



Allen Kimball can fight grass and brush fires right from his Deere 430's tractor seat using water from a 3-pt. hitch-mounted, 55-gal. barrel. It's filled and emptied by a side-mounted water pump.

## Tractor Rigged To Fight Fires

Allen Kimball is ready to fight grass and brush fires thanks to his specially outfitted Deere 430. The 3-pt. hitch-mounted, 55-gal. barrel can be filled and emptied by the side-mount water pump.

"I've put out several fires with it, including a big one that I had already called the fire department for," says Kimball. "I just drove alongside knocking it down and then came back and put it out completely."

The side-mount water pump has a 4 hp gas engine. Pump and engine are mounted in a carrier Kimball made. It bolts on the tractor frame sidewalls for easy removal. The pump has three ports, allowing it to be used with a 2-in. dia. hose to pull water from ponds or streams to fill the 55-gal. barrel. Reversing the pump and switching a valve pumps water out through the garden hose Kimball uses to fight fires. The firefighting hose is mounted on a reel above the water barrel. Normally, Kimball fights fires from the tractor seat. Should he need to get into trees to fight a brush fire, Kimball can dismount and use the full length of the hose.

"The large feeder hose wraps around the tractor," explains Kimball. "I can drive alongside a water source and fill the barrel in 2 to 3 min. from the time I start the engine."

The only change made to the tractor was adding a wide front end that Kimball fabricated. He also added power steering for ease of control.

"The wheels and spindles came from the steering axle of an old Deere combine," says Kimball. "I used angle iron to make the axle tube. The original single front wheel was mounted off center, so I had to be careful to mount the pivot points the same amount to the side."

A splitter lets him pull fluid from the



A 2-in. dia. hose on front of tractor pulls water from ponds or streams to fill barrel.

original tractor hydraulic pump to operate a cylinder from an old Allis Chalmers tractor. He mounted the cylinder to the axle tube and the left front tie rod. The splitter and controls tied to the steering wheel are mounted beneath the hood.

Kimball acknowledges that using a newer tractor with fully independent pto would allow him to forego the gas engine. However, that would also require he keep the engine at full speed to maintain pump rpm's.

"With the gas engine running the pump at full rpm's, I can idle the tractor along as slow as needed," says Kimball. "I can use plenty of water on a hot spot to stop the flames."

Kimball says he has competed with his "fire tractor" at a national meet against tractors from as far away as Alaska, California and Florida.

"I won second place 3 times," he says.

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Manure agitation boat measures 10 ft. wide, 20 ft. long and weighs 14,000 lbs. It uses a powerful hydrostatic transmission system mated to 2 Italian-made Veneroni pumps.

## Agitation Boat Stirs Up Manure Lagoons

"There are probably 8 to 10 companies building manure agitation boats, but none of the machines I looked at had the features I wanted, so I built my own," says Wisconsin custom applicator Chris Lindstrom. The project wasn't too large or complicated for him because his other company, Maxville Truck & Repair, is already involved in repairs and renovation. Since 2002 they've built about a dozen custom silage trucks and grain or manure handling vehicles every year, converting trucks and semi tractors.

"The agitation boats I looked at did a decent job, but I thought they needed better pressure control and better handling features," Lindstrom says. The one he built uses a powerful hydrostatic transmission system mated to 2 Italian-made Veneroni pumps, which Lindstrom thinks are the best on the market. "I can use the hydrostatic drive to change the speed of the pumps to increase agitation, and I can also reverse direction," he says.

The frame of his agitator is made from 5 and 6-in. schedule 40 pipe along with 3-in. channel iron. The rig is 10 ft. wide, 20 ft. long and weighs about 14,000 lbs. The engine and fuel tank are mounted in the middle. The pumps are mounted fore and aft on swivel joints from old cement trucks. Flotation tanks on each side are filled with styrofoam.

His rig is powered by an L10 Cummins diesel engine that produces 310 hp. Lindstrom and his crew removed it from an old concrete mixing truck and overhauled it before re-assembling it on the agitator frame.

Lindstrom used his custom-built agitator boat about 400 hrs. during the 2013 pumping season and considered the project very successful. "I can stir up an 8 million gal. pit in 8 hrs.," he says. "The hydro power

lets me turn the agitator in a circle, thrust sideways, fore and aft and rotate 180 degrees to disintegrate a crust or dislodge materials on the bottom. The pumps output 2,500 gals. per minute at about 45 lbs. psi through 3 and 3 1/2-in. lines."

The agitator has another very unique feature. Lindstrom says he can remove a nozzle from one of the pumps, attach a hose and feed slurry into a vehicle on the side of the pit. Large tankers are filled in about 3 min.

Lindstrom uses a process control computer to run the machine. It reads pressure on the lines and at the engine, then sends electronic signals through solenoids to actuators that run controls on the hydrostat. Valves are proportional to accept a pulse-less signal from the solenoid. Speed is adjusted by pressing and holding or releasing buttons on the remote actuator. The left-right action of the pump heads is controlled by hydraulic cylinders and the fore-aft movement with a chain and sprocket.

"Running the agitator is like playing a video game," says Lindstrom. "I'm okay running it, but a 13 or 14 year-old kid who grew up on video games would be fantastic. It's just a matter of tapping buttons to thrust the boat, control speed and direction."

Lindstrom isn't sure how many hours it took to build the machine or what the cost is, but he's quick to say, "I know it's a lot less than buying one of those on the market. It was worth every penny because it saves us the use of several tractors and portable pumps."

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"It has better pressure control and handling features than other units on the market, and can stir up an 8 million gal. pit in only 8 hours," says inventor Chris Lindstrom.

Some of the best new ideas we hear about are "made it myself" inventions born in farmers' workshops. If you've got a new idea or favorite gadget you're proud of, we'd like to hear about it. Send along a photo or two, and a description of what it is and how it works. Is it being manufactured commercially? If so where can interested farmers buy it? Are you looking for manufacturers, dealers or distributors? Send to FARM SHOW, P.O. Box 1029, Lakeville, Minn. 55044 or call toll-free 800 834-9665. Or you can submit an idea at our website at [www.farmshow.com](http://www.farmshow.com).

Mark Newhall, Editor

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