1973-74 FORD MOTOR CO. SPARK DELAY VALVE SYSTEM

DESCRIPTION

The Spark Delay Valve system, used on some engines, aids in the control of exhaust emissions by delaying vacuum spark advance during light acceleration. The bi-directional valve controls vacuum flow by means of an internal sintered metal disc and check valve combination. The delay valve is connected in series with vacuum supply to advance side of distributor. Some applications also add a Delay Valve By-Pass system to override the delay valve action during low temperature periods. The By-pass system consists of an ambient temperature switch, vacuum solenoid valve and check valve.

OPERATION

Purpose of the valve is to delay vacuum spark advance during periods of acceleration and still permit immediate spark retard on deceleration. The length of delay will depend on engine application. Several different valves are used and can be identified by a color code. The By-Pass system is a temperature actuated system activated by the vacuum solenoid which receives a temperature signal from the ambient temperature switch. At low temperatures, the spark delay system results in insufficient spark advance during acceleration. The by-pass system allows undelayed advance by opening the check valve.

TROUBLE SHOOTING

If valve is defective or installed backwards, engine will idle roughly, ping and increase fuel consumption. When blowing air through valve by mouth, air will appear to flow in one direction. This should not be misinterpreted as direction of vacuum flow. *NOTE — It is very important that BLACK or inlet side of Spark Delay Valve and By-Pass Check Valve be connected to vacuum line leading to carburetor.*

TESTING

SPARK DELAY VALVE

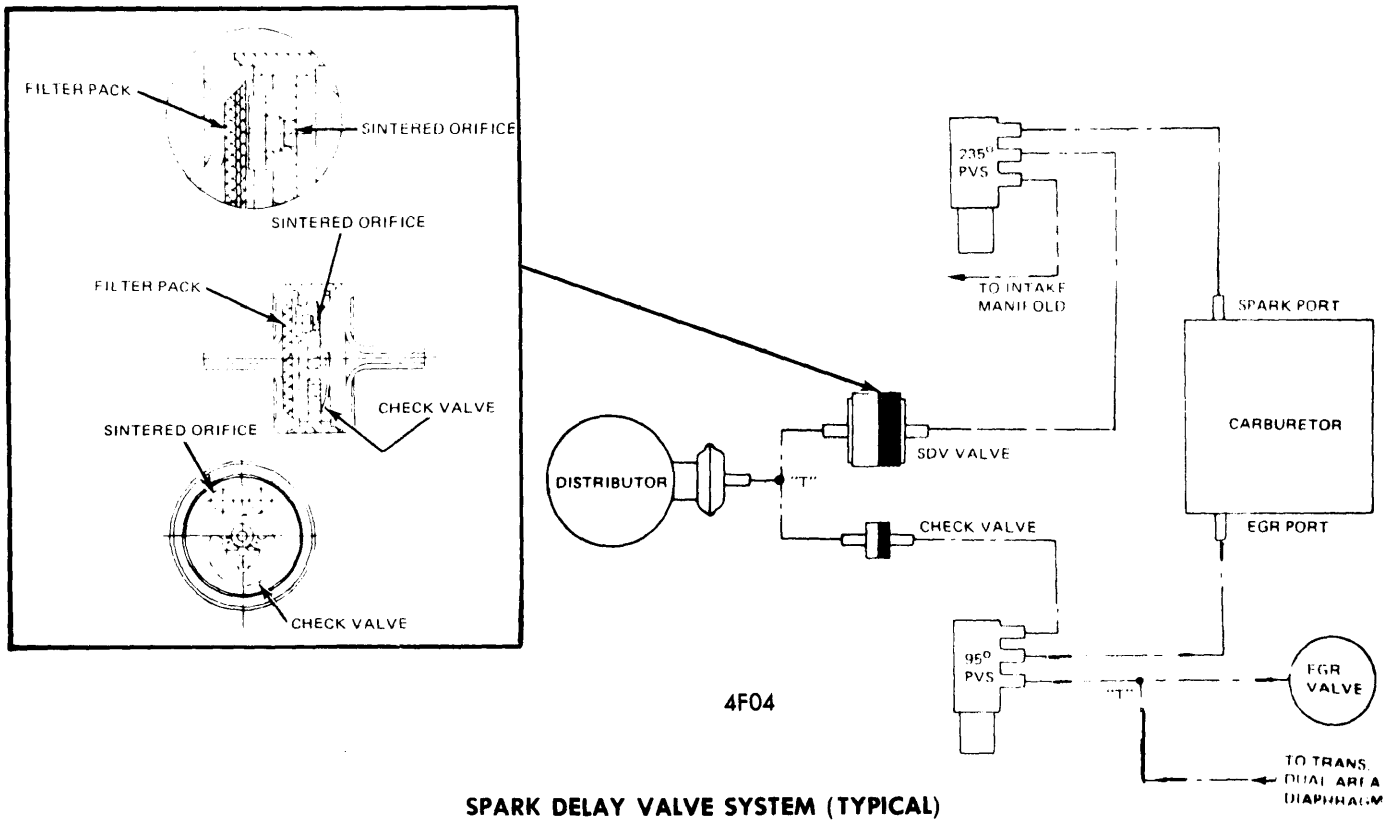
1) Set distributor vacuum test gauge to 10 in. Hg. Connect black side of spark delay valve to vacuum source. Connect a 24" section of vacuum hose to gauge and to colored side of delay valve. Apply vacuum and observe time in seconds for gauge to reach 8 in. Hg with a 10 in. Hg vacuum source.

2) To inspect delay valve for excessive restriction, minimum and maximum time for valve to reach 8 in. Hg should be as follows:

Valve Color Code	Time in Seconds Minimum	Maximum
Black & Gray	1	4
Black & Brown	2	5
Black & White	4	12
Black & Yellow	5	14
Black & Blue	7	16
Black & Green	9	20
Black & Orange	13	24
Black & Red	15	28

CHECK VALVE

With vacuum supply connected to BLACK side of check valve and vacuum gauge on opposite side, gauge should read vacuum instantly. Reverse connections. Zero vacuum should be indicated. If valve fails either test, replace it.



SPARK DELAY VALVE SYSTEM (TYPICAL)