GENERAL MOTORS SYSTEMS & SERVICE PROCEDURES

DESCRIPTION

Several systems are used to control emission of pollutants. System usage depends on model, engine and transmission combination. Each system is designed to control a particular vehicle emission.

NOTE – *There are 2 light duty truck emission control standard 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.*

Thermac Air Cleaner (TAC) – Used on all models, this unit is designed to aid engine in more complete burning of air/fuel mixture and smoother operation by controlling temperature of intake air. Heated or cooled portions of air are fed into air cleaner assembly as temperature sensor regulates.

Air Injection Reactor (A.I.R.) – This system uses an air pump to supply additional fresh air to exhaust ports, further burning exhaust gases before they reach exhaust system. This reduces hydrocarbon (HC) and carbon monoxide (CO) emissions. *For additional information, see "Air Injection Systems – Air Pump Type" in this section.*

Pulse Air Injection Reactor (PAIR) – This system, used on 250" 6-cylinder models, allows additional fresh air into exhaust system without using an air pump. A special set of check valves is used to respond to exhaust system pulses and draw in fresh air. As with the A.I.R. system, HC and CO emissions are reduced. *For additional information, see "Air Injection Systems – Pulse Air Type" in this section.*

Exhaust Gas Recirculation (EGR) – This system recirculates exhaust gases into intake manifold and combustion chambers. This has the effect of lowering combustion temperatures and thereby lowering NOx emissions.

Vacuum Advance Spark Control – Used on all models, this system provides increased spark advance during cold engine operation. When engine coolant temperature is below 100°F, the thermal vacuum switch (TVS) closes and manifold vacuum is supplied to distributor through a delay valve which holds vacuum at high levels during acceleration. Above 100°F, TVS opens, causing manifold vacuum to by-pass delay valve.

Early Fuel Evaporation (EFE) – Used on all Light Duty and some Heavy Duty emissions models. During cold engine operation, system allows exhaust gases to base of carburetor. This improves driveability while reducing exhaust emissions.

Throttle Return Control (TRC) – Used on all Heavy Duty emissions models. Upon deceleration, system opens throttle slightly, thus reducing hydrocarbons during coastdown.

Catalytic Converter (CAT) – Used on all Light Duty emissions models, this unit 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 (PCV) – System removes engine crankcase vapors which result from normal combustion. Vapors are drawn through a metered PCV valve and routed back to intake manifold where they are reburned in combustion chamber. *For additional information, see*

Evaporative Emission Control (EEC) – This system, used on all except Federal Heavy Duty Emissions models, is designed to keep fuel system vapors from escaping to atmosphere. This sealed system separates fuel vapors and routes them to engine to be burned, while retaining liquid fuel in tank. A carbon canister stores vapors until engine draws them off for burning. *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
6 Cyl. Engines	
250"	Rochester 2SE 2-Bbl.
292"	Rochester 1ME 1-Bbl.
V8 Engines	
305"	Rochester M2MC 2-Bbl.
350"	Rochester M4MC 4-Bbl.
400"	Rochester M4MC 4-Bbl.
454"	Rochester M4MC 4-Bbl.

IDLE SPEED & MIXTURE

See appropriate article in TUNE-UP SERVICE PROCEDURES.