SECTION 11

Positive Crankcase Ventilation (PCV) Systems

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Description and Operation

POSITIVE CRANKCASE VENTILATION PCV SYSTEMS

Engine Applications

All Engines

The Positive Crankcase Ventilation (PCV) Systems vent harmful combustion blow-by fumes from the engine crankcase into the engine air intake for burning with the fuel and air mixture. The PCV valve limits the fresh air intake to suit the engine demand; it also serves to prevent combustion backfiring into the crankcase. Other benefits from the PCV system are:

- Maximize oil cleanliness by venting moisture and corrosive fumes from the crankcase.
- Protect against crankcase explosions.
- Automatically regulate ventilation system airflow to the engine air intake as required by engine operating conditions.

For further information regarding the makeup of the system and its relationship to other engine/emission systems, refer to the Schematic Diagrams, Section 4 of this manual.

Diagnosis and Testing

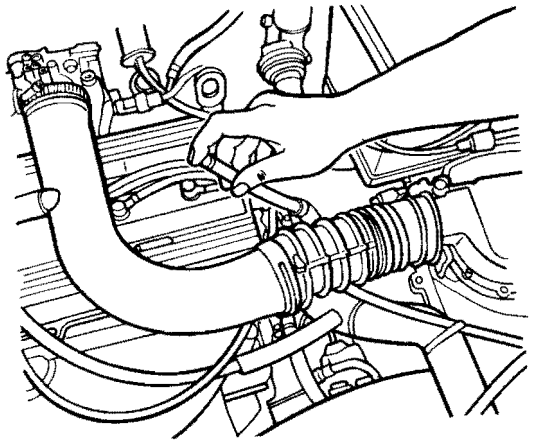
System Inspection

1. Visually inspect the components of the PCV System.
   Look for:

MECHANICAL
• Rough Idle • Slow Starting • High Oil Consumption • Loose, Leaking, Clogged, or Damaged Hoses

2. Check the fresh air supply hose and the PCV hose for air leakage or flow restriction due to loose engagement, hose splitting, cracking, kinking, nipple damage, rubber grommet fit or any other damage.
3. If a component is suspected as the obvious cause of a malfunction, correct the cause before proceeding to the next step.
4. If all checks are OK, proceed to Pinpoint Tests.

Diagnosis and Testing | All Engines | PCV

TEST STEP	RESULT ▶	ACTION TO TAKE
PCV1 PCV VALVE SHAKE TEST		
• Remove the PCV Valve from the engine valve cover and disconnect the valve from the PCV hose. • Vigorously shake the PCV Valve and confirm that valve plunger is free to move and rattle within PCV valve body. • **Is plunger free to move?**	Yes ▶	GO to **PCV2**.
	No ▶	REPLACE the PCV Valve.
PCV2 PCV SYSTEM FUNCTION		
• Reinstall PCV Valve. • Idle engine until warmed up. • Remove the fresh air inlet hose at the air inlet end and plug the nipple immediately to prevent stalling. • Verify by feel that vacuum is present at the inlet end of the hose. • **Is vacuum present?**  A13625-A	Yes ▶	Return to Diagnostic Routines, Section 2.
	No (no vacuum) ▶	CHECK both fresh air and PCV hoses for leaks or loose connections. CHECK for loose oil dipstick. CORRECT as required until vacuum can be felt at the inlet end of the fresh air supply hose.
	No (oil or sludge present) ▶	Return to Diagnostic Routines, Section 2. **NOTE: If air pressure, oil, or oily sludge is present at the intake end of the fresh air supply hose, the engine has excessive blow-by, caused by excess cylinder bore, piston ring, or valve stem wear.**