



1967 Chevy pickup generates its own fuel "on the go" with wood burning generator mounted behind cab.

NEW INTEREST IN OLD IDEAS

This Wood-Powered Pickup Works Great

"Certainly we could never run our transportation system in this country on wood. But there's enough forest waste to supply 10 to 15% of our total energy needs."

Kay Eoff, University of Florida physics professor, was talking with FARM SHOW about wood-gas and the wood-gas-powered pickup he and Don Post, professor of forestry, built. They modified a 1967 Chevy 6-cylinder pickup to operate by burning wood "on the go" in a generator located behind the cab in the truck box.

"We're also about to get a saw mill going on wood gasification," says Eoff. "An alternative to burning wood to make a gas is to burn it to make steam to run turbines. That's the way a big installation, such as a pulp mill, should operate. Steam is more efficient than wood-gas if the power need is large. For small installation — up to about 1,000 hp — wood gasification is more efficient than burning wood to make steam."

Eoff explains that dry, small blocks of scrub oak were placed in the sealed wood gasification cylinder in the back of the converted pickup, and burned from the bottom up. When the temperature within the cylinder reaches approximately 2,000° F, large amounts of carbon monoxide, hydrogen and other gases are released.

"The gasifier can get about 70% of the chemical energy out of the wood and into a flammable gas form that goes into the vehicle engine," explains Eoff. "Then, the engine is about 20 to 25% efficient in converting any fuel to mechanical power. The other aspect of wood-gas is that the chemical energy content of the

gas and air mixture that goes into the engine is only about 70% of that of the normal gasoline and air mixture that goes in. So you're limited to about 70% of the power out of the engine, comparing wood-gas to gasoline. A 100 hp engine (gasoline) is a 70 hp engine with wood-gas — if you're lucky."

No modifications on the engine itself were necessary, except for building a special carburetor. "We had both kinds of carburetors on the truck, and could easily switch from one fuel to the other," says Eoff.

"On 100 lbs. of wood, the truck could be driven about 80 miles at 50 mph. A cord would take it about 2,500 miles. Several hundred miles worth of wood could be carried on the truck, and it takes only a minute to lift the hopper lid and put in some more wood," explains Eoff. "You don't even have to kill the engine — just let it idle."

Wood chips, or small blocks of wood about the size of a 2x4 cut into 4-in. lengths, make excellent fuel for the wood-burner. Cost of building the wood-gas generator on the pickup was about \$500, using scrap metal and not counting labor. "Buying new materials and building one yourself might cost less than \$1,000," Eoff told FARM SHOW.

"Or, you can buy a Volvo gasifier in Sweden, ready to hook right onto your Volvo car, for \$5,000 FOB Goteborg, Sweden."

For a copy of Energy Report No. 1, "How To Power A Gasoline Engine With Wood," contact: FARM SHOW Followup, Ag Engineering Dept., University of Florida, Gainesville, Fla. 32611 (ph 904 392-1864).

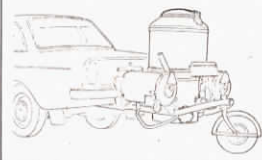
Best Book We've Seen On Wood-Gas Generators

Coming out of Sweden, where there simply are no oil wells at all, is one of the best booklets we know of on wood-gas generation for vehicles. It was translated by Swedish-American Nils Nygard of Minneapolis, Minn., and is available for \$3 per copy. It details the basics of wood-gas generation and includes easy-to-understand drawings.

"This is the best single book I know of on wood-gas generators for cars, trucks and tractors," says James Bohlen, manager of the Green Peace Experimental Farm on Denman Island near Vancouver, British Columbia, Can., who equipped a 1947 Ford Ferguson tractor with a wood-burning generator for producing its own fuel "on the go." (Featured in FARM SHOW'S January-February, 1980, issue.)

"If we'd known about Nils' book when we started, we'd have saved a lot of money and wasted hours," adds Bohlen. "He covers most of the problems we encountered and had to learn the hard way by trial and error. I'd highly recommend it to anyone thinking about doing any kind of experimenting with a wood-gas generator for a car,

WOOD GAS GENERATOR for VEHICLES



truck or tractor. With this book, most any farmer can convert a gas or diesel tractor to wood-gas in two days or less, and for a cost of less than \$500."

The booklet, 5½ x 8½ in. in size and containing 18 pages, is in its second printing. Nygard told FARM SHOW. It describes the basics of wood-gas generation and includes many schematic drawings.

The \$3 price includes postage and handling. For a copy, contact: FARM SHOW Followup, Nils Nygard, Purwaco International, 7435 Highway 65 Northeast, Minneapolis, Minn. 55432 (ph 612 784-1880).

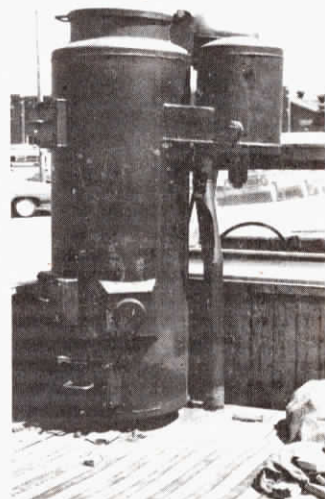
Wood-Power For Pickups Now On The Market

Nunnikhoven Industries of Oakville, Iowa, has just introduced a "Gasogen Power" system, one of the first commercially available wood-burning units anywhere.

Designed for gas-powered engines up to 425 cu. in., the self-contained fuel generator mounts in the back of a pickup, on the side of a tractor or anywhere else in reach of a gas engine. Steve Nunnikhoven says he gets 50 to 60 miles per 125 lbs. of wood in his 1973 Dodge pickup. He simply mounts the unit in the truck box and runs 3-in. flexible plastic tubing under the hood to the air cleaner. With the use of a fuel line switch, he changes back to gasoline with no modifications at all. He is currently working on a force-feed system to get more gases into the carburetor faster to increase engine performance.

Nunnikhoven will sell you a complete "Gasogen" wood-burner for \$975, or a set of plans with "where to buy" information on used parts that'll let you build one yourself. Plans sell for \$12.50.

Contact: FARM SHOW Followup,



The NIDD, Inc. wood-gas power unit sells for \$975.

Steve Nunnikhoven, NIDD, Inc., Box 298, Oakville, Iowa 52646 (ph 319 766-3141 or 766-4111).