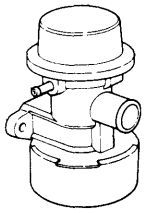
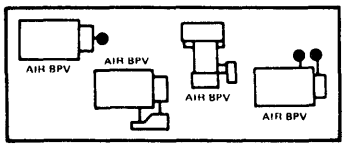
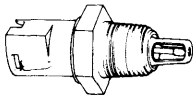
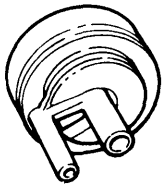
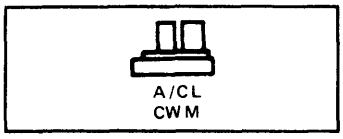
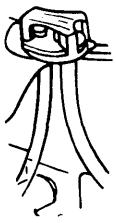
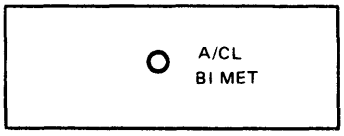
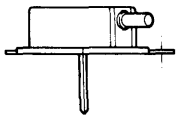
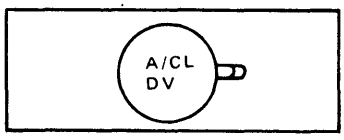
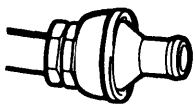
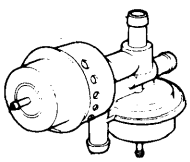
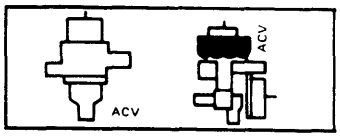
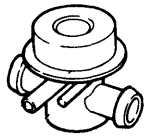
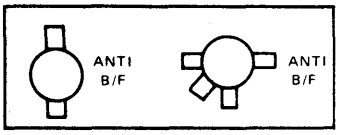
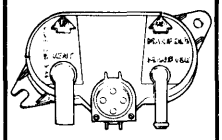
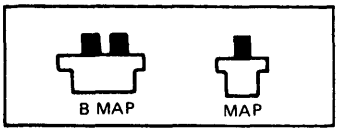
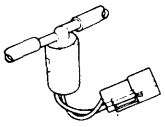
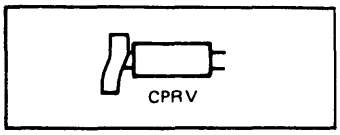
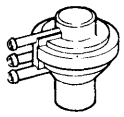
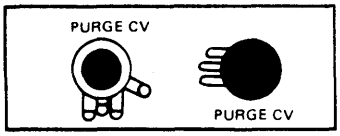
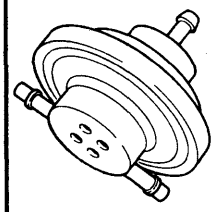
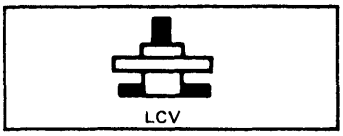
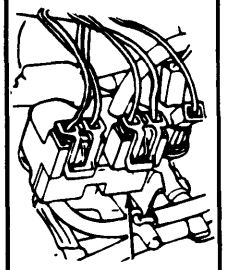
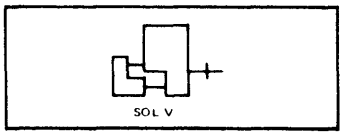
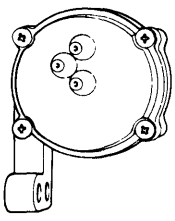
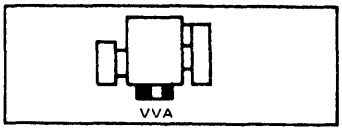
FORD MOTOR CO. EMISSION COMPONENTS

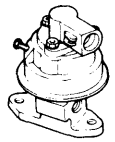
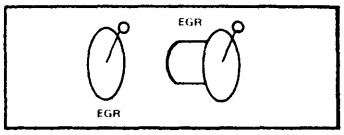
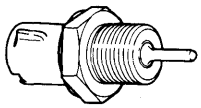
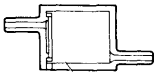
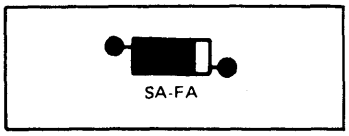
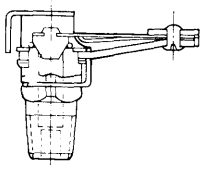
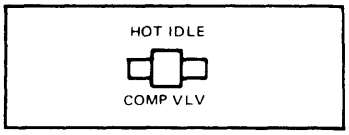
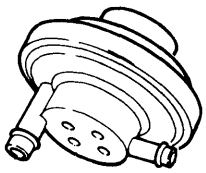
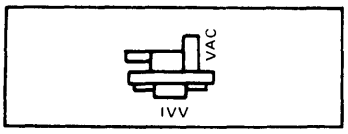
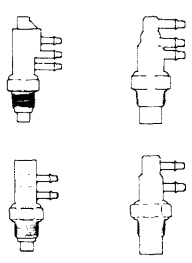
Ford Motor Co. vehicles utilize several types of devices to control emissions. Although originally intended for a specific purpose, many of the devices are now used in various parts of the system. These figures show the physical appearance of typical components and their identification symbols found on Emission Control Diagrams. Operation and method of actuation is provided for most applications. Refer to specific system within this section for testing procedures.

COMPONENT AND SYMBOL		OPERATION
	**AIR BY-PASS VALVE** 	Vacuum operated valves may be normally open or closed. Valves direct air flow from thermactor air pump to exhaust system or atmosphere as required. May be mounted on air pump or in line (remote).
	**AIR CHARGE TEMPERATURE (ACT) SENSOR**	Threaded into left-rear of intake manifold of Electronic Fuel Injection models. Senses air/fuel mixture temperature and provides instant information to EFI system.
	**AIR CLEANER COLD WEATHER MODULATOR** 	Bimetal sensor located in air cleaner to control flow of vacuum to air cleaner duct door motor. When air temperature rises sufficiently, cuts off vacuum to duct door motor, allowing outside air to air cleaner. Traps vacuum to prevent duct from going to hot position during cold weather acceleration.
	**AIR CLEANER TEMPERATURE CONTROL SENSOR** 	Bimetal sensor installed in air cleaner tray. Also controls position of air duct door by bimetal switch action but does not trap vacuum during acceleration.
	**AIR CLEANER VACUUM MOTOR** 	Regulates position of door within air cleaner duct to allow warm or cold air as signaled by Air Cleaner Temperature Sensor and Cold Weather Modulator.
	**AIR CHECK VALVE AND PULSE AIR VALVE**	One way valve allows thermactor air to enter exhaust system. Pulse air valve IS NOT interchangeable with air check valve.
	**AIR SUPPLY CONTROL VALVES** 	Operated by vacuum to direct air pump output to exhaust manifold or downstream to catalyst system depending on system requirements.

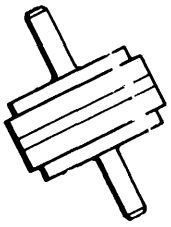
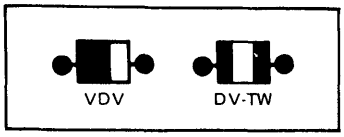
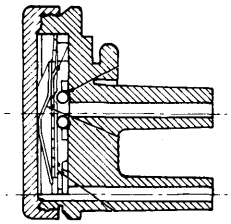
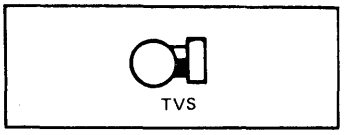
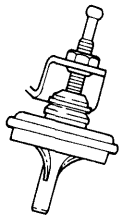
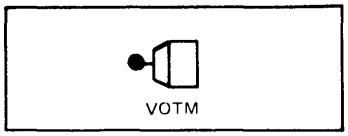
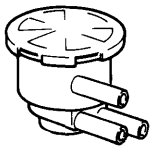
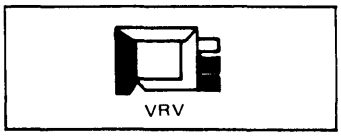
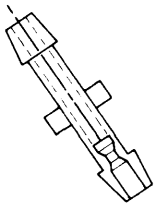
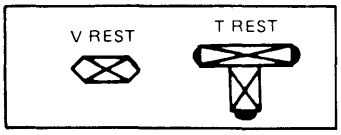
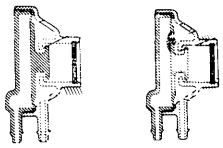
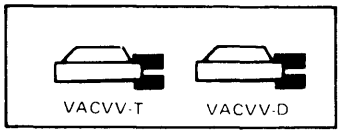
FORD MOTOR CO. EMISSION COMPONENTS (Cont.)

COMPONENT AND SYMBOL		OPERATION
	**ANTI-BACKFIRE (GULP) VALVE** 	Vacuum operated valve downstream from air by-pass valve used to divert partial thermactor air to intake manifold when triggered by intake manifold vacuum during sudden deceleration.
	**BAROMETRIC/MANIFOLD ABSOLUTE PRESSURE (B/MAP) SENSOR** 	Mounted on right inner fender, senses barometric pressure of atmosphere and manifold absolute pressure of air/fuel mixture in intake manifold.
	**CANISTER PURGE SOLENOID** 	Normally closed solenoid valve controls vapors from canister to intake manifold. Opened or closed by signal from electronic control assembly during various engine operating modes.
	**CANISTER PURGE VALVE** 	Vacuum operated purge valve controls flow of vapors from carbon canister to engine.
	**EGR VACUUM LOAD CONTROL (WOT) VALVE** 	Operated by vacuum signal from carburetor venturi port. At or near wide open throttle (WOT), interrupts vacuum to EGR valve.
	**EGR SOLENOID VALVES** 	Operate as signaled from EEC to control EGR valve. May be similar in appearance to thermactor air control solenoid valves.
	**EGR VENTURI VACUUM AMPLIFIER (VVA)** 	Uses relatively weak vacuum signal from venturi to control EGR valve. Contains a check valve and a relief valve that opens whenever venturi vacuum signal is equal to or greater than manifold vacuum.

FORD MOTOR CO. EMISSION COMPONENTS (Cont.)

COMPONENT AND SYMBOL		OPERATION
	**EGR VALVE POSITION (EVP) SENSOR**	Attached to EGR valve assembly, indicates position of EGR valve to EEC.
	**EXHAUST GAS RECIRCULATION (EGR) VALVE** 	Operated by engine vacuum directly or as signaled by EGR vacuum solenoids. Admits exhaust gas to the combustion cycle, lowering combustion temperature and reducing generation of nitrous oxide (NOx). In addition, EEC models use an EGR cooler to reduce EGR gas temperatures.
	**ENGINE COOLANT TEMPERATURE (ECT) SENSOR**	Threaded into tube at right front of intake manifold. Detects coolant temperature and supplies information to Electronic Control Assembly (ECA).
	**FUEL VACUUM SEPARATOR** 	Used in vacuum system to prevent migration of fuel to distributor vacuum motor.
	**HOT IDLE COMPENSATOR** 	Bimetal spring causes air to be bled into intake manifold during extreme hot engine and idle operation. Engine idle speed also increases and results in engine cooling.
	**THERMACTOR IDLE VACUUM VALVE (TIV)** 	Prevents excessive underbody temperature of exhaust system by diverting secondary air pump output during extended engine idling.
	**PORTED VACUUM SWITCH (PVS)**	Temperature operated vacuum switches of 2 or more ports. Utilize wax pellet or bimetal to either open or close vacuum ports. Normally mounted in some part of cooling system so that base is immersed in coolant. May be normally open or normally closed. One version includes an electrical vacuum switch at top end.

FORD MOTOR CO. EMISSION COMPONENTS (Cont.)

COMPONENT AND SYMBOL		OPERATION
	**SPARK DELAY VALVES** 	Inserted in vacuum lines to provide for gradual application or release of vacuum to engine or emission control devices. May be 1- or 2-way valves, depending on function and part of system affected.
	**TEMPERATURE VACUUM SWITCH (TVS)** 	Incorporates a bimetal disc to open or close vacuum ports. May be used with distributor, purge or EGR systms.
	**VACUUM OPERATED THROTTLE MODULATOR (VOTM)** 	When vacuum is applied, plunger extends to vary throttle stop position.
	**VACUUM REGULATOR** 	May be 3- or 4-port, used to control vacuum advance to distributor.
	**VACUUM RESTRICTOR** 	Orifice-type flow restrictor used in vacuum lines of various systems to control flow rate and/or timing to components.
	**VACUUM VENT VALVES** 	Control induction of fresh air into system to prevent accumulation of fuel vapors which could cause decay of vacuum diaphragms. May be vent valve only or combined vent valve and delay valve. Valves should be mounted with ports pointing downward.