in it," he says.

The blades turn at up to 210 rpm and generate 110 volts AC, which McDonald says is more efficient to transmit than DC power. The wind turbine has a maximum rating of 4,950 watts, although any size unit could be built.

The power runs to a bank of batteries in the shed where it charges batteries. The battery bank is fed to an inverter that converts the DC battery power to AC. The AC is used to power lights and small hand tools. "By doing it this way we can have power even if there's no wind for a day and it eliminate voltage and frequency variations due to a change in wind speed," says McDonald, adding that the windmill should last about 60 years with proper maintenance. It works so well he now sells completed units or parts. A completed unit without tower sells for \$1 per watt (Can.).

Contact: FARM SHOW Followup, Stan



Stan McDonald built a windmill to provide free electricity for a friend. It has 20-ft. long wooden vanes.



He made his own generator out of an electric motor.



He constructed a 40-ft. steel tower. Blades turn at 210 rpm's and generate 110 volts AC.

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Attached to auger spout, sensor detects when bin is full and electronically signals a magnetic-mount light located on auger tubing.

## Sensor Lights Up When Bin Is Full

The simple, accurate, Full-Bin Super Sensor lets you know precisely when your bin is full, and it's effective with any size or style of bin, says inventor Laurie Brownlee of Unity, Sask.

A sensor attached to the auger spout detects when the bin is full and electronically signals a magnetic-mount light located on the auger tubing, or any other convenient location where it's easily visible.

When setting up, a small indicator light mounted on top of the light box lets you know that you have power to the unit.

A wiring kit makes it easy to move the sensor and the light from one location to another just by unplugging them.

The sensor and light are each enclosed in a durable, sealed housing for protection from weather and tough use. The 12-volt battery

on your auger or tractor powers the system.

"It's safe, fool proof and virtually maintenance free," Brownlee explains. "It can be installed in under an hour and is the most effective, reliable system available today. There's also a 100 dB. (decibel) alarm available that plugs into the light box for people who want this option."

The Full-Bin Super Sensor is suitable for augers, conveyors, air seeders and leg systems. It sells for \$595 (Can.) plus S&H, and is shipped complete with wiring harness, in a 9-in. square box that weighs 12 lbs.

Contact: FARM SHOW Followup, Laurie Brownlee, Brownlee's Trucking Inc., Box 1172, Unity, Sask., Canada S0K 2L0 (ph 877 228-5598 or 306 228-7708 (cell); website: [www.fullbinsensors.com](http://www.fullbinsensors.com)).