

Wood heater saves Simon Martin \$50 or more per month in hot water bills.

Water Heater Runs Off Outside Wood Furnace

Simon Martin has nine children and three bathrooms in his Pantego, N.C. home. So his hot water bills have sometimes been as high as other people's heat bills.

When he started heating his home with an Aqua Therm outside wood furnace, he decided to find a way to also heat his hot water. He came up with a relatively simple solution that saves him \$50 or more a month.

His Aqua Therm furnace has a 55-gal. water jacket around it. The water heats up and is pumped underground to a heat exchanger inside the house.

While working on a large Deere payloader in his shop, and studying the workings of the oil cooler on the big machine, he got to thinking: Why couldn't I heat water with this same cooler?

So he took an oil cooler off a junked machine and took it to a couple of local "experts". They told him it wouldn't work with the 40 psi flow of household water pressure because the water would have to be "squeezed" through 120 tiny metal "straws" inside the cooler. Martin decided to try it anyway.

Water is pumped from the Aqua Therm furnace into the house and through the heat exchanger that heats the house. From there it goes to the oil cooler, which is simply plumbed into the water line on its way back to the furnace. Fresh water is heated "on demand" as it passes through the water heater. A 3/4-in. pipe feeds fresh water to the 120 "straws" inside the water heater. Martin's 50-gal. electric hot water heater is completely bypassed.

"Even when all three showers are going, there's plenty of hot water, heated on demand as it's used. I was amazed at how well it works and so are my friends, 'the experts,'" says Martin, who says he had to install a mixing valve in the hot water line to keep the water from being too hot at the spigots.

Martin runs a sawmill so he has plenty of free wood to burn. A small fire is enough to provide plenty of hot water even when the furnace is not needed to heat the house.

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Scale model of combine shows design of new cover. It will have a large blower that directs air down onto combine.



Cover To Keep Combine Clean And Cool

After losing two combines to fires, Ron Stoen decided to find a way to keep combines cleaner in the field.

"Ninety percent of combine fires start from dust and chaff buildup on the engine," says Stoen, who farms and also owns Stoen Farm Supply. "When you do get rain on the combine, all the dust turns to mud."

So far, he's only put together a model of his new cover but he's confident it will work. Stoen's idea is to put a large cover on the top of the combine that will house a large blower and air tubes, directed downward onto the combine.

The blower will be powered by the straw chopper countershaft that runs at 3,800 rpm's. Stoen plans to use a pulley configuration to increase rpm's to match that of the blower he plans to use.

"I am looking at blowers that operate at up to 5,000 rpm's," explains Stoen. "They will create air movement comparable to 120 to 140 mph winds."

The blower will feed into a 3-tube manifold. Stoen will direct one air tube at the engine to blow away dust, chaff and straw.

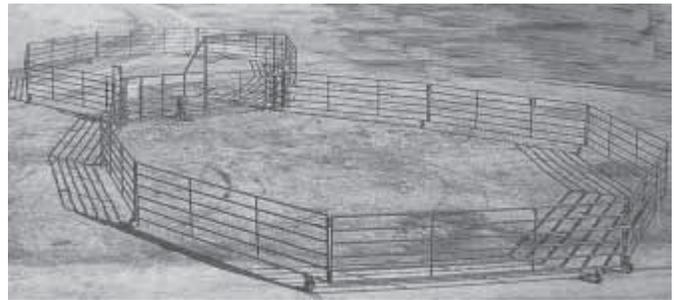
A second tube will be directed at the combine cab windshield, and a third will be directed at the feeder housing to clear dust away from the front of the combine.

"I have talked with my insurance agent, and he said anything that reduces the risk of fire will receive a deduction," says Stoen.

He's currently lining up manufacturing and estimates the cover and blower system will cost no more than \$2,500 retail.

While the system is intended for dust control, it may also reduce sun glare and heat. The cover will extend over part of the windshield and serve as a sun visor, something no longer found on most cabs.

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One person can quickly set up this corral using a hydraulic jack that is operated by a self-contained power unit. Any of more than 20 configurations can hold up to 200 head of 700 to 800-lb. cattle.

State-Of-The-Art Portable Corral

"It has more capacity and is more versatile than any other portable corral on the market. One person can set it up in only about 10 minutes without any lifting," says John McDonald about his new state-of-the-art portable corral. It can be set up in more than 20 different configurations, and is designed to pull down the road behind a pickup or tractor at speeds up to 55 mph.

The corral is 128 ft. long when open and consists of ten 20-ft. panels and one 13-ft. panel. When folded for transport, the corral measures only 25 ft. long and 8 ft. wide. There are "man pass" gates at each corner - five in all - so you never have to climb out of the corral.

A hydraulic jack, operated by a self-contained power unit, is used to raise and lower the main frame of the corral. Once the frame is in place on the ground, you set up the corral. To do that you simply unchain the panels - which are on wheels - and pull them out. A unique pinning system allows the panels to fold back flush to each other without unpinning from one another.

"It works great for ranchers who rent grass or wheat ground because they don't want to spend a lot of money on a permanent corral," says McDonald. "Such ranchers usually set up 25 to 30 panels, tie them together, and connect them to a loading chute. The whole



When stowed for transport, corral tows easily down the road.

process can take an hour. One man can set up our corral in minutes and there are no posts, chains, cables or wires to handle.

"The design lets you quickly convert from one large pen for catching cattle, to three pens for sorting," says McDonald. "Another advantage is that you can drive through the entire system with a dually pickup loaded with a round bale. With other portable corrals, you have to turn around and go back out the same way you came in, which can scare animals away."

The standard model holds up to 200 head of 700 to 800-lb. cattle. Prices start at about \$8,000.

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Horizontal bar with a crank shaft on the end is used to lift cover off septic tank.

Crank-Style "Cover Remover"

"Taking the cover off our septic tank is a lot easier since I came up with this hand-cranked cover remover," says Clark Carpenter, Hamilton, Mont.

"One day I came home from work and my wife had the car by the well and a chain attached to the septic tank's concrete cover. She was trying to get the cover back on the tank. The cover is 3 1/2 in. thick and 34 in. in diameter and, at about 150 lbs., was too heavy for her to move," says Carpenter, who decided to come up with a way to make the job easy.

He drilled a 1/2-in. dia. hole in the center of the cover and inserted an I-bolt. Then he dug a 2-ft. deep hole next to the concrete riser

and drilled a hole in the side of the riser to anchor a bolt that goes through a 4-in. pipe sunk in the ground. Another pipe pivots on top of the pipe in the ground and supports a horizontal lift bar with a crankshaft on the end. The crank connects to a hook that lifts the cover.

"It picks the cover up cleanly - I just swivel it off to the side, then swivel it back in place. I leave the crank right on it," notes Carpenter.

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