clamps. A short length of pvc pipe and 2 dowel rods are the only materials required. Drill 2 holes through the pipe at a 90 degree angle from each other. The holes should be slightly smaller than the diameter of the dowel rods so the rods will fit snuggly into them and serve as handles. The thicker the pvc is or the wider the piece that you're working on is, the more squeeze pressure you'll have.

"Split lengths of vinyl tubing can be added to keep the pipe's sharp edges from marring the surface of your project."

Russell Rogotzke, Springfield, Minn.: "I get frustrated trying to hook up hydraulic hoses whenever it warms up and a lot of pressure develops in the hydraulic line. I

solved the problem by making a device out of a 3-in. C-clamp. I removed the swivel and drilled a depression in it so the tip of the coupler stays aligned. Then I welded iron onto the other end to hold the hose. A metal guard welded onto the clamp keeps any spraying oil away from me as I'm relieving the hose pressure.

"Without this device I'm tempted to use a hammer, which damages the tip. Or, I have to loosen the connection which makes a mess, and then I have to retighten it. This eliminates all of that frustration. Be sure to buy a good clamp because it can take a hard turn of the clamp to get the job done."

Don Nelson, Hildreth, Neb.: "I bought a used electric-over-hydraulic lift from a local machine shop for $650 and modified

it for use as a service lift, which I use when working on my 3 Grasshopper riding mowers. The lift came with a 2 by 4-ft. top plate, and to make it big enough for the mowers I welded 39 in. of material on each end and 10 in. on each side. I used 1-in. sq. tubing to build a frame for the enlarged table and welded it onto the lift's original 2 by 4 base frame.

"I have a sideline business mowing cemeteries, town yards and country yards so I use this lift a lot to do general service work on the mowers. To operate the lift I just plug in the cord and step on a pedal. It's rated at 1,500 lbs. but has no problem lifting my mowers, which weigh 1,620 lbs. each."

William Thompson, Chariton, Iowa: "I slide baby socks over the ends of my tractor's hydraulic couplers in order to keep dirt and chaff out. Rubber bands hold the socks on."

Roman Bontrager, Myerstown, Penn.: "I've had problems with slow radiator leaks on older vehicles over the years, but have found that AlumAseal Radiator Stop Leak Powder works great (www.amazon.com).

"I needed to drill holes into a plaster ceiling in order to mount a row of lights. I was working in a clean area so I needed to contain the dust, chips and debris as much as possible. So I cut an old basketball in half and poked a hole through the middle of it with my concrete bit, and then drilled the holes in the ceiling. I pressed the half basketball up tight against the ceiling as I worked, and the dirt fell into it. No dust.

"I mounted a used X-ray machine's ceiling track in my shop. Where the X-ray machine had been mounted to the track, I bolted a double angle iron with an eye bolt. Then I hooked my shop hoist into the bolt. It works just like a miniature crane bay and lets me lift and move 500 lbs. the full length and width of a 10-ft. sq. area."

Bob Moty, Crystal Lake, Ill.: "I was a welder for 35 years and invented and/or made many things. Before I spray painted any of the pieces I built, I used the following process to keep the paint from peeling.

"After welding I would first scrape off the weld spatter, then wipe it down with lacquer thinner or a similar solution to remove the oil and grease. Then I used a gas torch to 'sweat' the metal. To see what I mean, take a gas torch and slowly move it across some clean, unpainted metal, and you'll see the moisture come to the surface and evaporate ahead of the flame.

"When you're finished, the metal should be lukewarm but not hot, to the point that you can lay your bare hand on it comfortably for about 5 seconds. Then spray paint it immediately, and you'll never have a problem with paint peeling again."

Michael Myers, Kirbyville, Texas: "I use a 30-ft. sq. shop to do maintenance work on my tractors and other equipment. The shop's small size means I'm often cramped for space. So I built several features into the shop to provide more room.

"My 4 by 8-ft. rolling table is made from treated pine. The table has a plywood top and

rides on four 4-in. caster wheels that I bought at Harbor Freight. I can easily roll the table around anywhere inside or outside the shop. I bored a hole into one end of the table so I can install a big umbrella when working outside. I use outlet strips with the shop's electrical outlets so I can hook up to 2 or 3 power tools at a time while I'm working at the table.

"I bought 4 overhead cranes from Harbor Freight and installed them in the shop. The

cranes ride on tracks spaced about 8 ft. apart and have a capacity of 880 to 1,500 lbs. apiece. I'm 67 years old, so it's getting harder to bend up and down when performing maintenance work on riding mowers. I use the cranes to lift the mowers onto my rolling table, where I can work on them at a comfortable working height. The cranes cost $120 to $140 apiece."

Wayne Beggs, Lincolnton, Ga.: "I recently bought a 1954 Farmall H tractor that had been sitting inside a shed since 2000. All the tires on it were flat, and one of the 16-in. wheel rims on front was in bad condition after sitting in the dirt all that time. It was very difficult to get the tire off the rim because you can't put the wheel on a regular tire changing machine because there's no center hub on the wheel. I decided to cut the center out of another rim and fit it to the Farmall rim. That would let me use a tire changing machine instead of having to do the job by hand, which is how it has been done over the past 60 years on Farmalls.

"I went to a junkyard and found a solid 16-in. Deere wheel rim. I cut out the center of the wheel and drilled holes to match the

mounting tabs on the Farmall rim. I also enlarged the hole at center to fit the Farmall hub.

"This modification makes changing the front tires an easier and safer job."

Manufacturing Solutions does all types of fabrications and also buys and sells industrial equipment. Photo at right shows lathes ready for sale.

Tool & Die Shop Sells Industrial Equipment, Too

Robert Hanson is an unusual fellow. He can help design a new product, reproduce an obsolete part, or he can sell you a secondhand milling machine or metal lathe and teach you how to do it yourself. His company, Manufacturing Solutions, does all types of fabrications in wood, metal, plastic and stone, operating a nearly 2,000-sq. ft. machine shop.

"One of our bragging rights is building a braking system for a F-117A Stealth Fighter and a fuel cell testing system for the Delta 2 rocket program," says Hanson. "We've done everything from building a prototype for an aircraft ice detection system now used by the FAA to building rubber band guns or equipment for a farm or ranch."

Hanson has been doing machining for the past 17 years. His shop is fully equipped with manual and CNC lathes and mills, sheet metal fabrication equipment, heat-treating ovens, MIG and TIG welding and woodworking tools.

"We do precision machining," says Hanson. "We have all the tools and toys every machinist dreams about."

Matching new tools to his changing business, Hanson would often look for high quality secondhand industrial equipment. Often times while looking at one piece of equipment, he would see other pieces also for sale for a good price and buy them as well. As different jobs and different needs developed, he ended up with surplus equipment. For the past 7 years he has been selling those tools along with other things he found for a good price.

"I pick up a lot of equipment on the East Coast and fill a semi at a time," says Hanson. "We have everything from restaurant equipment to tools for working on wood, metal, pneumatics, hydraulics and electrical systems."

Today he has a 6,000-ft. showroom, 1/2-acre of motor homes, and a Quonset-style fabric roof storage building with another 3,000 sq. ft. of stuff.

"We'll buy, sell or trade almost anything," says Hanson. "A lot of it is by word of mouth. Last year we sold 24 vertical milling machines ($800 to $3,000) and 17 metal lathes ($700 to $2,200) and even more the year before."

In addition to on-site sales, Hanson sells a variety of items through Craigslist. Recent listings included milling machines, lathes, a Kawasaki motorcycle and a beer cooler.

A good share of the tools he sells have 3-phase motors. "Just about any piece of industrial shop equipment is 3-phase, even new equipment," he says. "Most people don't have 3-phase power, so we sell and install different lines of static or rotary phase converters."

Hanson notes that a converter allows customers to get a good deal on a machine and run it on their single-phase power. He points out that while a rotary is more expensive, it works with hard starters like a lathe or air compressor.

"Once you make the plunge on a 15 hp rotary converter, you can generally run an entire shop off it," says Hanson.

Industrial 2nd Hand's website doesn't have a listing of products on-hand. Hanson suggests stopping by if in the area or simply calling if you need a lathe or milling machine - or even a beer cooler.

He offers training on equipment as well. "In a few hours, I can train someone to run a milling machine," says Hanson. "We work with a lot of farmers and ranchers who want to make their own repairs."

Contact: FARM SHOW Followup, Manufacturing Solutions, 2130 Dyess Ave., Rapid City, S. Dak. 57701 (ph 605 343-3933; mfgsolutions@peoplepc.com; www.industrial2ndhand.com).