

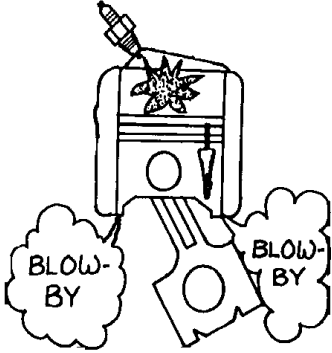
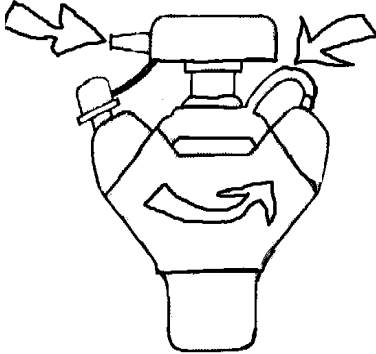
# PCV SERVICE

## Positive Crankcase Ventilation

Students: 1. \_\_\_\_\_  
 2. \_\_\_\_\_  
 3. \_\_\_\_\_

Date: \_\_\_\_\_  
 Block: \_\_\_\_\_

Fill in each box with the appropriate information. Team members must answer questions from the instructor to receive credit for this lab.

VEHICLE IDENTIFICATION			
Year:		Make:	
Model:		Mileage:	
Displacement:		# of Cylinders:	
SYSTEM DESCRIPTION			
<p>The PCV System ventilates the crankcase when the engine is running. By drawing fresh air from the air filter into the crankcase, harmful vapours called Blow-by are flushed out through the PCV valve into the intake manifold. The PCV System helps lower hydro-carbon emissions.</p> <p>Some modern fuel injected engines do not use a PCV valve - the crankcase is ported directly into the intake tube upstream of the throttle body. Blow-by is drawn into the airstream flowing into the engine. These engines cannot be tested with this lab.</p>			
SYSTEM OPERATION			
<p>The PCV Valve is a small cylindrical object that connects the crankcase (usually, but not always, at the valvecover) to the intake manifold.</p> <p>It is a variable flow valve which allows crankcase ventilation, but prevents excess air flow during idle. High vacuum at idle keeps the valve closed, restricting the loss of vacuum. When the throttle opens, the vacuum decreases, allowing the valve to open, increasing the air flow and crankcase ventilation.</p> <p>A faulty PCV Valve can cause two major problems. A plugged PCV system or a PCV Valve stuck in the closed position (low-flow) can prevent proper crankcase ventilation and increase hydro-carbon emissions. If the valve sticks in the open position (high-flow), it acts like a vacuum leak, causing a rough idle.</p>			

The PCV valve also acts as a one-way check valve that is opened by engine vacuum and closes if the engine backfires. This prevents excess pressure or flames from entering the crankcase.

**SYSTEM TESTING**

- Locate PCV valve
- Hoses should not be hard, cracked or split
- Remove the PCV
- Does the valve rattle when you shake it? [yes] [no]
- Replace the PCV, but disconnect the valve cover side of the PCV
- Run engine at idle
- Place your finger over the valve opening. Is there a hissing sound and a strong suction? [yes] [no]
- Does the RPM increase or decrease when you do this?

**Explain why:**

- Replace or reconnect PCV valve
- Check PCV filter or breather in the air cleaner (if equipped). Clean or replace.
- Remove oil filler cap and place a piece of card paper over the opening. Is it held down by suction within a minute?
  - No suction = LEAK! Find it and fix it!
  - Suction = Proper operation

**CAUTION!**

Never run a vehicle without the exhaust system connected or the overhead doors open!

If the PCV valve does not rattle, it should be cleaned or replaced

If the engine is chain driven overhead cam, DO NOT open the oil fill cap while the engine is running - oil will splatter everywhere!

**STOP!!**

**INSTRUCTOR'S INITIALS:**

**QUESTIONS**

1. The PCV Valve is used as a one-way check valve. This allows vacuum into the crankcase for ventilation, but prevents \_\_\_\_\_ and \_\_\_\_\_ from entering the crankcase if the engine backfires.
2. What three things would happen if the PCV system became plugged?
3. How do blow-by gases shorten engine life?

**STOP!!**

**INSTRUCTOR'S INITIALS:**