

SERVING ENGINE BUILDERS & REBUILDERS SINCE 1964

2013
JUNE

Babco

ENGINE BUILDER



Performance Diesel Market

Processes, Products and Profits

EngineBuilderMag.com

#BXNGZBX *****AUTO**5-DIGIT 52726
#623129 CEB 0# 1 1305 50 0489
LAVERNE SCHUMANN
OWNER
SCHUMANN'S DYNAMIC PERFORMANCE
PO BOX 128
BLUE GRASS IA 52726-0128

0489
P224
996
581

SEE OUR
EXCLUSIVE
DIESEL SECTION
ON PG 26!

ume pump is often necessary for a high-revving engine or one with looser bearing clearances.

The pressure delivered by the pump depends on the spring in the oil bypass valve. The stiffer the spring, the higher the relief pressure of the bypass valve and the more oil pressure the pump delivers before the bypass valve opens.

The old rule of thumb of running 10 psi of oil pressure for every 1,000 rpm

is still valid for most applications. But some racers are getting by with less oil pressure and are gaining anywhere from 5 to 30 or more horsepower! It takes a certain amount of horsepower to drive an oil pump, so using the least amount of oil pressure that's necessary to maintain a safe level of lubrication



This LS wet sump oil pan conversion retains a wet sump setup but uses an external pump like that from a dry sump system.

saves power that would otherwise be needed for the pump. Many NASCAR teams are running less than 5 psi of oil pressure per 1,000 rpm, and are using low viscosity synthetic oils with tighter bearing clearances to keep the oil film in the bearings.

Most oil pumps use an internal bypass valve to vent excess oil pressure. The advantage with this design is that it delivers oil at a steady pressure while allowing pressure to build quickly in a cold engine. The drawback with this setup is that during deceleration, oil can actually flow backward from the pump into the pickup tube. When the driver stabs the throttle to accelerate, there can be a slight delay in oil delivery until the reverse flow is overcome and oil is again flowing in the right direction into the pump. By comparison, some racing pumps have an external bypass valve that dumps excess oil pressure back into the crankcase. This prevents the reverse flow effect and helps maintain a steady flow of oil when an engine is decelerating and accelerating rapidly.

Some performance oil pumps also use a ball bypass valve rather than a piston or cup-style bypass valve. Ball valves are used in automatic transmissions because they are self-cleaning and less likely to stick.

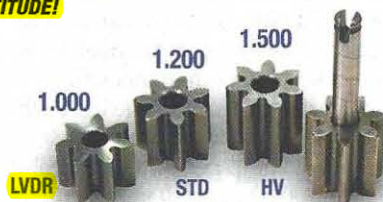
"Energy Recovery" Oil Pump

Every oil pump needs a bypass valve to vent excessive pressure, otherwise bad things might happen to the pump or engine if oil pressure was not controlled. But every time excess oil pressure is vented through a bypass valve it represents lost energy. Verne Schumann of Schumann Sales & Service has come up with a way to recover much of this lost energy with his newly

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
- "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" Technology or Principles, "All Rights are Reserved."

REVOLUTIONARY OIL PUMP TECHNOLOGY

- 2013 U.S. Patent # 8,398,381 B1
- "Newest Industry Technology"
- "Energy Recovery" Pro Series
- For: Small and Big Block Chevy and Ford 302W / Ford 351 W soon
- "Energy Recovery" Technology Yields
- Spent Energy into Applied Energy
- Oil intake Flow! "ER" Series Oil
- Pumps For Hard Core Race Engines!

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!
- Valve Spring Retainer Kits: Hyd, Solid & Roller!
- *Tri Flute Positive Oil Lifters! Full Film Coverage of Cam Lobe!
- *Not E.D.M. Drip Hole! All Lifters 100% Inspection!
- Schumann's Private Label Gasket Program Coverage!
- Performance and Rebuilder Coverage!
- *Sales Reps and WDs Available Some Areas.

G.M. CRATE 602 AND 604 RPM VALVE TRAIN ISSUES?

- Schumann's has Solutions
- Longevity (20-30 Races) of Valve Springs and Pushrods.
- Springs are Kobi, Japan True Racing Wire, with U.S.A. Cryogenic and Meta-Lax Vibratory Technology Applied.
- Push Rods Do Not Pole Vault! Stable at R.P.M.!
- Push Rod - Valve Spring Kits are Available at 3 Spec Levels to Meet Your Sanction Body or Local Rules.

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

patented "Energy Recovery" oil pumps for SB/BB Chevys and Fords.

Schumann said the new "ER" design "diminishes the input effort required, yielding the same gallons per minute (gpm) volume and pressure as high-effort pumps. Normal internal hydraulic pump bypass lock-ups are eliminated. Unique energy recovery engineering converts spent energy into active input oil supply flow." Schumann said his new ER pumps are 30% more efficient and significantly reduce the power needed to drive the pump.

Schumann is not making any specific horsepower claims for his pumps, but on one dyno test, an engine showed a 10 to 15 hp improvement by simply changing the oil pump.

Schumann's Energy Recovery pump uses an external hose to connect the bypass valve discharge port to the pickup tube. By rerouting oil back into the pickup tube, the oil pressure that would otherwise have been wasted is



This unique pump features an energy recovery system that converts spent energy into active input oil supply.

reused to feed the pump. It has a siphoning effect that improves oil flow into the pump and reduces the chance of oil starvation when the engine is accelerating hard or is experiencing lateral G-forces.

Chevy LS Oil Pump Issues

The front mounted oil pumps on Chevy LS engines have been a challenge for many engine builders. The pumps on these engines have critical clearances that require the pump gears to be precisely centered with respect to each other and the pump housing. The recommended procedure is to mount

the oil pump with the block out of the vehicle sitting upright with the crankshaft in a vertical position so the crank will be centered in the main bearings. Shims must then be positioned between the inner and outer gears, and the outer gear and housing before the four housing bolts are tightened down to secure the pump to the block. If this procedure is not followed, the oil pump may bind and/or break as soon as the engine is cranked or started.

The stock pump housing can also be easily distorted if it is clamped in a vice, causing the pump to bind when it is installed on the engine. Schumann makes a special work fixture that allows the LS pump to be held securely without bending the housing.

Mike Osterhaus, Product Development Manager for Melling said the front mounted oil pumps on many late model engines has created opportunities for engine builders because many original oil pumps cannot meet the demands of a performance engine. He said Melling's line of "Select Performance" oil pumps eliminates those issues while supplying increased performance and durability at an affordable price. Osterhaus said that aftermarket oil pumps for the Chevy LS engine and similar applications are available from a variety of sources, but that many of those offerings are based off original equipment oil pumps. "The original equipment pumps cannot compete against the performance and durability of a Melling performance oil pump, which was designed from the start to be used in performance engine applications." He said improvements include increasing the pressure tightness of the pump assembly to reduce oil leakage. Crank-driven pumps have larger surface areas which need to be sealed. Reducing the leakage coming from the pump results in improved oil quality and flow delivered to the main gallery. The pumps are also cast in 356-T6 aluminum, precision CNC machined and hard-coat anodized for improved durability.

Galling can also be a problem in some applications, such as GM 5.3L, 6.0L and 6.2L V8s. A severe galling condition can arise from the tolerances and materials used in the original GM oil pumps. This situation cannot occur in

OIL SYSTEMS & FUEL PUMPS

RACING ENGINE COMPONENTS

SBC
BBC

Ford
Mopar

DESIGNED TO DELIVER ALL THE WAY AROUND

Top quality unique products designed and built by race engine builders for peak performance in demanding applications. Circle track /drag / street / marine.

www.bakerengineeringinc.com
(616) 837-8975 Fax (616) 837-9652

info@bakerengineeringinc.com
17165 Power Drive, Nunica, MI 49448