



# A Home-Built Electric Van

*By Jeanie Senior*

**W**hen Bruce Bolme lifts the engine compartment lid in the back of his rusted 1980 Volkswagen Vanagon, there is no engine inside.

Not to worry. It has been replaced by an electric motor, and Bruce has added the necessary components to convert the van from gas-power to electric.

This is the second electric vehicle Bruce has put together. The first was in the 1970s, a Volkswagen Beetle conversion that wasn't a total success.

"It ran, but I never used it routinely, mainly because a VW

Beetle does not like running with 700 pounds of batteries," he says.

Bruce moved to White Salmon in 1998. For the last decade, he worked as chief engineer at The Dalles and John Day dams.

After retiring three years ago from the U.S. Army Corps of Engineers, he started thinking about building another electric car.

Bruce pulled the Beetle out of the weeds and sent the electric motor to be rebuilt and reconditioned. His son-in-law located the nonrunning Vanagon—big enough to handle the heavy load of batteries—to convert.

It had been sitting in a field, a home to rats, mice and other critters.

"I had to totally field strip it," Bruce says. "The mouse nests were everywhere."

The hefty electric motor originally powered a World War II-era forklift.

Schlosser Machine in Hood River made an adapter plate and a mounting bracket so it could be installed in the van. Twelve golf cart batteries were nested in heavy-duty plastic battery boxes that hold four each, along with the controller, which connects the batteries and the motor.

Bruce, an advocate of buying local and buying American, was delighted to find a \$700 controller built by a

company in Grants Pass, Oregon.

Restoring the van to safe running order and completing the conversion could be categorized as thrifty, but not inexpensive. The total cost—including a brake system overhaul and steering repairs, a new windshield, body repairs, new gauges, a battery charger, a \$700 tow bar, safety chain and electrical harness—came to more than \$9,000. He also added a backup warning alarm, because the van is virtually silent when it runs.

“It wasn’t cheap,” Bruce says. “I drive it around. It’s fine.”

But it won’t break speed records.

“It drives like a World War II forklift truck,” Bruce says, ruefully. “Top speed, 25 miles an hour. But I’m not to be defeated. Yesterday, I ordered a brand-new state-of-the-art motor for it.”

The new motor is designed specifically for an electric vehicle.

High oil prices have others thinking about electric vehicles. When Bruce ordered the motor from a Portland company, the salesman told him business had increased 12-fold from a year ago, and that his motor would not arrive until July.

Bruce figures he has a 25-mile range now, before the batteries start depleting.

“Although I’ve never run them to exhaustion, you can tell a little difference” when their charge starts to expire, he says.

Next up is adding a heater and defroster. He has a gasoline-powered car heater that was an accessory years ago in Canadian Volkswagens.

“If I can make it work, I’ll install it in the Vanagon,” he says. “It has a 1-gallon gasoline tank. I’ll probably fill it up once every winter.”

Bruce advises anyone interested in doing a gas-to-electric conversion to find a vehicle that’s sturdy enough to carry the heavy batteries without power steering or power brakes. Unlike the small Beetle that was his first conversion, the Vanagon is ideal because it is built on a 1-ton chassis.

“Some people like to do little



*Top, Bruce Bolme opens the lid to one of three battery boxes, which house the 12 batteries that power his van. Above, the forklift motor he salvaged. Opposite page, Bruce’s van has a top speed of 25 mph.*

Chevy S-10 pickups, which had manual steering as an option,” he says. “They hinge the pickup box at the back and load the batteries between the frame rails under the bed, and go from there with the conversion.”

Bruce suggests a couple of Web sites—[www.evparts.com](http://www.evparts.com) and [www.go-ev.com](http://www.go-ev.com)—as starting points for anyone exploring the idea of an electric vehicle. He also says he is happy to talk to anyone exploring a conversion.

### **Involved in the Community**

The electric Vanagon is only one of the projects occupying Bruce’s time.

He has been interested in renewable energy since the 1970s, when he started seeing the cost of

energy increase. He says that what he viewed as a dramatic rise then pales in comparison with current energy prices.

“I call myself an optimistic doomsayer,” Bruce says. “We need to relocalize our economy. We need to be increasingly self-sufficient. We need to reduce the unnecessary imports, use local food, local finance, local energy. I celebrate having Klickitat PUD here.”

Toward that end, he has worked with the Horizons Project, looking at ways to improve the community quality of life.

He also is involved with the Gorge Grown Food Network—[www.gorgegrown.com](http://www.gorgegrown.com)—a central source of information and connection amongst local farmers, food producers and consumers.

He is a board member of Washington Gorge Action Programs (Washington GAP), a human services agency, and active with the Mt. Adams Chamber of Commerce.

Bruce also is on the steering committee for RiverHours, the Gorge Local Currency Cooperative—[www.riverhours.org](http://www.riverhours.org)—which administers a formal barter and trade system for the region. It even issues its own colorful currency, which is accepted at shops and businesses on both the Oregon and Washington sides of the gorge.

This year, Bruce has been the leading force behind establishing two community gardens, one in White Salmon near Rhine Village, and one in Bingen near Daubenspeck park. Washington GAP is involved with the project, which lets local residents rent garden plots for about \$20 a summer.

An expert on passive solar energy, Bruce helped create the criteria for Clark County PUD’s solar home award program, then managed it for several years, while working for the Corps.

Through the years, Bruce has worked with contractors, architects and homeowners on the design of solar houses, and ways to adapt existing houses to take advantage of passive solar energy. ■