

unwind and pull the rope onto the pulley.”

**James Gerdin, Braham, Minn.:** “I use my drill, some 3/8-in. redi rod, and a square piece of denim to clean out the wheel hubs on tractors and implements before installing new bearings. I cut out several square pieces of denim slightly larger than the hub, then sandwich the denim between 2 washers and nuts on the redi rod. It’s a simple, quick way to clean out hubs.”

**Neal McCleary, Elkton, Md.:** “I came up with an easy way to get a tight bearing onto a shaft. I put the shaft into a freezer for a day and then heat the bearing to expand it. After I grease the bearing it goes right onto the shaft. I used this idea on a 2-ft. long shaft on my Woods 11-ft. rotary mower when I had to cut a worn bearing off and the new bearing wouldn’t go on.”

“Installing the remote hydraulic couplers on my Deere tractors can be a difficult job. I’ve got to carefully hold the coupler with one hand so the O-rings don’t fall out, and put bolts in with my other hand. The remote couplers are big and heavy, and it’s an awkward place to get at. To solve the problem, I found a couple of bolts that were about 1 in. longer than the original ones and cut the heads off to make a stud bolt. I also made a little point on them. I used both hands to set the coupler on the 2 stud bolts, which are loosely screwed into place. Then I put the other 2 bolts in the bottom, took the 2 stud bolts out, and put the original bolts back in.”

“Whenever I’m installing the front-end loader on my tractor, the bolts that hold the loader always seem to turn as I’m trying to tighten them. To solve the problem I tacked weld one end of a 1/4-in. thick, 1 by 3-in. metal bar to the bolt head. As I turn the bolt, the bar runs into the loader’s frame, which stops it from turning.”

**Jack Mosher, Genola, Utah:** “A lot of people use WD-40 to free up rusted nuts and bolts, but I think JB-80 spray lubricant works even better (ph 626 359-9174; www.justicebrothers.com). Here’s a tip. After applying JB-80, tap the nut or bolt with a hammer, then tighten the nut or bolt a little until it moves ever so slightly and remove it. The vibration caused by tapping makes a tremendous difference and advances the penetrating oil deep into the threads.”

**Myron Finch, Baxter, Iowa:** “To clean out the trap under a sink I use a large plastic zip tie that’s about 3 ft. long. It’ll go through the trap with ease and push out the clog.”

**Mary K. Seidling, Fall Creek, Wis.:** “Sometimes cold weather will cause a loader tractor’s hydraulic hoses to freeze up so I can’t raise the loader. To keep that from happening I pour a bottle of gas line antifreeze and water remover, such as HEET, into the tractor’s hydraulic fluid tank. It’ll work through the hoses and keep the hydraulic fluid from freezing up.”

**John Wilde, Kirkwood, Mo.:** “I used EZ-Pour universal replacement spout and vent kits to bring my old Blitz and Eagle gas cans back to life (www.ezpourspout.com). They’re much safer and easier to use than the spouts on newer gas cans.”

**Jim Kral, New Ulm, Minn. (ph 507 354-1945; www.kralautoparts.com):** “My new exhaust manifold bolt repair kit is designed to stop exhaust leaks between the exhaust

manifold and cylinder head on 1999 and newer model GM trucks and SUV’s equipped with 4.8, 5.3, 6.0 or 6.2-liter engines. The exhaust leak is caused when the end retaining bolts on the manifold break off inside the cylinder head. It’s a common problem on GM trucks. The traditional repair can easily cost \$1,500 or more, and exposes the cylinder heads to additional damage.

“The kit includes 2 parts that are inexpensive, easy to install and reliable. I’ve been selling this kit to local customers for several years. You can install the parts yourself. Sells for \$34 to \$52 depending on the model.”

**Terry Morgel, Avon, Minn.:** “If you have a tool with a wood handle such as a hammer, ax or maul and the head is loose, the problem might be that the wood has dried out. In that case, soak the tool for a week or so in a 50-50 mixture of diesel fuel and used oil. The mixture should cover the top of the head by at least 2 in. The wood will swell up and won’t dry out again.”

**Dennis Woerman, Barnes, Kan.:** “I do most of my own tire repair work and the beads on tubeless implement tires are tough to seat. I use a female coupler on the end of my air compressor hose to plug various air tools into. I found that if I remove the valve core from a tire stem and push the coupler onto the stem, it will air the tire up fast enough to seat the bead. Once the bead is seated, I remove the hose and replace the valve core, then finish inflating the tire.”



**Melvin Stoner, Calumet, Okla.:** “I built a handy hitch for my torch cart that lets me pull it with a garden tractor. It’s a lot easier than trying to load the cart into a pickup or loader bucket. I made the hitch out of pieces of angle iron that attach to the lower part of the cart. A piece of angle iron at the top of the cart is used to tilt the bottles at a 45 degree angle for transport. When I get to where I’m going, I can stand the bottles up without unhooking from the tractor by loosening the top piece of angle iron.”

**Dan Truax, St. Cloud, Minn. (ph 320 248-3005; leecheater73@yahoo.com; www.gaswaterheatertimer.com):** “I recently became marketing manager for American



Pacific, and the only device we make is a gas water heater timer. This inexpensive device was designed and patented by Jeff Davis. The timer acts as a programmable setback controller. It allows you to program a gas water heater to automatically lower the water temperature whenever hot water demand is low, and raise the temperature when hot water demand is high. Electric timers have been around for a long time, but not for natural gas or propane. A detailed study can be found on our website. About 25 percent of all house energy dollars are spent on heating water.”

## Garden Tractor Repowered With Kubota 4-Cyl. Diesel

“My Deere dealer told me a 4-cyl. Kubota diesel wouldn’t fit in my Deere tractor, but I proved him wrong,” says Tim Bulthouse, Grand Haven, Mich., who repowered his 1981 Deere 400 garden tractor with a Kubota 4-cyl., 1.2-liter, 24 1/2 hp industrial diesel engine.

“The Kubota engine is a lot more reliable than the original Kohler engine and also has more torque,” says Bulthouse. “I use the tractor with a 60-in. deck to mow grass on my 2-acre property. I did have to make a lot of modifications to make the new engine work, but it looks original.”

“Most people notice right away that I added a big 2 1/4-in. stainless steel exhaust pipe, and that a couple of air duct screens are missing. The exhaust pipe isn’t quite as loud as you’d think, but it sounds nice. I had to cut 2 in. from the top of the frame so the engine would fit. I also had to cut into the front end of the tractor so the engine’s front end would fit, and lengthen the tractor’s side panels by 5 in.”

The tractor was originally equipped with a 20 hp Kohler gas engine, which had worn out and been replaced with an 18 hp Kohler. However, it had trouble handling the tractor’s 60-in. mower deck.

The Kubota diesel came out of an old parking lot sweeper and was used to operate the sweeper’s vacuum and brushes. “It didn’t have a flywheel when I got it and it took me a year to find one,” says Bulthouse. “The crankshaft had a spun rod bearing so I had someone straighten the crankshaft and



**Tim Bulthouse says the Kubota 4-cyl. diesel engine he installed in his Deere 400 garden tractor “is highly reliable and has a lot of torque.”**

weld it back together.”

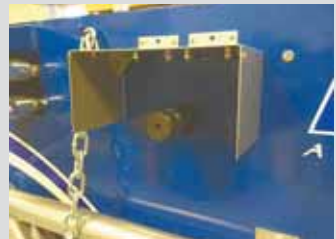
He had to build a new driveshaft and machine adapters to hook it up to the engine. He also fabricated new motor mounts. The tractor didn’t have a radiator so he had to find one. “I discovered that with some modifications, the radiator from a Deere 430 diesel tractor would fit,” says Bulthouse. “The radiator’s water outlets went in and out the same way, but there was no surge tank so I had to build one.”

He also had to make a new battery box, remanufacture one of the tractor’s steering arms so that it wouldn’t interfere with the driveshaft, and modify the tractor’s steering system. “I cut the drag link and moved it over 1/2 in., then welded it back together,” notes Bulthouse.

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**Shop Dog is designed to replace the need for a tractor during implement set-up or maintenance. It’s fitted with a pto, 2 hydraulic remotes, and a 12-volt power system.**



## Portable Pto Unit Helps Test Equipment In Shop

“We call it the Shop Dog and there’s no other machine like it that we know of,” says Brendan Leep, Manhattan, Mont., about the new shop machine he developed with partner Brad Moss. It’s designed to replace the need for a tractor during implement set-up or maintenance.

The machine is fitted with a pto, 2 hydraulic remotes, and a 12-volt power system. The pto turns anywhere from 0 to 110 rpm’s and can be remote-controlled. The rig also has a 7-pin plug for operating field lights, tail lights, and flashing lights and a 3-prong plug for activating an implement monitor so sensor problems can be diagnosed. There’s also an amp meter and a hydraulic pressure gauge.

“We accomplish all of this while using 220-volt power that can be found in almost any shop,” says Leep.

The hydraulic remotes can be used to raise and lower cylinders and to do everything from lifting and lowering a baler’s pickup to unfolding and folding tillage equipment.

The hydrostatically-controlled pto system lets you precisely operate the implement at whatever speed you need to watch what’s



**Shop Dog also has a 7-pin plug for operating field lights, tail lights, and flashing lights.**

going on. By running the pto slow and using the remote control you can find the masters link in a chain, locate grease zerks, fine tune bale knotters, check bearings and belts, and so forth.

The Shop Dog even has a canister for excess oil that accumulates from connecting and disconnecting hoses, and a convenient carrier for pto adapters or hitch pins.

The Shop Dog has a MSRP of \$12,500. Videos and more information can be found at the company’s website.

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