1975-79 EXHAUST EMISSION SYSTEMS Ford Motor Co. Systems & Service Procedures

DESCRIPTION

Several systems are used to control emissions. System usage depends on model, engine, and transmission combinations. Each system is designed to control a particular vehicle emission. In addition, specially calibrated carburetors, distributors, and modified combustion chambers are used with these systems.

NOTE: There are 2 Light Duty truck emission control standards classifications: Light Duty and Heavy Duty. Light Duty refers to vehicles up through 8,500 lbs. GVW; Heavy Duty refers to vehicles over 8,500 lbs. GVW.

EXHAUST EMISSION SYSTEMS

Exhaust Gas Recirculation (EGR) - Exhaust gas recirculation system uses a vacuum operated EGR valve to introduce metered amounts of exhaust gas into engine's combustion chambers. This recirculation of exhaust gas lowers peak combustion temperatures and lowers oxides of nitrogen (NOx) emissions.

Electric Assist Choke - An electric heating inside choke cap is supplied power from stator terminal on alternator. At underhood temperatures above 54°F, electric choke mechanism heats up, causing a quicker choke opening time. This helps to lean fuel mixture much sooner. Below 54°F, normal choking action occurs.

Dual Diaphragm Distributor Unit - Distributor vacuum advance unit consists of two independently operating diaphragms. One for spark retard (controlled by intake manifold vacuum), and the other for spark advance (controlled by carburetor ported vacuum).

Decel Throttle Modulator - This unit holds throttle partially open during deceleration to reduce hydrocarbon emissions.

Vacuum Delay Valves - These valves delay air flow in the vacuum lines to control spark advance and retard functions. Delay valves are also used to control other vacuum-operated emission devices.

Ported Vacuum Switches - These units are used on various emission systems to control vacuum source and vacuum supply, depending on engine coolant temperature.

Vacuum Exhaust Heat Control Valve - This vacuum operated valve directs exhaust gases through a passage in intake manifold to heat carburetor base to prevent carburetor icing and warm automatic choke thermostatic spring.

Air Injection - Air injection system consists of an air pump, diverter valve, check valve, and various air distribution lines necessary to inject fresh air adjacent to exhaust valves. Injection of fresh air adjacent to exhaust valves creates an after-burn to further reduce exhaust emissions.

Catalytic Converter - Catalytic converter reduces exhaust emissions by continuing the burning process of exhaust gasses. As the partially burned and unburned exhaust gasses enter the converter, a combustion type reaction takes place. This provides a more complete burn, lowering emissions. Vehicles equipped with catalytic converters must use unleaded fuel only.

Thermostatic Air Cleaner (TAC) - System provides heated air to carburetor (from stove on exhaust manifold) in combination with underhood air to maintain a constant intake air temperature for more efficient combustion and emission control.

Positive Crankcase Ventilation - Positive crankcase ventilation system is used to control crankcase blow-by gases. This system takes blow-by gases from crankcase and recirculates them back into combustion chamber for reburning.

Fuel Evaporative Control - Fuel evaporative control system consists of a special fuel tank, a liquid vapor separator, a non-vented filler cap, a charoal filled storage canister located in engine compartment, and plumbing necessary to direct fuel vapors to charcoal canister for storage. With this system fuel vapors are routed to charcoal canister for storage. Carburetor vacuum later purges canister of stored fuel vapors.

SERVICE PROCEDURES

EXHAUST EMISSION SYSTEMS

See appropriate articles in this section.

TUNE-UP

See appropriate article in TUNE-UP PROCEDURES section.