**2010 LS3 6.2L V-8 (LS3)**
6.2L V-8 (LS3) CAR ENGINE
2010 Model Year Summary

**New product applications, content and benefits for 2010 model year:**

- **Standard engine in the new Camaro SS**
- **New model offering in Corvette Grand Sport Coupe and Convertible**
- **Includes new dry sump oiling system on 2010 Corvette Grand Sport coupe with manual transmission**
- Gen IV aluminum cylinder block
- High-flow cylinder heads derived from the LS7 engine
- High-flow intake manifold with acoustic shell
- High-flow fuel injectors
- Advanced electronic throttle control
- 58X ignition system
- Acoustic beauty cover

**New engine offering in the Chevrolet Camaro SS**
The LS3 V-8 is the base engine for the 2010 Corvette and the new Camaro SS. In the Corvette it is rated at 430 horsepower (321 kW), or 436 horsepower (325 kW) when equipped with the optional dual-mode exhaust system (RPO NPP). In the Camaro SS, the engine is rated at 426 horsepower (318 kW). The LS3 is offered with the Hydra-Matic 6L80 six-speed automatic or a Tremec six-speed manual transmission (with specific gearing for the Grand Sport models). With the Camaro, the LS3 is only offered with a Tremec six-speed manual transmission; automatic-equipped SS models are paired with the 6.2L L99 engine that features Active Fuel Management. See the separate L99 release for more information.

**Dry sump oiling system**
New for 2010 in Corvette Grand Sport coupe models equipped with the manual transmission, the LS3 with the Z52 option features a dry sump oiling system that is similar to the oiling systems used in the Corvette Z06 and ZR1 models. The dry sump oiling system helps the LS3 engine operate at peak, low-friction efficiency and promotes durability during extended high-rpm use under high cornering loads. The Grand Sport coupe's unique suspension system is designed for track use and is capable of generating 1-g cornering, which is greater than the standard Corvette.

The dry sump system scavenges engine oil from the engine utilizing the first stage of the dual-stage gerotor oil pump. Oil and air are collected from the bottom of the engine oil pan and then transported to the external engine compartment mounted reservoir for conditioning and storage. Oil is transported to the top of the tank through an internal scavenge return tube, where it is tangentially spilled out on a spiral-shaped internal baffle. When the aerated oil from the engine contacts the internal surfaces of the tank, crankcase gasses and air which are entrained in the oil are separated out. These gasses are directed by the PCV system through a series of baffles and tubes back to the crankcase and into the combustion chamber to be burned. The de-aerated oil is directed down the walls of the tank to collect in the 10.5-quart (9.9 liters) reservoir, conditioned and ready for use. The second stage of the dual-stage gerotor pump then draws the conditioned oil from the tank and pressurizes it, feeding it to the engine via the oil filter and oil cooler. The routing of the engine oil to and from the dry sump reservoir also provides the benefit of passive oil cooling.

**Gen-IV Cylinder Block**
The LS3 6.2L's Gen-IV cylinder block shares two key design elements with GM's original small block V-8: a 90-degree cylinder angle and 4.400-inch bore centers. It debuted in 2005 as the foundation for the 400-hp LS2 V-8 in the Chevrolet Corvette and Pontiac GTO. Casting and machining in the bulkheads was revised to improve block structure and to improve bay to bay breathing; the bores were also increased from 4.00 inches (101.6 mm) to 4.06 inches (103.25 mm) to increase the engine's displacement. The enhanced cylinder block casting is shared with the 6.2L truck applications and the 6.2L supercharged LSA and LS9 applications.

The Gen IV block was developed with the latest math-based tools and data acquired in GM's racing programs, and provides a light, rigid foundation for an impressively smooth engine. Its deep-skirt design helps maximize strength and minimize vibration. The bulkheads accommodate six-bolt, cross-bolted main-bearing caps that limit crank flex and stiffen the engine's structure. A structural oil pan further stiffens the powertrain.

**High-Flow Cylinder Heads and Valvetrain**
The rectangular intake port shape size and shape are similar to the L92 6.2L – a designed that has its origins in the LS7 cylinder head, but with a taller and narrower port configuration. Casting changes were made to increase the opening at the exhaust face to improve exhaust port flow.

The inlet rocker arm is offset 6 mm between the valve tip and rocker bolt/push rod to enable a more direct intake port. The intake valve diameter is 55 mm; and hollow-stem intake valves are used to enable high-rpm performance of up to 6,600 rpm. The 40.4-mm exhaust valves are carried over from L92, as are high-load valve springs that stand up to the engine's high-rpm capability. Intake valve lift increases is 0.551-inch (14 mm).

**High-flow intake manifold with acoustic shell**
The LS3's intake manifold ports are designed to match cylinder head. The composite manifold is manufactured with a lost core process to improve runner-to-runner variation and to reduce flow losses. Acoustic foam is sandwiched between the outside top of the intake manifold and an additional "skull cap" acoustic shell to reduce radiated engine noise. Structural enhancements have been added to the manifold bosses.

**High Flow Injectors**
High-flow, 5.0 g/s injectors are the same as those used on the 7.0L LS7 engine.

**Advanced Electronic Throttle Control**
GM has led the industry in applying electronic throttle control (ETC). With ETC, there is no mechanical link between the accelerator pedal and the throttle body. A sensor at the pedal measures pedal angle and sends a signal to the engine control module (ECM), which in turn directs an electric motor to open the throttle at the appropriate rate and angle. ETC delivers a number of benefits to the customer. With the ECM measuring throttle pedal angle and monitoring other data including the transmission's shift status and traction at the drive wheels, the ETC system can deliver outstanding throttle response and greater reliability than a mechanical connection, which typically uses a cable that requires adjustment—and sometimes breaks. Cruise control electronics are integrated into the system, further improving reliability and simplifying engine assembly.

**58X Ignition System**

The LS3 6.2L engine has an advanced 58X crankshaft position encoder to ensure that ignition timing is accurate throughout its operating range. The new 58X crankshaft ring and sensor provide more immediate, accurate information on the crankshaft's position during rotation. This allows the engine control module to adjust ignition timing with greater precision, which optimizes performance and economy. Engine starting is also more consistent in all operating conditions.

In conjunction with 58X crankshaft timing, the LS3 applies the latest digital cam-timing technology. The cam sensor is located in the front engine cover, and it reads a 4X sensor target on the cam sprocket. The target ring has four equally spaced segments that communicate the camshaft's position more quickly and accurately than previous systems with a single segment.

The dual 58X/4X measurement ensures extremely accurate timing for the life of the engine. Moreover, it provides an effective back-up system in the event one sensor fails.

**Acoustic Beauty Cover**
The beauty cover is specific to each vehicle model, but is designed to contribute to the acoustic properties of the engine.

**Overview**
The LS3 6.2L engine delivers a great balance of performance and efficiency. The engineering team used years of development experience with both production-vehicle and racing applications of the Gen III/Gen IV engine design to optimize flow efficiency to build power and improve fuel economy. In fact, the 2010 Camaro SS delivers and EPA-rated 24 mpg on the highway with the LS3/six-speed manual combination; and the 2010 Corvette offers up to 26 mpg on the highway with the manual transmission. That's the same highway mileage rating as the 2005 Corvette that had a less-powerful and smaller-displacement 6.0L engine.

One of keys to the LS3's efficiency is great airflow throughout. Intake flow was improved over previous engines by straightening out and optimizing the flow path from the intake manifold into the cylinder heads, while the exhaust ports are also designed for greater flow. The engine's efficiency also enhances emissions performance, as the LS3 meets the more stringent Bin4 emission standards and again avoids the gas guzzler tax on the Corvette and Camaro.