

## ENGINE BUILDER SHOP SOLUTIONS

**Spring Tester Stand**

Make your daily life easier with fixtures and setups. An ugly back prompted me to build this stand for my valve spring tester years ago. No more bending over to check valve springs. This is comfortable and efficient.



**Randy Torvinen**  
Torvinen's Machine  
Menahga, MN

**Caterpillar Diesel Fuel Tips**

It's possible for a secondary fuel filter to suck air, but not leak fuel when running. Hook a sight glass where you think the engine is losing prime. When the engine is not running, air goes up and siphoning goes to highest point down.

A plugged fuel return line may cause low power, poor fuel mileage and excessive black smoke. An engine with this situation will usually have high fuel pressure and it will be hard to use the manual hand-priming pump (because of so much pressure). It will also cause high fuel temperature and will not be able to get rid of the air in the fuel.

If fuel leaks out of the hand priming pump it should be replaced, because it could also be sucking air from this pump.

**Tab (Shay) Leskovisek**  
Altorfer Power Systems  
Bartonville, IL

**Plastic Piston Packer**

I recycle the thick plastic trays used to store and ship 1-liter soda bottles. They work really well for keeping piston and rod assemblies in order



and protected from damage as you move them about the shop. Trays are very stable when you set them down and easy to clean. But there are legitimate ways to obtain these used trays. Please don't help yourself at the store or off a truck.

**Greg Avrett**  
Cal's Engine & Machine Shop  
Oakdale, CA

**Honing-Cutting Oil**

This helps save me money, time and storage space. Honing oil is not just for honing, it is a cutting fluid. I use it on taps and dies for cutting lifter bushings and machining on my lathe. I also use it for surfacing aluminum heads on my CBN surfacer for a nice finish. Try it out.

**Darrin Anderson**  
Sterling Bearing, Inc  
Kansas City, MO

**Quick Change Holder**

Many of our company's jobs are short runs, with setups that needed to be changed sometimes every two to four hours. Work holding setup time was something that became necessary to improve as our volume of work increased. By investing in a quick-change jaw system we were able to decrease work holding change-over time by 90 percent while lowering machining costs.

We had a substantial investment in work holding vises, so we wanted to preserve that as much as possible. Investigating numerous new products for maximizing work holding efficiency, the Kurt DoveLock quick-change jaw system

stood out as a great way to improve setup time with our existing vises while adding versatility for handling frequently changing jobs.

The system consists of a master jaw with built-in, specially designed dovetail quick clamps, which are designed to precisely hold and lock into position in the quick-change machinable jaws. In the initial setup, each master jaw has two bolts that fasten to the stationary movable jaw of their standard 6-inch vise.

Once the master jaws are in place, the machinable jaws locate precisely with the master jaw and quickly lock up using the machinable jaw's three hex head bolts. An additional advantage is that it enables us to mill into the changeable jaw plates using the full volume of jaw material. This is something we couldn't do with its old jaw setups.

A quick-change jaw system provides a perfect grip, precise repeatability for very accurate and consistent machining and can handle a full range of part sizes. Our system enables us to utilize our machines to their full capabilities while maintaining consistent part quality.

**Jim Kovach**  
Kovach & Assoc.  
Performance Engine Building  
Parma, OH

**Measuring Concave Objects**

If you need to measure a concave object such as a lifter or push rod and don't have a ball mike, or don't have one large enough, you can use a bearing ball in the concave part and subtract the diameter of the ball from the overall measurement. I keep a good selection of different sized old bearing balls in my tool collection

**Lee Johnson**  
Pro Performance  
Denver, CO

**Rubber Bands to the Rescue**

Don't have enough hands to drop a cam shaft rocker assembly on a V

**ENGINE BUILDER SHOP SOLUTIONS**



Tech and other overhead cam motors? Try using rubber bands to hold the rocker arms together on the shaft assembly to help prevent the shifting of the rocker arms and the pivot when installing them on to the heads.

**Kevin Elam**  
*Shaky B's Hot Rods and Race Cars*  
 Liberty, MO

**To submit a Shop Solution** simply mail your entry to Engine Builder Magazine, Shop Solutions, 3550 Embassy Parkway, Akron, OH 44333; or email to [shopsolutions@enginebuildermag.com](mailto:shopsolutions@enginebuildermag.com). Shop Solutions may also be emailed to [shopsolutions@enginepro.com](mailto:shopsolutions@enginepro.com). You must include your name, shop name, shop address and shop telephone number. Submitted Shop Solutions not published will be kept on file and reevaluated for publication with each month's new entries. If you include your email address you will be emailed notification of publication if your Shop Solution is chosen.

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