Crankcase Ventilation

Blow-by gases created during the combustion process must be ventilated from the crankcase. Excess blow-by can cause sludge and acids, leading to coking of the intake valves.

Crankcase ventilation is accomplished in the V10 engine using a cyclone oil separation process and fresh air from the air cleaner housing. In this process, the oil mixed with blow-by gas is separated and returned to the engine.

Each cylinder head cover has channels cast in its housing. These channels direct blow-by gases from the crankcase to a cyclone fine oil separator. The channels also allow some of the oil mixed with blow-by gases to return to the crankcase by gravity. Blow-by gases are directed from the cylinder head covers to the fine oil separator by plastic hose.

The fine oil separator has three cyclone oil separators: a control piston, bypass valve, two-stage pressure limiting valve, and an oil return valve. Its purpose is to remove the fine oil particles mixed with the blow-by gases and return them to the crankcase.

After the blow-by gases have passed through the fine oil separator, they flow into the intake manifold downstream of the throttle bodies. The inlet point of the blow-by gases is also integrated with the engine cooling system. This prevents the system from freezing.

The crankcase ventilation system also includes a crankcase breather. Air is drawn from the air filter box and flows through a check valve into the crankcase at the inner V. The mixture of fresh air helps ensure a reduction of water and fuel mixture in the crankcase from the blow-by gases.

A damping chamber is located below the check valve in the engine block. This helps prevent check valve flutter and eliminates noise.