1974 AMERICAN MOTORS & JEEP EXHAUST GAS RECIRCULATION (EGR) SYSTEM

DESCRIPTION

The Exhaust Gas Recirculation (EGR) System is designed to lower burning temperatures of gases in combustion chambers, thereby reducing formation of oxides of nitrogen (NOx). Metered amounts of exhaust gas dilutes air/fuel mixture, lowering combustion temperatures. System consists of an EGR valve, Coolant Temperature Override (CTO) switch and an Exhaust Back-Pressure Sensor (BPS) used on California vehicles only.

OPERATION

Federal – When EGR valve (mounted on intake manifold) receives a vacuum signal from CTO switch, valve opens, metering gases from exhaust crossover passage into intake manifold, *NOTE – Coolant Temperature Override (CTO) switch is located at coolant passage of intake manifold (V8), or left side of block (6-Cyl.), and should not be confused with similar switch mounted on thermostat housing of V8 engines; this switch is part of Transmission Controlled Spark (TCS) System.* At 115°F or higher, center and lower ports of CTO switch are open and vacuum signal reaches EGR valve.

California – EGR system on AMC 6 cylinder, 304" and 360" V8's and Jeep 360" V8 2-Bbl. and 4-Bbl. except 360" HD 2-Bbl. have an Exhaust Back-Pressure Sensor (BPS), which is not used in other states. The EGR system, when equipped with a BPS valve, obtains vacuum signal at carburetor spark port (rather than at EGR port, as in other states). Vacuum signal passes through EGR/CTO switch (when coolant temperature exceeds 115°F) to BPS valve, where it is modulated by exhaust back-pressure. The metal tube which connects valve to spacer, projects into exhaust port of BPS valve. When exhaust back-pressure is relatively high, as during acceleration and some cruising conditions, exhaust pressure traveling through metal tube overcomes spring tension on diaphragm within BPS valve and closes valve no longer vented to atmosphere, vacuum signal is now able to pass through BPS valve, and on to EGR valve. With a vacuum signal to EGR valve, exhaust gas begins recirculating. When exhaust back-pressure is too low to overcome diaphragm spring tension, vacuum signal is vented to atmosphere and does not pass through to EGR valve. With no vacuum signal applied to EGR valve, exhaust gas does not recirculate. Different back-pressure sensors are used on single and dual exhaust systems. This compensates for differences in exhaust back pressure between two systems.

NOTE – Some 258" 6 cylinder and 304" V8 engines use a stainless steel restrictor plate beneath BPS valve, with a gasket on both sides of plate.

MAINTENANCE

Inspection of EGR system is required at every even 10,000 mile interval. If leaded fuel is used, clean EGR valve and EGR discharge port each time system is inspected. If unleaded fuel is used, cleaning is required every 25,000 miles. Remove EGR valve at each service interval. Inspect valve for proper operation by pressing valve pintle down. If valve does not return to full closed position when released, then valve should be replaced. Clean all lead and carbon deposits with wire brush. Ensure that all exhaust passages are clear. Use new gasket when reinstalling EGR valve.

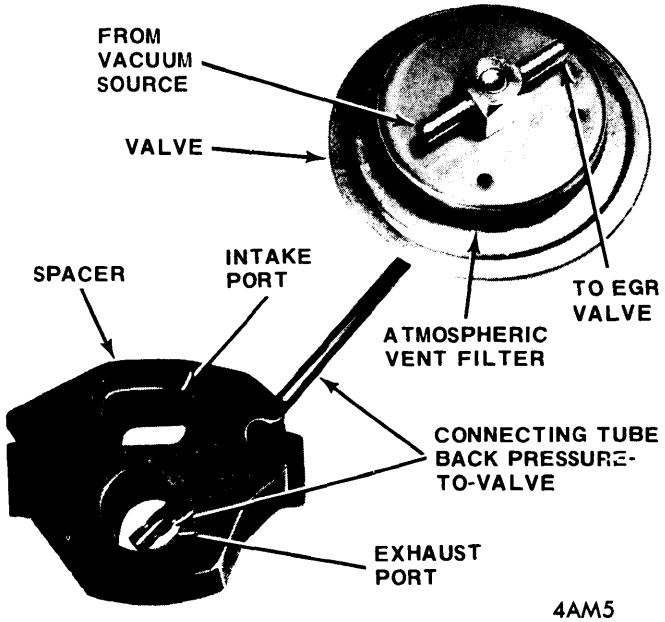
TROUBLE SHOOTING

Improper combustion and/or faulty emission levels may be caused by any or all the following:

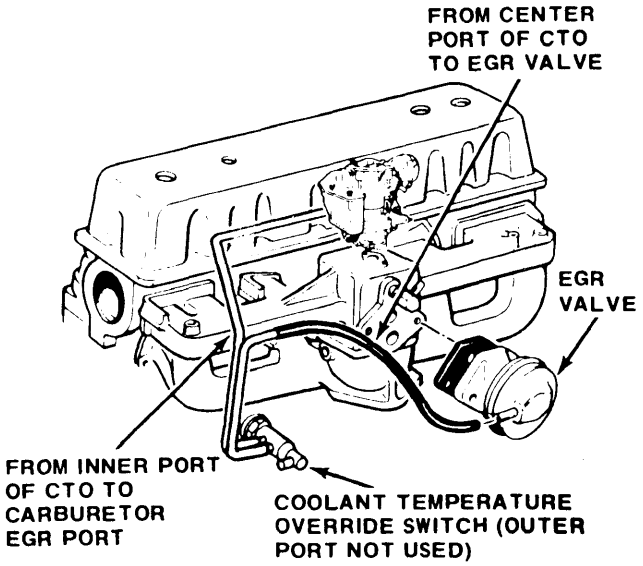
1) EGR system components inoperative or malfunctioning.

2) EGR exhaust ports restricted or blocked.

3) EGR vacuum hoses disconnected, crimped or improperly routed.

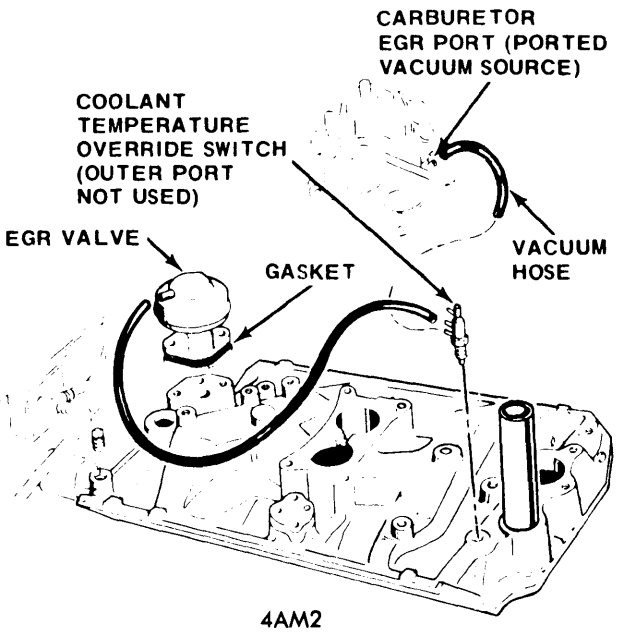


EXHAUST BACK-PRESSURE SENSOR (CALIF.)



1974 JEEP EGR SYSTEM 6-CYL. (FEDERAL)

1974 AMERICAN MOTORS & JEEP EXHAUST GAS RECIRCULATION (EGR) SYSTEM (Cont.)



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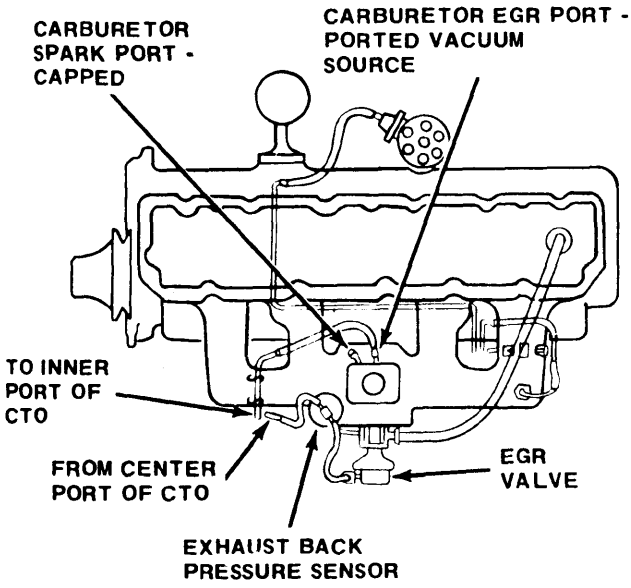
1974 JEEP EGR SYSTEM V8 (FEDERAL)



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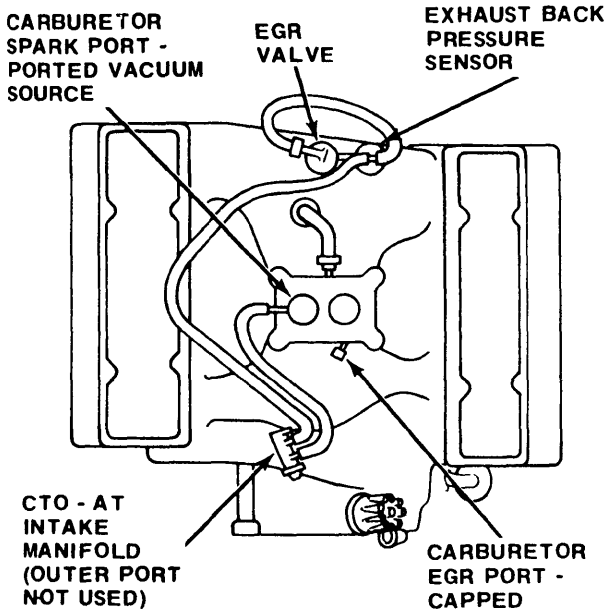
1974 AMC EGR SYSTEM 6-CYL. (CALIF.)



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1974 AMC EGR SYSTEM V8 (CALIF.)