

## Portable Waste Oil Shop Heater

If you like the idea of burning waste oil for heat but you don't like the complicated furnaces on the market, you might want to take a look at Thermobile portable heaters which are simple in comparison, says Jay Goethal, sales manager, Thermobile North America.

"We use a drip pan style," he says. "You manually start the burner with a cup of diesel fuel. That heats the pan, and when the oil drips on the pan, it vaporizes.

"We're priced right to burn up waste oil and get heat out of it," says Goethal. "Our AT 306 puts out either 60,000 or 100,000 btu's and is priced at only \$1,550, while the \$3,700 AT 500 can produce up to 200,000 btu's."

Thermobile offers four waste oil heating units, three with fully enclosed, lock down burner chambers and internal combustion fans for safe use, even in areas with flammable vapors present. The AT 306 and AT 307 are sized to heat 1,500 sq. ft. and burn between 0.5 and 0.8 gal. of fuel per hour. The AT 400 will heat 5,000 sq. ft. and burn between 0.7 and 1.0 gal. per hour. The AT 500 will heat 7,000 sq. ft. and burn between 1.0 and 1.6 gal. of waste oil per hour.

The lower cost AT 306 simply draws its oxygen through holes in the fire chamber. It can be equipped with an optional Thermo Blower for added heat throw. The AT 307, AT 400 and AT 500 come standard with either the Thermo Blower or an internal axial fan.

"The AT 307 is our most popular unit," says Goethal. "With fuel oil at \$2.50 and waste



Thermobile waste oil heaters have a simple design that uses a drip pan type burner.

oil free, the \$2,400 AT 307 can pay for itself in a year while eliminating a waste product."

Goethal notes that the stoves don't have thermostat control and the burn pan has to be dumped after every use. But, he notes, the manual controls means there's a lot less to go wrong. He notes that the stoves meet both U.L. and the Canadian CSA standards.

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"It's a nice little vehicle for yard work," says Roy Gray, about the electric lift dump truck he built out of a 1960's Allis Chalmers 616 garden tractor.

## Garden Tractor "Dump Truck"

"I get a lot of compliments on it whenever I take it to shows and parades," says Roy Gray Jr., Newsoms, Va., who built an electric lift dump truck out of a 1960's Allis Chalmers 616 garden tractor.

The electric lift dump box measures 36 by 42 in. and operates off the tractor's battery. The entire rig is painted red, white, and blue. He already had the Allis Chalmers garden tractor. The original 16 hp Briggs & Stratton engine was worn out so he replaced it with an 11 hp Briggs & Stratton, keeping the tractor's original automatic transmission.

He used angle iron and plywood to make the dump box, which is raised and lowered by an electric screw-type cylinder that's powered by an electric motor and controlled by an electric switch. "The electric motor and cylinder came off an old state snowplow truck and was used to adjust the blade angle," says Gray. A metal bar that goes through a pair of hinges serves as the dump box's pivot point.

He moved the seat forward over the tractor's engine, building a new mounting frame for it, and then mounted the dump box on back. To make room for his legs, he cut off part of the hood and moved the hood and grill forward 21 1/2 in. He also moved the steering wheel and gearshift forward. He made an extension to the brakes and mounted dual exhaust pipes near each rear wheel. The seat and wheels are original.

"It's a nice little vehicle for yard work," says Gray. "The steering sector was originally located behind the tractor's gas tank, but I moved it forward in front of the engine and just behind the grill and cut-off hood. In that location it worked the opposite way, so I had to reverse it so that it worked the tractor's right wheel spindle instead of originally to the rear of the left spindle."

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Hand held data reader is connected to sensors inside an 8-ft. long pipe. It works because soil contaminated with household waste has a higher electrical conductivity.

## Septic System Failure Finder Found

The next time your septic tiles spring a leak, you may be able to find the problem without digging up an entire line. A septic system failure finder has been developed at Purdue University.

Brad Lee, assistant professor, Agronomy, Purdue University, says "The sensor can help locate problems without digging. This is possible because soil contaminated with household waste has a higher electrical conductivity than the readings from the rest of the lawn. The instrument identifies these changes."

The instrument, called a non-invasive electromagnetic induction (EMI) sensor, consists of a hand held data reader connected to sensors in an 8-ft. long pipe. To gather data, the pipe is carried across and parallel to the surface of the area in question.

Previously the EMI sensor had been used to test for animal waste, salinity in fields and to locate storm sewers and buried landfills,

not a great deal different from septic systems.

So far the sensor has been tested on septic contamination in fine-textured, glacial soils in northeastern Indiana. Lee says further studies are planned to verify if it will be effective in other soil types and environmental conditions.

If proven effective, the EMI sensor could be a handy tool for excavators. It is portable, collects data quickly and can measure through multiple soil layers. Lee says that maps prepared from sensor data can be used to assess building sites, plan future testing and locate the best sites for sampling and monitoring soils for possible septic contamination.

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## Light Guard Great For Loader Work

Tractor lights can be vulnerable to breakage when doing loader work, and "it doesn't take much to break them," says John Tesch of Mervin, Sask.

"Twice, we had lights get broken," he explains. "When you're loading bales on a semi, you have to get right close to it and sometimes touch it, so if you don't have a protective shield, you'll break your lights."

Tesch set about solving that problem, and was so pleased with his "made it myself" light protector, that he built one for both his 5240 and 120 Case IH tractors.

"There are almost identical Case IH loaders on my two tractors, so making the second light guard was easier," he says. "They're attached to the loader frame and create a barrier a few inches away from and a bit above the lights."

The guard is made up of two triangular (20 by 20 by 12 1/2-in.), 3/8-in. thick steel plates, each with a 3/4-in. hole in the bottom for bolting to the sides of the tractor's front end loader frame. A 2-in. heavy-wall pipe is welded between the tops of the plates (this is done last, after the holes are drilled, and the plates are bolted to the loader frame).

On each side, Tesch made a 5/8-in. thick threaded washer, and drilled it so it would fit tightly (it's welded in) inside the loader frame pipe and allow a 3/4-in. bolt to be threaded in.

He also welded an 8-in. long by 1 1/4-in. wide by 3/8-in. thick fliron to the inside rear of each triangular plate so they rest on top of the loader frame and cannot turn.



Light guard is made of two triangular steel plates that bolt to sides of tractor's front-end loader frame.



A 2-in. heavy-wall pipe is welded between the tops of the plates. "We've never broken a light since I put these shields on," says inventor John Tesch.

"We've never broken a light since I put these shields on," John says. "My materials were all scrap iron, so it was also economical. To open the hood on the 5240 you have to loosen the 3/4-in. bolts and pull the assembly forward out of the way."

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