

He Converted His Pickup To Natural Gas

A hybrid system of diesel and compressed natural gas (CNG) is the answer to high diesel prices, says Kent Sundling, better known as "Mr. Truck" through his website and newspaper columns. He thinks we should forget about vegetable oil, biodiesel and hydrogen and concentrate on making CNG work.

"The beauty of a hybrid CNG/diesel system is that if I can't find CNG, I just run on diesel," he says. "At a 2:1 CNG to diesel mix, it's like increasing miles per gallon by 25 percent."

After getting a CNG unit installed in his 2005 Ford F-250 diesel, Mr. Truck drove from Ohio back to his home in Colorado.

"I found out right away that in some states CNG can be hard to find and in other states it's complicated to buy. Many fueling stations use a special card that you have to apply for."

In his home state of Colorado, he had to fill out and fax in a four-page application plus copies of credit card and drivers license to the company that controls CNG filling stations. He notes that there are nearly 780 such stations in the country. To find current prices and locations, he suggests checking the industry website, www.cngprices.com.

"Using CNG in my test truck added 180 miles to my overall range," Mr. Truck says.

Mark Deluca, his Ohio CNG system installer, explained that CNG makes the engine more efficient at burning fuel and air in the compression stroke. The CNG is added via a Venturi tube in the air snorkel after the air filter. It is sucked into the turbo and mixes air with CNG as it travels through the turbo and intercooler to the engine. It takes about 1,500 rpm's to open the spring valve on the regulator, so no CNG is used at idle.

Mr. Truck says that while you can convert gasoline engines as well as diesel, heavy-duty diesel engines are ideal. Unlike gas engines with spark combustion, diesel combustion eliminates problems with pre-detonation or the need for knock sensors.

Mr. Truck notes that farmers he has met in Ohio have built a portable unit that they can move between their pickup and their combine at corn harvest. Due to natural gas wells on their farms, they get free CNG. It saves them several hundred dollars a day on fuel costs.

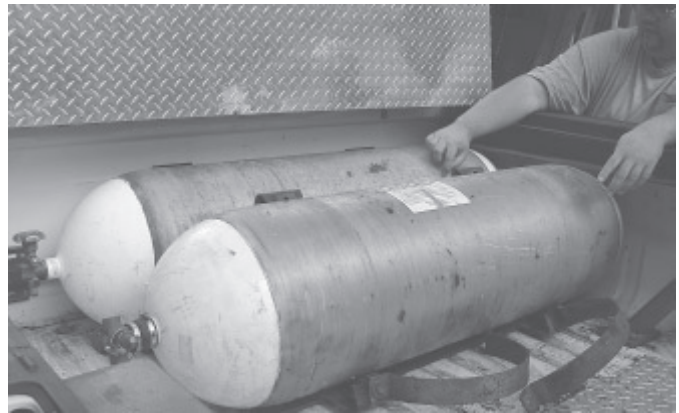
"Major companies are working on CNG projects," says Mr. Truck. He cites Deere putting CNG gas engines in trucks and buses, and work previously done by Cummins on CNG and LNG (liquefied natural gas). He reports Mahindra Tractors will soon launch new tractors with CNG and LPG systems.

In addition to cost benefits, CNG reduces carbon monoxide emissions by 90 to 95 percent, nitrogen oxide emissions by 35 to 60 percent, and non-methane hydrocarbon emissions by 50 to 75 percent compared to gasoline.

Converting to CNG isn't cheap. Engine conversion alone ran Mr. Truck around \$1,800. A new 30-gal. carbon fiber tank was \$3,800; however, used tanks are available.

After getting his system tuned, Mr. Truck reported a 23 percent reduction in cost per mile when pulling a trailer and a 27 percent reduction when driving an empty truck. This was based on then current Colorado fuel prices of \$3.94 for diesel and \$2.74 for CNG.

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Kent Sundling says the answer to high diesel prices is a hybrid system of diesel and compressed natural gas (CNG).



CNG is added via a Venturi tube in the air snorkel after the air filter (right). Sucked into the turbo, it mixes air with CNG as it travels through turbo and intercooler to engine.



"The beauty of a hybrid CNG/diesel system is that if I can't find CNG, I just run on diesel," says Sundling. Photo at right shows a converted semi tractor.

Kit Converts Drum Brakes To Discs

If you have a truck with rear drum brakes that needs more braking power, a disc brake conversion may be the answer. TSM Mfg. makes rear disc brake conversion kits for a wide variety of Ford, GM and Chrysler trucks and utility vehicles.

"We make conversions for most rear drive vehicles equipped with drum brakes," says Cliff Jones at TSM. "If you're redoing your brakes, the cost to install our disc brake kit is about the same as replacing your brake drums."

Jones points out the advantages of rear disc brakes, including their self-cleaning feature. If mud or grit gets inside a drum brake, it can wipe out the drum, he explains. Other advantages include increased braking power and a smoother ride.

"The large wheels that have been put on trucks in recent years reduce the effectiveness of the brakes the vehicle came with," says Jones. "Disc brakes help to overcome that as they have more braking power than drums. Also, especially on 8-lug wheels, if you remove the drum and replace it with a disc brake, you also reduce the weight of the rotating mass. Customers have told me their vehicles ride better with our kits installed."

Jones says TSM kits are easy to mount. They are also available with a caliper or without, if you choose to buy one locally. The kits can also be ordered with a front brake caliper with no parking brake function or with a rear caliper and parking brake built in.

"If a truck travels a lot of gravel roads, the cable may have already been cut in two," says Jones. "If there is no cable left, why install a parking brake caliper?"

Another advantage to disc brakes is ease of maintenance. "Once you make the con-



Converting a truck with rear drum brakes to disc brakes results in more braking power, says TSM Mfg.

version, it is fairly easy to change pads compared to changing shoes, and the pads will last longer than shoes do," he says. "If you watch the pad, the rear rotors should never wear out."

Jones says TSM uses as many standard American parts as possible. The company also strives to offer kits that allow the buyer to purchase as many additional parts as possible from local suppliers. However, the company does offer all parts for customers who wish to order them.

Conversion kits are priced from \$259.95 per pair for GM vehicles to \$289.95 per pair for Chrysler and Ford vehicles. Braided stainless steel or rubber brake lines are also available.

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Ostendorf fitted his rototiller with skis, side shields, and a protective cover over the tines.

Protective Cage Improves Tiller Performance

A Minnesota gardener who was tired of chewing up onion tops and green beans with his rototiller, headed out to his junk pile and came up with "skis", side shields, and a protective cover over the tines.

He started with a metal refrigerator shelf. He knew that if he bent it to cover the tiller blades, added side shields and ski-like guides, the problem would be solved.

He made the first one for himself and then a few others for friends. The screen and shield were "just perfect" on the first try. He's worked to perfect the skis on the front of each side, which slide under the plant tops and lift them out of the way of the rotating tiller tines. "They want to dig in and that's been the biggest problem."

"It works best on small tillers. I made one for a bigger rear-tine tiller and it got bent," cautions Fred Ostendorf, of Sauk Centre, Minnesota.

Fellow Sauk Centre gardener Brad Weishar loves the tiller cage contraption. "It swings up for easy access to the tines," says Weishar.



Cage swings up for easy access to tines.

Ostendorf hasn't met a design quandary that a can of pop and some thought can't fix. "Sometimes it takes two cans of pop," says the retired excavating contractor.

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