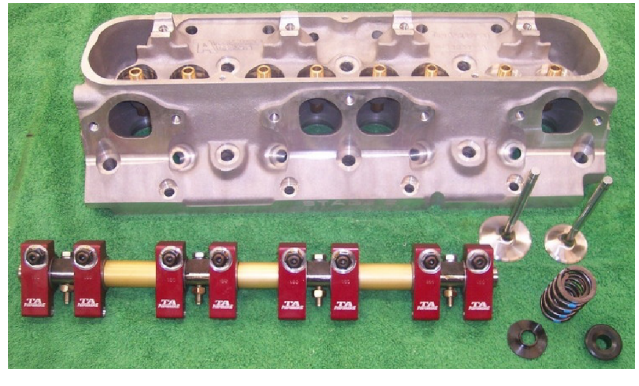
High Tech gives a classic:
a little help

Improvements in engine components increase engine efficiency and durability:

A hydraulic roller camshaft adds a roller bearing between the camshaft and push rods greatly reducing friction. During the 1960s, a flat tappet camshaft was used which relies on a metal-to-metal lubrication point. It is believed that this upgrade (along with the "easy breathing" Stage-2 cylinder heads) allowed the engine to develop over 500 horsepower on the dynamometer.

A roller camshaft will also extend the life of the engine by all but eliminating friction damage to the camshaft lobes. The car's old engine suffered camshaft damage after only 50,000 miles, probably because of changes in motor oil formulation.

Roller rockers introduce a bearing for each rocker instead of a metal-to-metal lubrication point of 1960s engine technology. Like the hydraulic roller camshaft, it improves efficiency by reducing internal friction and prolongs the life of the engine by eliminating another metal-to-metal wear point.



Advances in understanding how gasoline actually burns in an engine has improved the shape of pistons. Spherical dish pistons dissipate some of the heat which slows the expansion of the gases long enough to allow for a more complete combustion of the fuel. In addition, the shape of the dish centers the pressure of the expanding gas on the piston top. That reduces side forces that are inefficient and increase engine wear.

Other modern improvements over the engine components of the 1960s include:

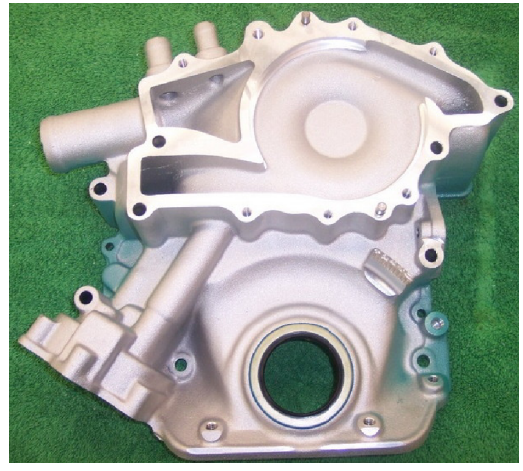
- The use of Teflon in various bearings and seals.

- Magnaflux inspections of the block and crankshaft to detect metal defects.

- The use of plasma-moly coatings on the piston rings to provide a better seal.

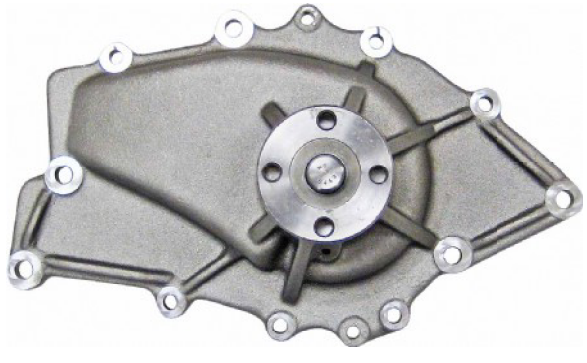
Decades of racing experience fostered the redesign of components like this Timing Chain Cover to improve oil flow and prevent engine damage. Additional modifications where made to the engine block itself to enlarge oil passages.

These changes corrected deficiencies in the original Buick design that caused premature engine failure because of insufficient lubrication.



An improved design makes the high-capacity water pump able to move much more coolant than the OEM Buick water pump of the 1960s.

The additional capacity of water pump insures a sufficient movement of coolant through the engine. When combined with the superior head-transfer capability of an aluminum radiator (over the copper used in the 1960s), this combination essentially eliminates overheating problems for these engines even when under heavy load conditions such as towing.



Modern electronic ignition components in the distributor eliminate the wear associated with mechanical points of the 1960s and provide a higher voltage electrical spark to ignite the fuel at the proper moment of the compression stroke of the engine.

Replacing the venerable carburetor of the 1960s is a computer-controlled throttle-body Electronic Fuel Injection system. Like modern cars, sensors will track parameters important for engine performance like intake manifold pressure, air temperature, and exhaust oxygen levels. Using this data, the EFI processors will adjust the amount of gasoline provided to the engine for peak performance and fuel economy.

The *EZ-EFI* system is self-tuning. As the car is driven, the computer will *"learn"* from sensor feedback what is the optimal fuel delivery for smooth idling, pleasant driving, and optimal fuel economy.