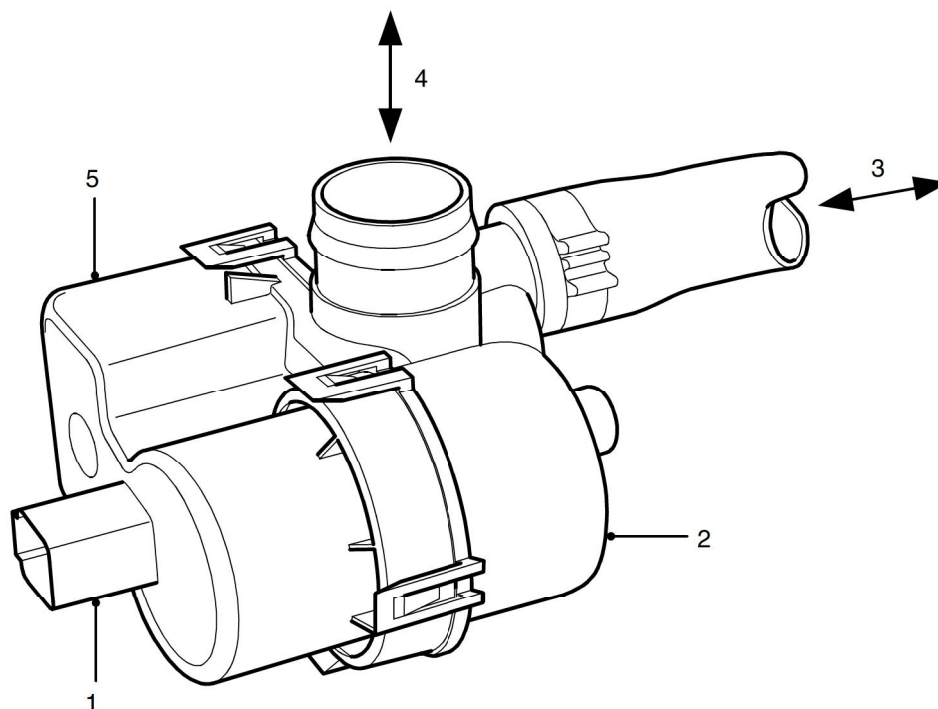


EMISSION CONTROL - V8

Leak Detection Pump (NAS vehicles with positive pressure EVAP system leakage test only)



M17 0213

- | | |
|---|--|
| 1 Harness connector | 4 Atmosphere connection to/from air filter |
| 2 Leak detection pump motor | 5 Leak detection pump solenoid valve |
| 3 Atmosphere connection to/from EVAP canister | |

The fuel evaporation leak detection pump is mounted forward of the EVAP canister on a bracket fitted beneath the vehicle on the RH side of the vehicle chassis. The leak detection pump is fixed to the bracket by three screws through the bottom of the bracket.

A short hose connects between the atmosphere vent port of the EVAP canister and a port at the rear of the fuel evaporation leak detection pump. The hose is secured to the ports at each end by crimped metal band clips.

An elbowed quick fit connector on the top of the fuel evaporation leak detection pump connects to atmosphere via a large bore pipe. The pipe is routed along the underside of the vehicle chassis and up into the RH side of the engine compartment where it connects to an air filter canister.

The leak detection pump incorporates a 3-pin electrical connector. Pin-1 is the earth switched supply to the ECM for control of the pump solenoid valve. Pin-2 is the earth switched supply to the ECM for the operation of the pump motor. Pin-3 is the power supply to the pump motor and solenoid valve and is switched on at system start up via the main relay and fuse 2 in the engine compartment fusebox.

Under normal circumstances (i.e. when the leak detection pump is not operating and the solenoid is not energised), the EVAP canister vent port is connected to atmosphere via the open solenoid valve.

The pump is operated at the end of a drive cycle when the vehicle is stationary and the ignition is switched off.

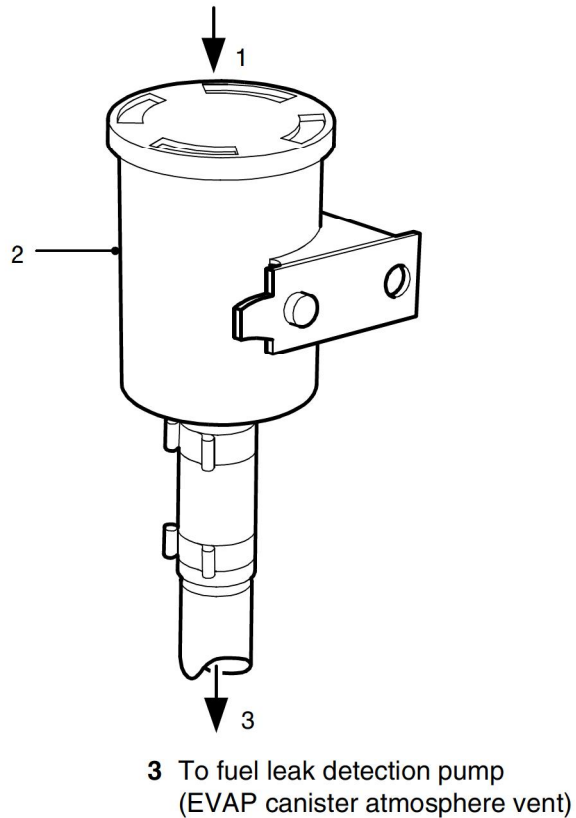
The leak detection pump module contains an integral air by-pass circuit with restrictor (reference-leak orifice) which is used for providing a reference value for the leak detection test. The restrictor corresponds to an air leak equivalent to 0.5 mm (0.02 in) diameter. With the solenoid valve open and the purge valve closed, the pump forces pressurised air through the orifice while the current drawn by the leak detection pump motor is monitored to obtain the reference value. The orifice must be kept free from contamination, otherwise the reference restriction may appear less than for a 0.5 mm leak and consequently adversely affect the diagnostic results.



During the leakage test, the solenoid valve is energised, closing the atmosphere vent line between the EVAP canister and atmosphere and opening a path to the pressurised air supplied from the leak detection pump motor. Air is pumped into the EVAP system, while the current drawn by the pump motor is monitored. The current drawn during the leakage test is compared against the value obtained during the reference check, to determine if an EVAP system leak is present.

The fuel leak detection pump is powered from a 12V supply and operates at a working pressure of 3 kPa.

Air Filter – (NAS vehicles with positive pressure leak detection system only)



M17 0203

- 1 Air vents through canister lid
- 2 Air filter canister

- 3 To fuel leak detection pump
(EVAP canister atmosphere vent)

A paper element air filter (40 μm) is located in a plastic canister at the RH side of the engine compartment. The air filter canister is fixed to the cruise control mounting bracket by a single nut and bolt. A large bore plastic pipe is connected to a port at the base of the air filter canister and is secured to the port by a short nylon hose and two crimped metal band clips.

The air filter is used to prevent particulate contaminants down to 40 μm from entering the fuel leak detection pump. A press-fit lid on top of the canister contains slots to allow the passage of air into and out of the EVAP system.

The bottom end of the paper element is sealed to the canister and is non-serviceable (i.e fit for life). If necessary, the canister and paper filter must be replaced as a single, complete assembly.