

## Electric “G” Runs Fuel-Free

Tom Ruggieri’s Allis Chalmers G doesn’t need its gas tank anymore. It doesn’t need grid-supplied electricity either. Ruggieri and his farming partner, Rebecca Graff, have swapped the engine for an electric motor and battery power storage. They’ve also swapped grid-supplied electricity for an in-field solar panel.

“Even before we put in the solar panels, we got our power from a wind farm through our electric co-op, so when we charged the batteries, no fossil fuel was involved. Now we just get the power free from the sun,” says Ruggieri.

Converting the G was relatively easy, says Ruggieri. He simply followed instructions posted on a website by a farmer named Ron Khosla. Khosla developed his conversion plans under a USDA grant ([www.flyingbeet.com/electric](http://www.flyingbeet.com/electric)).

“The biggest challenge in converting a G was just finding one,” says Ruggieri.

Conversion consisted of removing the gas tank, battery box and engine. Also removed was the clutch bar. The clutch housing was left in place, and the clutch plate was retrieved from the engine for use in the conversion. While Khosla provides full plans for machining needed parts, he also provides the name

of a supplier - Niekamp Tool Company.

Using Niekamp ready-made parts, installation consisted of attaching the motor and sprocket assembly to the clutch plate and finally to the clutch housing/transmission. The Niekamp package even includes a frame for battery storage. All that’s needed is plywood for the base.

Other parts needed for installation included a controller for the motor, an Albright Contactor for a relay switch, and a speed controller that’s attached to the original throttle control. Once wiring was completed, the last step was to hook up the batteries.

“We used six 8-volt batteries and ended up with about the same weight over the rear as before we removed the engine,” explains Ruggieri.

At 100 amps, the electric motor he installed produces between 5 and 10 hp versus the G’s original 7.2 hp. While the batteries wouldn’t hold up long doing heavy tillage, the electric tractor is ideal for seeding and light cultivation. Ruggieri hopes to rig up a boom sprayer and eventually a lime spreader for it.

“The motor and controls cost about \$1,800, the machined parts about \$550, and we spent about \$100 on wiring and other materials,” he says.

**Tom Ruggieri swapped the engine on his Allis Chalmers G for an electric motor and battery power storage system.**



**Electric motor and sprocket assembly attaches to clutch plate and clutch housing/transmission (left). Battery power storage mounts on frame above motor.**

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## “Riser Repair” Tool For Irrigators

This new wrench for wheel line irrigation saves time and water when repairing broken risers.

The Riserench slips down into the riser pipe to grab the male adapter. Three stainless steel jaws are expanded by tightening a draw rod on top of the wrench. Up to 10,000 lbs. of gripping force can be placed on the jaws.

The wrench will remove the fitting, even if it’s broken off flush with the tee on the main line, eliminating the need to saw and chisel out the broken fitting. With a 4-ft. handle, there’s no need to dig a large hole to stand in. The entire repair can be done from above ground.

“The biggest advantage of the new wrench is that repairs can be made while the line is still draining,” says inventor Ryan Sweat of Center Creek, Utah. “With the pressure off,

the wrench can be inserted into the broken riser. If a pre-made riser is on hand, with all fittings glued and dried, repairs can be made while water is still bubbling out of the main line.

“If debris falling into the main line is a concern, a 3-ft. piece of 6-in. pipe can be slid down over the broken riser, down to the main line tee.”

By not fully draining the line, the chance of water hammer is reduced when recharging the line, possibly saving another repair. In some areas, depending on how fast the water leaches into the ground, a full day of watering can be gained, saving both water and time.

The wrench was born out of necessity. Sweat had been doing repairs for local irrigation companies and was tired of looking

down a muddy hole at a broken pipe. By a chance meeting, Ryan was repairing a broken riser for a neighbor, Doug Allred. Doug has been a toolmaker for 30 years and has a small shop at his home. Ryan asked about designing a wrench to remove risers. After several designs were tried, a working prototype was built. Ryan found the hardest thing to do with the wrench was keeping it in his possession, once the neighbors found out how easily risers could be repaired.

The wrench is patent pending and manufactured in Utah. Sells for \$280.

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**Ryan Sweat says his new “Riserench” saves time and water when repairing broken risers in wheel line irrigation systems.**

## Scraper Fitted With Adjustable Roller

Duwayne Bakker, Riverton, Wyoming, mounted a homemade, adjustable roller behind the 5-ft. blade on his 3-pt. mounted Woods scraper.

“It works great. I use my scraper to take off about one inch of ground at a time. The blade smoothes everything out, then the roller firms it down. It weighs about 150 lbs.,” says Bakker.

He uses the scraper on his 10-acre property, pulling it with a Deere 20 hp tractor. “I lease part of my land to oilfield companies, and their big trucks make wheel ruts that are often 6 to 8 inches deep.”

To build the roller, he used a heavy 4-ft. long pipe and installed a bearing at each end. The roller is attached to a pair of arms made from sq. tubing, which bolt onto small metal “ears” that he welded onto the blade. A series of holes drilled into each end of the blade allow him to adjust the arms up or down.

The roller is raised up or down via a trailerhouse jack that he mounted on a heavy metal plate that’s welded between the arms. Cranking the jack one way makes the roller go down and the blade come up. Cranking it the opposite way makes the roller go up and the blade come down.



**Roller is attached to a pair of steel arms that bolt onto blade, and is raised up or down via a trailerhouse jack mounted between arms.**

A short length of telescoping pipe is welded to the blade and also to the lifting mechanism inside the jack.

“I can raise either the blade or the roller up to six inches off the ground,” notes Bakker.

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**Chain attached to bucket hooks onto either end of log.**

## Log Lifting Chain Hooks

“I got the idea for this log lifter from hay bale forks I used to use to lift square bales,” says Bill Reeks, Cromwell, Ky.

He welded a couple of hooks out of strap metal, sharpening points on one end and attaching either end to a length of chain. He simply attaches the chain to a front-end

loader, positions it over the log, and sticks a hook in either end of the log to lift. The chain can be made shorter or longer as needed, depending on the size of the log.

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