

## Superior New Compact Electric Wheel Drive

A new, more efficient and compact electric wheel drive will save fuel, reduce maintenance and improve service. Introduced initially for use with self-propelled sprayers, the drive features an electric motor with higher power density. That means a smaller motor can do more in all types of applications.

"Increased power density is particularly helpful in agricultural equipment where power needs are relatively high, yet available space is limited," says Massimo Palomba, Bonfiglioli Riduttori, an off-highway transmission supplier. Bonfiglioli, in cooperation with Magneti Marelli Powertrain, an electronic control component maker, developed the new hybrid wheel drive.

In sprayer drive wheels, the more powerful electric motors fit inside existing, formerly hydrostatic drive wheels. Instead of the engine driving hydraulic pumps, it drives a generator, with power delivered to each wheel motor as needed. Unlike hydrostatic motors, electric motors can be overloaded when more torque is needed simply by delivering more current. This is especially relevant for agricultural use where high torque may be only occasionally needed, such as in soft soil or turning up an incline. Electric

wheel motors also provide the opportunity to generate power traveling downhill or braking.

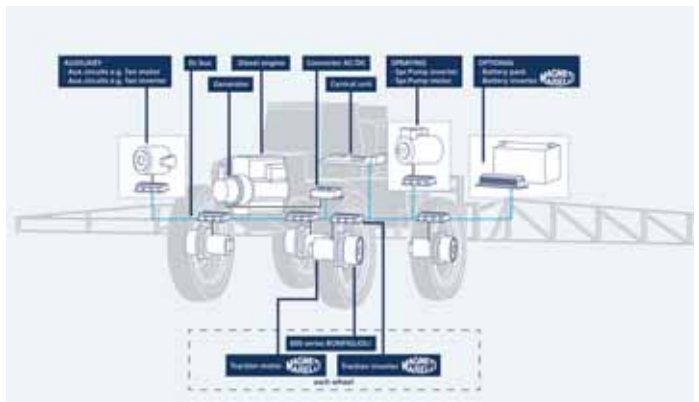
"Each wheel's torque can be independently controlled," says Palomba. "Combined with enhanced conversion efficiency from engine to wheel over traditional powertrains, preliminary tests suggest a 20 percent improved fuel efficiency with the new electric wheel drive."

The increased power is due to a special stator design using a non-traditional conductor to fill stator slots.

"The new design is practically size neutral," says Palomba. "There's demand for efficient electric wheel drives across a range of applications."

He adds that the more efficient motor may require a smaller engine than otherwise would have been needed. Other benefits include greater serviceability due to the mechanical simplicity and improved reliability. Resulting lower maintenance costs, along with fuel savings from improved efficiency, may reduce total operating cost.

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Compact electric wheel drive system saves fuel, reduces maintenance and improves service, says Bonfiglioli USA. Shown above is the layout for an electric hybrid system on a self-propelled sprayer.

Drive system uses an electric motor with higher power density, allowing a smaller motor to do more in all types of applications.



## Firewood-Cutting Rack

"It speeds up the job and lets me make uniform length firewood," says Tom Lundgren about the firewood cutting rack he made for cutting small dia. logs and slabwood.

The rack is made from 2 by 6's and 2 by 2's and can be made to any length. The 4-ft. uprights, made from 2 by 2's, slide into pockets to accommodate easy loading and unloading. The uprights are spaced to provide a uniform length of firewood.

"It's much more efficient than cutting each piece individually," says Lundgren. "I made it in two 4-ft. long sections for easy handling by one person and for easy storage when I'm done cutting wood. The big advantage to using a rack like this is when cutting small dia. logs or slabwood. Too much time is spent between cuts repositioning wood and moving from one cut to the next. This unit allows me to cut as much wood as I can fit between the uprights using only a few cuts, saving time

and gas."

Another benefit is that the wood isn't touching the ground. Each 4-ft. tall by 24-in. wide rack holds exactly a half cord of wood. The width of the rack is determined by the length of your saw blade minus 2 in. to account for the uprights. Lundgren spaced the uprights so that he's cutting 16-in. lengths of firewood.

"When loading the rack, first I roll in 2 big logs, then I put the stakes in and pile smaller logs on top," says Lundgren.

"It works fast – I can cut a cord of wood in only about 30 min. In fact, I spend more time taking the cut wood out of the rack than I do cutting it. When I'm done using it I remove the uprights and store the rack in my shed."

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Rack is made from 2 by 6's and 2 by 2's. The 4-ft. uprights slide into pockets and are spaced to provide a uniform length of firewood.



Insulator is made of super strong plastic that looks like porcelain. It comes with an adaptor on top that lets you use a cordless drill to screw it into wood fence posts.



## New-Style Fence Insulator Easy To Use

Long-lasting durability and easy installation makes this new insulator the best fence accessory to come along since the original porcelain insulator, says the manufacturer of the "Dura-lator".

"We use a super strong plastic that looks like porcelain and lasts just as long," says Alan Johnson at Zareba systems. "You can screw it into wood fence posts like other porcelains, but it only takes seconds because it has an adaptor on top to use a cordless drill."

The tough plastic won't chip like porcelain and has no carbon tracking, so it won't drain electrical current.

The Dura-lator insulator works with all types of electrical fencing. Sells for \$2 apiece and can be purchased through Zareba's website as well as at many farm supply and hardware stores.

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## Squeak Leads To Oil Discovery

By Dee Goerge, Contributing Editor

My husband and I accidentally discovered Ultimate Penetrating & Lubricating Oil when our pickup developed a loud squeak as we traveled through the Bakken oil field region in western North Dakota. The oil caught our attention at the Williston NAPA store because it was both a penetrating and lubricating oil. And it was a Pride of North Dakota product, manufactured in Dickinson, N. Dak.

Our first use was to open the filler plug of the rear end to check the oil level. The plug was rusted tight on our 6-year-old pickup. After spraying Ultimate on it, we ended up waiting a day in order to get the right size tool. It loosened on the first try. My husband added oil, and then sprayed Ultimate on the U-joints, knuckles and other parts, and the squeak disappeared. Later we took the truck to a mechanic, who changed out one of the U-joints.

I was curious about the oil's origins so I called the number on the can. Turns out the manufacturer, GW Enterprises, is a family business. Fayette Heidecker explained that her husband, Gary, developed the product back in 1992, working with local mechanics. They worked with I-K-I Manufacturing in Wisconsin to put it on the market.

"It's a petroleum-based product," Heidecker says. "It's unique because it's both a penetrating and lubricating spray."

Ultimate oil eliminates squeaks, frees rusted bolts, nuts, and parts and can also be used to lubricate and protect.

Though the target market is industrial and equipment, other buyers – including many women – use it for a variety of things including electric razors, sewing machines, squeaky garage doors, frozen locks and sporting goods.

"The can lasts too darn long," Heidecker laughs about the product that retails for about \$7.50 "You don't have to use much per application. It's foamy so it penetrates right away."

The Heideckers have large customers including Petro Hunt LLC and the N. Dak. State Highway Department. They personally contact dealers in communities to find new retailers, but are open to calls from potential distributors.

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