1982 Exhaust Emission Systems

ISUZU & LUV EXHAUST GAS RECIRCULATION

Isuzu I-Mark, P'UP, LUV 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 chamber temperatures.

System consists of an EGR valve mounted under intake manifold, a back pressure transducer which monitors exhaust system pressure and a thermal vacuum valve which senses coolant temperature.

OPERATION

EGR VALVE

Vacuum diaphragm chamber of EGR valve is connected to vacuum port in carburetor flange (through back pressure transducer and thermal valve.)

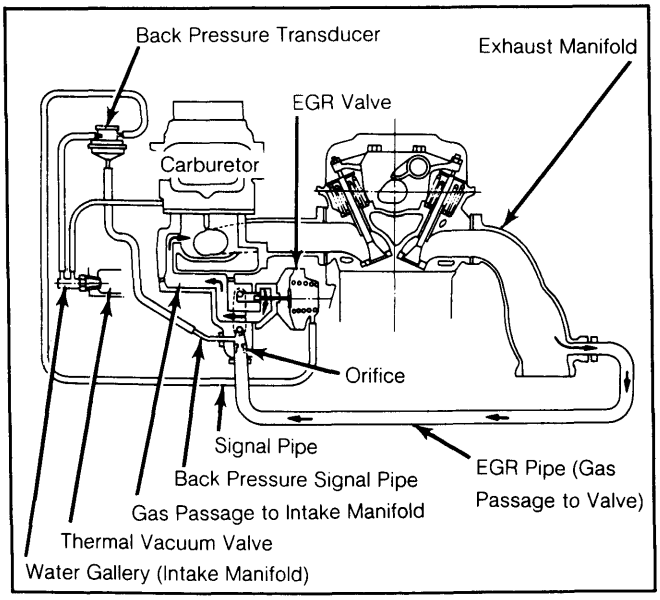
As throttle valve is opened, vacuum is applied to EGR valve. When vacuum overcomes EGR valve spring force, it opens EGR valve to allow recirculation.

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 back pressure transducer allows normal vacuum passage.

Fig. 1: Isuzu & LUV EGR System



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 allowing normal EGR operation.

TESTING

EGR VALVE

1) Detatch vacuum hose from EGR valve and connect 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 (Fed. 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.

MAINTENANCE

Inspect exhaust gas recirculation system every 12 months or 15,000 miles.

BACK PRESSURE TRANSDUCER

Apply a pressure above 2 in. water to the port connected to the back pressure signal pipe and check for leaks. If leaks are noted, replace transducer as an assembly.