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2004 CHEVROLET Cobalt Coupe OEM Service and Repair Workshop Manual

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YOUR CURRENT VEHICLE

Crankcase Ventilation System Description

Crankcase Ventilation System Description (LT4)

A positive crankcase ventilation system is used in order to provide a more complete scavenging of crankcase vapors. Filtered air from the air induction system duct is supplied to the crankcase, mixed with blow-by vapors, and passes through a crankcase ventilation metering device before entering the supercharger. The primary component in the positive crankcase ventilation (PCV) system is the PCV flow metering device (valve or orifice) . Vacuum changes within the supercharger result in flow variations of the blow-by vapors. If abnormal operating conditions occur, the design of the PCV system permits excessive amounts of blow-by vapors to back flow through the crankcase vent tube and into the engine induction system to be consumed during normal combustion. This engine ventilation system design minimizes oil consumption and significantly reduces the potential for oil ingestion during vehicle limit handling maneuvers.

LT4 Engine

The LT4 engine utilizes an integral positive crankcase ventilation (PCV) system which is located in the Valve Lifter Oil Manifold Assembly beneath the Supercharger Assembly. The Valve Lifter Oil Manifold Assembly contains composite oil separating baffles and PCV plumbing. Filtered fresh air is routed from upstream of the throttle plate to the engine oil tank where it mixes with crankcase gasses and is passed to both engine rocker arm covers. The rocker arm covers' design shields rocker arm oil spray, thereby reducing the potential for oil being drawn back into the tank during backflow of the ventilation system. Blow-by vapors are routed from the valve lifter oil manifold assembly through a fixed orifice (7.5 mm) within a steel PCV tube, then into the underside of the supercharger near the front of the valve lifter oil manifold assembly.

YOUR CURRENT VEHICLE

Cylinder Deactivation (Active Fuel Management) System Description

Cylinder Deactivation (Active Fuel Management) System Description

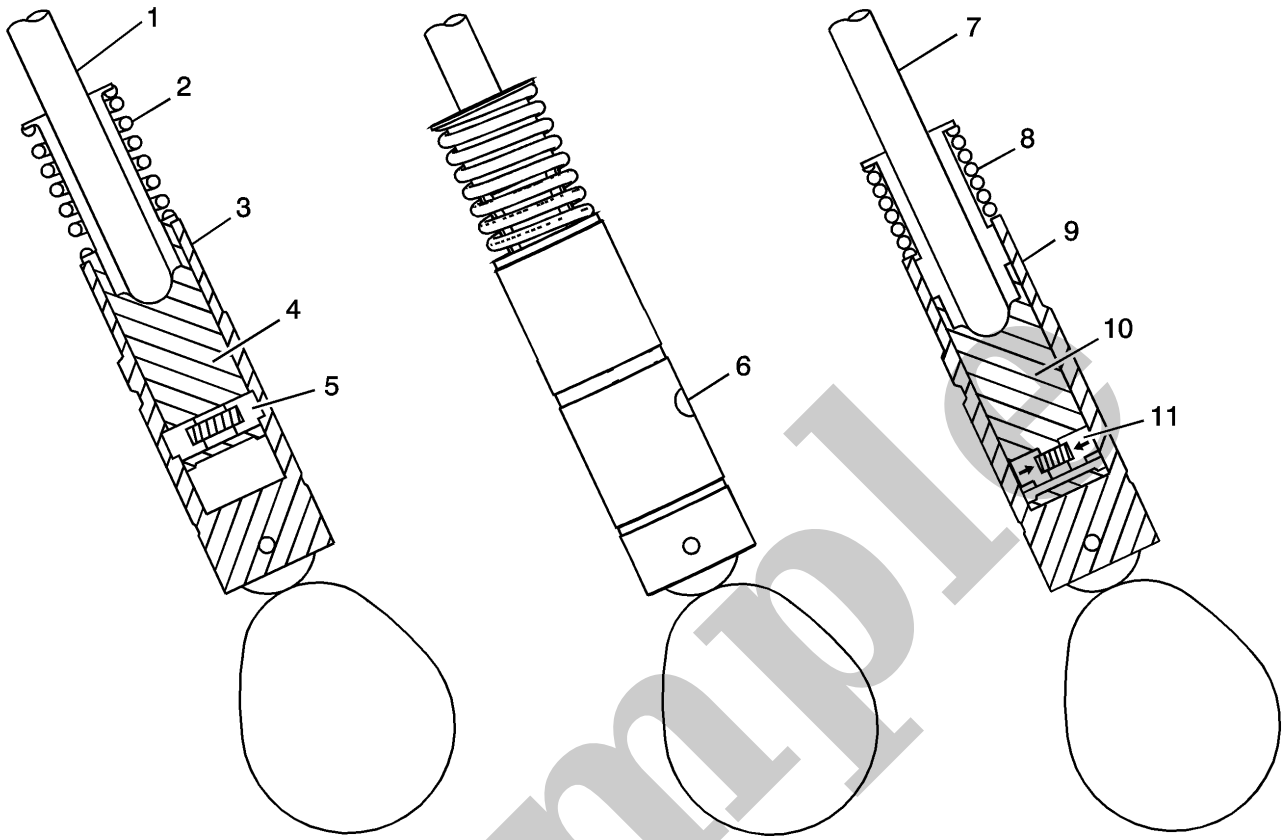
System Operation

General Motors Active Fuel Management engine control system has the ability, under certain light load driving conditions, to provide maximum fuel economy by deactivating 4 of the engines 8 cylinders. The engine will normally operate on 8 cylinders in V8 mode during starting, idling, and medium or heavy throttle conditions. When commanded ON, the engine control module (ECM) will direct the active fuel management system and deactivate cylinders 1 and 7 on the left bank and cylinders 4 and 6 on the right bank, forcing V4 mode. Refer to Lubrication Description and Cylinder Deactivation (Active Fuel Management) System Description.

Valve Lifter Oil Manifold Assembly

oil pressure and provides information to the ECM.

Active Fuel Management Valve Lifters



When operating in V8 mode, the active fuel management valve lifters function similar to the non-active fuel management valve lifters. The active fuel management oil manifold solenoids are in the closed position, with no pressurized oil directed to the valve lifters. The pushrod (1) travels upward and downward to actuate the rocker arm and valve. The spring loaded locking pins (5) of the lifter are extended outward and mechanically lock the pin housing (4) to the outer body of the valve lifter (3).

When the active fuel management system is commanded ON, the ECM will direct the solenoids of the oil manifold to open and direct pressurized oil to the valve lifters. Oil travels through the valve lifter oil manifold and engine block oil galleries and enters the inlet port (6) of the valve lifter.

When operating in V4 mode, pressurized oil forces the locking pins (11) inward. The pushrod (7) remains in a constant position and does not travel upward and downward. The outer body of the lifter (9) moves upward and downward independently from the pin housing (10). The valve lifter spring (8) retains tension on the valve train components to eliminate valve train noise.

When the active fuel management system is commanded OFF, the ECM directs the solenoids of the oil manifold to close, stopping the flow of pressurized oil to the valve lifters. The oil pressure within the lifter will decrease and the locking pins will move outward to mechanically lock the pin housing and outer body.

YOUR CURRENT VEHICLE

Engine Component Description

Engine Component Description (LT1)

The 6.2 Liter V8 LT1 Engine