1975-79 EXHAUST EMISSION SYSTEMS
General Motors Early Fuel Evaporation System

DESCRIPTION

An Early Fuel Evaporation (EFE) system is used on all Light Duty and some Heavy Duty emissions models. System provides improved cold driveability while reducing exhaust emissions. System consists of an EFE valve, an actuator and a Thermal Vacuum Switch (TVS). The TVS is coolant temperature controlled on V8 engines and oil temperature controlled on 6-cylinder engine.

NOTE: Some 1975 models with 454" engine use an engine oil temperature TVS. All other V8 engines are coolant temperature controlled.

OPERATION

6-Cylinder Engines - The thermal vacuum switch is a normally closed switch. When engine oil temperature is below 150°F, the TVS is closed allowing manifold vacuum to the actuator valve. Vacuum pulls the diaphragm in the actuator, closing the EFE valve. This causes the hot exhaust gases to be routed to the base of carburetor. When oil temperature is above 150°F, the thermal vacuum switch opens. This stops vacuum to the actuator. A spring in the actuator opens the EFE valve.

V8 Engines - On V8 engines, the TVS is located in the coolant outlet housing and controls vacuum to the EFE valve. With coolant temperatures below 180°F, manifold vacuum is applied to actuator which closes the EFE valve. This routes hot exhaust gases to base of carburetor. When temperatures reach 180°F, vacuum to the actuator is stopped, opening the EFE valve.

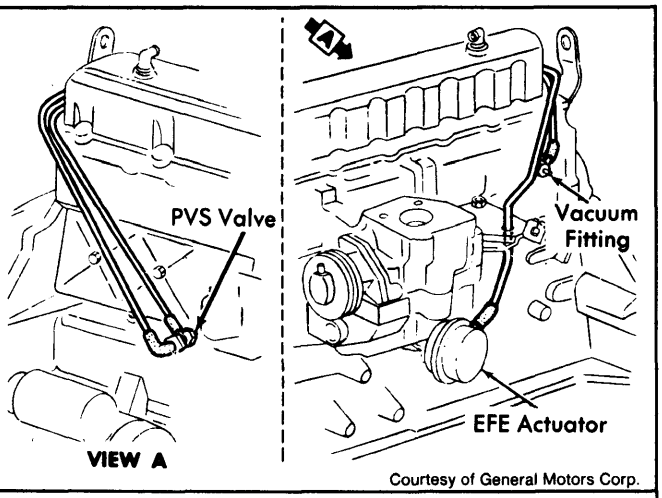

Fig. 1: Early Fuel Evaporation System 6-Cylinder Engines

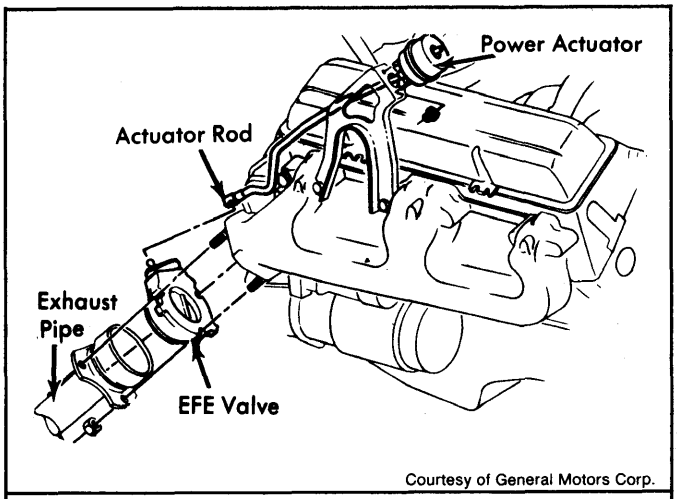

Fig. 2: Early Fuel Evaporation System V8 Engines

TESTING

1) With engine cold, place transmission in Neutral or Park and apply parking brake. Start engine and observe movement of actuator rod and exhaust heat valve. Valve should move to its closed position.

2) If valve does not close, disconnect hose at actuator and check for vacuum. If vacuum is present, replace actuator. If no vacuum is present, disconnect hose at TVS-to-vacuum source. If there is vacuum at hose, replace TVS. If no vacuum is present, check hose for leaks and for plugged vacuum source.

3) When coolant temperature reaches 180°F (V8) or oil temperature reaches 150°F (6-cylinder), exhaust heat valve should move to the open position.

4) If valve does not open, disconnect hose at actuator and check for vacuum. If there is vacuum, replace TVS. If no vacuum is present, replace actuator.

MAINTENANCE

Periodically inspect vacuum hoses for damage, actuator for proper operation, linkage for binding and EFE valve for smooth operation.