SECTION 9

Positive Crankcase Ventilation Systems

Contents

Positive Crankcase Ventilation System

DESCRIPTION

Typical Positive Crankcase Ventilation (PCV) System

The positive crankcase ventilation system (Fig. 1) cycles crankcase gases back through the engine where they are burned. In a typical system, the PCV valve regulates the amount of ventilating air and blow-by gas to the intake manifold and prevents backfire from traveling into the crankcase. The PCV valve should be mounted in a vertical position (Fig. 1). On some engine applications, the PCV system is connected with the evaporative emission system.

Unique 1.9L-2V Positive Crankcase Ventilation (PCV) System

The vent system for the 1.9L engine (Fig. 2) does not depend on a flow of scavenging air, as do all other Ford engines, but evacuates crankcase vapors that are drawn into the intake manifold in metered amounts through a Dual Orifice Valve Assembly. A small orifice is connected to the intake manifold at all times. A larger orifice, controlled by a carburetor port signal, opens to the intake manifold during part throttle and WOT operation. If the availability of crankcase vapor is low (at idle for instance) air maybe drawn along with crankcase vapor through the smaller orifice. If the availability of crankcase vapor is high (at high speed operation) crankcase vapor is delivered to the intake manifold through both orifices. If the amount of crankcase vapor available exceeds that which can be handled by the two orifices, the excess flow is routed to the air cleaner. The Dual Orifice Valve is the critical point of this system.

Positive Crankcase Ventilation System

Diagnostic Test

PCV

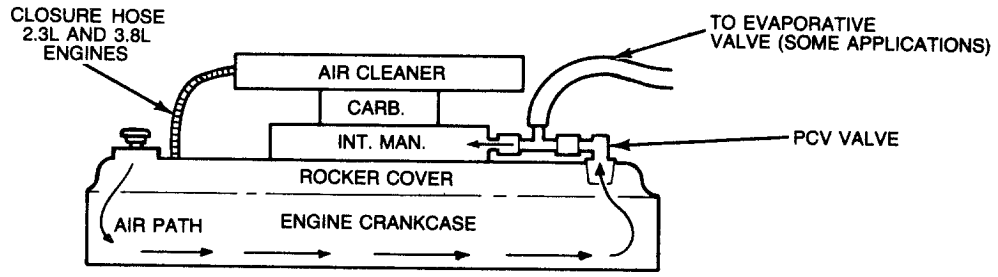

Figure 1 Typical PCV System (Except 1.9L with 2V Carburetors)

Set parking brake and block wheels. Place transmission/transaxle in Neutral or Park. Place the A/C-Heat selector to the OFF position. Go to PCV Test Step 1.

TEST STEP	RESULT ▶	ACTION TO TAKE
PCV1 STUCK PCV VALVE CHECK		
• Remove PCV valve from rocker cover grommet. • Shake the PCV valve. • Does the PCV valve rattle when shaken?	Yes ▶	GO to PCV 2.
	No ▶	PCV valve is sticking. REPLACE PCV valve.
PCV2 PCV SYSTEM CHECK		
• Start engine and bring to normal operating temperature. • Disconnect hose from air cleaner. • Place a stiff piece of paper over the hose, wait one minute. • Does the vacuum hold the paper in place? • For 2.3L HSC, 2.8L & 4.9L remove the corrugated hose from the oil separator nipple and place a stiff piece of paper over the nipple, wait one minute. • Does the vacuum hold the paper in place?	Yes ▶	System is OK. GO to Section 2 for vehicle symptoms.
	No ▶	System is plugged or Evaporative Emission Valve is leaking, GO to PCV3.
PCV3 EVAPORATIVE EMISSION SYSTEM CHECK		
• Disconnect evaporative hose, cap the TEE, and retest. • Place a stiff piece of paper over the hose, wait one minute. • Does the vacuum hold the paper in place?	Yes ▶	GO to Evaporative Emission System, Section 7.
	No ▶	CHECK for vacuum in the system (filter cap, PCV valve, hoses, oil separator on 2.3L) and rocker cover for bolt torque/gasket leak. SERVICE as necessary.