

## Tractor Operates On Sun Power

Solar-powered tractors make sense to John Howe. The extra weight of the batteries adds traction, and the sun is strongest in the summer when tractor use is the greatest. His solar panel-equipped Cub Cadet can pull a 6-ft. harrow or haul a load of hay without burning an ounce of gas.

"The nine deep cycle batteries add about 500 lbs. to the 1700 to 1800-lb. Cub," says Howe. The battery pack provides the energy equivalent of about half a gallon of fuel, he adds.

He can do about an hour of heavy tillage or up to 6 hours of stop-and-go work without recharging. A full recharge takes 6 to 8 hours by solar panel.

Howe knows his solar-powered tractor isn't economically feasible for most farming situations. The author of "The End of Fossil Energy," he built the tractor out of concern for sustainable energy production. He thinks its day will come, as the price of oil is driven higher and the cost of transportation makes local food production more important.

"If you were doing micro farming with small food plots to feed a community, a small tractor like this is all that would be needed," says Howe.

He selected a Cub tractor to experiment with largely because of its direct 1-to-1 drive pto. This meant he could tie into the entire drive train, including full use of the transmission, by applying power to the pto end of the straight line drive shaft. Opening the pressure plate stops it from also rotating the crankshaft and pistons.

He mounted three 175-watt Sharp solar panels with an area of 60 by 100 in. on a roof framework above the entire tractor to supply up to 5 amps@100 volts for 0.5 kwh peak power output. He then mounted the battery packs alongside the front frame. The 10-kilowatt electric engine mounts under the seat and connects to the pto with a cogged belt and two pulleys at a 6:1 ratio. The smaller pulley is a pto shaft extension that Howe machined down to handle the cogged timing belt.

For added braking power, he also installed a disk brake on the rear drive shaft pulley and installed a separate brake pedal on the tractor to operate it. The extra braking was needed, he says, when pulling large loads.

To return to use of the gas engine, he simply removes the drive belt and closes the pressure plate. For hydraulic power, Howe



**John Howe's solar panel-equipped Cub Cadet can pull a 6-ft. harrow without burning an ounce of gas.**

mounted a hydraulic pump on the front of the gas motor. When he needs hydraulic power, he removes the spark plugs from the gas engine and disengages the clutch. This allows the electric motor to rotate the crankshaft and the hydraulic motor.

Howe estimates that he gets 13 1/2 hp with his solar-powered tractor. Key to its efficiency is the \$800 pulse width controller. It chops current into very short pulses, which gives the operator very efficient control of

power use. The motor itself cost about \$500, as did the batteries.

"I really love it for picking up hay bales and hauling hay," says Howe. "It can haul a huge load of hay up a hill, and any time the sun is out, it's refueling. The solar array acts like a trickle charger."

Contact: FARM SHOW Followup, John Howe, Howe Engineering Co., 298 McIntire Rd, Waterford, Maine 04088 (ph 207 583-4800; email: howe@megalink.net).

## Pickup Step Doubles As A Bed Extender

If you could use a little help stepping up into the back of your pickup, you'll be interested in this new tailgate-mounted step that doubles as a bed extender.

The Kwik Gate is designed for most full-size pickup models. It extends out over the tailgate like other bed extenders but the back panel flips down to be used as a step. Installation requires drilling holes in the tailgate to insert five screws on each side. The side pieces remain permanently in position and fold into the pickup box when the tailgate closes. The back panel can be raised up vertically to help secure tall cargo or used to haul lumber, pipe, or other material too long for the bed.

"It's more versatile than other pickup steps which can only be used to get into the truck," says Jerry Blake, Oak Creek Supply, Dannebrog, Neb.

According to Blake, many newer pickup models have higher beds than older models, which makes it a chore to get up into the back of the pickup. It's especially true with 4-WD models. "I have a 2001 Dodge 2-WD pickup, and the bed on it is 3 in. higher than the bed on my old 1998 model. The bed on a 4-WD model would be even higher."

The Kwik Gate is designed to fit most pickup brands and models. "There are a few models we're still working on, but in most



**Kwik Gate step extends out over the tailgate. Back panel flips down to be used as a step.**

instances we can adapt the unit to fit," says Blake.

Kwik Gate comes with a gloss black powder coat finish.

Sells for \$150 plus S&H.

Contact: FARM SHOW Followup, Oak Creek Supply, 1392 Highway 58, Dannebrog, Neb. 68831 (ph 800 967-2592; email: j\_blake@cccusa.net; website: www.oakcreeksupply.com or www.kwikgate.com).



**Hook on top of feeder allows it to be lifted by a loader bucket.**

## Easy-To-Move Round Bale Feeder

In 1987, FARM SHOW reported on the Dahl Brothers, Montevideo, Minn., who had invented a new way to move round bale feeders using a loader bucket and a pronged hook on top of a feeder (Vol. 11, No. 4).

When Mace Kantan, Revillo, S. Dak. bought one for his ranch, he liked it so much he contacted the brothers and eventually bought the fabrication equipment.

He now sells the feeder as the "Upper Hand" Big Round Bale Feeder.

"When the feeder is empty, take your

loader tractor and place your round bale where you want to feed next. Then just lift the feeder with a loader and set it over the bale," Kantan says.

Sells for \$299.99 plus shipping.

Contact: FARM SHOW Followup, East River Machine Corp., 16705 - 480 Ave., Revillo, S. Dak. 57259 (ph 605 623-4506; email: kantennm@sstel.net; website: www.labolt.net).

## Hands-Free Radio System

When Randy Roeber, owner of RComm Wireless in Iowa Falls and Algona, Iowa, couldn't find anyone willing to create the hands-free communications package that farmers were asking him for at farm shows, he created it himself.

Roeber calls it a hands-free kit for mobile 2-way radios.

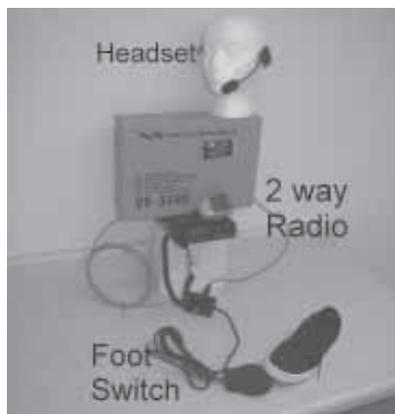
The three parts of the package include the headset, which has a microphone and swivel speaker; a foot switch, which has a push-to-talk switch for the radio; and the interface box, which hosts a break-away plug for the

headset; and a volume control for the headset speaker.

He wanted to provide a safe alternative to holding onto a microphone to talk. The system makes it a lot easier and more fun to talk to workers while busy in the field.

Call for pricing information.

Contact: FARM SHOW Followup, RComm Wireless, 2010 Washington Ave., Iowa Falls, Iowa 50126 and 400 E. Nebraska St., Algona, Iowa 50511 (ph 800 747-6652; email: rcomm@prairiein.net).



**Hands-free kit is designed for two-way radios.**