FORD MOTOR CO. SYSTEMS & SERVICE PROCEDURES

DESCRIPTION

Several systems are used to control emission of pollutants. 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.*

Thermostatic Air Cleaner – Regardless of type of thermostatic air cleaner used; air valve or thermostat, function is the same, and that is to provide hot air from exhaust manifold shroud to carburetor during warm-up conditions.

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 afterburn which further consumes unburned material in engine's exhaust. *For additional information, see "Air Injection Systems – Air Pump Type" in this section.*

EGR – Exhaust gas recirculation system uses a vacuum operated EGR valve to introduce metered amounts of exhaust gas into engine's combustion chambers. This introduction of inert exhaust gas lowers peak combustion temperatures and lowers NOx formations.

Electric Assist Choke – This unit is supplied power from a stator terminal on alternator. Contained in choke cap is an electric heating element. At underhood temperatures above 54°F, choke mechanism heats up, causing a more rapid choke opening time. This helps to lean mixtures much sooner. Below 54°F, normal choking action occurs.

Decel Throttle Modulator –This unit holds the throttle partly open during deceleration to reduce emissions of hydrocarbons (HC).

Spark Delay Valves – These valves delay air flow in the vacuum lines to control spark advance or retard functions. Delay valves are also used to control air flow to other vacuum-operated equipment. Amount of time delay depends upon application.

Vacuum Exhaust Heat Control Valve – This vacuum operated valve directs exhaust gases through a passage in intake manifold to rapidly heat incoming air/fuel mixture to promote better cold engine emissions.

Catalytic Converter – This unit, used on all Light Duty emissions models, is connected into exhaust system so exhaust gas passes through converter. Inside converter, a chemical reaction takes place which reduces exhaust emissions. *For additional information, see "Catalytic Converters" in this section.*

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. Key device in PCV system is vacuum-controlled PCV valve. *For additional information, see CRANKCASE VENTILATION Section.*

Evaporative Emission Control – Fuel evaporative control system consists of a special fuel tank, a liquid vapor separator, a non-vented filler cap, a charcoal 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 not allowed to evaporate from carburetor or fuel tank, instead they are routed to charcoal canister for storage. Carburetor vacuum later purges canister of stored fuel vapors. *For additional information, see appropriate article in FUEL EVAPORATION Section.*

SERVICE PROCEDURES

IGNITION TIMING

See appropriate article in TUNE-UP SERVICE PROCEDURES.

CARBURETION

Carburetor Models

Application	Model
300" 6 Cyl.	Carter YFA
302", 351", 400" V8	Motorcraft 2150
460" V8	Holley 4180-C

IDLE SPEED & MIXTURE

See appropriate article in TUNE-UP SERVICE PROCEDURES.