LIFTERS

Imagine a hydraulic mechanism that must increase in length as needed, withstand the load from a valve spring and have the ability to shorten as required by thermal change and wear! And, what's more, to be able to complete all of this approximately 60 times a second! What is this mechanism you ask?

The Hydraulic Valve Lifter

The basic function of a hydraulic lifter is to ride up and down on the cam lobe and open the valves when the cam rotates. Sounds simple doesn't it? WRONG !

The hydraulic lifter is one of the most complex components of an internal engine with a multitude of moving parts with the main purpose of maintaining zero lash. When the camshaft is at the beginning of lift, all the lifter internal components are in the zero-lash position. The check ball is seated and has sealed the high pressure chamber. Starting valve lift cycle (where the camshaft pushes the lifter up), the valve spring applies force on the lifter, which slightly depresses the internal components. Then, a controlled leak-down occurs: An internal spring pushes the internal components firmly against the push rod to remove any lash in the system, after which the process starts all over again.

Advantages to Hydraulic Lifters:

- No assembly lash adjustments are required.
- Automatic thermal expansion / contraction adjustments.
- No service or wear lash adjustments are requires.
- No valve gear noise caused by component impact during the removal of lash clearance.
- More accurate valve timing which yields better emissions, fuel consumption, vacuum levels and torque.
- Decreased recession of valve seats.

Hydraulic Lifter Designs:

- Flat-Face
- Roller
- Bucket
- Lash Adjuster

SBI offers a complete full line of hydraulic Valve lifters. Refer to the application sections of the SBI catalog for lifter listings.