1974-79 EXHAUST EMISSION SYSTEMS
Ford Motor Co. Ported Vacuum Switches

1975-78 Capri, Capri II

DESCRIPTION

The Ported Vacuum Switches (PVS) are temperature sensitive vacuum controlling devices. The two port and three port PVS valves have three temperature ranges. Green PVS is calibrated at 68°F (20°C), Black PVS is calibrated at 100°F (38°C), and plain or Blue PVS are calibrated at 133°F (57°C).

The electric PVS is a combination vacuum switching and electric signalling device. There are two versions of the electric PVS valve, one with normally closed contacts and one with normally open contacts.

OPERATION

TWO PORT PVS

The two port PVS is a vacuum on or vacuum off device depending on engine coolant temperature. When coolant temperature is below PVS temperature range, vacuum is shut off. When coolant temperature is above PVS temperature range, vacuum will pass through PVS.

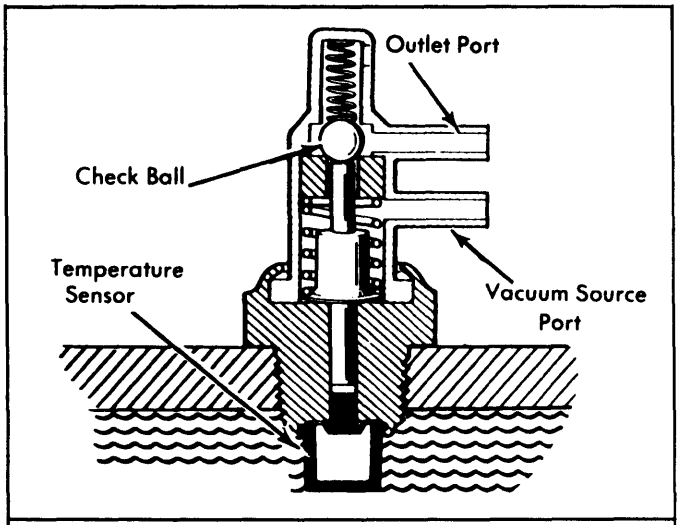

Fig. 1: Cutaway View of Two Port PVS

THREE PORT PVS

On a three port PVS valve the center port is connected to a vacuum source. The top port is open and the bottom port is closed to the center port when coolant temperature is below PVS temperature range. The bottom port is open and the top port is closed to the center port when coolant temperature is above PVS temperature range.

ELECTRIC PORTED VACUUM SWITCH

The electric PVS is only used on some engines equipped with air injection and a catalytic converter. Two electric PVS valves are used, one with normally closed contacts and one with normally open contacts. On both types of switches, the center and bottom ports operate in the same manner as a regular three port PVS. On normally closed contact PVS, the contact is closed until coolant temperature reaches 235°F (113°C), at which time the contact opens. On the normally open contact PVS, the contact is open until coolant temperature reaches 235°F (113°C), at which time the contact closes.

TESTING

TWO PORT PVS

With cold engine and bottom port on PVS connected to vacuum source, the top port should have no vacuum reading. With coolant temperature above the PVS range, top port should have same vacuum as bottom port. See PVS COLOR CODES table. If PVS fails to operate as described, replace switch.

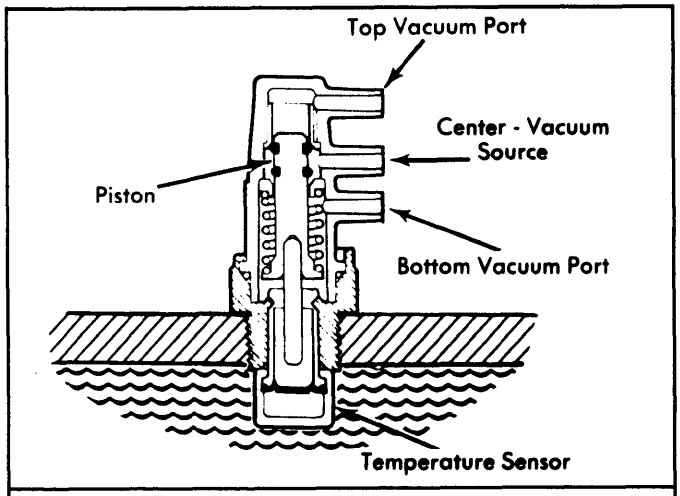

Fig. 2: Cutaway View of Three Port PVS

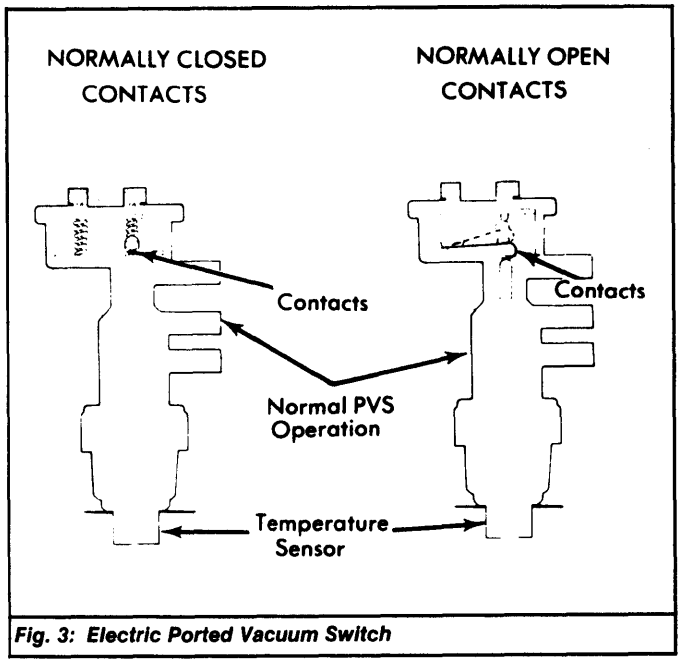

Fig. 3: Electric Ported Vacuum Switch

THREE PORT PVS

With cold engine and center port connected to vacuum source, top port should have same vacuum as center port. Raise coolant temperature above PVS range. See PVS COLOR CODES table. Top port should close to vacuum and bottom port should open to center port. If PVS fails to operate as described, replace switch.

PVS COLOR CODES

PVS Color	Temp.
Green	68°F (20°C)
Black	100°F (38°C)
Plain or Blue	133°F (57°C)

ELECTRIC PORTED VACUUM SWITCH

1) The PVS section should be checked as a regular three port PVS. To check the electrical section, connect a self powered test light to switch. *See Fig. 4*. On the normally closed switch with the coolant temperature cold the light should glow.

Ford Motor Co. Ported Vacuum Switches (Cont.)

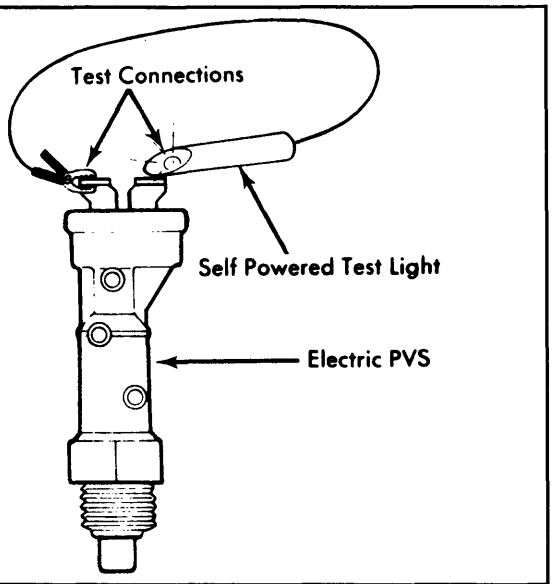

Fig. 4: Testing Electric PVS Valve

2) With coolant temperature hot (235°F), the light should not light. On the normally open switch with coolant temperature cold, the light should not light. With coolant temperature hot (235°F) the light should glow. If either section of the electric PVS fails to operate as described, replace switch.