1961-67 CHEVROLET OPEN SYSTEM

DESCRIPTION

1961-62 California cars and some 1963-67 cars used an "open" crankcase ventilation system "Type 1". System components consists of a vented oil filler cap, a ventilator valve located at rear of rocker cover, and a hose attached between ventilator valve and intake manifold directly below carburetor.

OPERATION

Air enters system through vented oil filler cap and circulates through engine. Ventilated air mixes with crankcase fumes and are drawn into the intake manifold through ventilator valve by intake manifold vacuum. Ventilator valve, located between crankcase and manifold, insures that the air-fuel mixture will not be leaned excessively under conditions of high manifold vacuum during engine idle. At higher engine speeds, manifold vacuum lowers and the regulator valve opens to admit more air flow. At full throttle, excess fumes escape through filler cap.

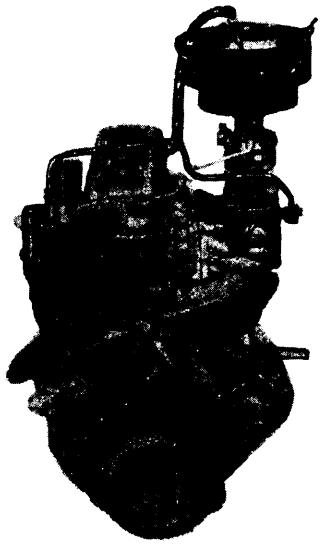
SYSTEM CHECKING

The following difficulties may indicate a malfunctioning ventilation valve:

1) Engine stalls frequently after stops, runs rough after restart.
2) Engine loses power and surges at speeds above idle.
3) Engine has rich rolling idle, produces black smoke at tailpipe.
4) Idle speed fluctuates, but engine does not stall.

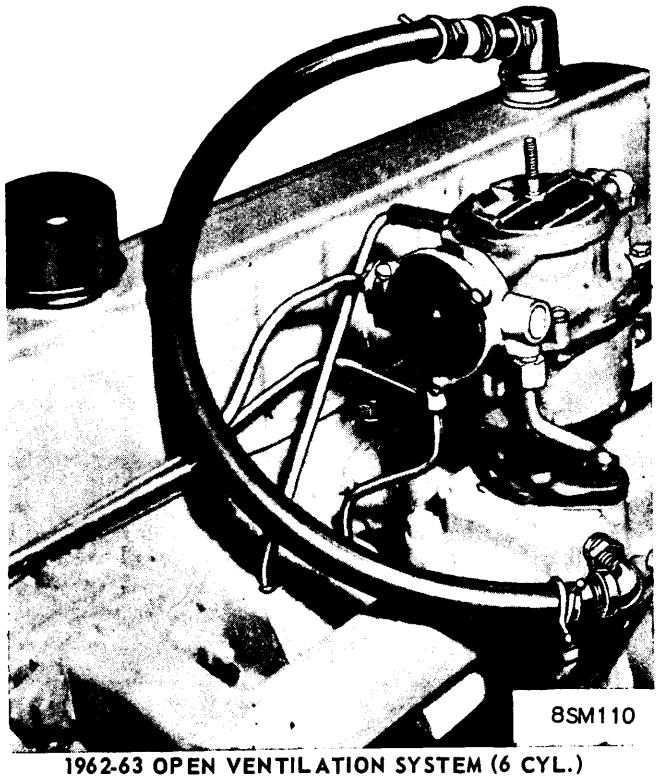
8SM108

1961-62 POSITIVE VENTILATION VALVE



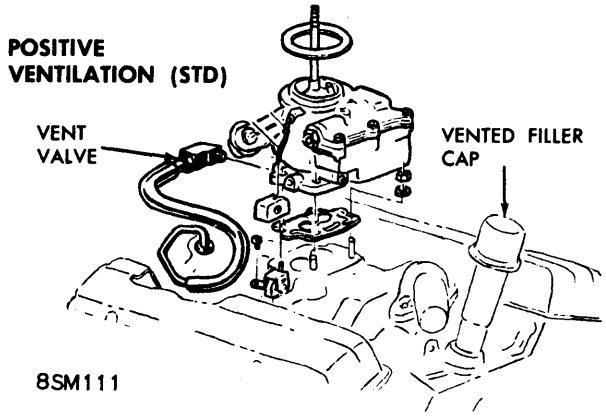
8SM109

1961 OPEN VENTILATION SYSTEM (6 CYL.)



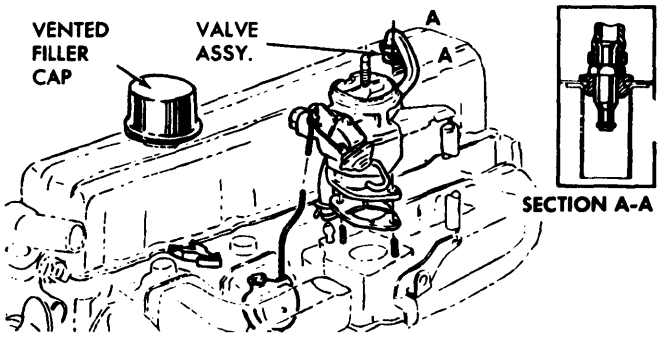
8SM110

1962-63 OPEN VENTILATION SYSTEM (6 CYL.)



8SM111

1964-65 OPEN VENTILATION SYSTEM (V8)



8SM112

POSITIVE
VENTILATION (STD)

1964 OPEN VENTILATION SYSTEM (6 CYL.)

1961-67 CHEVROLET OPEN SYSTEM (Cont.)

SERVICE PROCEDURES

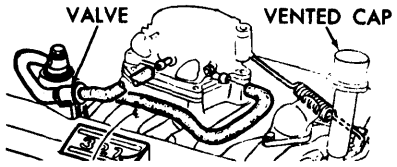
Ventilation Valve - Should be disassembled, cleaned with solvent and air dried (1961-62 only). When reassembling, be sure spring is properly seated in groove just under valve head. On 1963-67 cars, valve should be replaced if defective. Fixed orifice on 1964-65 cars may be cleaned. If valve is replaced, idle speed and mixture must be readjusted.

Other System Components - Vented filler cap should be cleaned with solvent and air dried. Hoses should be checked for deterioration or sludge accumulation and replaced or cleaned as necessary.

SYSTEM CHECKING

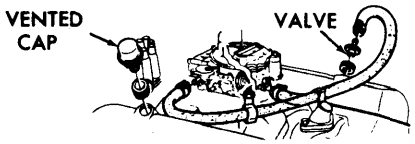
Engine Drop Method

1) Connect a tachometer to engine, set parking brake, start engine.
2) Disconnect hose or fitting leading to intake side of ventilation valve, and cover intake opening of valve with finger.
3) Engine speed should drop at least 50 RPM. If less, valve metering hose or orifice is blocked.



8SM116

1966-67 OPEN VENTILATION SYSTEM (327" V8)



8SM114

1966-67 OPEN VENTILATION SYSTEM (396" & 427" V8)

1963-74 CHEVROLET CLOSED SYSTEM

DESCRIPTION

1963 and later Chevrolet engines use a "closed" positive ventilation system. System components consist of a non-vented oil filler cap, hose from carburetor air cleaner to rocker arm cover, and either a fixed orifice (1964-65), or a PCV valve (1966 and later) located in line from crankcase (rocker arm cover) to intake manifold.

OPERATION

Air enters system through air cleaner to rocker arm cover and circulates through engine crankcase. Fresh air mixes with crankcase fumes and are drawn into intake manifold through PCV valve and hose by intake manifold vacuum. PCV valve, located between crankcase and manifold, insures that air/fuel mixture will not be leaned excessively under conditions of high manifold vacuum during idle. At higher engine speeds, manifold vacuum lowers, and PCV valve opens to admit more air flow. At full throttle, excess fumes are routed through hose to carburetor air cleaner, combined with air/fuel mixture, and burned in engine.

SYSTEM CHECKING

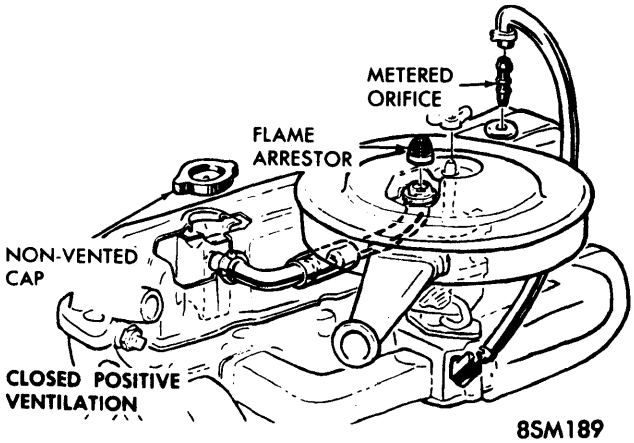
Following difficulties may indicate a malfunctioning PCV valve:

1) Engine stalls frequently after stops, runs rough after restart.

2) Engine loses power and surges at speeds above idle.

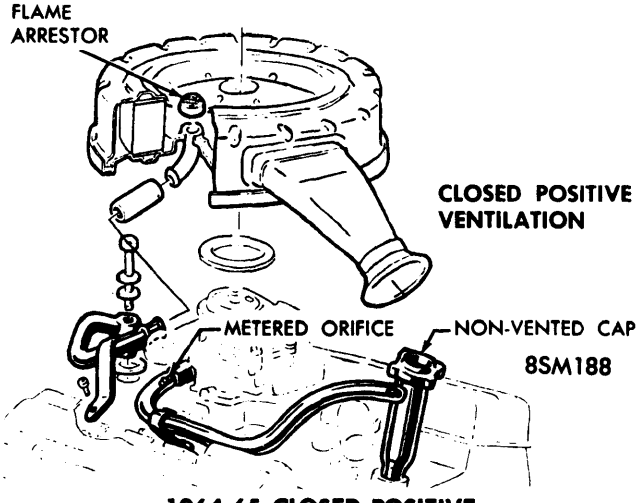
3) Engine has rich rolling idle, produces black smoke at tailpipe.

4) Idle speed fluctuates, but engine does not stall.



8SM189

1964-65 CLOSED POSITIVE VENTILATION SYSTEM (6 CYL.)



8SM188

1964-65 CLOSED POSITIVE VENTILATION SYSTEM (V8)