

Farmer Builds His Own Big 4 WD Tractors

"The materials to build these cost me just 15 to 20% of what a comparable horsepower factory-made tractor would cost," says Cogswell, N. Dak. farmer Alfred Dahl, who builds his own big 4-WD tractors.

Dahl notes that besides the initial cost savings, his home-built tractors are built simply so they're easy to repair with ordinary handtools.

"The first 4-WD tractor I built was in 1970. It has 125 hp and is still in good shape. I started with a 4-71 Detroit diesel engine and a 5-speed Spicer transmission. I put Minneapolis Moline axles and transmissions on both the front and rear, and added 12 by 38 tires. With the 5 speeds in the MM transmission and 5 in the Spicer, I had 25 different speeds available but I only used about 4 or 5.

"I built the transfer case in my shop using MM gears, shafts and bearings. Aside from some minor machining and pressing, the tractor was totally built and assembled in my shop except for the cab which is factory made and is air-conditioned," notes Dahl.

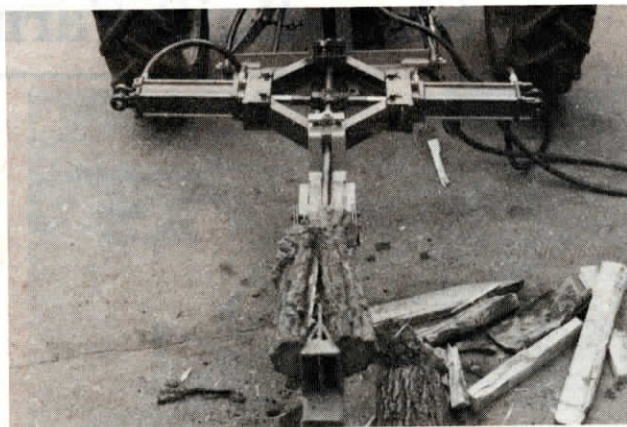
"My second tractor, colored prairie gold, was built using a

6-71 Detroit diesel engine. I also used MM axles both front and rear on this machine and put on 26 by 23.1 tires. This tractor has some improvements over the first, including a 10 speed Fuller transmission with all speeds being very practical.

"Besides building all of this tractor in my shop I also built the transfer case and cab. The transfer case has MM bearings but, due to the larger engine, it has heavy Caterpillar gears. The cab is rubber-mounted and insulated to reduce the noise level. It also has air-conditioning and a heater. Produces 105 hp. at the drawbar and is very comfortable to run. I've had less repairs and maintenance than some factory-made tractors I've owned," says Dahl.

"The third tractor pictured is a toy. It's patterned after a 1937 Minneapolis Moline model Z. I gave it to my son for his third birthday. He's now 42. It's been passed on to the grandchildren and is still running nice."

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"Double Action" Log Splitter

If you split wood, take a look at this one-of-a-kind design that uses two cylinders to split with an incredible initial ram force of 200,000 lbs.

The splitter develops its force (an average splitter uses about 22,000 lbs.) by acting on a toggle-type ram. It exerts extremely high pressure when it first cracks open the wood and then pressure declines as the wedge moves further into the wood.

"Conventional splitters usually have one cylinder mounted in-line with the splitting bed. It has a constant force and velocity through the entire splitting cycle. That's inefficient because logs only need a high level of splitting force through the first 2 to 4 in. of ram travel to start the initial crack in the log. After the split is begun very little force is required to drive the ram through the rest of the log," says Wendell Hunt, who invented the splitter while a student at Iowa State University, along with fellow students

Greg Herbers and Brian Moriarity.

The splitter uses two 2½ in dia. hydraulic cylinders. At 2,000 psi pressure, the initial ram force is 200,000 lbs. After 1 in. of ram travel, the force drops to 50,000 lbs. After 2 in. the force drops to 35,000 lbs. and after 4 in. to 22,000. After 8 in. of travel the force drops all the way down to 9,000 lbs. The ram also moves progressively faster as it runs through the splitting cycle.

Another advantage of the design, according to Hunt, is the adjustable length of the splitting bed which allows it to be adjusted to logs of varying lengths. If the splitter should ever run out of force before the split is finished — or run into a knot — you can back it up and shorten the bed. "We've never had a log we couldn't split," says Hunt.

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Swather-Powered 60-Ft. Sprayer

If you're tired of not being able to see spray nozzles when they plug you'll be interested in this swather-mounted sprayer built by Alberta farmer Doug Edgar.

The 60-ft. wide folding spray boom mounts on Edgar's self-propelled Deere 2420. It has a 12-ft. main section and two 24-ft. booms that are carried by 14-in. radial car tires that provide good "float" over wet terrain. It also has 3-ft. breakaway sections at the ends.

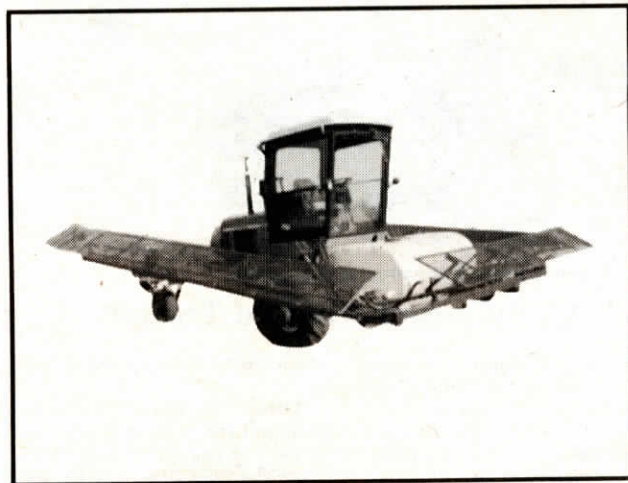
"Visibility is great. You can see every nozzle without straining from the cab," says Edgar.

He built the frame from 4-in. steel tubing and used 1-in. PVC for the spray lines. A 400 gal. spray tank mounts at the center, serviced by a 2-in., transfer

pump that aids both in filling the tank and in mixing chemicals. The sprayer's Dempster ground-driven pump — chain-driven by a sprocket affixed to a swather drive wheel — adapts to changes in ground speed.

An unusual feature of the sprayer is the perforated plastic shield Edgar rigged up to shield the boom from winds. The plastic material, made by Tensar Corp., breaks up winds that could cause chemical drift, yet doesn't affect visibility like hooded spray shields.

Edgar says he built the spray boom because he was tired of looking behind him for plugged spray nozzles and because he went to tramlines in what — made by blocking off a run 4 ft.



from either end of his 30-ft. grain drill — and so he needed narrower equipment.

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