



To build his unloader, Linstad modified some parts from a junked commercial unloader and built other parts from scratch.

### "OUTPERFORMS MY OLD UNLOADER"

## He Built His Own Silo Unloader For \$800

Two years ago Dave Linstad, Porterfield, Wis., built his own 12-ft. dia. silo unloader for \$800, using "odds and ends" from around the farm, off-the-shelf parts and components from a junked Patz unloader.

Linstad's first step was to build a bigger blower. He welded four 4-in. cupped paddles onto an impeller, removed from the old Patz unloader, increasing blower diameter to 24 in. A V-belt drives the blower at about 1,600 rpm. A 3-hp electric motor set on a sliding mount can be easily adjusted to maintain belt tension. Linstad built the blower housing from 3/16-in. steel plate, equipping it with a removable side plate for easy access for maintenance.

In building the silage conveyor, Linstad welded cutter claws every 6 in. onto Patz triple 80 pitch cutter chain. The cutter chain is driven by a 1-in. jack shaft set in flange-mount ball bearings. The jack shaft powers a 60 pitch roller chain at a 4:1 reduction. An idler on a spring-loaded arm is used to change tension on the cutter chain's V-belt. As the cutter chain advances, a sprocket on the end of a Patz roller wheel chips off a 2-in. wide band of silage. At the same time, the frost chipper removes frozen silage. Linstad built it by welding eighteen 1/4-in. bars, 2-in. wide by 4-in. long, onto a 9-in. dia., 1/4-in. plate disc. The chipper bars are hard-faced for long wear.

The guide wheels - Patz 1-in. dia. hub wheels - can be adjusted to vary the amount of clearance between the frost chipper and the silo wall.

On the Patz unloader, the cutter chain was suspended between two drive wheels at a pre-set depth by a yoke. Linstad's model



Home-built frost chipper consists of 2 by 4-in. steel "teeth" welded to a 9-in. dia. steel disc.

has only one drive wheel, salvaged from an old Starline unloader. It's advanced by a compound reduction drive, which is driven by a spur gear welded on the cutter chain drive shaft.

Linstad says his old silo unloader sometimes cut unevenly due to uneven weight distribution. He solved the problem on his home-built unloader by fitting it with front-end weights from an Allis-Chalmers tractor. "This unloader cuts as even as a table top. There's no mound in the middle or bumps on the outside," notes Linstad.

He built the unloader tripod from 1/4-in. plate and 2-in. pipe. He used a worm-gear drive box, removed from a chopper box, to fabricate the winch and welded a steel plate with a hole in it to the outside of the blower housing to build a "lugging lift." "I use a 1/2 hp motor with a 16-in. V pulley on the winch input shaft to raise the unloader to the top of the silo in short order," says Linstad.

For more information, contact: FARM SHOW Followup, Dave Linstad, Rt. 1, Box 305, Porterfield, Wis. 54159 (ph 715 732-0793).



A single drive shaft powers the concrete-filled drive wheels removed from an old commercial unloader.

### AUTHENTIC 'LIKE NEW' RESTORATION

## They Restore Steering Wheels For Old Tractors

One of the big problems when restoring old tractors is finding a way to get old steering wheels with cracked, broken and flaking rubber authentically restored.

Two neighboring tractor restorers who had the problem themselves teamed up and are now in the business of restoring antique tractor steering wheels to authentic, like-new condition. Their custom service, called Minn-Kota repair, uses specially engineered molds to duplicate the rubber on original steering wheels.

All you do is remove the steering wheel and send it to Minn-Kota. The cost is \$45 plus shipping. Partners Murlyn Schnaser and Arvid Whiting strip off the old rubber, then sandblast and prime the old metal. The metal is then placed inside a mold on a 390-ton press where it is re-covered with new rubber under 350° heat.

Minn-Kota restores flat or round three-spoke steering wheels (14, 15 or 17 in. dia.) from the following tractors: John Deere A, B, G, D, H, M and MT, plus early 40, 50, 60 and 70 models; Case DC, D, SC, S, VC and VAC; International M, H, W6 and W4, plus the A and B; Allis-Chalmers WC, WD, B, C, and early D17. "We can also restore Massey Harris, Cockshutt, Ford and other wheels which have rubber on the outside



Murlyn Schnaser, left, and Arvid Whiting strip off the old rubber and then re-rubberize and heat treat steering wheels, but not down along the spokes," says Schnaser. "You may want to strip off the old rubber yourself to reduce shipping cost. Be careful when you remove the steering wheel from the tractor so you don't damage the hub. Generally, you can heat the hub with a torch to make it easier to remove. If you find a wheel in a scrap yard, cut off the shaft and bring the wheel to a vise to remove the stub shaft."

For more information, contact: FARM SHOW Followup, Minn-Kota Repair, Rt. 1, Box 99, Milbank, S. Dak. 57252 (ph 605 432-4315).



Photo by the Tupper

Dengler joins his two Deere tractors together in spring for tillage work and then separates them for planting, cultivating and other chores. Key to success of the hookup is the "pull bar" that runs from the drawbar on the lead tractor to the drawbar on the trailing tractor.

## "Springtime Hookup" For Two Deere Tractors

When Loren Dengler decided he needed bigger tillage equipment on his farm near Rock Rapids, Iowa, he knew he'd need more horsepower than he had in either his Deere 4030 or 4020 tractor. He decided to join the two tractors together with a "springtime hookup" that lets him pull big equipment in the spring with two tractors and then split them apart again for planting, spraying, cultivating and all other work around his grain and livestock farm.

Key to success of Dengler's hookup is a strap iron frame that runs from the drawbar of the lead tractor to the drawbar of the trailing tractor. It bolts to both drawbars, transferring pull of both tractors directly to the implement. A heavy-duty crossbar fitted with a large ball hitch, bolts to the drawbar of the lead tractor between the 3-pt.

hitch arms. The front axle of the trailing tractor is removed and the nose of the tractor is fitted to the ball hitch on the lead tractor.

Dengler uses the hydraulic system on the rear tractor to fold and unfold implements. Hydraulic lines from the lead tractor operate the clutch of the trailing tractor and set depth of the implement.

To operate, the trailing tractor is started and the throttle set at operating speed. Once the lead tractor is set into motion, both hydraulic controls are moved to engage the clutch on the rear tractor and to lower the implement. On turn arounds, the clutch on the rear tractor must be disengaged to keep it from pushing the lead tractor to the side.

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