

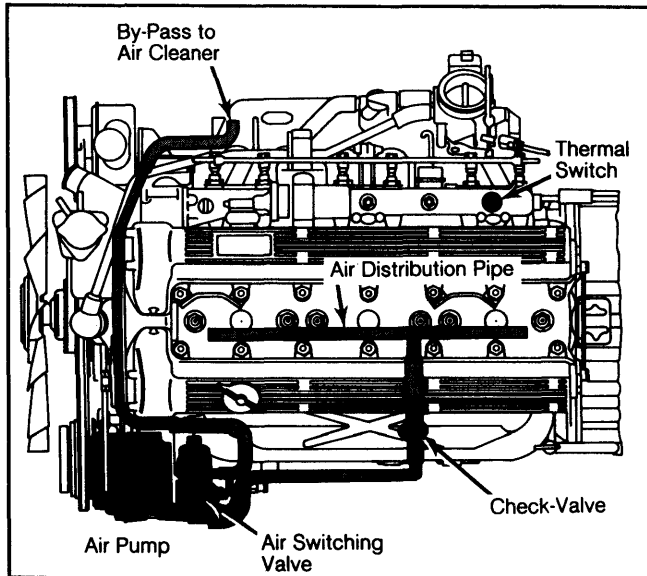
## JAGUAR AIR INJECTION SYSTEM

XJ6 (Federal), XJ12

### DESCRIPTION

Air injection is used during warm-up to improve performance and reduce emissions. The engine is equipped with fuel injection with feedback system (oxygen sensor), so air injection cannot be used while oxygen sensor is operating. System includes a thermal switch, check valve, air injection switching module, air switching valve, check valve, diverter valve, air rails and air pump.

Fig. 1: XJ6 Air Injection System



### OPERATION

#### XJ6

A thermal switch supplies current to the switching module when engine coolant is below 104-122° F (40-50° C). The module controls 3 items. It stops canister purging, blocks oxygen sensor feedback operation, and controls air switching valve to supply air to exhaust ports.

When engine coolant is above the thermal switch temperature, contacts open and no power is supplied to switching module. Air injection stops; canister purge and oxygen sensor operation begin.

The air switching valve is located at the rear of the air pump. A solenoid in the valve controls vacuum which positions the valve to allow air injection or by-pass to the air cleaner.

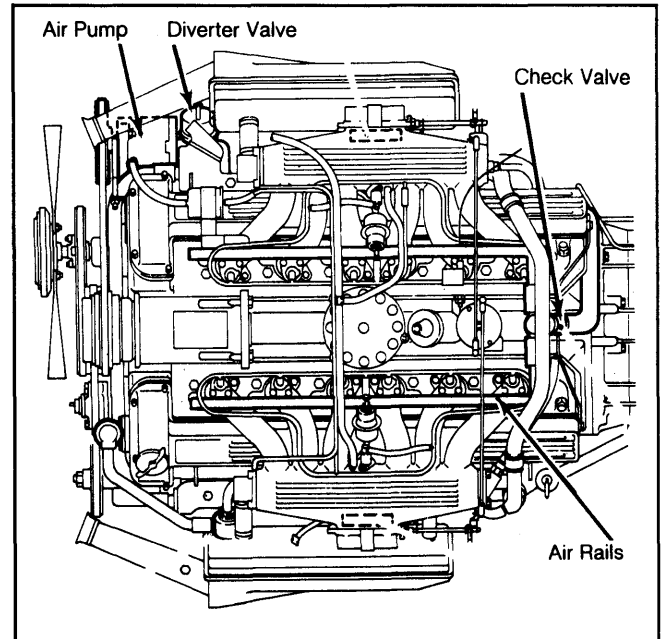
#### XJ12

The air pump supplies air under pressure through a diverter valve, check valve and air rails to the exhaust ports just above exhaust valve heads. The air combines with exhaust gases to further the burning process. Check valve prevents flow in air rails when exhaust pressure exceeds air supply pressure.

Diverter valve operates in response to abrupt fall in manifold pressure and diverts secondary air to

atmosphere for 2-3 seconds. This reduces air/fuel ratio which otherwise would be too rich to burn and would pass through engine to mix with secondary air and become combustible, creating backfire. The diverter valve is actuated by manifold pressure via a rubber tube connected to intake manifold.

Fig. 2: XJ12 Air Injection System



### TESTING

#### XJ6

1) Warm engine to operating temperature and allow to idle. Disconnect air by-pass hose at air cleaner. Air should be coming out with engine warm. If not, check air pump and switching valve wiring.

2) Disconnect electrical wiring at thermal switch and connect leads together. Air should stop at by-pass hose. If not, check wiring and switching valve operation.

3) Connect CO meter to both exhaust manifold check ports. With no air injection and engine warm, CO level should be 0.1-0.3%. Disconnect thermal switch leads and connect them together. Mixture should stabilize at 0.1-0.3%. If not, check vacuum to switching valve.

4) Disconnect air switching module connector. CO level should rise to 0.4-0.6%. Reconnect thermal switch and air switching module; CO level should return to normal. If system does not operate as described, replace switching module.