



16-ft traveling crane with a rolling hoist was added to the rebuilt shop.

Rebuilt Shop Features Crane And Service Pit

Having your farm shop burn down is never good, but Dan Gray made the best of a bad thing. He spent nearly 20 years thinking about what he would have done differently with the shop he built in 1995. When he rebuilt in 2014, he made some changes. The biggest one was to install a traveling crane, extra storage space and an oil change pit.

"When the shop burned, we were able to salvage the floor, so I built on the same 32 by 48-ft. footprint," says Gray. "I made it taller, 18 ft. high so that I could have a 14-ft. doorway for combines. It allowed me to install a 16-ft. high traveling crane with a rolling hoist that the doors could clear."

Knowing he couldn't justify a commercial crane the size he wanted, Gray drew up his own design. He had 6 by 12-in. I-beams fabricated for the 48-ft. support rails and the 24-ft. long traveling crane at DW Fab, a local metalworking shop. The shop also welded axle hubs from 3-ton truck rear ends to make the rolling supports for the crane.

"I was aware the hubs could walk off the rails, so we welded cast iron flat pulleys from an old combine to the hubs to keep them in place," says Gray.

Gray credits his cousin Alan with helping make the entire project more cost-effective. Alan had 40-ft. lengths of 8-in. diameter oil pipeline pipe. He made them available to Gray for use as support posts at no charge. Gray made flanges for bolting the pipes to the I-beams and the floor.

"I hand drilled all the holes on the flanges, the pipes and the I-beam while everything was on the ground and outside the shop," says Gray. "When I set it up inside, everything lined up just like it was supposed to."

Gray needed a drive mechanism for the trolleys that supported the traveling crane. He used a worm gear gearbox off a manure spreader to keep the two trolleys at either side walking in place. He coupled the gearbox to a high-torque DeWalt mud mixer drill. A roller chain runs from a sprocket on the drill to a sprocket on the gearbox. A self-retracting extension cord reel provides power.

The gearbox drives a cast iron pulley against the edge of the upper flange on the 48-ft. rail. A shaft connects the drive pulley to the crane I-beam.

"The crane I-beam rolls easily, but I wanted the extra torque on the drive," says Gray. "I bought an extra handle for the drill and wired it for remote control of forward and reverse, as well as the variable speed. I can walk along with the crane as it rolls up and down the shop."



Gray lined his oil change pit with LEDs and has a platform he can slide over the pit when not in use.

Gray mounted trolley hoists to the crane to complete that phase of the shop. A much easier project involved extra storage.

"In my old shop, I had a mezzanine on one end," says Gray. "With the pipes in place, I could build 8-ft. high, 4-ft. wide mezzanines along each side. When I built them, I couldn't imagine they would ever fill up, but they have."

One mezzanine runs the entire 48-ft. length. The other is only 27 ft. long due to the addition of a door at the far end of the shop for the oil change bay and pit. The pit is 4 ft. wide, 14 ft. long and 6 ft. deep. Gray lined it with LEDs and has a platform he can slide over the pit when not in use. The pit has a sump in the bottom so it can be washed down and the water pumped out.

"I put an oil field platform on the bottom for rails and set a rolling hoist on it with a 12-volt hydraulic pump with a lift cylinder," says Gray. "I can roll it back and forth to position it to lift a car or truck end when draining oil."

Oil is drained into a 100-lb. propane cylinder. It can be pressurized to push the oil through a line to a 1,000-gal. propane tank outside the shop.

Gray has few regrets about his shop, and the crane is definitely not one of them. "It isn't as sweet as a commercial hoist, but it serves my purposes," he says. "I couldn't afford a commercial unit. This was a cost-effective alternative. I probably have only \$5,000 invested in it."

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Money-Saving Repairs & Maintenance Shortcuts

Have you come up with any unusual money-saving repair methods for fixing farm equipment? What maintenance shortcuts have you found? Have you had any equipment recalled by the factory? Name a particularly tough mechanical problem you've had with a piece of equipment and how you solved it.

These are a few of the questions we asked randomly selected FARM SHOW readers. If you have a repair tip, maintenance shortcut, or other mechanical experience you'd like to share, send details to: FARM SHOW, P.O. Box 1029, Lakeville, Minn. 55044 or email us at: editor@farmshow.com.

Scott Geyer, Editor & Publisher



Steve Faber, Tiffin, Ohio: "I had some implement tires with really slow leaks that I couldn't find, even with brushing soapy water on them. I remembered seeing tanks for finding leaks at tire dealers, so I cut off a chemical tote to make a 'tank' for submerging tires. I found the leaks when I saw a stream of tiny bubbles."



Ralph Volkman, Black Creek, Wis.: "I wrap rubber electrical tape on my ice fishing tip-ups for fast respooling of line."



Lenus Yeo, Clinton, Ontario: "I had to replace bearings on the header drive shaft on my swather. The bolts holding the flange went through one side of a partition. The other side was only accessible by crawling under the swather to the other side. My cats

were watching me but didn't offer to help, so I came up with the idea of supporting the bolts and flanges with magnets in place and was able to put the lock washers and nuts on the other side."

Donald Albright, Perkins, Okla.: "I discovered that batteries, like those in flashlights, clocks, and appliances, have a film on them which causes them to give out quickly. When they go bad, use a nail file on the finest side to 'shine' both ends. Now you have good batteries. You can repeat this process at least twice. This about doubles the life of the battery."

Dr. Garrison Brown, Eastville, Va.: "I use a rumen magnet to affix the chuck key to the drill press. Easy on, easy off."



Glenn Dawson, McConnelville, Ohio: "I had trouble with the front hydraulic cylinder on my Kubota tractor. I replaced it with a 12-volt winch. It works great."

Jim Seaton, Delavan, Ill.: "When starting 1-cyl. engines by keeping the valves from sticking open, make sure the piston is all the way at top dead center."



Greg Boyd, Berkley, Mass.: "My air supply tank has a Schrader (or bicycle tire) fitting, and it was constantly jamming or taking forever to fill the portable tank. I remembered an article from FARM SHOW where somebody had a quicker way to go from supply to portable, but I couldn't find it. After a trip to Harbor Freight and doing a lot of thinking during the middle of the