

## E-Drive Units Solve Problem With Deere High Clearance Sprayers

The Spirit autonomous tractor may be on hold, but the company spirit is alive and well. Autonomous Tractor Corp. (Vol. 36, No. 5) originally set out to create a new, driverless tractor. Along the way, the company discovered that shifting farmers to a totally new concept was a bigger than expected challenge.

"The original design was a great concept," says Kraig Schulz, Autonomous Tractor Corp. (ATC). "Automating the tractor wasn't as big a problem as automating the many implements on the market."

ATC decided to refocus its efforts on the e-drive components that had been developed for the tractor. They consist of electric drive wheels, an electronic transmission, and a 250 kW generator that installs on an existing engine. Two fiber optic lines can replace the entire wiring harness. The e-drive demonstrates significant cost savings and durability.

"OEM's have no incentive to do what we are doing," says Schulz. "It would impact their entire value chain."

The company is looking at retrofitting large, older, conventional tractors and other equipment with the components. However, the initial effort is on hydraulic-driven sprayers because there is a high failure rate in the hydraulic drives of self-propelled sprayers.

"We are focusing first on Deere 4930's," says Schulz. "We can replace the hydraulic drives with e-drives for the same cost as

rebuilding the originals. However, the user will see a savings of 40 to 50 percent on fuel and 60 percent or more on maintenance."

He points out that the e-drive replaces extensive and expensive hydraulic lines as well as wheel motors. The hydraulic systems for the boom and the sprayer mechanisms will be retained. The generator simply replaces in-line pumps for front and rear wheels.

"Our electric motors plug into the same gearbox as the hydraulic ones do," says Schulz. "Functionally, they do the same thing. The engine, cab controls, booms, wheels, etc. are untouched."

ATC has 3 retailers signed up as initial dealers. One is in Saskatchewan, one in Montana and one in St. Louis. They are being trained in retrofitting the sprayers and will each have a demonstration model on hand by the end of the year. A regional manufacturer of the e-drive components is on board and beginning production. Schultz says the plan is to do a slow introduction.

"We will continue to work toward full autonomous functionality and introducing the e-drive into other equipment," he says. "However, in the short term, we will be demonstrating the efficiencies and economies of e-drives. Any piece of equipment would be better with an e-drive."

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Photo above and at left shows Deere 4930 sprayer being fitted with new ATC electric drive wheel motors.



Giant wire winder is chain-driven by a hydraulic motor. TC Machine says it works great to wind up plastic silo bags.

## Giant Wire Winder Also Rolls Up Silo Bags

"It's designed for utility companies to wind up electrical cable. But it also makes quick work of rolling up fence wire and plastic bags," says Traver DeMaranville, TC Machine, Inc., about his company's new skid loader-mounted wire winder. It was on display at the recent Husker Harvest show near Grand Island, Neb.

The hydraulic-powered winder is made out of 2-in. round tubing and comes with a skid steer bracket and a hydraulic motor, which operates off the skid loader hydraulics and chain-drives the wire winder. The wire is held in place by a pair of 4-ft., 2-in. dia. rollers, which mount on hinged brackets and are each fitted with a half-pipe. When the winder is full, the operator retracts a pair of hydraulic cylinders to pull the rollers out and dump the roll of wire.

"It rolls up wire quickly and can wrap up

four strands of barbed wire at a time. It'll hold up to 30 cubic feet or 4,000 lbs. of product," says DeMaranville. "It works great for fencing contractors because it has so much capacity. They can use the skid loader to load the wire onto a flatbed truck. A see-through metal guard on back of the unit protects the operator in case the wire ever becomes loose and snaps back.

"Several of our customers are using it to wind up plastic silo bags. They pinch the bag between the spokes on the rollers to get the bag started. The bag pulls in and forms a wad as you're winding it up."

The wire winder sells for \$5,790. You can see it in action at [www.wirewinder.net](http://www.wirewinder.net).

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## Solar-Powered Chicken Feeder

"Varmints were eating all the feed in my chicken feeder at night so I built an automatic chicken feeder out of a 5-gal., solar-powered deer feeder. It puts down just enough feed during the day for the chickens, but leaves nothing overnight for varmints," says Todd Kabes, San Antonio, Texas.

He bought an American Hunter solar-powered hanging deer feeder (ph 877 269-8490; [www.americanhunterfeeders.com](http://www.americanhunterfeeders.com)) equipped with a solar panel and battery, a 5-gal. bucket with a spinner plate under it, and a timer – all for about \$60.

"The deer feeder was originally designed to throw feed onto the ground in a large circle, but I modified it so the feed will drop straight down onto a round metal pan on the ground," says Kabes. "The entire setup hangs from a pipe frame."

He cut off part of a truck tire inner tube and screwed it onto the bottom of the bucket feeder, using silicone to waterproof it. The inner tube completely surrounds the spreader so feed drops straight down into the pan he made. The pan has an upside down funnel at the center of it that directs feed to the outer edges.

"I have just a few chickens so I only run the feeder for about 2 seconds each day," says Kabes. "The pan is screwed onto the top pair of pvc pipes to keep it up off the ground."

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Automatic chicken feeder was built out of a 5-gal., solar-powered hanging deer feeder with a spinner plate under it (left). Part of a truck tire inner tube is screwed onto bottom so feed drops straight down onto a metal pan on the ground.

