



Gary Little converted his 1997 Deere Sabre riding mower to electric power, replacing the 16 hp engine with an Etek DC motor from Briggs & Stratton.



Four 12-volt marine type, lead-acid batteries provide the power. A 5-amp, 3-stage charger delivers a full charge in 10 hours.

Converted Electric Mower Runs Quiet And Cheap

Gary Little says the hardest part of converting his Deere Sabre riding mower to electric power was getting the mower drive belt back on. The easiest part is paying the operating cost of his converted mower.

"It looks like it takes about 3-amps or 75 cents worth of electricity to charge it back up after mowing. I used to spend \$5 a week on gas," says Little. "After 21 changing cycles, I haven't blown a fuse or had any other problems."

Little has a half-acre lot, and a good part of it is on a fairly steep slope. He says mowing the lot takes him 25 to 30 minutes.

"From the front road to the back side of the lot, there is a good 6 ft. rise in elevation over 70 ft.," says Little. "The slope is steepest in the back, rising about 5 to 6 ft. in 25."

Little started his conversion with a 1997

Sabre that weighed 440 lbs. It had a 16 hp engine with hydrostatic drive and made a 38-in. cut. He removed the engine and replaced it with an Etek electric motor from Briggs and Stratton that delivers a constant 8 hp and up to 15 hp maximum.

For a power supply, he went with four 12-volt marine type, lead-acid batteries. To keep costs down, he bought "blemished" batteries, which he tries to baby, never allowing the charge to get under 37 volts. Eight weeks later, when completely reassembled, the "new" mower weighed 620 lbs. Little is confident that he could do another conversion in half the time.

"I was careful not to damage the structural integrity of the body since I was adding the weight," says Little. "The extra weight hasn't been a problem. It handles fine."

His 5-amp, three-stage charger delivers a full charge in 10 hours. However, since Little never completely drains the batteries, charging takes even less time. "I get about 23 to 25 minutes of mowing before I see a noticeable drop in rpm's," says Little. "At half an hour of mowing, I have pulled about 80 percent of my amp hours. I don't want to pull more, or I could damage my plates."

Installation of the new components was relatively easy. After removing the engine and gas tank, he mounted two batteries in the front and two in the rear. He had to make an adapter plate to match the existing drive pulley to the shaft of the electric motor. The Sabre is a unibody structural design with channels on each side of the mower.

"I was able to run my cables through the channels," explains Little. "I modified a digi-

tal voltmeter and ran the power through it. When the batteries get down to about 40 volts, I shut down to protect them. At this point, that is plenty of power to mow the lot."

Should Little want to mow for a longer period, all he has to do is buy more powerful, deep charge batteries. He says he could double his mowing time without changing anything else on the mower.

The total cost for the conversion came to \$750. At a savings of \$4.25 a week, it'll take him well over three years to cover his costs, even if he mowed once a week. However, the combination of quiet mowing and eliminating gas and oil fumes is worth it, he says.

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Portable Unit Kills Weeds With Steam

"The Green Steam machine is our response to the growing need for an alternative to chemicals to kill weeds," says Aaron Rittenhouse, marketing manager for Rittenhouse, a Canadian company that sells landscaping and gardening equipment and tools. "It's especially useful along driveways, parking lots, and buildings."

Green Steam kills weeds with 660-degree Fahrenheit steam. The self-contained unit mounts on a wheeled cart that holds the 56-in. stainless steel steam thrower gun, a 7-gal. water tank, a 20-lb. propane bottle and a deep cycle battery. The battery operates a 100-PSI water pump and the propane heats the water that runs through coils and comes out as steam when the trigger is pulled.

It has three different heat settings, depending on what you're trying to kill. The steam

gun is heavy, supported by a wheel that keeps it close to the ground. The gun covers a 3-in. application area, and most weeds only require one application. Steam doesn't affect plants with bark, so it's safe to use around trees with a 6-in. or greater diameter.

Typical customers are municipal maintenance workers, Rittenhouse says. Besides killing weeds along paved areas, the steam removes moss and other items such as bubblegum, and it cleans stones and bricks.

Warehouse and greenhouse owners use Green Steam to sterilize metal benches and shelves, as well as to kill weeds along hard ground pathways. The cart model sells for \$4,975. Rittenhouse sells a skid model for the back of a pickup or utility vehicle for \$4,290 for golf courses and large parks. The battery and propane tank are not in-



Green Steam machine kills weeds with 660-degree steam. Wheeled cart holds the steam thrower gun, 7-gal. water tank, 20-lb. propane bottle, and battery.

cluded.

A 20-lb. tank of propane lasts about 8 hours and the 7-gal. water tank goes for about three hours.

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Cushioned Seed "Ladder" Stops Crop Damage

Professional seed dealers know that every time beans and other high value seeds drop too far and too hard, there will be breakage. One answer is "stepped" ladders that the seed can cascade down. But falling beans or other seeds quickly wear out traditional steel bean ladders. Lorrich Industries has a seed chute made from rubber belting to better protect the falling seed and to last longer.

"Cushioning the flow reduces bruising, cracking and splitting," says Lorne Reimer, Lorrich Industries. "The rubber belting hung from chains is flexible, yet strong enough to be left in the bin as the product fills in around it."

Reimer notes that the light weight and flexibility of the Cushion Flow allows it to be rolled up and carried onto a bin roof for installation. He does caution that flat bottom bins often need roof stiffeners to handle the down pull when the units are in use.

Cushioning seed flow is important in the field as well. Reimer notes growing interest in short, 5-ft. sections used for filling air seeders and planters from bulk seed tenders. Easily added to the end of a tender auger, the cascading seed mixes and blends seed treatments added on site, as well as protects the seed from breakage.

The Cushion Flow chutes are available in a variety of sizes and can be custom designed for the commodity and flow rate. Prices vary by size, length and number of steps, but generally run about \$100 per running foot. Lorrich also makes and sells hopper bins, and these can be ordered with Cushion Flow chutes already installed.

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Lorrich seed ladder is made from rubber belting that lasts longer than steel bean "ladders", says the company.