

## Money-Saving Repairs & Maintenance Shortcuts

the twine. I figured out that I could switch the brakes around to their opposite sides and they would pull the twine in a different place on the brake, avoiding the grooved areas. I was right. They work like new now and it didn't cost me a thing."

**Michael Mortell, Franklin Grove, Ill.:** "A lot of equipment today has small wheels on narrow hubs with bearings and thin metal or plastic caps over the hub.

"Even the ones with sealed bearings could benefit from having a little grease inside the hub, but most don't have grease zerks in them.

"You can add a grease zerk to a hub cap by drilling a hole through the cap the same size as the zerk. You can't cut threads in the thin hub cap material, but you can secure the zerk in place with a nut. The nut from an electric switch fits just right. Don't pump in too much grease, as you can force off the cap."

**Jake Braun, Hague, Sask.:** "My shop is about 100 ft. long, with most of the tools stationed at one end. That results in a lot of



running back and forth. To solve the problem, I made a two-wheeled wooden caddy that lets me easily transport small tools anywhere I want in the shop. The caddy is about 4 ft. high by 18 in. wide and has a base that's large enough to hold saws and drills. It rides on a pair of old lawn mower wheels. About half way up is a hinged wooden panel where I store chisel tools on one side and screwdrivers on the other side. Above the panel are a number of sloped shelves for storing screws of different sizes. At the top are all my kits and punches as well as brackets to hang a pair of hammers."

**Les Turner, St. Ansgar, Iowa:** "My 1978 Toro Ground Master 52-in. riding lawn mower had a worn steering gear. Replacing it with a new steering gearbox would have cost hundreds of dollars, so to save money I used the manual steering sector off a 1969 Chevy Nova car. The steering sector fit in the same holes but was a little larger than the original steering gear, so I used an angle grinder to grind out some of the mounting area. I also welded a 2-in. length of 1-in. sq. tubing on the shaft that attaches to the steering wheel. On the steering sector, I welded a square burr that had been ground to fit inside the 1-in. tubing. Then two metal screws were inserted in the tubing below the burr to prevent the steering wheel from being pulled up.

"The only other modification was to have the cast iron steering arm on the replacement unit cut and welded to the Toro arm. My total cost was less than \$50."

**Stephen Carpenter, Somerset, Ohio:** "When the electric motor on my grain bin unloader wore out, I replaced it with an old hydraulic motor off a junked-out combine

grain head. It actually improved things because it slowed the auger down which allows me to run the auger fuller."

**Larry Moore, Loudon, N.H.:** "I put a basketball hoop up in one end of our shop. It was the best thing I could have done to keep the floor clean, because my kids are always sweeping the floor in order to play. The shop is L-shaped, with work benches and tools at one end and a big garage door at the other end where the basketball hoop is located and where I also keep my tractor. To play basketball all the kids have to do is back the tractor out."

**R. Kevon Stockwell, Jeffersonville, Ohio:** "We had a 1989 Deere 750 no-till drill that had a pin with double roll pins holding a pressure spring in place. We found the easiest way to remove the roll pins was to heat the shaft red hot with a torch."

**Ray Albertson, South Mills, N.C.:** After building his farm shop, Ray discovered that the 20-ft. wide sliding door was too heavy for one person to push open alone.

Rather than leaving the door open all the time or always having to look for a helping hand, he put together a power door opener.

To make the opener, he started with a 1/2 hp electric motor. A chain and sprocket



attach the motor to a 90-degree gear reduction box and speed is reduced further using a chain and sprocket to a jackshaft.

To hook the drive to the door, Ray used a #35 roller chain, stretched the full width of the door. "The chain sits on an angle iron track mounted on the door and is fed through the opener mechanism and around the main drive gear," he explains. "On the end of the chain, a small threaded rod keeps proper tension on the chain.

"To open the door, all you have to do is press the open button and walk away," he continues. An automatic shut-off stops the



motor when the door is fully closed. When you push the close button, the motor reverses and pulls the door shut until it hits the shutoff.

To protect the opener and the door, Ray put lockouts on the switches. "When the door is fully open, the open switch is locked out, and when it's fully closed, the close button doesn't function," he says.



**Webster Kellogg, 4758 S. Croswell Rd., Ithaca, Mich. 48847 (ph 989 875-4221):** "When a wind storm blew a pair of big sliding doors off the track on my barn, I decided to do something about it. I made a metal bracket and bolted it to a wood plank, which I bolted to the door frame, about 8 ft. off the ground.



The two doors meet inside the bracket, which keeps the doors rigid so they can't blow either in or out.

"The plank is mounted high enough that I can drive a tractor or other vehicle under it. I'm willing to build these brackets for others."

## Fork Lift Mast Makes Great Shop Elevator

The upper floor storage and work area in Stanley White's sawmill and woodworking shop is much more useable now that he can get there by elevator.

White says he got the idea when someone gave him a couple of old forklifts. "I rebuilt one of them to use in my shop," he says. The other one wasn't repairable. But since he was looking for something easier than steps or a ladder to get to the upstairs sawmill, White salvaged the mast and hydraulic lift cylinder and turned them into an elevator.

"The second floor is kind of a loft area around the outside of the lower floor. To make the elevator, I mounted the mast solidly against the wall," he says. "I made a platform out of aluminum that fit over the forks and mounted it solid to ride up and down on. It's about 4 1/2 ft. by 5 ft., so it's big enough I can load tools and lumber on it, too."

White made a powerpack for the elevator from a 110-volt electric motor and a 2-speed hydraulic pump by mounting them both on a frame and connecting them with pulleys and a belt. He says he had to experiment a little to find the right size pulleys. He pieced together a hydraulic oil reservoir from scraps of stainless steel he had around the shop.

"I bought the motor from a salvage yard for \$25. The hydraulic pump was one I'd bought new and used for something else for several years," he says. "It automatically adjusts to slow or fast speed, depending on the amount of the load on it. So if the load is light, it runs on the faster speed. But if it's a heavy load, it shifts to the lower speed, where it has more torque."

White rigged a rope control for the hydraulic valve. "I made a T to fit on the valve lever. Then I fastened a rope to each end of the cross on the T and ran it up through the elevator platform and over a pulley. When I pull on one side, it goes up. When I pull on the other side, it goes down. If I'm not pulling on the rope, the switch centers and the elevator stops. The electric motor has a switch that I can shut off from the second floor, so I can shut off the motor if I'm going to be up there for awhile."

He says the only thing he bought for the elevator was the salvaged motor. "I worked on the elevator off and on for a couple of



**Stanley White salvaged the mast and hydraulic lift cylinder from a forklift to make this elevator for his shop.**



**He made a power pack for the elevator from a 110-volt electric motor and a 2-speed hydraulic pump.**

months before I got it the way I wanted it," he says.

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