

Half-Track Garden Tractor

"I needed a small tractor to build trails in our woods so I could haul out firewood without making wheel ruts or having to build a wider trail. So I converted an old Gilson lawn tractor into a half track garden tractor. It works even better than I expected," says Harry Dykstra, Carp, Ontario.

He says that at first he tried using an ordinary garden tractor. "But even after installing ATV ag tires loaded with calcium, the tractor still got stuck too easily."

He started with a 1974 Gilson tractor equipped with a 14 hp. Briggs and Stratton engine and 4-speed transmission. The tractor had been sitting outside unused for about 5 years. "I had to rebuild the carburetor but was able to get the tractor running with a bit of encouragement. This tractor is built really strong. They don't build them like this anymore," says Dykstra.

To make the tracks, Dykstra cut 1-in. wide channel iron into 14-in. long bars, then cut slits 2 in. from each end and bent the bars around the tractor's rear tires to keep the tracks from slipping off. He then got some 5/16-in. chain and welded one bar to every third link, making sure the chain wasn't twisted and was in line with the chain on the other side.

He installed four 8-in. tires behind the tractor tires to serve as "dolly wheels", and mounted both sets of tires on a 3/4-in. dia. axle. The axle is connected to a steel frame made from 1 3/4-in. tubing which slips inside 2-in. tubing and is attached to the back of the tractor. The frame is free to pivot up or

down and to move back and forth in order to keep the tracks tight. A pair of shocks, removed from the back door of a mini van, keep down pressure on the dolly wheels to keep the tracks tight.

Dykstra also mounted a small car muffler on one side of the tractor "just to make it look cool."

He needed something to haul firewood so he built an 8-ft. long by 4-ft. wide dump trailer equipped with a scissors lift and a 1,200-lb. hand-operated winch. "The cable attaches to the middle part of the scissors lift and runs up to the winch, which mounts on a 3-ft. high post just in front of the box," says Dykstra. "The design causes the first part of the pull to go straight up, which makes the box easy to lift. By the time the front of the box is raised above the winch, the scissors lift is already half way up and continues to raise the box. Because of the design the box can easily dump a 1,000-lb. load, and it raises high enough that it will always empty completely out."

The trailer is equipped with a 2-in. ball hitch which allows Dykstra to also use the trailer behind a truck or car. "I mounted a homemade hitch on the tractor that's about 18 in. off the ground, which allows the trailer's tongue to clear the tracks when turning," notes Dykstra.

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Harry Dykstra uses his half track garden tractor to build trails in his woods and haul out firewood without making wheel ruts. Four 8-in. tires on back serve as "dolly wheels" for the tracks.



Reid Allaway rebuilt this electric-powered warehouse truck to use on his vegetable farm. "It has ample power to haul a trailer or heavy loads," he says.

Electric Warehouse Vehicle Rebuilt For Farm Use

Quebec vegetable farmer Reid Allaway converted an electric-powered Taylor Dunn warehouse truck into an economical farm utility vehicle. "It's the first vehicle out and last one in almost every day. After 3 years in service we can't imagine working without it and we're considering getting another one."

Allaway bought the mid-80s industrial vehicle in semi-operable condition for just \$600. Because it was his first electric vehicle project, Allaway spent many hours learning about electrical systems in order to make various upgrades.

For example, he upgraded the electrical system from a 36-volt DC system that used lead-acid golf cart batteries to a 48-volt DC system that uses second-hand lithium battery modules from a scrapped Chevrolet Volt. For improved safety, the rig's control circuitry was fully rewired as isolated 12-volt circuits. A massive metal drawer that once held 360 lbs. of 6-volt batteries now carries stone ballast because the new 48-volt battery packs, weighing only 90 lbs., easily fit elsewhere under its bed.

"Despite being much smaller and lighter, the new battery pack provides more amperage than the original batteries, with an expected lifespan far exceeding lead-acid's mediocre

5 year life-cycle," Allaway says. After 3 years of nearly constant use, the batteries don't show a reduction in capacity or any imbalance problems.

To update the electric drive system, Allaway installed a 300 amp Alltrax NPX motor controller. It replaces the ancient "toaster-style" resistance speed control. A reversing contactor intended for truck winches replaced the aging drum switch to provide forward/reverse motor control. A 250-amp fuse on the main battery and another large contactor provide overload/short circuit protection and instantaneous disconnect for the main power. Other parts include various relays, fuses, terminal strips, and a DC-to-DC converter that maintains the small 12-volt battery for accessories.

A typical day's work at Tourne-Sol farm uses about 50 percent of the unit's capacity. Recharging takes about 5 hrs. and costs only \$0.12 due to Quebec's low electric rates. A 600W onboard charger suitable for the Volt's lithium cells recharges the battery pack overnight, so it's always fully charged and ready for work the next morning.

The heavy hauler is still powered by its original General Electric series-wound motor, which develops about 3kW at 48-volts.

"Cat's Claw" Holds Fence Wire Tight

"Our new fencing fastener holds the wire in place by keeping pressure on the holding area with only one screw. It makes fence construction and repair a much faster and easier job," says inventor Curtis Almy, Miles City, Montana.

His "Cat's Claw" fastener consists of a toothed steel claw with V-shaped slots that hold the wire, and a pre-attached self-tapping, corrosion-coated, 2-in. long hex head screw. The fastener can be used with all types of wires including barbed, bare, and electrical, as well as cattle and hog panels, wire netting, and horse fence.

"The V-shaped slots have teeth that bite into the wood instead of just resting on the surface, so the same fastener can be used on any size wire," says Almy. "It can be reused on the same post, or on another post by quickly backing out the screw. That saves a lot of time when you want to move temporary livestock fences to a new location."

Almy recently used a scale to conduct "pull-out strength" tests comparing Cats Claws to staples. "I ran four pull-out tests on a 1 3/4-in. barbed staple and then four



Tooth-shaped steel claw has V-shaped slots that bite into the wood instead of just resting on the surface, so the same fastener can be used on any size wire.

tests on a Cats Claw. On average, the staple pulled out of the post at 151 lbs. of pulling pressure, compared to 644 lbs. for the Cats Claw. "I was more than a little surprised at the huge difference," says Almy.

Cat's Claws are sold in jugs that contain 170 staples, along with a magnetic 1/4-in. hex head bit that goes into a standard impact wrench or drill.

Cat's Claws sell for 32 cents apiece. If ordering online, use the code "farmshow" for free shipping.

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It provides ample power to haul a trailer or heavy loads, even on rough ground. Boosting the voltage from 36 to 48 volts hasn't created problems for the 1980's vintage motor, which required only a minor rebuild. At 48 volts the motor spins faster, delivering more power and providing a higher top speed - about 16 mph vs. 11 originally.

"The rear axle has quite heavy springs, with a nominal load rating of 3,000 lbs.," Allaway says. "With 10-ply skid steer tires on the rear we never worry about overloading." He often

pulls a 6-ft. wide by 14-ft. long trailer for harvesting, often hauling and carrying several thousand pounds with ease.

Allaway says he spent about \$1,500 for parts, including the battery pack, plus more than 100 hrs. of labor for the rebuild.

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