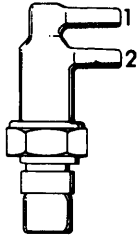
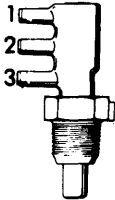
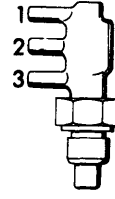
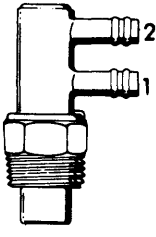
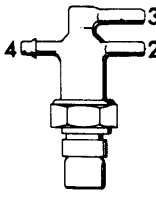
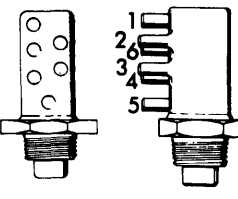
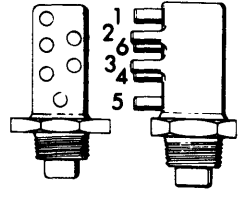


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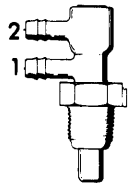
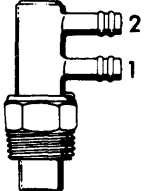
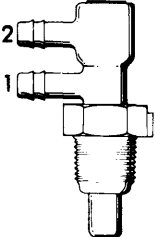
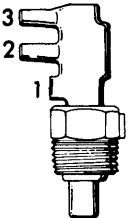
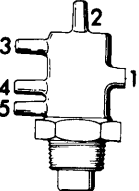
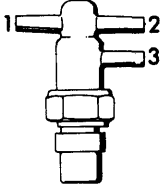
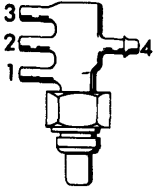
G.M. EMISSION VALVES AND SWITCHES

General Motors vehicles use a variety of vacuum and thermal switches and valves to control emission systems. The most commonly used of these valves and switches are listed below.

The chart can be used to identify and check operation of the valves and switches. See *APPLICATION TABLES* in this book to determine application of these devices on specific engines.

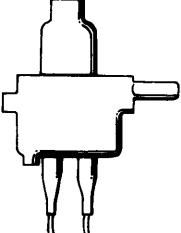

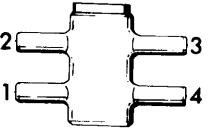
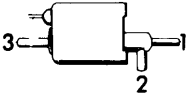
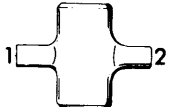
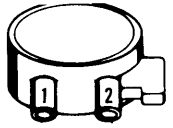
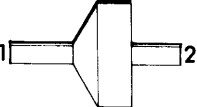
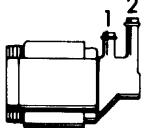
COMPONENT	ACTUATED	OPERATION
 <p>Cold Delay Spark TVS</p>	Air Temperature	Both ports connected when air temperature is over 62°F.
 <p>Distributor TVS</p>	Coolant Temperature	Ports 1 and 2 are connected and 3 is blocked below 120°F; 2 and 3 are connected and 1 is blocked above 120°F.
 <p>Distributor TVS</p>	Air Temperature	Ports 1 and 2 are connected and 3 is blocked below 70°F; 2 and 3 are connected and 1 is blocked above 70°F.
 <p>Distributor TVS</p>	Coolant Temperature	Both ports connected when coolant temperature is over 100°F.
 <p>TAC DTVS</p>	Air Temperature	Ports 2, 3, and 4 are connected below 62°F; ports 2 and 4 are connected and 3 is blocked above 62°F.
 <p>EGR DTVS</p>	Coolant Temperature	Ports 1 and 5 connected, 2 and 6 connected, 3 and 4 blocked below 120°F. Ports 1 and 5 connected, 2 and 6 connected, 3 and 4 connected above 120°F.
 <p>EGR/EMR DTVS EGR/EFE/EMR DTVS EGR DTVS/</p>	Coolant Temperature	Ports 1 and 2 connected, 3 and 6 connected, 4 and 5 blocked below 120°F. Ports 1 and 5 connected, 2 and 6 connected, 3 and 4 connected above 120°F.

G.M. EMISSION VALVES AND SWITCHES (Cont.)

COMPONENT	ACTUATED	OPERATION
	EGR TVS	Coolant Temperature Both ports connected when coolant temperature is above 100°F.
	EGR/CP TVS	Coolant Temperature Both ports connected when coolant temperature is above 120°F.
	CP TVS	Coolant Temperature Vacuum passes through a small orifice below the switching point, and passes through freely when temperature is above switching point. Switching point can be 120°, 140°, or 170°F.
	EFE TVS	Coolant Temperature Ports 2 and 3 are connected, 1 is blocked below switching point; port 3 is blocked and port 2 is vented to atmosphere through 1 when temperature is above switching point. Switching point can be 90° or 115°F.
	EGR/EFE TVS	Coolant Temperature Ports 4 and 5 connected, 1, 2, and 3 connected below 120°F. Ports 1 and 4 connected, 3 and 2 connected and port 5 blocked above 120°F.
	CVB TVS	Air Temperature Ports 1 and 2 connected, port 3 blocked below 70°F. All ports connected when air temperature is above 70°F.
	CVB DTVS	Air Temperature Ports 2, 3, and 4 connected, port 1 blocked below switching point. Ports 1, 2, and 4 connected, port 3 blocked above switching point. Switching point can be 62° or 70°F.

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G.M. EMISSION VALVES AND SWITCHES (Cont.)

COMPONENT	ACTUATED	OPERATION
	EGR Vacuum Switch	Vacuum Switch contacts open when vacuum is below 8 in. Hg. Contacts closed (connected) when vacuum is above 8 in. Hg.
	EMR Vacuum Switch	Vacuum Terminal is connected to ground when vacuum is above 4 in. Hg. Terminal is disconnected when vacuum falls below 5.75 in. Hg.
	Spark Retard Delay Valve	Vacuum Ports 1 and 2 are connected, and ports 3 and 4 are connected as long as vacuum is present at both 3 and 2. If vacuum is only present at ports 1 and 4 and vacuum at 1 is higher, ports 1 and 4 are freely connected. If vacuum is higher at port 4, ports 1 and 4 are connected through a delay orifice.
	Dist. Vacuum Solenoid Valve	Electrical Ports 1 and 2 are connected, port 3 is blocked when solenoid is energized (A/C is on). Ports 2 and 3 connected, port 1 blocked when solenoid is de-energized (A/C off).
	Dist. Vacuum Delay Valve	Vacuum When vacuum at port 1 is greater than at port 2, it passes through a restrictor to port 2. When vacuum at port 2 is greater than at port 1, it passes freely through valve to port 1.
	Trapped Spark Delay Valve EFE Delay Valve	Vacuum When vacuum at port 1 is greater than vacuum at port 2, it is metered through a restriction to 2 in 28-42 seconds. When vacuum at port 2 is greater than vacuum at port 1, it passes freely to port 1.
	EFE Check Valve	Vacuum Vacuum applied at tapered end (port 1) goes straight through. Vacuum applied at port 2 is blocked and should not leak down in less than 60 seconds.
	Vacuum Regulator Valve	Mechanical Vacuum is supplied to port 1 and regulator at port 2 in proportion to throttle movement. At closed throttle, vacuum at port 2 is 15 in. Hg; at wide open throttle, vacuum is zero.