

Make Your Own Replacement Parts



Dulas uses plastic squeeze bottles to hold cutting oil and other liquids.

Rick Dulas, rdulas@us.oracle.com: Here's an idea we spotted online at www.metalworking.com. Dulas uses plastic squeeze bottles — the kind that comes with a squirt top — to hold cutting oil, acetone, laquer thinner, cleaning alcohol, naphtha, water, and other liquids he uses frequently in his shop.

"The squirt top, when sealed, keeps the contents from evaporating. When opened, it allows me to dispense a small quantity right where I want it," Dulas says.

He uses color coded labels as a visual reminder of what's in the bottle.

He built a simple wood rack that bolts to the side of his workbench to hold the bottles.

Dale Nelson, Valley City, N.Dak.: When Dale quit farming three years ago in favor of running a full time metal shop on his farm,



Nelson's home-built metal shear doubles as a punch press.

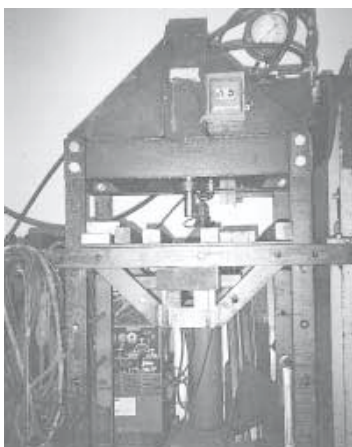
he started with a welder and a couple of small power tools.

Rather than buying a lot of expensive tools, the Valley City, North Dakotan custom-made most of the tools he needs to repair and fabricate parts for his farmer customers.

His latest shop machine is a metal shear which doubles as a punch press.

Cutting sheets of steel and punching in holes takes a fairly sturdy rig, prompting Nelson to 10-in. channel iron (formerly guard rails on a scrapped rural bridge) for the uprights on the main frame.

He used a 1 1/2-in. steel plate for the table



Nelson also built this big hydraulic press.

of the shear. The lower blade mounts to a channel iron frame that he reinforced with a length of 2 1/4-in. thick solid steel. The upper blade bolts onto a mount made from 2-in.

plate steel. "I bought the blades for the shear. They're made from hardened steel," he says.

A 5-in. dia. hydraulic cylinder powers the upper blade of the shear. It has a 2 1/2-in. shaft and 14-in. stroke. The linkage that connecting the cylinder and blade is machined out of 1 1/2-in. steel.

Dale also has plans to use the same frame as a punch press.

He also built a break press and a hydraulic press for his farm shop.

He figures the shear/punch press has cost him about \$900 so far. "The blades alone were \$300," he says. "And that total doesn't include my time. I probably have about 75 hours of labor in it so far, and the punch is still not ready to use."

Dale says he always liked doing shop work and when he decided to give up farming, he had no trouble deciding what he wanted to do. "I'd always done a little machine work for neighbors, and now that's all I do. I enjoy it more than I ever did farming," he says.

Dale Halsey, Ligonier, Ind.: "I had plenty of use for a metal-working lathe in my farm shop, but I really couldn't see spending the kind of money it was going to take to buy one," says Dale.

His solution was to make his own. He found a good solid redwood 4 by 4 and had it milled down flat and true. Then he covered



Halsey uses his home-built benchtop lathe for a wide variety of jobs.

the top and sides with 1/4-in. thick steel plate. He made the tailstock from an old tractor engine piston.

"I milled out a hole through the center of the piston and put a sleeve in it that was threaded to hold the tail stock pin. It has a nut on it so I can adjust it back and forth just like the ones on a lathe you'd buy. The piston attaches to the bed with a 7-in. sq. steel plate with slotted holes for adjustment," he says.

The stationary headstock on his lathe may not look like one on a factory lathe but it does the job. He mounted a shaft between two pillowblock bearings, set 6 in. apart. On the end of this shaft he mounted a 4-jaw chuck to hold the headstock. "The pillowblock bearings work well for this, since you can shim them up to exactly the right height," he says.

A pulley mounts on the 1-in. dia. shaft between the pillowblock bearings. The belt from this pulley runs to another pulley set on a shaft between two additional pillowblock bearings. A pulley on the outside end of this shaft has a belt that runs to the motor that powers the lathe.

The center post that runs back and forth down the beam is a length of threaded shaft in a couple of 1/2 in. pillowblock bearings mounted at each end of the steel-clad bed. To connect the center post to the threaded shaft, he split an acme nut that fit the shaft and mounted that on the tailstock. At the

Where To Buy Metal Working Tools, Supplies

Here's a list of companies that sell benchtop metal working tools and supplies. Most of these companies have mail order catalogs that you can request and many have comprehensive web sites. Some of these companies manufacture and sell their own machines, while others are resellers who handle a variety of machines.

Rutland Tool & Supply Co., Inc
2225 Workman Mill Road
Whittier, CA 90601-1437
ph 562-566-5000 or 800-289-4787
www.rutlandtool.com

Northern Tool and Equipment
2800 Southcross Drive West
Burnsville, Minnesota 55306
ph 952-894-9510
fax: 952-894-1020
www.northernonline.com

Enco
400 Nevada Pacific Hwy.
Fernley, Nev. 89408
ph 800-873-3626
<http://www.use-enco.com/>

Grizzly Industrial, Inc.
P.O. Box 2069
Bellingham, Wash. 98227
ph 800-523-4777 or 570-326-3806
www.grizzlyimports.com/

Harbor Freight Tools
3491 Mission Oaks Blvd.
Camarillo, Calif. 93011
ph 800-423-2567
<http://www.harborfreight.com/>

MSC Industrial Supply Co.
75 Maxess Road
Melville, New York 11747-3151
ph 800-645-7270
www.msdirect.com/

Metal Express
W229 N2464 Joseph Road
Waukesha, Wis. 53186
ph 800-657-0721
<http://www.metalmart.com/>

KBC Tool and Machinery
6300 18 Mile Road
Sterling Heights, Mich. 48314
ph 800-521-1740
www.kbctools.com/

McMaster-Carr Catalogs
P.O. Box 740100
Atlanta, GA 30374-0100
ph 404-346-7000
<http://www.mcmaster.com/>

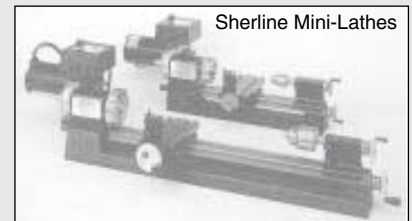
Shop Task
P.O. Box 64268
Tacoma, Wash. 98464
ph 800 343 5775
www.shoptask.com

Sterling Instrument
2101 Jericho Turnpike
New Hyde Park, N.Y. 11040
ph 516 328-3300
fax: (516) 326-8827
E-mail: hrrarum@sdp-si.com
<http://www.sdp-si.com/>

Micro-Mark (Small Tool Specialists)
340 Snyder Avenue
Berkeley Heights, NJ 07922-1595
ph 888-263-7076 or 908-464-6764
<http://www.micromark.com/>

Victor Machinery Exchange Inc.
251 Centre Street
New York, New York 10013-3214
ph 800-723-5359 or 212-226-3494
fax 212-941-8465
www.victornet.com

Bearings & Industrial Sales Inc.
625 Lindsay Blvd.
Idaho Falls, Idaho 83402
ph 800-274-7775

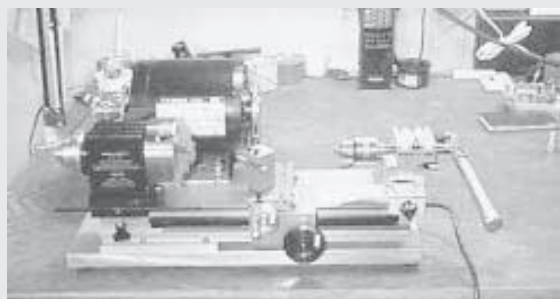


Sherline Mini-Lathes

Sherline Products, Inc.
3235 Executive Ridge
Vista, Calif. 92083
ph 800-541-0735.
<http://www.sherline.com/>

Smithy Co.
170 April Drive
P.O. Box 1517
Ann Arbor, Mich. 48106
ph 800-476-4849
www.smithy.com

Blue Ridge Machinery & Tools, Inc.
PO Box 536
2905 Putnam Ave.
Hurricane, WV 25526
ph 304-562-3538 or 800-872-6500
ph 304-562-5311



Taig Mini-Lathe

Continued on next page