

Wood Splitter Runs On Wood Gas

David Boyt makes lots of wood chips sawing up logs, as much as a ton on good days. He also burns about 4 gals. of gasoline. With a ton of wood chips equaling the energy in 120 gals. of gasoline, it made sense to put them to work.

“Running my gasoline engine on wood gas has been on my to-do list for over 40 years,” says Boyt. “Cars, trucks, motorcycles, tractors, barges, and even German tanks were converted to run on wood during World War II. However, after the war, most people happily scrapped their wood gasifiers and returned to the convenience of gasoline and diesel.”

Boyt notes that when fuel prices skyrocketed in the 1970’s, interest in gasifiers flared up (Vol. 28, No. 4). In a belated response, the Federal Emergency Management Agency (FEMA) published a manual, Construction of a Simplified Wood Gas Generator for Fueling Internal Combustion Engines in a Petroleum Emergency. Boyt used the manual as a basis for his project, quickly learning the manual overestimated ease of construction.

“FEMA claims the gasifier can be built in a couple of days from commonly available scrap with simple tools and no special skills,” says Boyt. “That assumes you have 6-in. steel pipe, 4-in. threaded pipe, caps, and more in your scrap pile.

“It also assumes you have the skills and tools for airtight brazing, stainless steel welding, and cutting 1/8-in. steel plate,” he adds.

The manual was for a stratified downdraft design. Smoke from burning chunks of wood is pulled down through the fire tube and, with the charcoal, produces carbon monoxide, hydrogen and some methane. These gasses are filtered, cooled and diverted to the engine to fuel it in place of gasoline.

An essential element of the plan is that the gasifier be airtight. This is vital, not only for operation but also for safety. A wood gas leak could flare unexpectedly.

Components included the fire tube, a grate, the enclosing barrel, a 5-gal. filter chamber filled with wood chips, and a flexible steel hose between the barrel, the filter chamber, and the engine carburetor. Other elements included a cleanout tube at the bottom of the barrel, a shaker mechanism to prevent ash buildup in the grate, and a blower to initiate downdraft.

Once completed, all that remained was firing it up. That was a multi-step process that included adding a bed of charcoal to the grate through the fire tube and oil-soaked, crumpled newspaper on top of the charcoal. Boyt then dropped a wad of burning paper in.

Once the fire was established, he first added a 6-in. layer of pine wood and then filled the fire tube with oak wood chips and started the blower.

“The first time, all I had was smoke,” says Boyt. “The second time, I oven-dried wood cubes for several hours, and once the fire started, I paid close attention to the mix of air and wood gas.”

He notes that it took trial and error to get the right mix. Once he had the engine running smoothly, it ran without hesitation. His first use of the wood gas was on an engine powering a wood splitter. It ran without hesitation.

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‘Made It Myself’ Garden Tools



Garden hoe with 6-in. markings.

“My homemade garden tools might look a little crude, but they make planting our 1/4-acre garden a little easier,” says Steve Faber, Tiffin, Ohio.

“One quick and easy idea helps to measure row spacing. I mark off the handle of my hoe in 6-in. increments, so there’s no need to carry a measuring stick.

“I made a row covering tool from scrap steel. Saves a lot of bending over when going back down the row to cover seeds.



Row covering tool.

“When I was a boy, my uncle always worried about driving his pickup truck over planted rows of beans until he noticed one year that the beans he drove over were always the first ones up. So, I made up a device using a car tire and rim to go over the top of the garden rows after they’re planted. This tire and rim are just the right weight to firm up the soil and also to crush any clods on the row.”



Tire and rim used to go over newly planted garden rows.

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