1961-67 CHEVROLET OPEN SYSTEM (Cont.)

SERVICE PROCEDURES

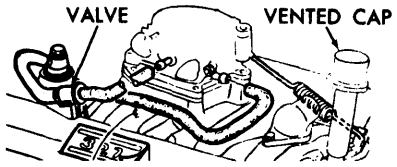
Ventilation Valve - Should be disassembled, cleaned with solvent and air dried (1961-62 only). When reassembling, be sure spring is properly seated in groove just under valve head. On 1963-67 cars, valve should be replaced if defective. Fixed orifice on 1964-65 cars may be cleaned. If valve is replaced,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

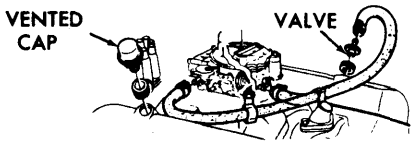
Engine Drop Method

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

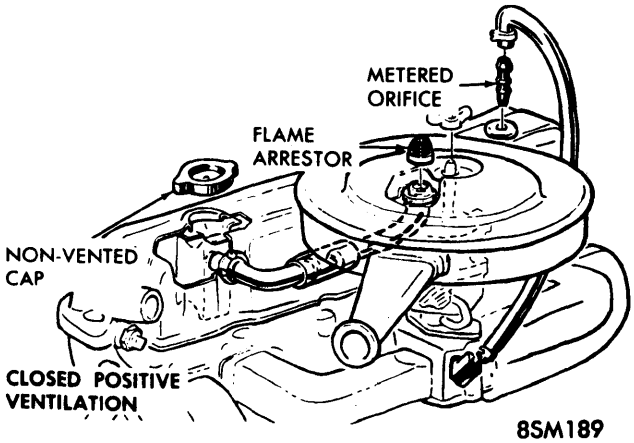
Following difficulties may indicate a malfunctioning PCV valve:

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

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

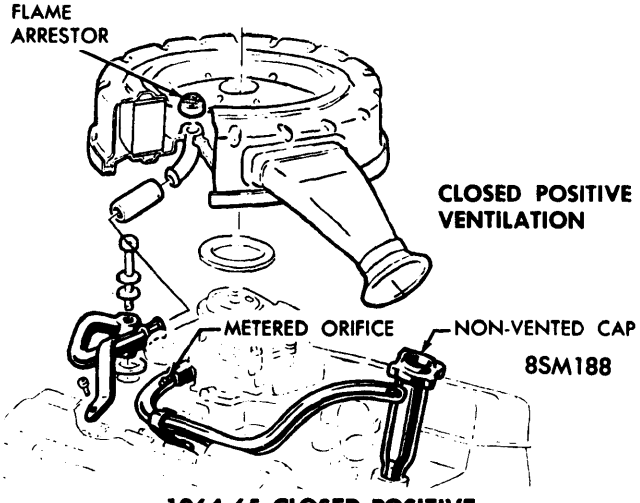
3) Engine has rich rolling idle, produces black smoke at tailpipe.

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



8SM189

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



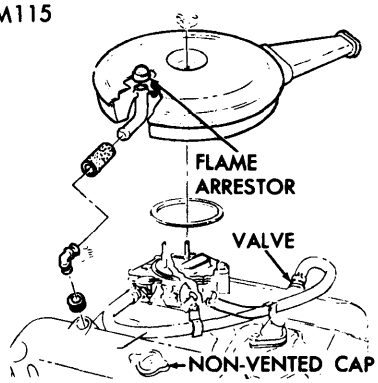
8SM188

1964-65 CLOSED POSITIVE VENTILATION SYSTEM (V8)

1963-74 CHEVROLET CLOSED SYSTEM (Cont.)

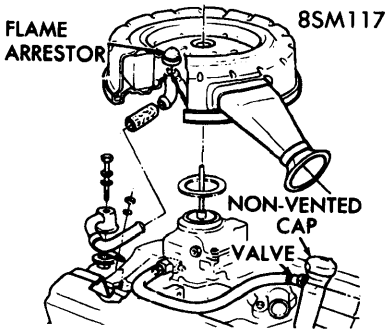
To check operation of system, connect tachometer and vacuum gauge. Set parking brake, start engine and adjust idle speed and mixture. Remove vent valve (PCV) from rocker arm cover grommet (with hose attached). Block opening of valve and read engine RPM change. A decrease of less than 50 RPM indicates a plugged PCV valve. Replace valve. Check for proper function every 4 months or 6,000 miles.

8SM115



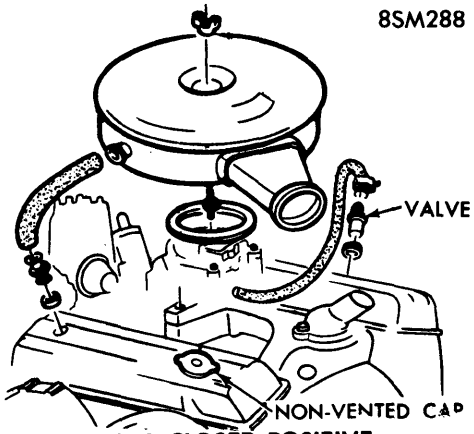
1966-68 CLOSED POSITIVE VENTILATION SYSTEM (396" & 427" V8)

8SM117



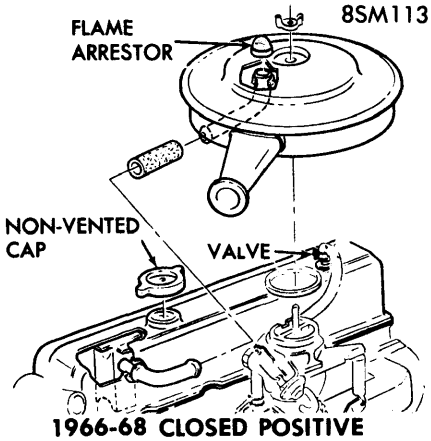
1966-67 CLOSED POSITIVE VENTILATION SYSTEM (283" & 327" V8)

8SM288



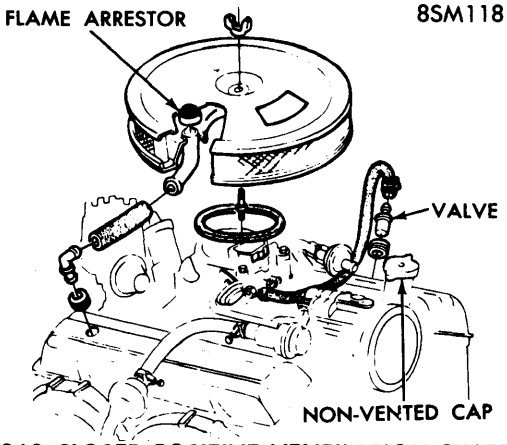
1969 CLOSED POSITIVE VENTILATION SYSTEM (V8 EXCEPT 396" & 427")

8SM113



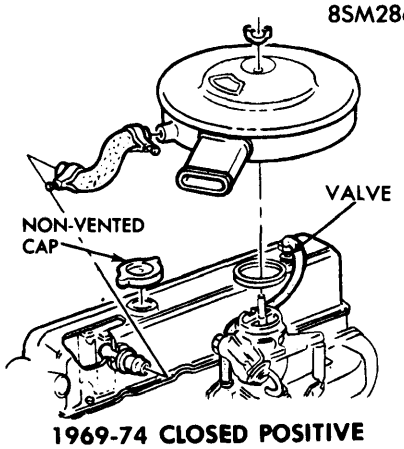
1966-68 CLOSED POSITIVE VENTILATION SYSTEM (6 CYL.)

8SM118



1968 CLOSED POSITIVE VENTILATION SYSTEM (EXCEPT 396" & 427")

8SM286



1969-74 CLOSED POSITIVE VENTILATION SYSTEM (6 CYL.)

Crankcase Ventilation

1963-74 CHEVROLET CLOSED SYSTEM (Cont.)

SERVICE PROCEDURES

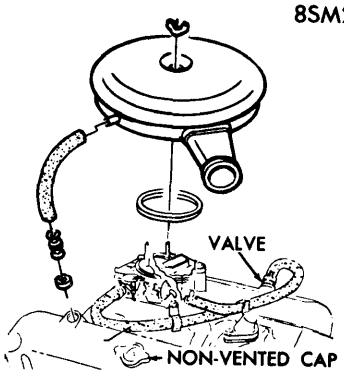
Inspect all hose connections and hoses for deterioration or plugging. On engines with closed element air cleaners, inspect crankcase ventilation filter and replace if necessary. On engines with open element air cleaners, remove flame arrestor and wash in solvent then dry with compressed air.

Crankcase Ventilation Filter – Used on models equipped with Thermac Air Cleaner. Inspect filter every oil change (every 4 months or 6,000 miles), replace if necessary. Replace at least every 24,000 miles.

Open Element Flame Arrestor – Used on models without Thermac Air Cleaner. Clean in solvent and dry with compressed air every 12 months or 12,000 miles.

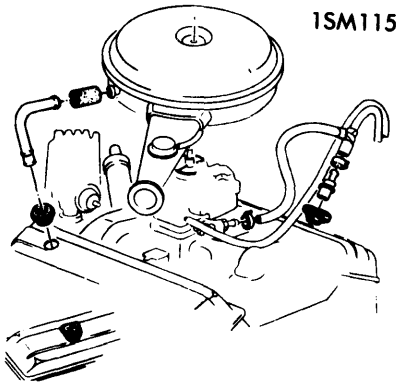
Positive Crankcase Ventilation Valve – Valve should be replaced every 24,000 miles or 24 months.

8SM287



1969-74 CLOSED POSITIVE VENTILATION SYSTEM (396", 402", 427" & 454" V8)

1SM115



1970-74 CLOSED POSITIVE VENTILATION SYSTEM (307", 350" & 400" V8)