1975-79 EXHAUST EMISSION SYSTEMS
Positive Crankcase Ventilation

All Manufacturers

DESCRIPTION

The crankcase ventilation system is a closed system, and is designed to prevent hydrocarbon emissions from escaping into the atmosphere. This is accomplished by routing crankcase vapors through a vacuum controlled Positive Crankcase Ventilation (PCV) valve into the intake manifold. The vapors are mixed with the air/fuel mixture and burned in the combustion process.

OPERATION

Air is supplied to the PCV system through a PCV filter located in the air cleaner or on the rocker arm cover. When the engine is running, fresh air enters the engine through the PCV filter. The air flows through the engine and combines with the blow-by gases. This mixture is drawn through the PCV valve, and burned in the combustion chamber. *See Fig. 1.*

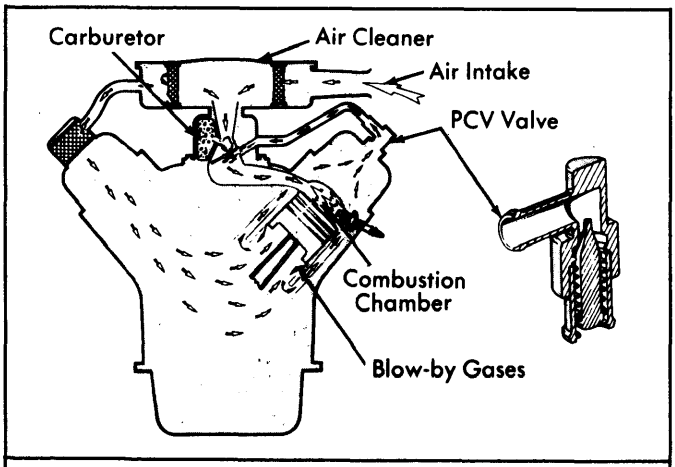

Fig. 1: Typical Crankcase Ventilation System

The PCV is constructed so it is held closed by spring pressure when engine is not running (no vacuum). This prevents an accumulation of hydrocarbon fumes from collecting in the intake manifold, resulting in hard starting.

When the engine is started, manifold vacuum pulls the valve open against spring pressure, allowing crankcase fumes to enter the intake manifold. In the event of an engine backfire through the intake manifold, the PCV valve is forced shut by backfire pressure. This prevents the ignition of fumes in the engine.

During certain engine operations, more blow-by is created than the PCV can handle. The excess amount is returned to the air cleaner through the rocker arm cover and breather assembly, then burned in the engine.

TESTING

ALL MANUFACTURERS (EXCEPT JEEP)

To test the PCV system, start and allow engine to reach normal operating temperature. Make sure engine is idling at normal curb idle and perform the following checks:

1) Remove PCV valve from its mounting. If valve is functioning properly, a hissing noise will be heard as air passes through it. A strong vacuum should be felt when finger is placed over valve inlet. While finger is over inlet, check for vacuum leaks in hose line and at all connections. Re-install PCV valve, then remove crankcase air inlet hose at air cleaner.

2) Loosely hold a piece of stiff paper over opening at end of inlet hose. Paper should be sucked against hose opening with a noticeable force after sufficient time has elapsed for crankcase pressure to lower (usually about a minute).

3) As a final check; stop engine, remove PCV valve and shake it. A metallic clicking noise should be heard, indicating valve is free. Replace any defective parts and/or hoses.

JEEP

1) Remove PCV valve from grommet in rocker arm cover on 6-cylinder models, or hose on V8 models. Connect valve to PCV valve tester (J-23111). Connect a vacuum gauge to intake manifold vacuum.

NOTE: PCV valve must be in a horizontal position and lightly tapped during tests (holding tester in a vertical position).

2) Start engine, allow engine to idle. Compare vacuum and tester reading to flow chart. A valve that flows above or below chart specification must be cleaned or replaced. See JEEP PCV FLOW RATES chart.

NOTE: Jeep 6-cylinder PCV valve is colored Yellow for 1978-79 models, Silver for older models.

JEEP PCV FLOW RATES [1]

Vacuum (In. Hg)	Flow Rate for 6 Cyl. (Yellow or Silver)	Flow Rate for V8 (Black)
16		1.34-1.63
13	1.30-1.90	
7		2.70-3.79
5	1.21-2.26	
3		3.30-4.39
2	1.28-2.56	

[1] – Flow rate given in cubic feet per minute (cfm).

MAINTENANCE

Although the following manufacturers' service procedures give specific intervals, it is recommended the crankcase ventilation system be checked more frequently if vehicles are operated under severe conditions (extreme dust, prolonged idling, trailer hauling or short trips in cold weather).

NOTE: An engine may idle slow or rough due to clogged PCV system. Never adjust carburetor without first checking PCV system. See TESTING in this article. If the PCV system becomes clogged, all crankcase ventilation will stop and serious engine damage could result.

CHRYSLER CORP.

PCV Valve – On Light Duty emission models (up to 8,500 lbs. GVW), check every 15,000 miles and replace every 30,000 miles for maintenance schedule "D"; check every 22,000 miles and replace every 45,000 miles for maintenance schedule "G". On Heavy Duty emission models (over 8,500 lbs. GVW), check every 12,000 miles and replace every 24,000 miles.

Filter Element – On Light Duty emission models, clean crankcase inlet air cleaner every 22,500 miles for maintenance schedule "G", every 30,000 miles for maintenance schedule "D". On Heavy Duty emission models, clean every 12,000 miles.

NOTE: Maintenance is determined by GVW rating on 1975-78 vehicles, and third character ("D" or "G") of "ENGINE FAMILY" identification number on underhood Vehicle Emission Control Information label for 1979 models.

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Positive Crankcase Ventilation (Cont.)

FORD MOTOR CO.

PCV Valve - Valve is located on rocker arm cover. See appropriate FORD PCV SERVICE INTERVALS table for replacement intervals.

Filter Element - Filter is located in air cleaner housing. See appropriate FORD PCV SERVICE INTERVALS table for replacement intervals.

1975-76 FORD PCV SERVICE INTERVALS [1]

Application	Miles
Replace PCV Valve	
Schedule "A"	20,000
All Other Schedules	[2] 30,000
Clean Breather Cap	
Schedule "A"	20,000
Schedule "B"	30,000
Schedule "C"	24,000
All Other Schedules	[3] 30,000

[1] - See emission control decal for maintenance schedule.
[2] - On E350 with GVW over 10,000 lbs., interval is 16,000 miles.
[3] - On E350 with GVW over 10,000 lbs., interval is 12,000 miles.

1977-78 FORD PCV SERVICE INTERVALS [1]

Application	Miles
Replace PCV Valve	
Schedule "A"	[2] 22,500
All Other Schedules	[3] 30,000
Replace Crankcase Vent Filter or Clean Breather Cap	
Schedule "A" & "B"	[2] 30,000
Schedule "C"	24,000
All Other Schedules	30,000

[1] - See emission control decal for maintenance schedule.
[2] - On E100 and F100 models with 300" engine, interval is 20,000 miles.
[3] - On E100 and F100 models with 300" engine, interval is 12,000 miles.

NOTE: On 1975-78 models, PCV valve should be replaced with a high-flow PCV valve if engine has over 20,000 miles. This high-flow PCV valve will improve fuel mileage, and reduce emissions.

1979 FORD PCV SERVICE INTERVALS [1]

Application	Miles
Replace PCV Valve	
Schedule "A"	[2] 22,500
All Other Schedules	30,000
Replace Crankcase Vent Filter	
Schedule "A"	[3] 30,000
Schedule "B"	[4] 30,000
All Other Schedules	30,000

[1] - See emission control decal for maintenance schedule.
[2] - On E100 and F100 models with 300" engine, interval is 20,000 miles.
[3] - E150/250 and F150/250 models with 300" engine only. On E100 and F100 models with 300" engine, interval is 40,000 miles. On all other models, filter change not required for first 50,000 miles and only if necessary thereafter.
[4] - Models with 300" engine only. On all other models, filter change not required for first 50,000 miles and only if necessary thereafter.

GENERAL MOTORS

NOTE: Some 1975-76 models use a spark arrester in the PCV line. Ensure this spark arrester is clean to allow proper air flow.

PCV Valve - Check every 15,000 miles and replace every 30,000 miles on Light Duty emission models (up to 8,500 lbs. GVW); check every 12,000 miles and replace every 24,000 miles on Heavy Duty emission models (over 8,500 lbs. GVW). Valve is located on rocker arm cover.

Filter Element - Replace every 30,000 miles on Light Duty emission models, every 24,000 miles on Heavy Duty emission models Filter is located in carburetor.

INTERNATIONAL HARVESTER

PCV Valve - Clean every 15,000 miles, replace every 30,000 miles. Valve is located on rocker arm cover on 4 and 6 cylinder models, on intake manifold on V8 models.

JEEP

PCV Valve - Replace every 30,000 miles. Valve is located on rocker arm cover on 6 cylinder models, on intake manifold on V8 models.

Filter Element - Clean every 30,000 miles. Filter is located inside air cleaner on 6 cylinder models, in oil filler cap on V8 models.