1982 Exhaust Emission Systems

COURIER EXHAUST GAS RECIRCULATION SYSTEM

DESCRIPTION

The Exhaust Gas Recirculation (EGR) System used on all Courier models is designed to reintroduce a small amount of exhaust gas 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 speed, vacuum and temperature. The main components of the EGR system are the EGR valve, thermo valve and vacuum amplifier.

OPERATION

EGR CONTROL VALVE

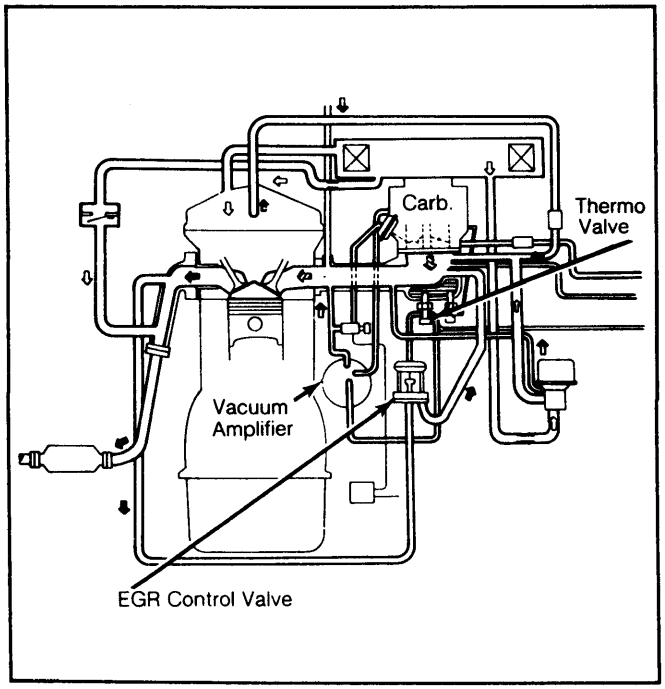
The EGR control valve is controlled by engine vacuum. With vacuum applied to valve, valve opens and allows exhaust gases to enter intake manifold. With no vacuum applied to valve, valve closes and no recirculation will occur.

THERMO VALVE

California models with 2.3L engine do not use a thermo valve. On all other models, the valve senses engine coolant temperature, and controls the vacuum circuit of the EGR valve.

At coolant temperatures above 130°F (55°C) on 2.0L engines or 140°F (60°C) on 2.3L engines, the thermo valve opens and supplies vacuum to EGR valve. At temperatures below this level, the valve is closed and EGR valve is not activated.

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

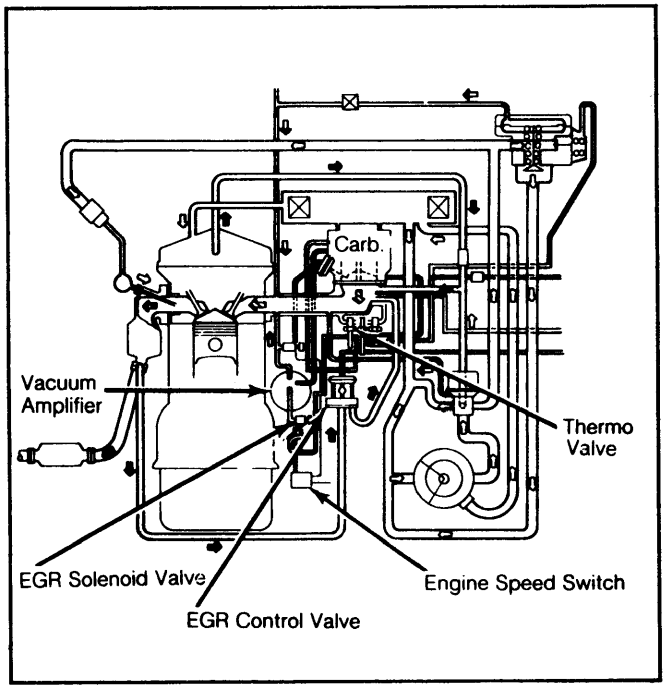
EGR VALVE

1) Start engine and run at idle. Detach vacuum hose from thermo valve (vacuum amplifier on 2.3L Calif. models). 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.

3) If engine still does not stall or idle roughly, replace EGR valve. When system functions as indicated, return vacuum hose to original position.

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



THERMO VALVE

All Except 2.3L California Models

1) Remove thermo valve from bottom of intake manifold. Attach a length of hose to each valve outlet and place valve in container of water with thermometer.

2) Slowly heat up water. When cold, no air should pass through valve (blow through vacuum line which does not go to EGR valve). When water reaches 130°F (55°C) on 2.0L engines or 140°F (60°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. Disconnect vacuum hose from bottom of amplifier and connect vacuum gauge at this port. Disconnect vacuum amplifier hose from carburetor.

2) Depress accelerator pedal several times, then allow engine to return to idle. Vacuum gauge should read 1.6-2.4 in. Hg.

3) Connect amplifier hose back to carburetor. Increase engine speed to 3500 RPM. Gauge should now read 3.2-3.8 in. Hg. If amplifier does not give readings indicated, it should be replaced.

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

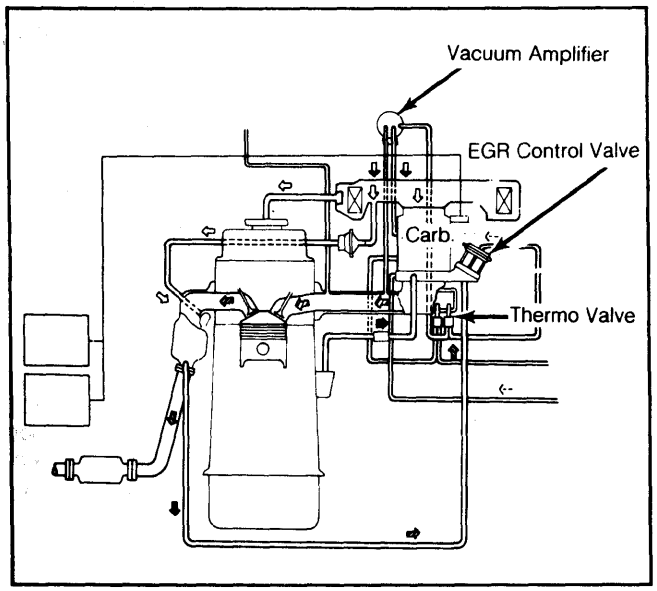

Fig. 4: EGR System for 2.3L Engines (Calif.)