

\$300 Waste Oil Boiler Heats House

Paul Oliver sees no reason to pay for fuel when he can get it free and no reason to buy a boiler when he can build one for \$200. Since he has figured out how to do both, he is helping others follow his lead. Oliver is selling plans for the boiler through his company MurphysMachines.com. He estimates most people with welding skills can build one for \$300 or less. The oil is free.

"I place an ad now and then and talk to folks at shops that change oil or have waste mineral spirits," he says. "I've even burned Rust-Oleum in my waste oil furnace."

Oliver first built a waste oil furnace for use in his shop. However, waste oil can't be burned inside a home, so he designed an outside boiler with a hot water jacket. Adding a coil to his conventional furnace plenum lets him use the heat inside. Dual thermostats let him use the furnace fan to distribute the heat.

Like Oliver's waste oil furnace (Vol. 32, No. 6), the waste oil boiler is built mostly from recycled parts. It uses air pressure to deliver atomized waste oil into a hot burning

chamber fabricated from a propane tank.

"I used 55-gal. drums, a 100-lb. and a 25-lb. propane tank and some pipe fittings," says Oliver. "My filter is a large holed screen with an old tee shirt spread across it to keep twigs and bugs out."

The bottom of the boiler unit is a 55-gal. drum holding electrical circuits and a valve. A center drum holds the water jacket and propane tank burn chamber. The top drum is the exhaust vent. About the only thing Oliver didn't do himself was spray insulation on the drums. The spray-on insulation lets the boiler sit for several hours before the temperature drops below 100°.

"The boiler produces 180° water at 140,000 btu's per hour," says Oliver. "It's designed to be outdoors and exposed to the elements. It's efficient too. Even with motor oil, there is very little smoke. Vegetable oil and hydraulic or transmission fluids all burn even cleaner."

Oliver's biggest expense was the coil and components for transferring heat into the house. It was also the most technically

challenging.

"The stuff on the inside is the same as needed if installing a wood burner," he says. "I just ordered a Sidearm heat exchanger, so I will be getting my hot water heated by the boiler as well."

Plans for the boiler are available online.

Contact: FARM SHOW Followup, MurphysMachines.com, P.O. Box 49, Almont, Mich. 48003 (ph 586 995-0101; information@murphysmachines.com; www.murphysmachines.com).



Farmall Cub Runs Great On Chainsaw Carburetor

Paul Peyton didn't want to spend the money for a new carburetor for his Farmall Cub tractor, so he used one off a Stihl chainsaw. The carburetor is bolted to a paper air filter element designed for a 12 hp Tecumseh engine, and to the tractor's air intake manifold.

"As far as I know I've got the first Farmall Cub in the world with a chainsaw carburetor," says Peyton. "I came up with the idea because the carburetors on Cub tractors are famous for being unreliable, leaking fuel, and starting hard. I had to rebuild the carburetor on my Cub 3 times over a 2-year period but it still didn't run well," says Peyton, of Huntsville, Mo. "I know people who have junked their Farmalls because they couldn't make the carburetor work and couldn't find a good replacement."

"I priced a newer replacement carburetor, but the \$249 price tag encouraged me to seek alternatives. I'm a retired engineer and mechanic and have a lathe and a Bridgeport vertical milling machine, so I figured I could come up with something better. I decided to use a chainsaw carburetor because it develops a lot of power for a small engine, and because it's designed in such a way that it can operate in any position. The Stihl carburetor's bore is larger than the Cub's, so I knew it would have adequate airflow."

Peyton says his homemade carburetor has worked even better than he hoped. "The tractor now starts instantly, is more reliable, has

more power, and doesn't leak fuel. Also, it's more fuel efficient because the Stihl carburetor does a better job of atomizing gas."

The tractor's original air filter was under the hood and the air intake above the hood. They were no longer needed so Peyton removed both of them.

The chainsaw carburetor originally was equipped with a built-in fuel pump connected to a small fuel line, with fuel pumped by pulses in pressure from the chainsaw's crankcase. But on the tractor, the carburetor had to work with a gravity flow system, which required modifications. "The fuel pump side of the carburetor had to be altered, sealed and tapped so I could run a standard 1/4-in. fuel line and fuel filter to the tractor's gas tank," says Peyton.

He machined a new governor linkage bellcrank and pivot, as well as an adaptor plate and air filter mounting plate, which were machined from aluminum bar stock. The carburetor's adjustment screws were shortened and re-slotted to allow for the bellcrank and governor link. Linkage from the bellcrank to the carburetor was fabricated, and the governor linkage was modified where it screws onto the carburetor.

"I wanted to use a modern paper filter and found one that was designed for a Tecumseh engine. But in order to make room for the air filter I had to shorten the tractor's oil filter tube," says Peyton. "I also had to discard



the tractor's large, breather-type oil filler cap. I fabricated an O-ring sealed oil filler plug with a folding handle and a dipstick that threads into the center of the plug."

The tractor didn't have a "breather" cap on the oil pan, so Peyton fabricated a positive crankcase type of vent system. A rubber hose allows blowby from the engine crankcase to vent into the carburetor's intake airstream.

"The Cub's original carburetor wasn't adjustable, but the Stihl carburetor has 3 screw-type adjustments, one for high speed, one for low speed, and one for idle speed."

Contact: FARM SHOW Followup, Paul Peyton, 4373 Hwy. D, Huntsville, Mo. 65259 (ph 660 998-4204; peyton.paul@gmail.com)