Steam-Powered Generators Going Strong

Wes Gordon's steam powered generators are more user friendly and easier to operate than when they were first featured in FARM SHOW nearly 5 years ago (Vol. 29, No. 6). Designed for off-grid use, his SteamGen trailer-mounted units run on wood or anything else that burns.

"I have a new, lower pressure boiler that weighs only 300 lbs. and can be taken apart with a few screws," says Gordon. "The weak link in steam boilers is the copper tubing. If a boiler tube ruptures, it doesn't create real damage, but it has to be replaced. I can stop at any hardware or ranch supply store and get copper tubing and a flare tool and within an hour be making power again."

Gordon has installed drain valves throughout the system. Using residual system heat and pressure, opening the valves removes even water vapor. This eliminates any cold weather freeze-up concerns.

Gordon also added a grease zerk to the steam inlet pipe. This allows him to inject 600-weight oil (heavy enough to use in a grease gun) for lubricating the engine. To handle the backpressure, he installed a hydraulic check valve, and to handle the temperature, he installed an extension to the zerk.

The next step for Gordon is to find lower cost components. His 7 kW generator currently costs around $25,000, which he acknowledges is too expensive for many to justify. If he can locate a properly certified manufacturer in India, he expects to reduce that cost by 75 percent.

"My goal is to get the retail price down to $5,000," says Gordon.

He also is experimenting with using exhaust steam. At their best, steam engines are only 23 percent efficient. If the exhaust steam can be used for heating or processing, it enhances the economics of electricity generation.

"I ran exhaust steam through 50 ft. of half-inch copper tubing in a 55-gal. drum filled with 45 degree water," says Gordon. "Running the system at half throttle, the exhaust heat had the water at a roiling boil in 10 min. My 7 kW unit generates 700,000 btu's of recoverable heat."

Gordon suggests running exhaust steam through a closed system such as radiators or an in-floor heating system as one customer does and then back to the boiler. This not only captures the heat and water, but also improves system efficiency by about 20 percent. It also eliminates rust causing oxygen from the system.

Gordon uses his SteamGen unit to power submersible pumps, his home and workshop, and to charge a 1250-amp forklift battery. The pumps fill 4,500 gal. of water storage on a hill above his house. Power from the battery is run through an inverter to provide AC power for his house and shop when the generator isn't running.

"I can generate power for 8 hours and then go for three weeks without running it again," says Gordon. "That's without changing my lifestyle in any way, using power tools in the shop and all my appliances."

Gordon encourages potential customers and interested parties to visit his website for product information as well as the pros and cons of using steam.

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