

# Exhaust Emission Systems

## FORD MOTOR CO. PORTED VACUUM SWITCH

### DESCRIPTION

This device is a temperature sensitive, three outlet, vacuum valve. It is incorporated in the distributor vacuum advance supply line of certain engines to provide advanced ignition timing under prolonged idling conditions. It is designed to eliminate engine overheating at prolonged idle by switching the vacuum source from carburetor vacuum to direct intake manifold vacuum. The resultant advanced timing causes an immediate increase in engine speed to improve fan and water pump action, thus helping to lower engine temperature.

### OPERATION

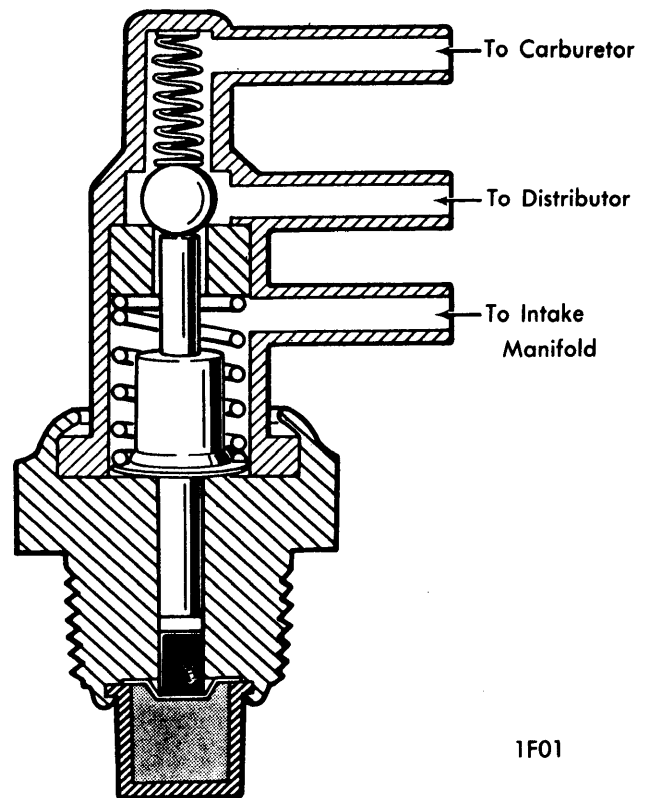
When the coolant temperature rises at idle to between 220°F and 230°F, the ported vacuum switch is actuated. At this time the check ball inside the valve moves up and closes off the carburetor vacuum port. The two lower ports are now connected and the higher intake manifold vacuum is applied to the distributor. Engine speed will increase about 100 RPM as an aid to engine cooling.

### TESTING

- 1) Make certain all vacuum hoses are properly routed and installed. Attach a tachometer to the engine. Bring engine up to normal operating temperature. Ensure choke is fully open. Do not overheat engine.
- 2) Record engine idle RPM with transmission in neutral. Disconnect vacuum hose from intake manifold at PVS and plug hose.
- 3) Note engine idle RPM with hose disconnected. If no change is evident, valve is OK up to this point. If there should be a drop of 100 RPM or more, replace PVS.

4) Reinstall vacuum line on intake manifold. Be sure coolant level and mixture is correct. Check for proper radiator pressure cap. Cover radiator sufficiently to induce a high temperature condition.

5) Run engine until temperature light comes on, or until temperature gauge is at high end of scale. Engine speed by this time should have increased by 100 RPM or more. If not, replace PVS. Take care not to excessively overheat engine.



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SECTIONAL VIEW OF PVS