



He Builds His Own Tractors

He says he makes a lot of mistakes and things don't always work out the way he wants them to, but Missouri farmer Alva Hosterman still gets good use out of the two tractors he's built over the last couple years.

One is a 4-WD with articulated steering and a double set of controls (including two steering wheels). The other is a small chore tractor. Both were fashioned out of a jumble of junked parts from tractors, combines, pickups and cars.

The main frame of the 4-WD was made out of heavy channel iron. A hinge point at center articulates back and forth for steering while the front axle oscillates up and down on a frame made out of 2 by 4-in. rectangular tubing. Pivot pins are 2 1/16 in. dia. with brass bushings.

Both drive axles were taken from a twin screw White truck with 6.67 ratio rear ends, fitted with 10-hole Budd wheels. It also has a Timken 3-shaft transfer case. Power comes from a 240 cu. in. Ford engine coupled with a 4-speed Ford truck transmission. The radiator was taken from an IHC truck and it's fitted with a Pierce governor.

There are two steering wheels in the cab - one front and one back - each with their own clutch, brake and "deaccelerator" pedals. A hand throttle, gear shift lever and hi-lo lever mount alongside the seat, which swivels 360°. An air conditioner compressor off a Ford car operates the air brakes, which were salvaged off a truck along with the truck tires and rims. Hosterman says he put two sets of controls on the tractor so that if he ever mounts a loader on back he'll be able to face it for better visibility.

"The biggest problem with the tractor is the slow steering due to the use of two power steering pumps rather than one large pump with more gpm output. Also, to improve response, I should have used

an orbital control valve instead of a 4-way valve. It also would have helped to put two cylinders at the hinge point instead of just the single 3 by 24-in. cylinder," says Hosterman.

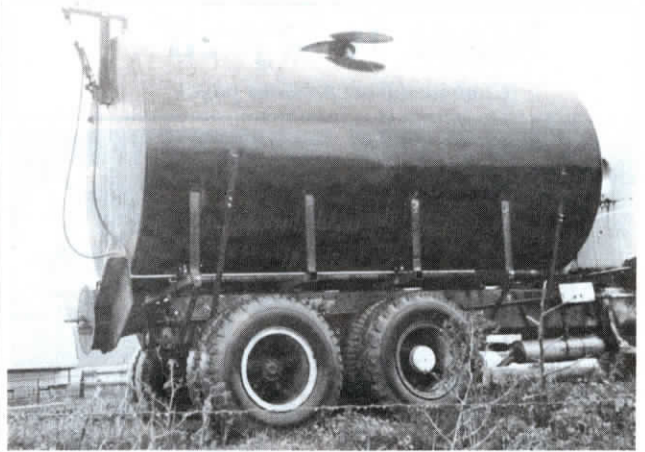
"Another improvement I could have made was to put the transfer case on the back half of the tractor and install an auxiliary transmission where the transfer case is now. That would have given me a low enough gear ratio to handle tractor tires instead of using truck tires. The problem was that I didn't want the extra driveshaft and U-joints in the hinge area. You could also use a shuttle transmission which would give it the same speeds forward as backwards."

Hosterman just recently completed his small chore tractor. The back end of the tractor - from the front of the transmission and back - was taken from a C Farnall. The frame rails came from a WC Allis Chalmers. He unified the tractor frame with 1/2-in. steel plate which he bolted to the transmission and welded to the front and sides of the frame rails. The front axle consists of a complete John Deere 45 combine axle bolted to the 1/2-in. plate attached to the side rails. The steering gear was also taken from the Deere 45 combine. He had to modify the arms on the spindles so the tires wouldn't slip when turning a corner.

A 223 cu. in. Ford engine, coupled to a 4-speed transmission, powers the tractor. The radiator came from a Dodge pickup. Two extra pulleys mounted on the crankshaft run a small hydraulic pump and governor.

"I haven't used this little chore tractor too much yet so I don't know its faults and weak points yet," says Hosterman.

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4,000-Gal. Spreader Built Out Of Old Cement Mixer Truck

If you've got a farm employee who's handy at building things, you should take advantage of his skills, says Dennis Haakenson, Evansville, Wis., who tapped into the mechanical abilities of worker Derek Yoerger, an engineering student who's worked for him for 7 years. They built a 4,000-gal. manure spreading tank mounted on an old cement mixing truck.

Haakenson says Yoerger did most of the work on the king-size tank spreader which they use to empty an earth lagoon that stores manure from his 70-cow milk herd. "We wanted to spread manure on fields about 4 miles down the road. We can travel up to 35 mph with this spreader. Lets us spread two full loads per hour," he says.

Haakenson bought a 1961 6-wheel drive Oshkosh cement mixing truck - minus the mixing tank - for \$1,800. Engine and drivetrain were in working order. Next he obtained a 4,000 gal. storage tank from a local service station operator who had bought the tank to store waste oil but decided it was too big. Haakenson paid \$500 for the tank.

To mount the tank on the truck frame, Yoerger built a cradle out of 3 by 3-in. sq. tubing with angle iron uprights welded to the side of the tank. Tank and cradle attach directly to the truck chassis.

Haakenson uses the existing entry port on top of the tank to load it with manure. To unload, Yoerger cut a hole in the back

of the tank. It's opened and closed by a hydraulically-operated slide gate that's inside the tank. The gate is controlled by a small hydraulic cylinder at the top of the tank which raises and lowers a push rod running down inside the tank to the slide gate. They tapped into the truck's power steering to provide hydraulics to operate the gate cylinder. A control valve mounts in the cab.

Manure is spread up to 100 ft. by a paddle-type spreader that spins at about 1,000 rpm's. Made out of heavy plate steel (salvaged from the floor of a Harvester silo), the spreader wheel is about 20 in. in dia. and has 4 paddles. The design was copied from an old tank spreader. A driveshaft, which runs back alongside the spreader tank from the engine, belt-drives the spreader with a pair of V-belts. The driveshaft itself is belt-driven off the engine crankshaft and is kicked in and out of gear by a lever in the cab connected to an idler pulley on the drive belt. The tank is mounted at a slight slant towards the rear so most of the manure empties out by gravity.

"Altogether, we probably spent less than \$3,000 since we found most of what we needed around the farm," says Haakenson.

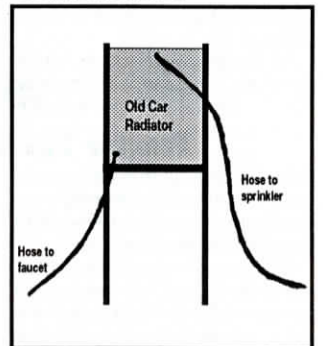
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Home-Built Air Conditioner

"You can cool your house with the same water you use to water your lawn," says Roy Ketteler, Concord, Mich., who made a nifty air cooler using an old car radiator and a box fan. He mounted a radiator on a wooden stand that's high enough to reach a window on the main floor of his house. A box fan also mounts up on the stand, positioned behind the radiator.

Next, he simply connects up a garden hose running from the faucet to the lower radiator hose and then hooks up another hose to the upper radiator hose outlet, running it out to a sprinkler on the lawn. Water is pushed up through the radiator from the bottom and out the upper hose to the lawn. (If there's no sprinkling to be done, you can drain the water away.)

"We just open a window and set the radiator in front of it and let the cool air blow into the house. It takes the place of



an air conditioner," says Roy.

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