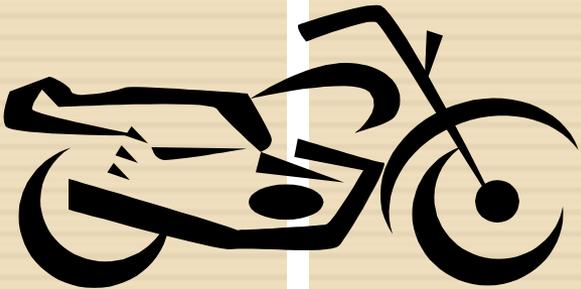


# AUTO MOBILE Pollution



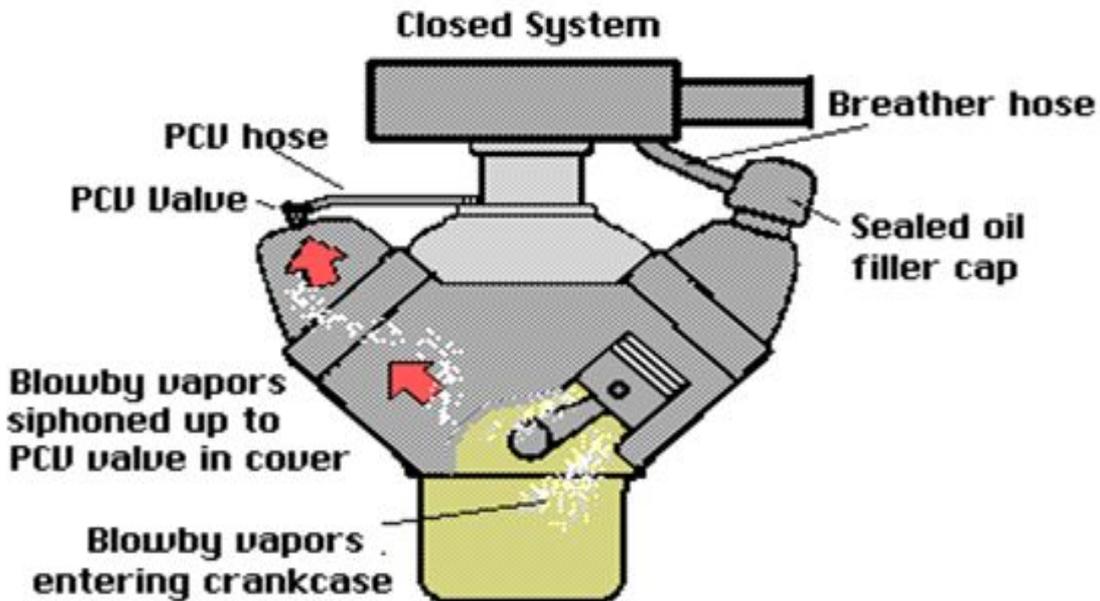
POSITIVE CRANKCASE VENTILATION



# □ PCV System

✓ The purpose of the Positive Crankcase

Ventilation (PCV) system is to remove the harmful gases from the crankcase

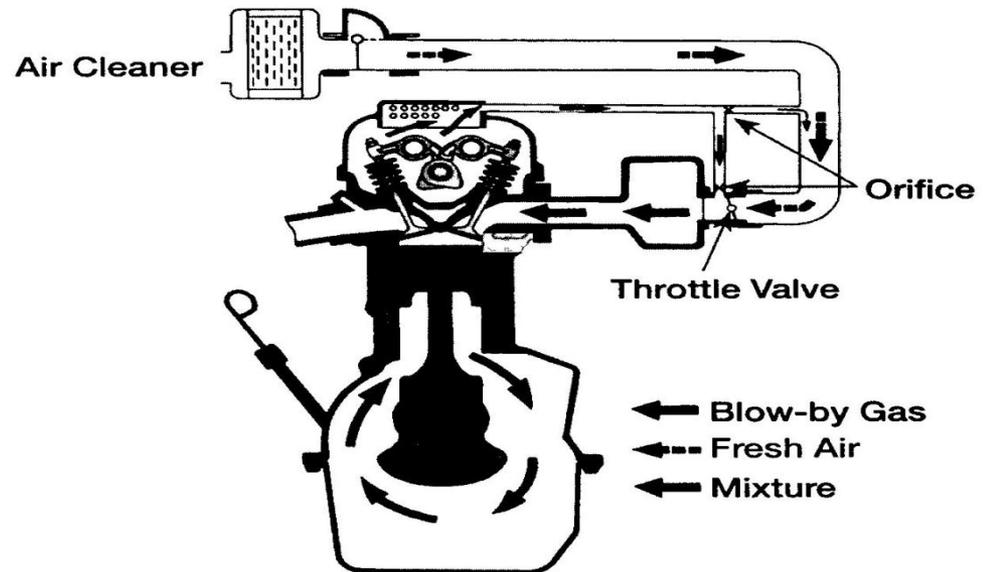




# About Blowby Gases

✓ During normal compression & power stroke, a small amount of gases in the combustion chamber escapes past the piston, that is called blow by gases.

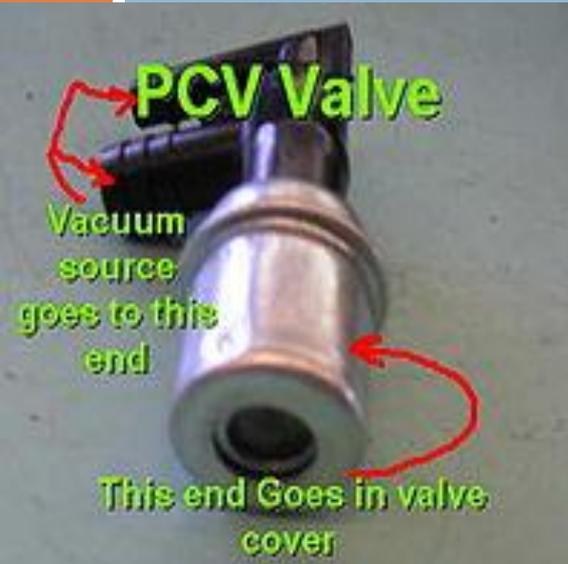
✓ Approximately 70% of the unburned fuel (HC)



# **How works PCV ?????**

- The blow by vapors that end up in an engine's crankcase contain moisture as well as combustion by products and unburned fuel vapors. The crankcase is sealed to prevent the escape of these gases into the atmosphere, but the vapors must be removed to prevent oil contamination that leads to sludge formation. The positive crankcase ventilation (PCV) system siphons these vapors from the crankcase and routes them into the intake manifold so they can be reburned in the engine.

# What is the PCV valve ??????



- The main component in the PCV system is the PCV valve, which is usually located in the valve cover. A hose connects the PCV valve to the intake manifold. A second hose between the air cleaner and crankcase or other valve cover provides fresh air to help flush the vapors out of the crankcase . Some engines have a separate air filter for the PCV breather hose located inside the air cleaner.

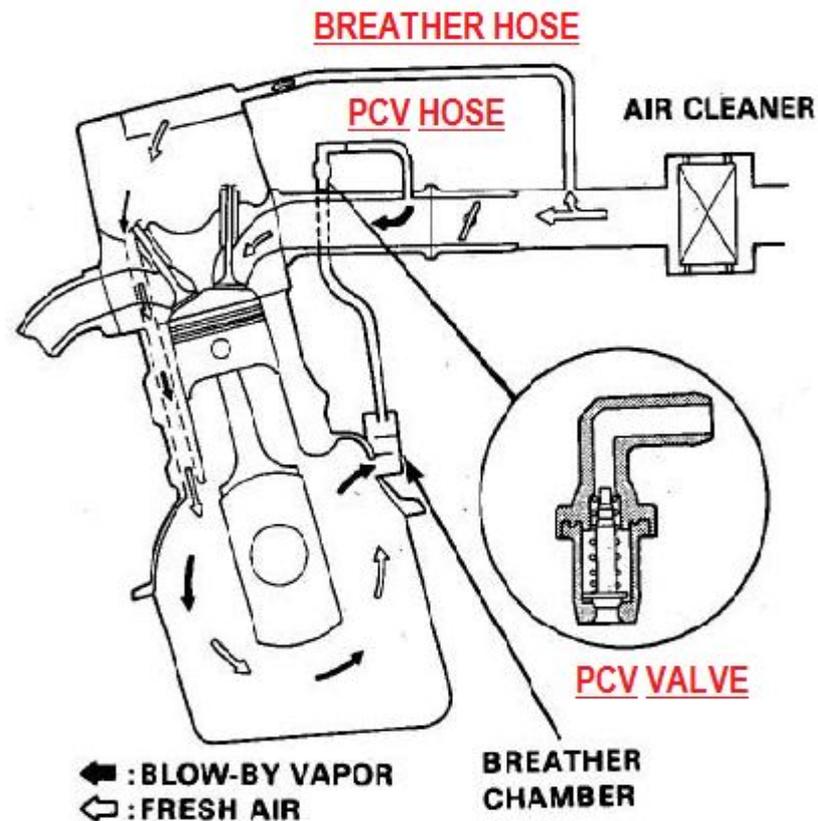
# □ PCV System Components

□ The variable-flow type PCV systems are also very simple in design and consists of the following components:

1. PCV Valve

2. PCV purge hose

3. Breather hose



# ❑ **Function of Components**

- ❑ **PCV Valve** :- PCV valve is used to regulate blow by flow back into the intake manifold
- ❑ **Breather Hose** :- Breather hose is source of fresh clean air.
- ❑ **PCV Hose** :-PCV Hose is used to take blow by gases to intake manifold.

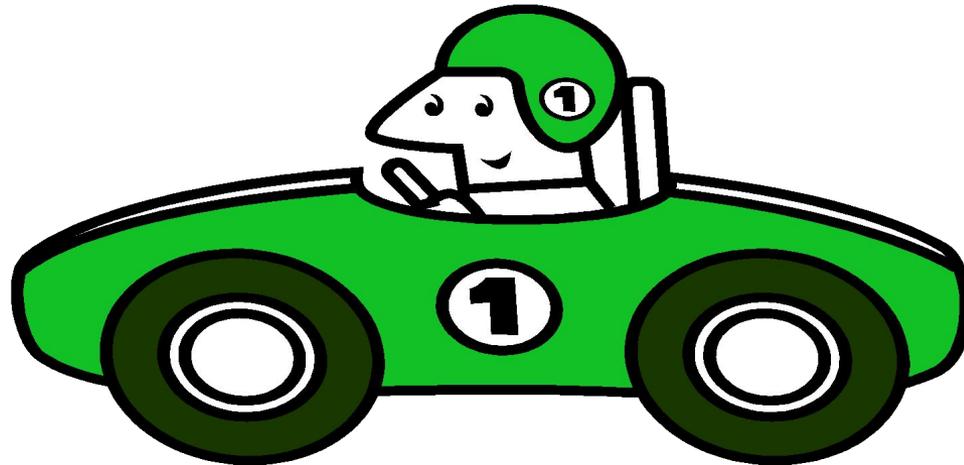
# ❑ Open PCV Systems

- ✓ The open system draws fresh air through a vented oil filler cap, usually chrome plated in restored cars. This works fine as long as the vapor volume is minimum and when the engine is running. However, when the crankcase vapor becomes excessive - or when the engine is shut off - it is forced back through the vented oil filler cap and into the open atmosphere. The open PCV system, though successful at removing contaminated vapors from the crankcase, is not completely effective as a pollution control device.

# ❑ Closed PCV Systems

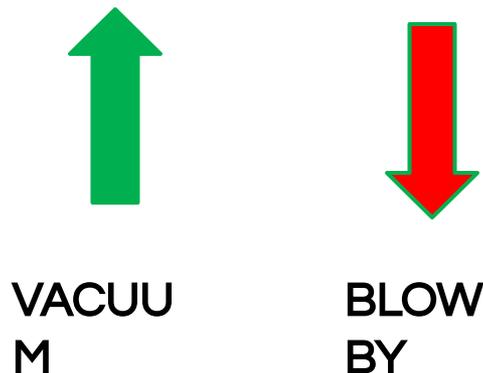
- ✓ The closed PCV system draws fresh air from the air filter housing. The oil filler cap in this system is NOT vented. Consequently, excess vapor will be carried back to the air filter housing and from there into the intake manifold. The closed system prevents vapor, whether normal or excessive, from reaching the open atmosphere. The closed system is very effective as an air pollution control device.

# PCV System Operation

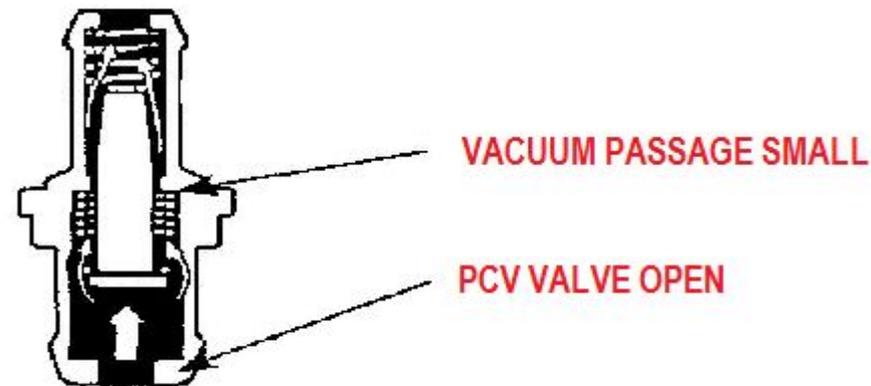


# □ During Idle and Deceleration

✓ Blow by production is very low, but intake manifold vacuum is very high. This causes the pintle inside the PCV valve to fully retract against spring tension. The positioning of the pintle provides a small vacuum passage and allows for low blow by flow to the combustion chamber .



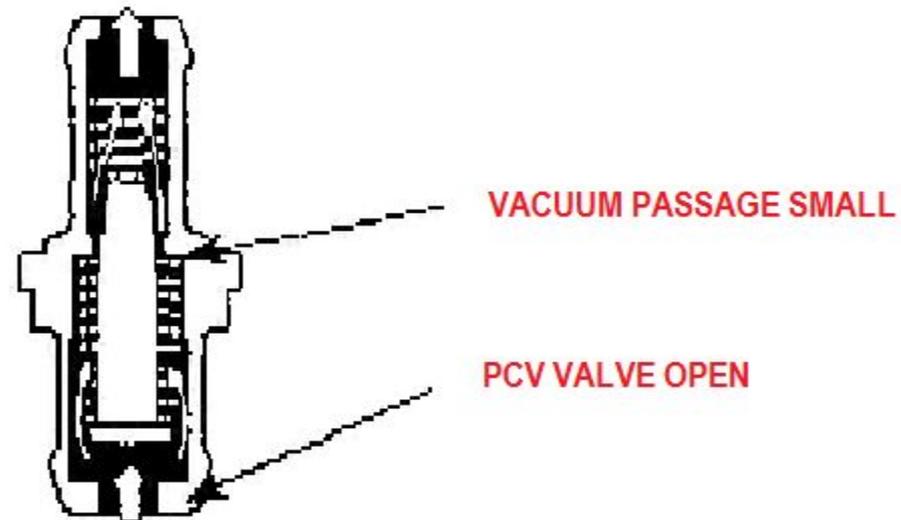
PCV VALVE (IDLA, DECERERATION)



# □ During low load cruising

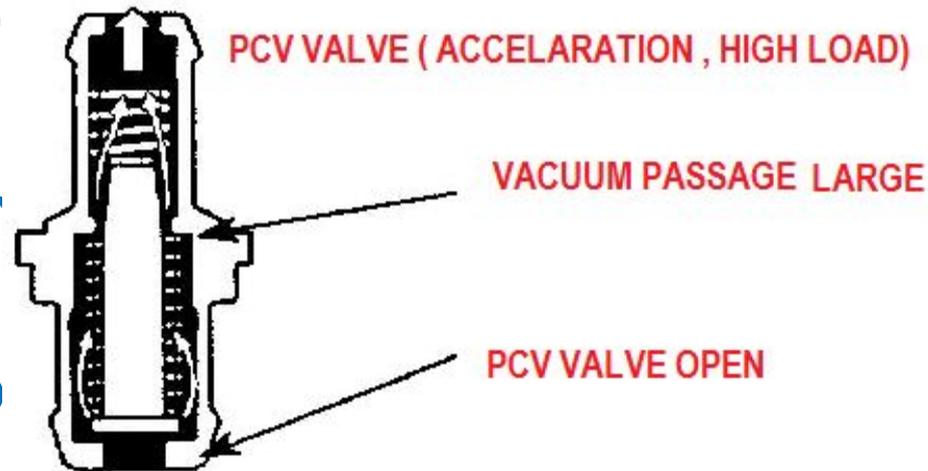
✓ The pintle inside the PCV valve is positioned somewhat in the center of its travel. This positioning allows a moderate volume of blowby flow into the combustor.

PCV VALVE (LOW LOAD CRUISING)



# □ During acceleration & High load operations

✓ Blowby production is very high. The pintle extends out further from the restriction allowing the maximum flow of blowby into the combustion chamber. During extremely high engine loads, if blowby volume exceeds the ability of the PCV valve to draw in the blowby flows through the breather housing where it can enter the comb



# □ When the engine is off or it backfires

✓ spring tension closes the valve completely preventing the release of blowby into the intake

manifold. The valve closes during a backfire to

prevent the flame from traveling to the crankcase

where it could ignite the e

# ☐ Pay Attention To These Things!

1. The recommended replacement intervals are 12 months or 10,000 miles (16,000 km).
2. All hoses or tubes used in the PCV system should be cleaned and inspected. If any cracks or breaks are noticed in the hose, it should also be replaced.
3. All hose connections should be inspected to assure an air-tight seal.

