

2012
JULY

Babcox

ENGINE BUILDER



BUILDING VINTAGE ENGINES

PONTIAC EXCITEMENT

101

ALSO:

Assembly, Gauging & Measuring Tools
Performance Oiling Systems
Camshafts and Valvetrain Technology

Machine Maintenance • Shop Solutions • NASCAR Performance

MACHINES BUILT TO A HIGHER STANDARD

See Our Pullout Brochure In The Center Of This Issue

You're invited to
Rottler Open House
- Page 26

ROTTLER

THE CUTTING EDGE

can be easily distorted if the pump housing is clamped in a bench vise while working on it. Distort the pump housing more than a few thousandths and you'll ruin it.

Schumann Sales & Service has recently introduced a new holding fixture for the Chevy LS pump that allows the pump to be safely mounted and supported while being held by a vise. The fixture has four mounting studs that are precision ground to equal height to support the pump. The fixture can then be clamped in a bench vise while the pump is being worked on. Similar fixtures are also available for Ford and Chrysler front mounted pumps.

The biggest problem engine builders are encountering with Chevy LS pumps, however, is pump failures caused by not getting the pump correctly centered on the crankshaft when the pump is installed on the engine. You can't just slap it on the front of the block and bolt it up. Clearances are critical, and if you're off more than a few thousandths of an inch the pump may bind and fail when the engine is first started.

One way to line up the pump is to set the engine block up on end so the crank is vertical rather than horizontal, then position the pump on the block while a helper slowly rotates the crank. The idea is to center the pump as best you can so that the gears don't rub or bind against the housing or each other. It's a cumbersome way to install an oil pump and there's no guarantee that it will be correctly aligned.

Verne Schumann's solution to the problem is a Chevy LS oil pump installation shim kit. The kit includes three sets of shims for centering the outer gear in the pump housing and the inner gear to the crank. Three shims are evenly spaced between the outer gear and pump housing, and three shims are evenly spaced between the inner gear and crank. Once the proper clearances have been set, the four mounting bolts that attach the pump to the block can be tightened down.

Schumann says the Chevy LS oil pump clearances should always be measured, and if you find more than .004" of play the pump is worn and should be replaced.

Quality Rockers At An Affordable Price.

High Energy™ Aluminum Roller Rockers Offer Increased Valve Lift, Quick Install & Proven COMP Cams® Durability.

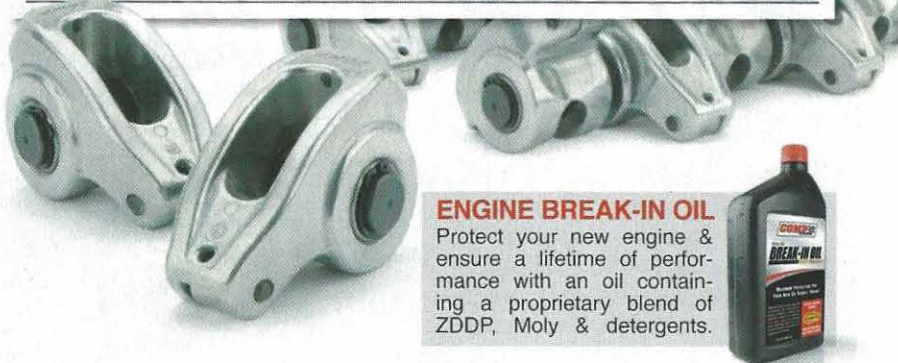
COMP Cams® High Energy™ Aluminum Roller Rocker Arms feature a die cast, aluminum body with a needle bearing fulcrum and roller tip. Designed to be stiffer and more durable, these new rocker arms are capable of providing added valve lift while withstanding the rigors of a performance application.

Perfect for street and moderate race use, the die cast, larger-than-stock aluminum body offers superior strength and light weight. The specially engineered fulcrum and roller tip create less friction than sliding factory models to lower oil temperatures, thus improving both power and durability. Snap rings hold the trunion & bearings locked in place, and the bolt-on design fits most popular engine combinations. Look for the COMP Cams® logo cast directly into the rocker — accept no inferior imitations.

- Affordable stud-mounted aluminum rocker arms for AMC, Chevy, Ford & Oldsmobile street & mild race engines
- Stiff & durable die cast aluminum design creates superior strength to weight ratio & increases valve lift
- Needle bearing fulcrum & roller tip reduce friction & oil temps

HIGH ENERGY™ ALUMINUM ROLLER ROCKER ARMS

Make	Part #	Description	Stud Dia.	Ratio
AMC	17044-16	V8 290-401	7/16"	1.6
	17001-16	V8 265-400	3/8"	1.5
	17002-16	V8 265-400	3/8"	1.6
Chevrolet	17004-16	V8 265-400	7/16"	1.5
	17005-16	V8 265-400	7/16"	1.6
	17021-16	V8 396-454	7/16"	1.7
	17043-16	V8 289, 302-351W	3/8"	1.6
Ford	17044-16	V8 289, 302-351W	7/16"	1.6
	17045-16	V8 Boss 302, 351C, 429-460	7/16"	1.73
Oldsmobile	17044-16	V8 350-455	7/16"	1.6



ENGINE BREAK-IN OIL

Protect your new engine & ensure a lifetime of performance with an oil containing a proprietary blend of ZDDP, Moly & detergents.

Engineered To Finish First.



CAM HELP® 1.800.999.0853 | WWW.COMPCAMS.COM

Circle 39 for more information

The stock Chevy LS pump is capable of pumping more oil than the stock pickup inlet tube may be able to supply. The inlet tube attaches to the pump with an O-ring fitting, which creates a slight restriction where the tube enters the pump housing.

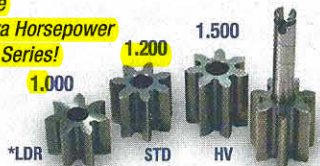
SCHUMANN'S DYNAMIC PERFORMANCE™ Industry Engine Parts Supplier Since 1970!

"WET SUMP OIL PUMPS" WITH A DRY SUMP ATTITUDE!

Street Master: Enhanced Street Rod
Street-Strip-Race: "SSR" Basic Race

Low Volume Drag Race: "LVDR" extra Horsepower
2012 "Dual Feed Extra Volume" Pro Series!

- 18 GPM One 3/4 Inlet
- Ball Valve Technology
- 140% External Bypass
- 4 Bolt Small Block Chevy



Total GM- FORD- CHRYSLER - COVERAGE OFFERED

GM: (14) SBC! (4) BBC! Olds! Pont!

FORD: (22) V-8! (5) 6 cyl! (3) 4 cyl!

MOPAR: (4) 340-360 V-8s! Big Block! 383/440 V-8

V-8 CRANK DRIVEN OIL PUMPS!

GM: LS SERIES FORD: MOD. MOPAR: HEMI

Note: Schumann's Oil Pumps Contain "Patent Pending" Technology
Principles and "All Rights are Reserved."

VALVE TRAIN COMPONENTS

Push Rods: Steel/Moly 2,3 and 1 piece!

Stamped Rocker Arms: Stock, Long Slot Race and "FNC nitrogen-carbon"
Racing High Strength!

Value Spring Retainer Kits: Hyd, Solid & Roller!

*Tri Flute Positive Oil Lifters! Full Film Coverage of Cam Lobe!

Not E.D.M. Drip Hole! Available 8/1/12! All Lifters 100% Inspection!

Call For Badger Pistons' and Schumann's Private Label Gasket
Program Coverage!

*Sales Reps and WDs Available Some Areas.

P.O. Box 128 • Blue Grass, Iowa 52726
Phone: 563-381-2416 • Fax: 563-381-2409

Circle 42 for more information

WIRE POWER!

Nearly 70% of new vehicles come with Prestolite®
ignition wire... so when it's time to replace, choose
ProConnect™ wire sets from Prestolite!

You get exceptional OE/OES quality, fit and performance, plus virtually 100% model coverage. And because Prestolite ProConnect replacement wire sets are engineered like the originals, ignition wire service has never been faster or easier.

www.prestolitewire.com



CELEBRATING 100 YEARS IN
PERFORMANCE AND QUALITY



Circle 40 for more information

On Schumann's Pro Max Series X-tra oil pumps, this area in the pump housing is machined out to eliminate the O-ring entirely. The end of the pickup tube is refitted with a flange style mount and gasket. This modification increases oil flow up to 30 percent over the stock pump configuration (which typically flows 4 to 6 gallons per minute).

On GM's 5.3L LS engines, cold start up lifter noise can be a problem. For these applications, Melling has an improved flow M295 oil pump that delivers increased oil flow to remedy the problem.

Pickup Restrictions

Another potential problem area for performance engine oiling systems is the oil pump inlet tube. The small diameter of the tube and/or restrictions created by the screen, mesh or driller cover on the end of the tube may limit flow at higher engine speeds.

Stock inlet screens can be very restrictive depending on the diameter and spacing of the wire. A drilled inlet cover or coarse mesh cover usually flows much better, though the best flow results are usually obtained with a relatively open honeycomb style



cover. The heavier the viscosity of the oil, the larger the mesh or drilled openings in the inlet tube should be to maximize oil flow to the pump. Replacing the stock diameter pickup tube with a larger diameter tube also improves flow.

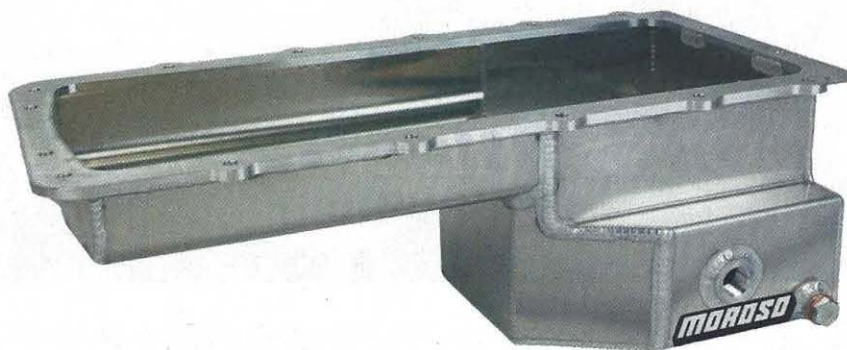
Careful attention needs to be paid to installation of the oil pump screen assemblies, says Melling's experts. Position of the oil pump body and proper use of installation tools can ensure proper function. Just as with the fragile oil pump body, the pump screen itself shouldn't be held in a vise – doing so can lock up the pump by crushing the gear pocket.

Pressure Losses

With crankcase mounted oil pumps, leaks may occur where the pump is bolted to the block or rear main cap. Most pumps are just a simple flush mount with no gasket. The mating sur-

faces on the pump and block usually have some roughness, so the joint typically leaks quite a bit of oil. That's lost oil pressure and volume that should be going to the engine. You can spend a lot of time carefully machining the pump mounting surfaces flat for a better fit, or you can install a special thin copper gasket that Schumann makes that fits between the pump and engine to seal the connection.

Late model crankshaft driven oil pumps have a tendency to leak due to the increased size of the rotor set relative to a cam driven pump. Melling says some of the updates that have made to their front cover oil pumps includes changes in materials and the use of coatings to improve performance and durability. Hard coating improves the durability of the cast aluminum oil pump housing. The use of chrome-moly billet rotor sets in Melling's Ford Modular oil pumps allows them to withstand the increased stresses found in high horsepower applications.



Moroso's "Coyote" aluminum baffled oil pan is designed to be used with the Ford modular 5.0L factory windage tray, oil pump pickup and dipstick. It features a trap door assembly and anti-slosh baffle that keeps oil contained in the oil pump pickup area during road racing and drag racing and holds two more quarts than stock.

Priming The Engine

Priming the oil system prior to first starting the engine is a given. You don't want to risk a dry start that would the camshaft and bearings so the oil system needs to be primed to get oil into the pump and oil passages. With distributor driven pumps,

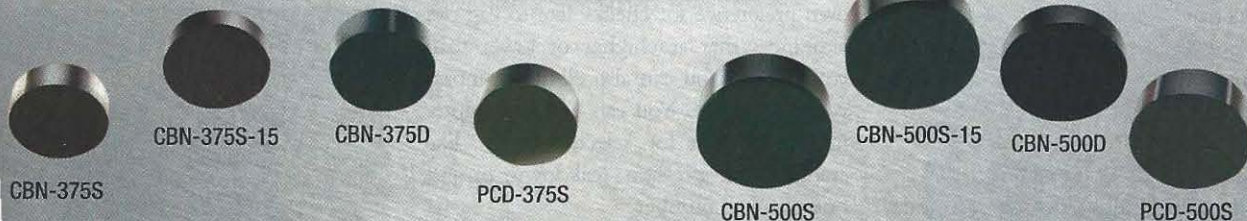
this can be done by using a drill to spin the pump through the distributor opening. But with front-mounted crank driven pumps, this isn't possible so oil must be fed into the oil system externally from a pressure oiler. **EB**

Quality Cutter Grinding

Your 3/8" or 1/2" diameter CBN cylinder head mill single side inserts resurfaced for \$12.50.
Double sided inserts resurfaced for \$25. New CBN and PCD inserts also available.

CBN - 375S:	3/8" x 1/8" Single Side	\$69.00	CBN - 500S:	1/2" x 3/16" Single Side	\$89.00
CBN - 375S-15:	3/8" x 1/8" x 15 Chamfer S. Side (Recommended for Diesel Heads and Manifolds)	\$79.00	CBN - 500S-15:	1/2" x 3/16" x 15 Chamfer S. Side (Recommended for Diesel Heads and Manifolds)	\$99.00
CBN - 375D:	3/8" x 1/8" Double Side	\$99.00	CBN - 500D:	1/2" x 1/8" Double Side	\$129.00
PCD - 375S:	3/8" x 1/8" Single Side	\$79.00	PCD - 500S:	1/2" x 3/16" Single Side	\$99.00

Proven Quality CBN & PCD
Specializing In Resurfacing CBN
Your Satisfaction Guaranteed



Contact: Ron Cantrell Email: qcgrinding@comcast.net
1915 Elvis Presley Drive, Tupelo, MS 38804

Telephone: 662- 844-9102 Fax: 662-407-0297