1982 Fuel Evaporation Systems

MERCEDES-BENZ

380 Series

DESCRIPTION

The fuel evaporation system is designed to prevent fuel vapors from leaving the fuel tank and entering the atmosphere. The system includes a fuel tank with vapor separator, thermal valve, purge valve, canister and vent valve.

OPERATION

EVAPORATION SYSTEM ENGINE NOT RUNNING

Fuel tank pressure is maintained by the vent valve, which is a pressure/relief valve. When engine is off and vapors expand (heated by sun), the pressure relief valve in vent valve opens, allowing fuel vapors to escape to charcoal canister.

As fuel cools down, volume is reduced, creating a vacuum in fuel tank. Below a preset value, the vacuum portion of the vent valve opens, allowing air and/or fuel vapors from canister to travel to fuel tank, reducing vacuum.

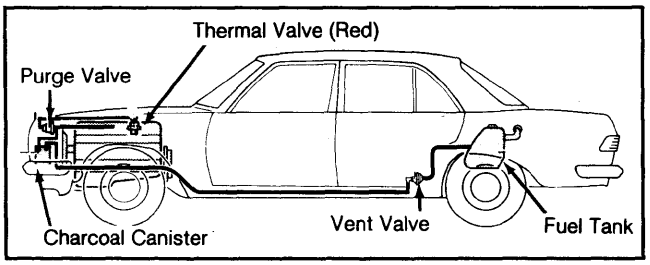
If system malfunction causes fuel tank pressure to increase above 1.5-4.5 psi (.1-.3 kg/cm²) relief valve portion of filler cap opens to vent excess pressure.

PURGE SYSTEM ENGINE RUNNING

The purge valve is installed in vacuum line between charcoal canister and throttle valve housing. A vacuum control line is routed from throttle valve housing through a thermal vacuum valve and on to the purge valve.

When the engine is running, throttle valve position is above idle, and engine coolant is above 122°F (50°C) canister purging takes place. As the throttle is opened further, more vacuum is applied to the canister and purge rate continues.

Fig. 1: Mercedes-Benz Fuel Evaporation System



TESTING

SYSTEM CHECK

1) Disconnect hose between purge valve and canister at canister. Place finger over hose end. Slowly increase engine speed to 2000 RPM. No vacuum should be present at idle, then vacuum should gradually increase with engine speed.

2) If no vacuum was present at hose, trace hose back to throttle valve housing. Blow through connection on housing and ensure hose is clear.

3) If vacuum is still not present, remove White/Black/Purple hose from purge valve. If vacuum is now present, replace purge valve. If vacuum is not present, replace thermal valve.

PEUGEOT

505 Gasoline

DESCRIPTION

The fuel evaporation system on Peugeot gasoline models is designed to prevent fuel vapors from entering the atmosphere. The system consists of a sealed fuel tank cap, relief valve, purge valve, thermovalve, accumulator, charcoal canister, and connecting hoses.

Fig. 1: Peugeot 505 Gasoline Model Fuel Evaporation System