1975-79 EXHAUST EMISSION SYSTEMS
General Motors Vacuum Advance Spark Control

DESCRIPTION

TRAPPED VACUUM SPARK

Trapped vacuum spark is used on all models. A Thermal Vacuum Switch (TVS) is mounted in cylinder head coolant passage. A vacuum check valve is mounted between manifold vacuum, distributor and TVS. The system maintains high vacuum levels to the distributor during cold engine operation and cold engine acceleration.

SPARK CONTROL SWITCH

The spark control switch system is used on 350" and 400" V8 engines with Heavy Duty emissions. It is installed between the TVS check valve and the distributor.

OPERATION

TRAPPED VACUUM SPARK

When engine temperature is below a pre-set specified value, the manifold vacuum signal is routed through the check valve to the distributor. Ports on TVS are blocked. The check valve will keep distributor vacuum at levels higher than manifold vacuum during vehicle acceleration. A small sintered iron bleed orifice is provided in the check valve to allow for a leak-down to enable engine to be restarted if it stalls. This applies to all models except Light Duty California and Altitude Emissions, 350" and 400" V8 engines with Heavy Duty emissions and all 454" V8 engines.

When engine temperature is above pre-set value, TVS ports will be open to allow manifold vacuum to the distributor. During this mode of operation, the check valve will act as a connector and not delay or trap vacuum.

SPARK VACUUM DELAY

As manifold vacuum increases, the check valve opens and allows distributor vacuum to increase to same level. When manifold vacuum decreases during vehicle acceleration, the check valve closes and distributor vacuum will decrease at a rate controlled by the internal vacuum bleed.

NOTE: See appropriate VACUUM DIAGRAMS article in this section for specific location of trapped vacuum spark and spark vacuum delay valves.