COURIER EXHAUST GAS RECIRCULATION SYSTEM

Pickup

DESCRIPTION

The Exhaust Gas Recirculation (EGR) System used on all Courier models is designed to reintroduce a small amount of exhaust gases into the combustion cycle, thereby reducing combustion temperatures and reducing the generation of oxides of nitrogen (NOx). The amount of exhaust gases reintroduced and the timing of the combustion cycle are controlled by various factors such as engine vacuum and temperature. The main components of the EGR system are the EGR valve, thermo valve(s) and vacuum amplifier.

OPERATION

EGR CONTROL VALVE

The EGR control valve is controlled by engine vacuum. With vacuum applied to valve, valve opens and allows exhaust gases to enter intake manifold. With no vacuum applied to valve, valve closes and no recirculation will occur.

THERMO VALVE

Thermo valve senses engine coolant temperature, and allows or denies vacuum to EGR valve, depending on engine temperature. Below 122°F (50°C) on 2.0L engines or 131°F (55°C) on 2.3L engines, thermo valve is closed and no vacuum from intake manifold reaches EGR valve. Above these temperatures, valve is open and EGR occurs.

NOTE – *On California vehicles with 2.0L, 2 thermo valves are used, one of which is connected to the air control valve and not the EGR. Be sure to inspect hose routing diagrams in this article.*

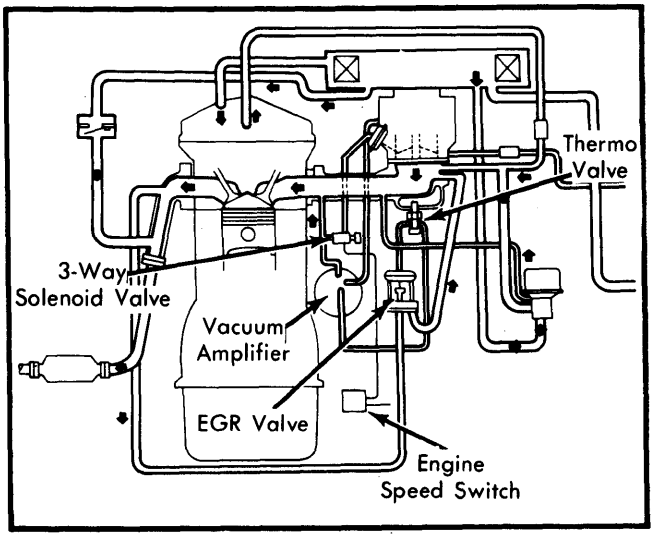

Fig. 1 EGR System for 2.0L Engines (Federal)

VACUUM AMPLIFIER

The vacuum amplifier supplies varying amounts of vacuum to the EGR valve. This provides a finer control of the amount of exhaust gas recirculation during different engine operating conditions.

TESTING

EGR VALVE

1) Start engine and run at idle. Detach EGR-to-thermo valve vacuum hose from thermo valve. Attach hose directly to manifold vacuum source.

2) Engine should stall or idle roughly. If not, turn engine off and remove EGR valve and pipe from engine. Clean passages with brush and wire. Reinstall items and repeat test. If engine still does not stall or idle roughly, replace EGR valve. When system functions as indicated, return vacuum hose to original position.

THERMO VALVE

1) Remove thermo valve from bottom of intake manifold. Place in container of water with thermometer.

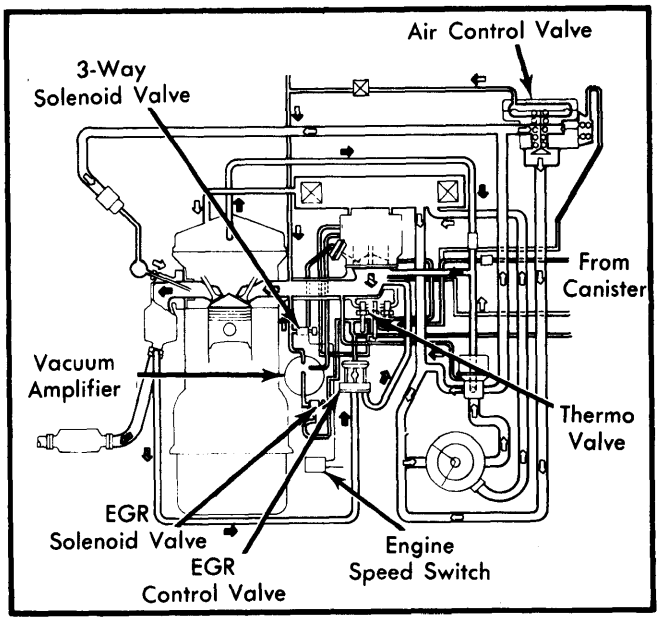

Fig. 2 EGR System for 2.0L Engines (Calif.)

2) Slowly heat up water. When cold, no air should pass through valve (blow through vacuum line still attached to thermo valve fittings). When water reaches at least 122°F (50°C) on 2.0L engines or 131°F (55°C) on 2.3L engines, air should pass through valve. If not, replace thermo valve.

VACUUM AMPLIFIER

1) Start engine and warm to normal operating temperature. On California models, remove connectors from EGR solenoid valve and apply battery power to terminal on valve. Remove vacuum amplifier vacuum hose from EGR control valve. Connect vacuum gauge to this hose.

2) On Federal models, remove vacuum amplifier vacuum hose from thermo valve. Connect vacuum gauge to this hose. On all models, remove vacuum amplifier hose from carburetor

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3) Depress accelerator pedal several times, then allow engine to return to idle. Vacuum gauge should read 2 in. Hg. Connect amplifier hose back to carburetor. Increase engine speed to 3500 RPM. Gauge should now read 3.54 in. Hg. If amplifier does not give readings indicated, it should be replaced.

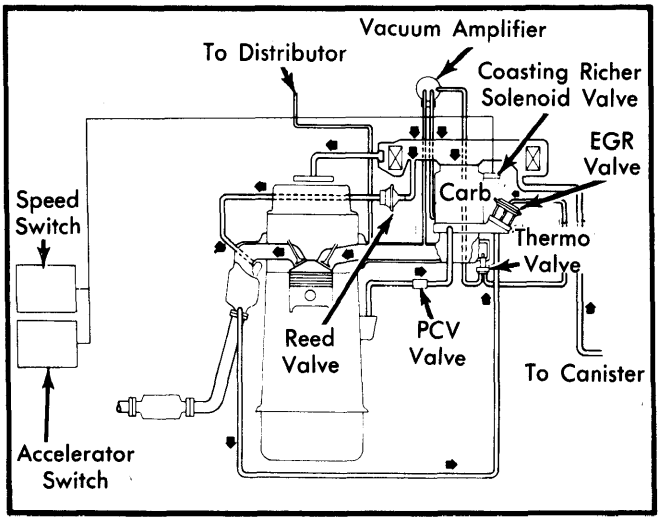

Fig. 3 EGR System for 2.3L Engines (Federal)

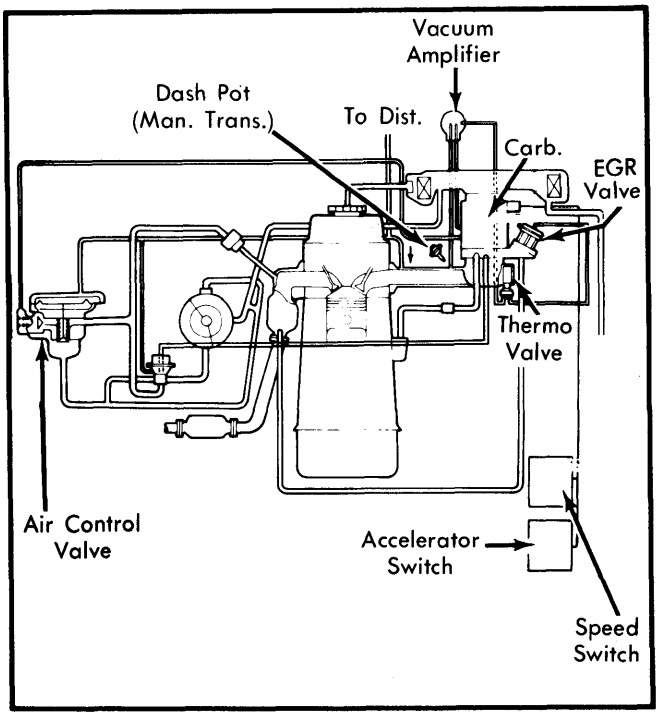

Fig. 4 EGR System for 2.3L Engines (Calif.)