

Tractor Converted From Gas Engine To Electric

"I converted our 1978 Hefty-G cultivating tractor from a gas engine to electric motor drive," says Reid Allaway of Tourne-sol Farm in Quebec. "These tractors were built by Haxco in Wisconsin as an un-updated copy of the Allis Chalmers model G and while they are great machines in many ways, their weakness is the Renault engine. I removed it and replaced it with an 8-in. dia. DC motor and controller acquired from old forklifts."

The 40-volt lithium battery pack is a home-built assembly of second-hand units that Allaway bought at an auction. Charging requires from 2 to 6 hrs. with the onboard 1.6kW charger and only about 42 cents per charge. Fully charged batteries are good for several hours of work.

Allaway says the electric motor can deliver up to 15kW (20 hp.) under maximum load, but typically only draws 3 to 5kW for most weeding tasks. "The original engine was a Renault 4-cyl. that never put out more than 20 horsepower, and I think nearly 10 of that was noise," Allaway says in jest. "Now we've got a quiet, nimble, and exhaust-free tractor that's always ready to work and is better at everything it does."

Allaway says the conversion project proved demanding, time-wise, because he removed many components, including the transmission and differential, dismantled

and inspected them, replaced parts as needed and re-assembled them into the tractor. The electric motor mounted easily in place of the engine and the battery pack sits on top of the motor in a custom frame and air-cooled steel case purpose-built for the application. The space between the battery pack and operator seat holds a large air-cooled enclosure housing the motor controller, charger, contractors and other logic and power control hardware. The space under one fender that previously held the gas tank now holds a 12-volt accessory battery and an industrial cord reel for plugging in the charger.

The tractor is equipped with multiple weeding tools, including a 4-torch flame weeder from Flame Engineering on the front, a Budding basket weeder on the belly mount, and Schmotzer MPP parallelogram units on the rear to cultivate the tire tracks. A second toolbar for the belly mount, carries more Schmotzer MPP row units equipped with goose feet and Tilmor finger weeders. Both belly mount tools are easy to swap as they roll out sideways from under the tractor on removeable wheels.

Contact: FARM SHOW Followup, Tourne-Sol Co-operative Farm, 1025 Chemin St-Dominique, les Cedres, Quebec, Canada J7T 1P5 (ph 450 452-4271; info@fermetournesol.qc.ca).



Reid Allaway replaced the Renault engine on his Hefty-G cultivating tractor with an 8-in. dia. DC motor and controller off old forklifts.



Tractor's 40-volt lithium battery pack (left) is made up of second-hand units purchased at an auction. Electric motor can deliver up to 20 hp. under maximum load.

Jig Speeds Rotary Hoe Repair

Paul Bickford likes the weed control his rotary hoe provides. His homemade jig for replacing worn out spoke or tooth tips with Ho-Bit spoons (Vol. 41, No. 2) makes it even better.

"I have an older, 30-ft. rotary hoe, but if I had one new from the factory, I still would add the Ho-Bits," says Bickford. "They are wider and provide more of a cup effect than the original tips. They really rip up the dirt."

New hoe or not, accurately placing replacement spoons at the end of the spokes is key. Rotary hoes are often used to remove weeds by stirring the soil surface without disturbing the germinating seed below. Too long or too short and they won't do the job.

"We tried a vise grip to hold individual spoons in place, but we didn't get consistent placement," says Bickford. "The Ho-Bits came with a jig, but we found it cumbersome."

When an employee suggested an alternative, Bickford went for it. What they came up with was a framework of salvaged steel that allows the rotary hoe wheel to spin in place with a spoon holder that can pivot

into position for welding the Ho-Bit in place.

A vertical leg of 2 by 2-in. steel tube is topped by a headless 5/8-in. bolt at a comfortable working height.

"The wheel slides onto the bolt and is held in place with a nut," explains Bickford. "If there is play in the wheel, it usually means we need to replace the bearing as well as the tips."

A horizontal tube extends forward from the wheel holder and provides a base for a length of broken-off axle. The axle pivots inside a bushing welded in a vertical position to the steel tube.

The actual spoon holder is a short length of steel welded to the upper end of the axle. A cradle for holding a Ho-Bit is at the other end. A stop on the horizontal tube restricts rotation.

When rotated into place with a new Ho-Bit resting on the cradle, the spoon holder aligns with an arm on the rotary hoe. As the arm also rotates into place against the new spoon, it is welded in place.

"Old tips can wear unevenly, but the jig



Jig is used to replace worn out spoke tips with Ho-Bit spoons, using a spoon holder that pivots into position for welding the Ho-Bits in place (left). Photo at right shows one spoon already welded on.

ensures the new spoons are all at the same distance from the center of the wheel," says Bickford.

A spring attached to a nut at the lower end of the axle holds the spoon holder against the stop tab. To speed the process, washers sized to hold extra Ho-Bits were welded to the steel table alongside the jig. Like everything else in the jig, they came from the scrap pile.

"We just used scrap we had laying around,

but it works," says Bickford. "With extra spoons in the washers, we can just go down the line, bang, bang, bang. Building the jig for just the one machine was worth it."

Contact: FARM SHOW Followup, Paul Bickford, Bickford Farms, 3036 Ridgeway Rd., Ridgeway, Wis. (ph 608 574-2307; bickfarm@gmail.com; www.bickfordorganics.com).

Tractor Restoration Led To Start Of Farmall Cub Business

When Richard Batstone bought a 1953 Farmall Cub in the early 1980's, he didn't realize it marked the beginning of a new career for him. He spent 3 years restoring the well-used tractor. "I really enjoyed the process of taking something apart and making it almost new again. The only thing I goofed up on was putting Circle Cub decals on rather than the correct ones. I didn't know there was a difference at the time."

Restoring the Cub gave him the desire to learn more about Cub tractors and eventually start a website selling parts. Running the website has put him in touch with hundreds of Cub owners across the U.S. and Canada. For example, he purchased a 1948 Cub from an owner north of Franconia Notch, New Hampshire. The tractor was in original

condition, and he kept it that way because it ran like a top. In 2014 he added a bucket loader to the rig to help move the tremendous amounts of snow that area often receives.

Batstone says Cubs are great tractors to own for someone who wants a nice-running tractor for around-the-yard work, or wants to try their hand at uncomplicated restoration. His website has parts available for all models. He's so busy he doesn't have time to work on additional Cub restorations. Batstone says the farmallcub.com collector website has information on club events regionally and nationally.

Contact: FARM SHOW Followup, Richard Batstone, P.O. Box 296, Berlin, Mass. 01503 (www.farmallcubforever.com).



Richard Batstone enjoyed restoring a Farmall Cub so much that he started up a website where he sells parts and provides information on club events.