1982 Fuel Evaporation Systems

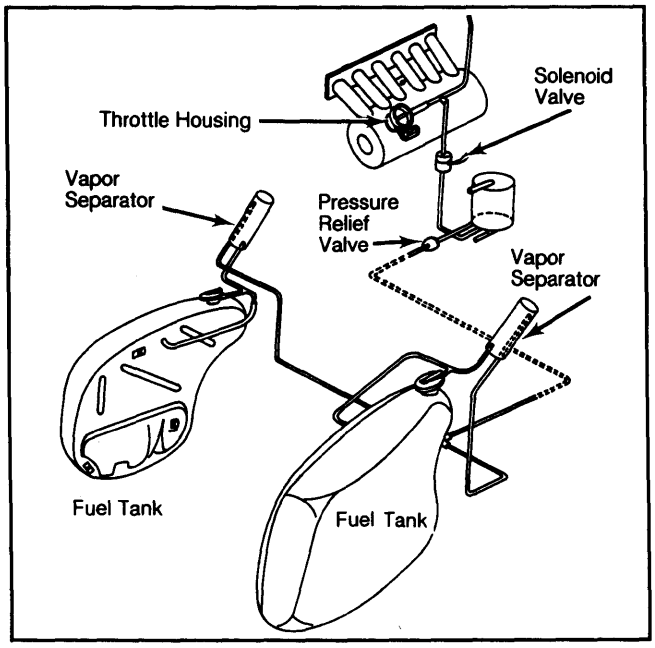
JAGUAR

XJ6, XJ12

DESCRIPTION

The fuel evaporation system is designed to keep fuel vapors from escaping the crankcase and fuel tank. The system consists of a fuel tank (2 on XJ6) with expansion space, vapor separators, orifice at fuel filter cap, pressure relief valve, canister and connecting pipes.

Fig. 1: Jaguar XJ6 Fuel Evaporation System

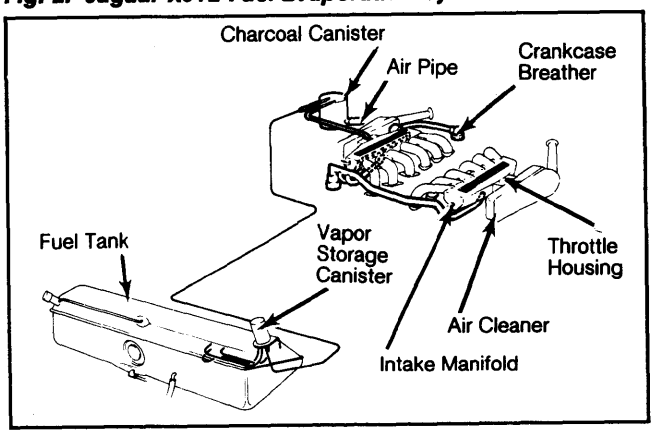


OPERATION

Fuel vapors in the tank build-up until they exceed the pre-set limit of the pressure relief valve, then are vented to canister for storage. The relief valve also allows air to enter the tank, replacing fuel drawn out during engine operation.

When the engine is warming up, the purge hose is shut off by an energized solenoid valve. After engine coolant temperature exceeds 113°F (45°C), the valve opens since current no longer passes through a thermal switch (also part of air injection system on Federal models).

Fig. 2: Jaguar XJ12 Fuel Evaporation System



MAINTENANCE

Every 12,500 miles, check all lines and connections for chafing, leakage or deterioration. Check fuel cap seal. At 50,000 miles, replace charcoal canisters.

MAZDA PISTON ENGINE

B2000, GLC, 626

DESCRIPTION

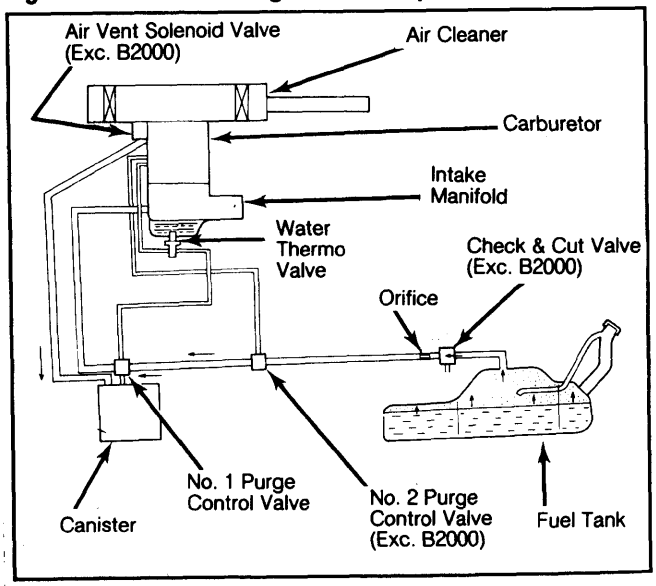
Fuel Evaporation system prevents escape of raw fuel vapors to atmosphere. A special fuel tank with integral vapor separator is installed on FWD GLC and 626 models. GLC Station Wagon models are equipped with a fuel tank with external vapor separator. B2000 models are equipped with a vapor valve instead of a vapor separator.

Additional components of system include a check and cut valve (except B2000), an air vent solenoid valve (except B2000), 2 purge control valves (1 on B2000), a charcoal canister, a water thermo valve and connecting lines and hoses. A vacuum controlled evaporative shutter valve is installed on B2000 and GLC Station Wagon.

OPERATION

When engine is not running, fuel vapors from fuel tank flow to carbon canister for storage. Check and cut valves (if equipped) prevent pressure or vacuum from forming in system. On B2000 and GLC Station Wagon,

Fig. 1: Mazda Piston Engine Fuel Evaporation System



MAZDA PISTON ENGINE (Cont.)

when engine is started, manifold vacuum opens evaporative shutter valve to allow fresh air into carburetor.

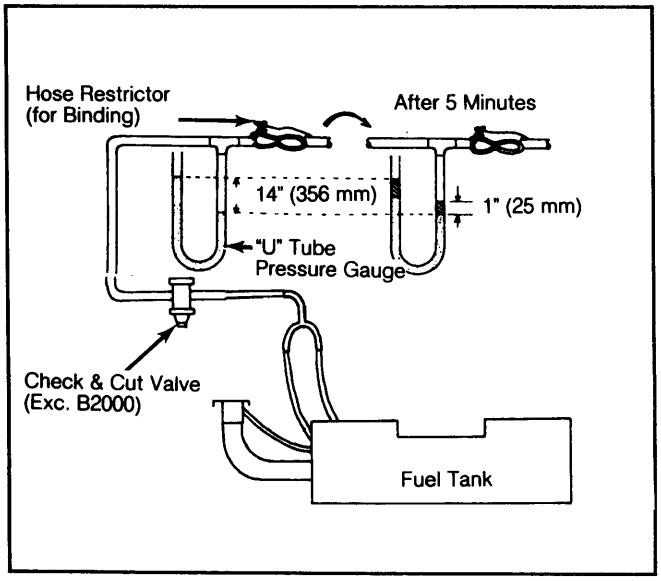
On all models, when engine coolant temperature reaches approximately 131°F (55°C), water thermo valve opens and intake manifold vacuum is directed to purge control valve. When manifold vacuum opens purge control valve, fresh air is drawn through inlet hole at bottom of canister. Vapors are drawn into engine and burned.

TESTING

EVAPORATIVE LINE CHECK

1) Disconnect evaporative hose from canister. Connect detached hose to a "U" tube type pressure gauge filled with water. *See Fig. 2.*

Fig. 2: Mazda Evaporative Line Test



Use "U" tube pressure gauge.

2) Gradually apply low air pressure into "U" tube so that difference of water level reaches 14" (356 mm).

3) Bind inlet of "U" tube and leave bound for 5 minutes. If water level drops no more than 1" (25 mm) after 5 minutes, evaporative line is in good condition.

CHECK & CUT VALVE

GLC & 626

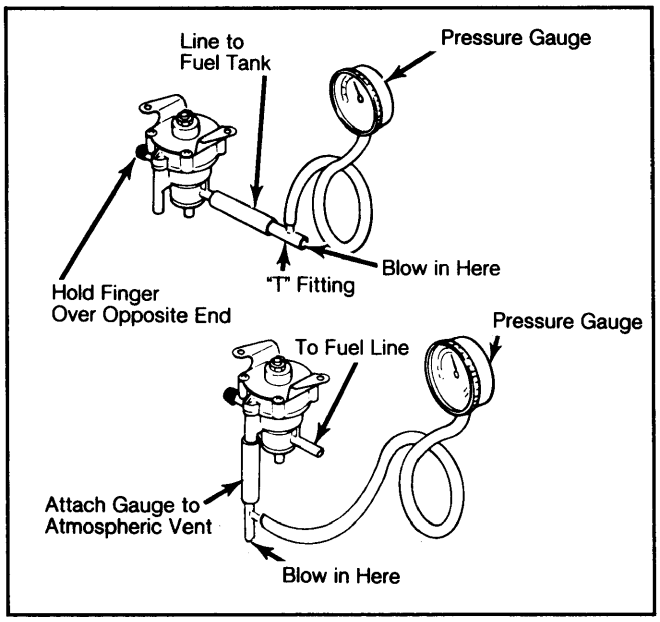
1) Remove check and cut valve from lines. Connect a pressure gauge with "T" on nipple leading to fuel tank. Hold finger over opposite nipple. *See Fig. 3.*

2) Blow through open end of "T" fitting. When pressure gauge reads .78-1.0 psi (.06-.07 kg/cm²), valve should open.

3) Remove "T" fitting and gauge from fuel tank nipple and connect to nipple at bottom of valve (atmosphere vent).

4) Repeat test. Valve should open when pressure gauge reads .14-.71 psi (.01-.05 kg/cm²). If valve does not operate as described, replace check and cut valve.

Fig. 3: Mazda GLC & 626 Check & Cut Valve Test



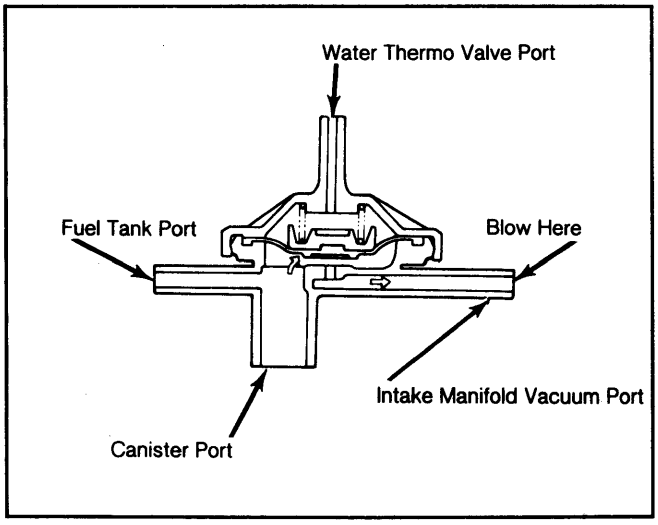
Make sure valve is held horizontally.

NO. 1 PURGE CONTROL VALVE

1) Disconnect manifold vacuum hose from manifold. Disconnect and plug control valve-to-water thermo valve hose.

2) Start engine and run at idle. Blow through manifold vacuum tube. *See Fig. 4.* Air should not pass through control valve.

Fig. 4: No. 1 Purge Control Valve Test



3) Unplug thermo valve hose and reconnect to purge control valve. Blow through manifold hose again. Air should pass through control valve. If valve does not respond as described, replace purge control valve.

NO. 2 PURGE CONTROL VALVE

GLC & 626

1) Disconnect fuel tank hose from No. 2 purge control valve. Disconnect No. 2 purge control valve-to-No. 1 purge control valve hose, from No. 2 purge control valve.

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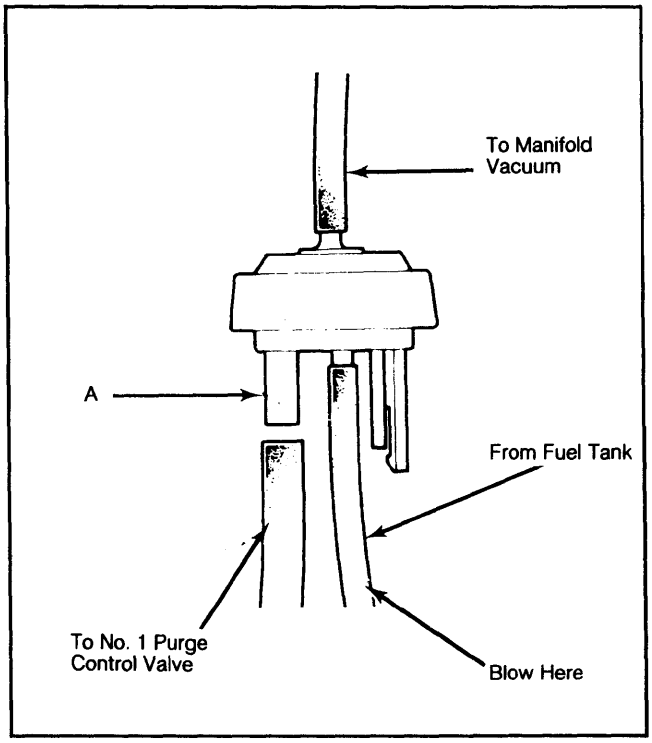
MAZDA PISTON ENGINE (Cont.)

2) Using light mouth pressure, blow into hose which was connected to No. 1 purge control valve. Air should not come out port "A". *See Fig. 5.*

Fig. 5: No. 2 Purge Control Valve Test



GLC and 626 only.

3) Start engine and run at 1500 RPM on GLC or 2000 RPM on 626. Blow into hose again. Air should escape from port "A". If valve does not operate as described, replace No. 2 purge control valve.

WATER THERMO VALVE

B2000

1) Remove water thermo valve and connect a piece of tubing to each nipple. Immerse valve in container of water. Insert thermometer and slowly heat water.

2) At temperature of 122°F (50°C) or above, blow into one of the hoses. Air should pass through valve. If not, replace water thermo valve.

GLC & 626

1) Disconnect water thermo valve-to-purge control valve hose and water thermo valve-to-vacuum amplifier hose. Start engine and run at idle.

2) With engine cold, no vacuum should be present at hoses. With engine coolant temperature above 131°F (55°C), vacuum should be felt. If not, replace water thermo valve.

SHUTTER VALVE

B2000 & GLC Station Wagon

1) Remove air cleaner and element. With engine cold, shutter valve should be completely closed. Start engine and run at idle. Shutter valve should be open.

2) With engine running, disconnect and reconnect vacuum hose to shutter valve diaphragm. Shutter valve should open and close smoothly. If not, replace shutter valve.

AIR VENT SOLENOID VALVE

GLC & 626

1) Check air vent hose for cracks or deterioration. Disconnect air vent hose from canister. Slowly blow through hose. Air should pass through solenoid valve.

2) Turn ignition "ON". Blow through hose again. Air should not pass through valve. If solenoid valve does not respond as described, replace air vent solenoid valve.

MAINTENANCE

Check entire system for proper functioning every 15,000 miles. Check and cut valve should be tested every 25,000 miles. Replace parts as necessary.