LUV EXHAUST GAS RECIRCULATION

Pickup

DESCRIPTION

Exhaust gas recirculation system is used to reduce oxides of nitrogen (NOx) by recycling some exhaust gas back into the intake manifold to lower combustion temperatures. System consists of an EGR valve mounted under intake manifold, a back pressure transducer which monitors exhaust system pressure, a thermal vacuum valve which senses coolant temperature, and a vacuum control valve (Federal only).

OPERATION

EGR VALVE

Vacuum diaphragm chamber of EGR valve is connected to vacuum port in carburetor flange (through back pressure transducer and thermal valve). As throttle valve is open, vacuum is applied to EGR valve. When enough vacuum overcomes EGR valve spring force, it opens EGR valve to allow recirculation.

BACK PRESSURE TRANSDUCER

This unit responds to exhaust pressure. Under heavy throttle applications (heavy exhaust pressure), back pressure transducer closes vacuum passage to EGR valve and stops EGR action. Under normal operating conditions, EGR valve functions normally since B.P. transducer allows normal vacuum passage.

VACUUM CONTROL VALVE

Used only on Federal applications, this valve is mounted in line between an intake manifold vacuum source and vacuum line of EGR system. When intake manifold vacuum exceeds 13.2-14.4 in. Hg, this valve will bleed off excess vacuum.

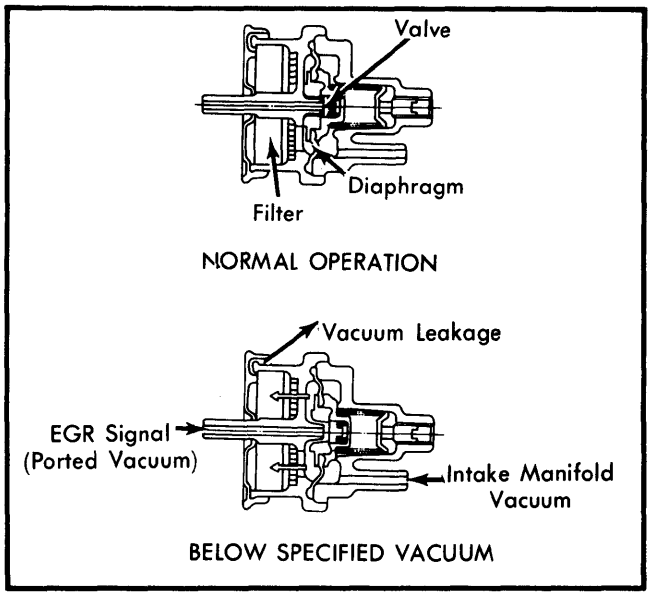

Fig. 2 Sectional View of Vacuum Control Valve Showing Vacuum Flow Path During Operation

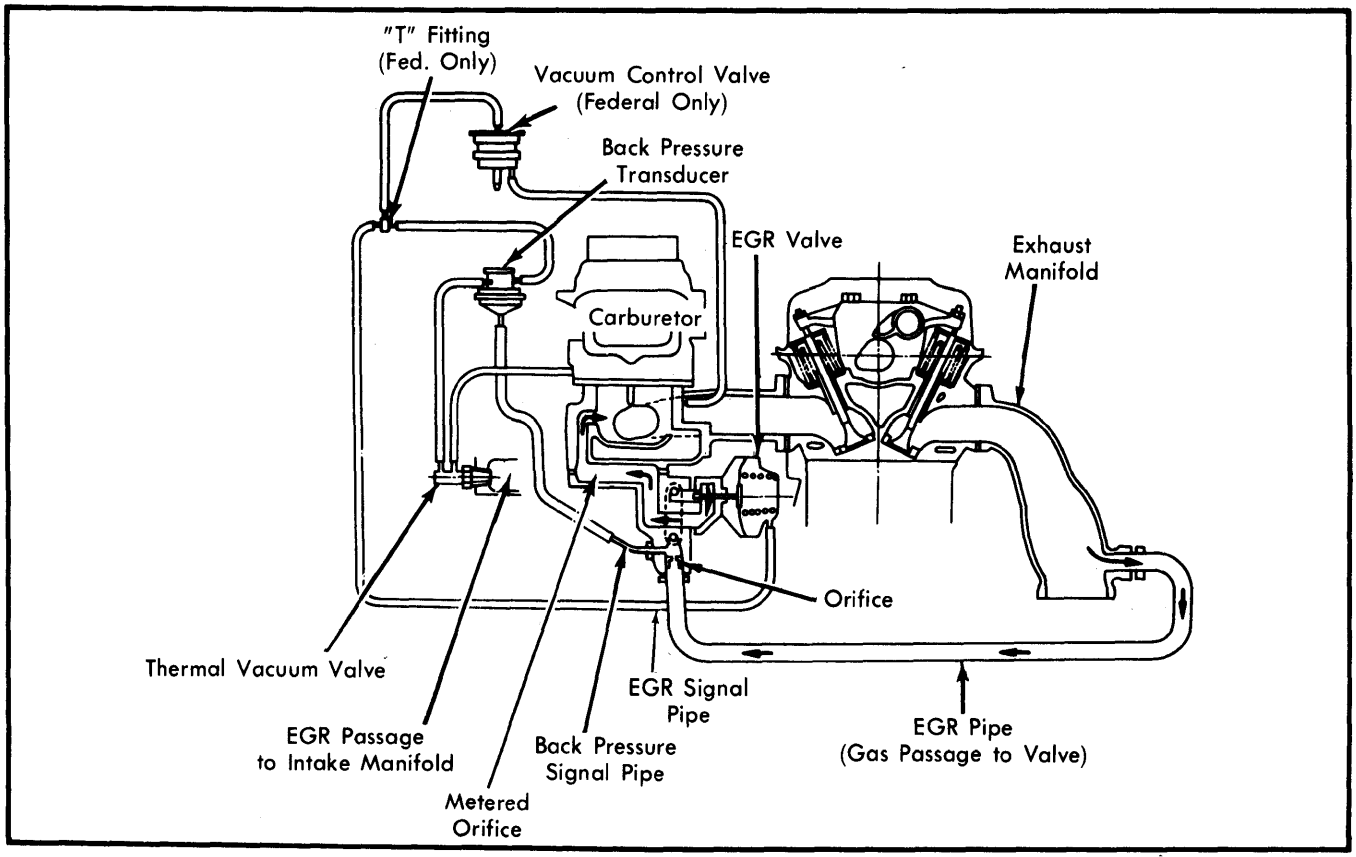

Fig. 1 LUV Exhaust Gas Recirculation System

LUV EXHAUST GAS RECIRCULATION (Cont.)

THERMAL VACUUM VALVE

Mounted on intake manifold, this valve is in series with EGR valve and carburetor port. Below 115-120°F (46-54°C) coolant level, valve is closed. This stops vacuum passage to EGR valve. As coolant warms above this temperature, valve opens and normal EGR operation occurs.

TESTING

EGR VALVE

1) Detach vacuum hose from EGR valve and connect an outside vacuum source, such as hand pump with gauge. Apply about 4 in. Hg and hold this level. Vacuum should not leak down.

2) While applying vacuum, watch movement of valve stem. At 4.7 in. Hg (Federal Man. Trans.) or 3.9 in. Hg (all others), stem should move diaphragm to full up position. If valve does not respond as indicated, replace it.

THERMAL VACUUM VALVE

Remove thermal vacuum valve from engine and place sensing portion in water 115°F (46°C) or warmer. Blow through hoses connected to valve. Air should pass, indicating valve is open. If not, replace valve.

BACK PRESSURE TRANSDUCER

Remove transducer from vehicle. Apply slight pressure to connection of exhaust sensing pipe to simulate exhaust pressure. Check for leakage, as transducer should close and not allow vacuum. If leak is noted, replace transducer.

VACUUM CONTROL VALVE

Detach hoses and apply 13.2-14.4 in. Hg to port connected to intake manifold and apply air force (such as blowing) to port which connects to EGR vacuum sensing line. Check for leakage through valve. If leak is noticed (which indicates vacuum is bleeding off properly), valve is okay. If no leak, replace valve.

MAINTENANCE

Inspect EGR system every 12 months or 15,000 miles.