

# Made It Myself

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## Self-Contained Home-Built Backhoe

"I built it because I had trouble getting anyone to come out to do backhoe work on my place," says John Mikulas, Troutville, Va., about his home-built backhoe which he built from scratch.

The self-contained unit is self-powered - no tractor is needed. It has a pair of wheels in back and two stationary feet in front. It pulls itself forward and back with the bucket and, when needed, can be pulled down the road behind a small car. No need for a trailer.

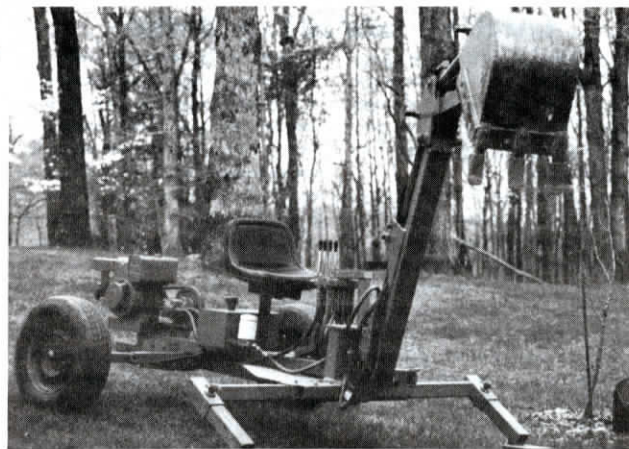
"No special tools were used. Only a welder, a torch, a band saw, a drill press, and a hand drill. Everything was made by hand, even the 14-in. wide bucket, which I patterned after a John Deere bucket because it has the simplest construction," says Mikulas, noting that to make the

bucket he cut out the pieces of steel, then used a chain binder to bend the main piece into shape, tack welding it as he went.

He patterned the boom arm after a Ford backhoe and made a model out of wood 2 by 4's before building the real thing in order to get all the dimensions right. The boom will dig a hole down to 7 ft. deep and swivels 160°. It's controlled by three hydraulic cylinders.

The backhoe is powered by a 7 hp. gas engine that belt-drives a hydraulic pump. A reservoir mounts under the operator seat and a bank of four hydraulic valves control boom operation.

Mikulas says he has used the backhoe for all types of chores around his 12-acre homestead including digging a swimming pool, laying pipe and cable, loading dirt,



and even lifting shingles up onto a roof. To transport, he moves the wheels from the back of the backhoe to the front and uses a tow hitch at rear. Takes just minutes to switch the wheels - he uses the boom to raise up each side of the backhoe, slip out the wheel and 2 by 4 axle (they

come out in one piece) and slip them into axle holes at the base of the boom on the front of the backhoe.

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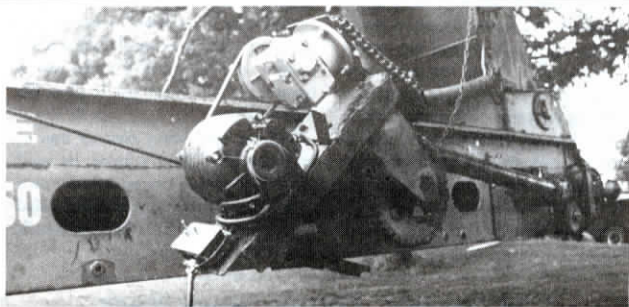
## Electric Motor Raises, Lowers Elevator

"It saves ork and time," says Dave Peterson, Lake Mills, Iowa, who mounted a 1/3 hp reversible electric motor on his 52-ft. long bale elevator, allowing him to automatically raise or he elevator without hand cranking it.

The motor belt-drives a gearbox that chain drives the shaft originally used to hand crank the elevator. Peterson bolted the motor and gearbox onto a steel plate

that's fastened to the side of the elevator. A pair of switches are used to turn the motor on or off and to reverse its direction. Peterson lengthened the shaft 2 in. so that he can still raise or lower the elevator by hand whenever electricity isn't available.

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## 4-WD Tractor Built Out Of 2 Old Masseys

"It gives me 4-WD power without the cost of a new 4-WD tractor," says Albert Murray, Peticotadiac, New Brunswick, who used a pair of old Massey Harris 30 tractors to build a 4-WD articulating tractor equipped with four 38-in. tires and a big front-end loader and bucket.

Murray cut the rear wheels off one tractor and mounted them on front. He cut away the entire front half of the other tractor and joined what was left to the rear end of the front tractor. There was room for only one engine, which he mounted on top of the front axle to make room for a 4-speed transmission and 2-speed transfer case, both of which came out of a 1970 Ford 3/4-ton pickup. They mount directly behind the engine. Driveshafts off each end of the transfer case run to the original 5-speed transmissions on each tractor which in turn drive the front and rear wheels. The tractor has 20 forward speeds and 18 reverse due to the positioning of the drive shafts and rear ends (for ex-

ample, with the pickup transmission and both tractor transmissions in reverse, the tractor goes forward).

The front of the tractor is equipped with an old Massey Harris loader and home-built 7-ft. wide bucket.

"I needed a tractor with more lugging power in mud or snow than the 2-WD Massey 65 I had been using," says Murray, who built his unique 4-WD tractor one year ago. "The 4-cylinder Continental engine in this home-built tractor doesn't have a lot of power but the combination of 4-WD, big tires, and low speeds allows me to work with the engine idling. I usually put both tractor transmissions in fourth gear and the pickup transmission in first or second gear. If I put the transfer case in first gear and put the pickup and tractor transmissions in low gear it'll go so slow I can hardly tell I'm moving. I haven't tried to drive it on the road, but I'm sure it could really go fast."

The tractor has a wheelbase of 23 ft. "I



can drive the big front wheels into a snow bank and back out again with no problem," says Murray. "I lengthened the loader 2 ft. It can reach 14 ft. high so I can really pile snow high. I also use it to haul firewood."

Murray bolted a heavy steel plate between the tractors to couple them together. The articulated frame is hinged at the center on a 2-in. dia., 18-in. long kingpin. A hydraulic valve controls a pair

of hydraulic cylinders, one on each side of the tractor. The cylinders work in unison when turning - one pushes while the other pulls. Murray uses a lever on the control valve to steer - there's no steering wheel. He pushes the lever left to turn left, and right to turn right.

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## Easy-To-Build Bale Hauler

"It's simple but it works," says South Dakota dairy farmer Roger DeJong who built an 8-bale hauler out of square steel tubing that chains to the top of a 10-ton 4-wheel running gear.

Two main 3 by 6-in. support beams run the 24-ft. length of the trailer. Cross pieces made out of 2 by 4-in. tubing are spaced on 36-in. centers. Side pieces made out of 2 by 4-in. tubing run across the ends of the cross pieces.

Key to success of the home-built bale hauler is the way DeJong cut partway through the center of each 2 by 4-in. cross piece, bent the sides upward so bales would slope to the center, and then rewelded them.

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