



Shop Solutions

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LET THE LIGHT SHINE IN

When I'm struggling to see the valve keeper grooves on an overhead cam head, with "bucket style" lifters, I attach a small flash light to shine thru the top of my air operated spring clamp. This puts the light directly in the area needed. This also leaves my other hand and mouth available for other tasks. A.K.A. swearing and trying to hold the keepers in place. Using axle grease on the inside of the keeper to hold it on the valve stem is also a big help.

Darrin Anderson, Sterling Bearing Inc, Kansas City, MO



MORE KNOWLEDGE



"Ford 1.6 industrial"

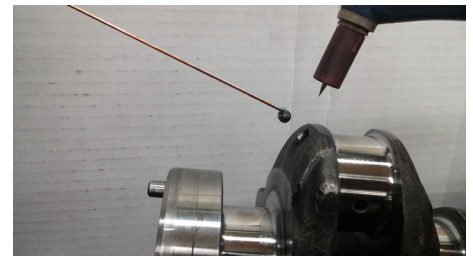
In a recent issue of Engine Builder magazine (Feb. 2015), they discussed how the internet is your friend with all the available info on manufacture's web pages, forums and articles. In searching for that information you may be overwhelmed by the number of pages that come in response to one search. My wife taught me a trick for refining a search that has helped me narrow my sites. When searching for specific info, putting the words you are searching for in "quotes" narrows the search to those words in that sequence. Simply putting words up would find those words anywhere on any page on the net. For example, if searching for 1.6 Ford industrial, you may find pages where it may say 1.6 Mazda, Ford tractor, and industrial cleaner, or something on that line, not the "Ford 1.6 industrial" information you may be looking for. Also, if I am specifically looking for information found in a forum, I add the word "forum" to my search and it will help me find forums only, in which people sharing experiences, pictures and knowledge.

Brad Luck, Weaver Auto Parts, Sauk City, WI

BALL PLUGS

Ball plugs that can't be accessed and knocked out are difficult to remove. I use my Heli-arc welder and heat the ball until it is red hot. Then I weld a filler rod to it. When cool, it is usually loose and can be pulled out. If the ball is staked in, you'll have to grind the stake marks away first. I've used this on cranks, blocks and heads.

Randy Torvinen, Torvinen's Machine, Menahga, MN



GOOD HEADS

I've heard many shops complain about the finish and quality of some of the new bare cylinder head castings that are imported into the U.S. No one ever complains about the price, just the finish. In my shop, I look at these new castings as "a good core". I expect them to need at minimum the seats touched up and those that use an MLS head gasket may need to be surfaced. I also check valve to guide clearance. Seems no one has ever bought a new casting from the O.E.M. If you had, you'd see the value of these inexpensive offshore castings. My name is going on the finished product, so I want the job done correctly. I make sure I charge the customer enough to cover my time and make a reasonable profit off the new part.

Tom Prodahl, Cylinder Head Service, Minneapolis, MN

PROTECT YOUR #1 ASSET

What is your business' #1 asset? Hand tools? Head equipment? Inventory? Every day owners protect their company assets by setting alarms and securing doors. But how often do you think about protecting your most valuable asset? ...Your Workers. Sure, it's a PITA to replace a stolen toolbox. But losing a good employee to an injury can be a long, painful experience. When a typical 3-man shop loses a worker it reduces production by 33% and that usually means delayed jobs, overtime wages, and upset customers and employees.

This tip is a reminder to shop owners to review shop work policies and to ensure all employees are following some common sense practices that can save your company a bundle:

- Wear safety equipment: glasses, ear plugs, boots, gloves
- Wear appropriate clothing: No loose clothing, long hair, jewelry, etc
- Wear close-toe shoes or better yet, steel-toed boots
- Use lifting devices and a lift-belt
- Use a shop-vac to clean metal shavings, do not blow shavings using compressed air

Insist employees report defective tools or machines and any injury that occurs on the job. Enforce this company policy and your company and your employees will be happy and healthy.

Steve Rich, Sterling Bearing Inc, Kansas City, MO

NOISY, BUT NOT ALWAYS DEFECTIVE VALVE LIFTERS

Hydraulic valve lifters are probably the most precision machined part inside any engine. It does not take much to cause one to operate incorrectly. In this case we are not referring to lifter failure due to metal to metal contact with the camshaft. In this case we're talking about lifter noise and or a lifter that does not hold oil pressure and is unable to carry the pushrod properly through the full rotation around the cam lobe.

Noise from the lifter or valve train can come from something as simple as low oil level in the engine. Momentary lifter noise when an engine is started up is normal operation if the noise goes away in a few seconds. Oil drains from some of the lifters while the engine is not running. If the noise persists, oil level may be low in the engine allowing the oil pump to pump air into the oil galleries and into the lifters. An overfilled crankcase can also cause noise. The crankshaft counterweights can churn the oil into foam. When foam is pumped into a lifter it will be noisy. A damaged oil pan, or a loose or cocked pickup screen can also cause an oil pump to pump air to the lifters. Noisy operation at higher engine speed and little or no noise at low speed can be a sign of air in a lifter.

A lifter that is noisy at idle to 1500 rpm may be caused by worn valvetrain. Check for worn or scuffed valve tip or rocker arm face, excessive valve stem to guide clearance, excessive valve seat or valve face runout, or a valve spring that is out of square. A valve spring damper clicking on a rotator can cause a similar noise. Worn pushrod tips or rocker ball seats can cause a continuous noise no matter what the rpm. This is especially common on roller lifter engines where the pushrod never spins, since the lifters are not rotating.

An intermittent noise that goes away with increased engine speed is usually caused by dirt. This may be due to poor maintenance or from a newly rebuilt engine that was not cleaned properly before reassembly.

There can be such a thing as a defective lifter, but there are several conditions that can lead to lifter noise and these should be checked before we just throw another set of lifters at any noise problem.

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