

Spreader Rebuild Revolved Around A Cam

When Lar Voss tackled the rebuild of a 70-year-old McCormick Deering 100 manure spreader, he couldn't see the broken cam. A fender covered the broken-off cam and the log splitting chisel that had been driven in to keep the feeder chain engaged. The cam is key to a ground-drive spreader. It's a common problem, advises Voss, who with Eli Price has repaired a number of old spreaders.

"If the spreader is left in gear when hooked to a pickup and driven down the road, it will break," says Voss.

Luckily for Voss, he had restored the same model spreader for friends, and its cam was unbroken. His friends made a cardboard template of the cam for him. He also found a copy of the owner's manual for the spreader online with a diagram of how the cam worked.

"Welding mild steel to the old cast iron hub can probably be done by the experts," says Voss. "A simpler and more lasting solution appeared to be to saw off the part that was broken and replace it with a new cam, which is what we did."

To hold the piece in the saw, Voss machined a 2-in. rod down to 1 3/4 in. He inserted it into

the hub and secured it with various pieces of scrap metal. This allowed him to cut away the broken cam. Setting it on the template made it clear how much material had broken away.

"We cut the new cam out of mild steel and used a mag drill and broach to cut the hole and the keyway," says Voss. "We mounted the new cam in place on the axle, adding spacers to center it on the roller of the lever that indexes the drag chain. It is that action that moves the load to the spreader reels."

With the cam repaired, Voss and Price attacked the operating levers. One had been broken and left in the bed of the spreader, while the other had been poorly welded.

"We removed the welded handle and shortened it and the broken handle before repairing them and reinstalling them," says Voss. "Our hope is the shorter handles are less likely to be broken off in the future."

With no major rust damage to be found on the spreader, Voss and Price shifted to cleaning and repainting. Three passes with a pressure washer and some scraping were followed by a coat of Corrocoat.

"The Corrocoat stops rust and converts it to a hard black coating that can be primed and



Lar Voss rebuilt this 70-year-old McCormick Deering 100 ground-driven manure spreader, even building a new cam to replace the broken one on the spreader.

Painted," says Voss. "We then repainted the spreader and applied new decals. In the case of the red paint applied to the wheel hubs, we added hardener to reduce potential oxidation and add shine."

Restoring the spreader was a change of pace for Voss and a good use of his farm shop in the winter. However, the 78-year-old retired consulting electrical engineer, full-time farmer and realtor still puts a pencil to the job.

"These spreaders sell for about \$2,700 today," says Voss. "If we can purchase the

machine and any parts for less than \$1,000 and can restore it in 8 to 10 man hours (usually over a weekend), we can be paid for our time."

In this case, the costs and labor ran roughly double his goal. However, he was doing it for a friend.

"It's a unique machine," says Voss. "It is ready for another 70 years, especially if the new owner keeps it shedded and clean."

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Pasture-Ready Turkey Feeder

"We wanted to come up with a bulk turkey feeder that could slide around the pasture, but be filled with an auger at the feed bin," explains Phil Haynes, assistant livestock manager at Carversville Farm Foundation, a diversified non-profit farm.

Carversville produces grass-fed livestock, pastured poultry, mushrooms, vegetables and more. Most of their produce is distributed to soup kitchens and food pantries in the Philadelphia area. The Foundation distributed more than 100,000 lbs. of vegetables, 23,500 dozen eggs, 3,600 lbs. of beef, and 16,800 lbs. of chickens and turkeys in 2020. Labor is always an issue, especially with the pandemic, so finding a simple solution to bucket feeding 700 turkeys a year was important.

Haynes and his co-workers came up with a design they thought would work and built 2 prototypes. The galvanized steel bins are 8 ft. long, 6 ft., 5 in. wide at the top, and 4 ft., 5 in. wide at the bottom. This created an overhang for the 7-in. wide feed troughs. A 3-ft., 5-in. wide lid runs down the center of the bin.

Removable wheels at the rear allow it to be filled with an auger at the feed bin and towed down the road to the pasture. Once in the

pasture, 3 jacks raise the bin up so wheels can be removed and then it's let down on its skids.

A few problems were quickly revealed. Cross bracing and sheet metal were added to the sides to prevent the feeders from bowing out when full. Flow plates were added at the bottom of the bins. This allowed them to be closed down for finer feed and opened up for less fine to ensure birds got the full ration.

Failing wheels were more difficult to fix. "The engineering wasn't strong enough for the weight of the full bin," says Haynes. "We used it in 2019 and made changes for 2020. At first we changed to solid rubber tires, but that put the load on the bearings, which wore out."

The original wheels had pipe stubs that slid into and then were pinned into pipes on the frame. A larger wheel assembly was needed with a bigger wheelbase and heavier rims, enough to carry 1,000 lbs.

"We are still working on the design with a local metal fabricator to get more feeders made," says Haynes. "We plan to use a complete wheel/axle assembly that unhitches from the frame. The feeder will be much more robust."

One thing that won't change is hitches on both ends of the feeder. They were included



Removable wheels on back allow turkey feeder to be filled by an auger at the feed bin.

to make pasture moves more efficient. Turkey shelters on running gears can be moved with the feeder, hooking the feeder to one being pulled with a tractor. A second shelter can be hooked to the rear of the feeder.

"Our turkey houses are pretty bare bones structures, yet multifunctional," says Haynes.

A frame roof is attached to the running gear with 2 by 4s running the length of the running gear for roosts. Each running gear also holds IBC totes for water. Each tote outlet splits into 2 lines. A container mounted to the running gear holds up to 30 lbs. of grit, which feeds down through a pvc pipe with an opening at the bottom for access. Electric poultry netting around the running gear houses and feeder



keep the turkeys and the feed safe.

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Bin Drying System Improves Grain Quality

Frank Zacharias along with his brothers Adolph and Albert designed and built a galvanized full-floor hopper aeration system after hearing from Canadian farmers that such a system would improve stored grain quality. "We heard about those problems over and over from people we were building bins for, so we decided to do something about it," Frank says.

The brothers spent 3 years designing and perfecting the idea, which they now market to fit inside 18 to 27-ft. dia. bins. Frank says they developed the idea because farmers with aeration systems in hopper bins don't always achieve even air flow, so grain at the edges may end up spoiling. While flat bottom bins eliminate that issue, Frank says there's extra labor to empty and clean those style bins.

"To maintain the best quality, 100 percent

of the grain should be aerated," Frank says. "Anything less can lead to hot spots and spoilage. Our NorBin system provides uniform airflow through a system of carefully calculated perforations throughout the hopper cone. We've had the system thoroughly tested and air flow is uniform throughout the full cone because of our patent pending design," Frank says.

The company sells a full-floor system and a bolt together retro-fit system that mounts inside existing hoppers. Frank says their designs can be shipped anywhere and assembled on-site. For pricing contact the company for an online estimate.

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Carefully calculated perforations in hopper cone provide uniform air flow to improve grain quality.