

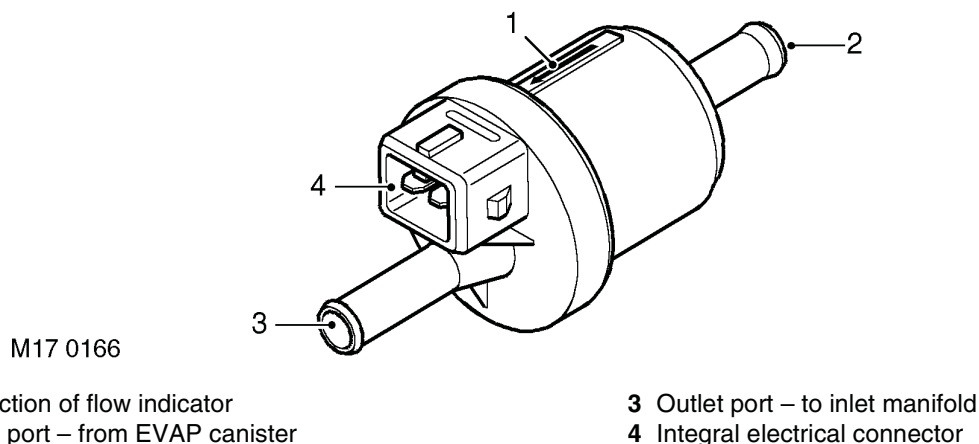
EMISSION CONTROL - V8

For NAS vehicles with positive pressure, EVAP system leak detection capability, the atmosphere vent line from the EVAP canister connects to a port on the fuel leak detection pump via a short, large bore hose which is secured to the component ports by crimped metal clips at each end. A large bore plastic hose from the top of the leak detection pump is routed to the RH side of the engine bay where it connects to an air filter canister. Under normal operating conditions (when the fuel leak detection solenoid valve is not energised), the EVAP canister is able to take in clean air via the air filter, through the pipework and past the open solenoid valve to allow normal purge operation to take place and release any build up of EVAP system pressure to atmosphere.

The EVAP system pipes are clipped at various points along the pipe runs and tied together with tie straps at suitable points along the runs.

The NAS and ROW EVAP canisters are of similar appearance, but use charcoal of different consistency. The ROW vehicles use granular charcoal of 11 bwc (butane working capacity) and NAS vehicles use pelletised charcoal with a higher absorption capacity of 15 bwc. All canisters are of rectangular shape and have capacities of 1.8 litres (3 1/8 imp. pts) with purge foam retention.

Purge Valve



The EVAP canister purge valve is located in the engine bay at the LH side of the engine intake manifold. The valve is held in position by a plastic clip which secures the inlet pipe of the purge valve to a bracket mounted at the rear of the engine compartment. On vehicles with secondary air injection, the purge valve is fixed to a metal bracket together with the SAI vacuum solenoid valve; the purge valve is fixed to the bracket by two plastic clips.

A nylon pipe connects the outlet of the purge valve to the stub pipe on the plenum chamber via a short rubber hose. The connector to the plenum chamber is a quick-release type, plastic 90° female elbow; the connection is covered by a rubber seal which is held in position on the port stub pipe.

A service port is connected in line between the EVAP canister and the inlet side of the purge valve and is rated at 1 psi maximum regulated pressure. The service port must be mounted horizontally and is located close to the bulkhead at the rear of the engine bay. The service point is used by dealers for pressure testing using specialist nitrogen test equipment for localising the source of small leaks.

The purge valve has a plastic housing, and a directional arrow is moulded onto the side of the casing to indicate the direction of flow. The head of the arrow points to the outlet side of the valve which connects to the plenum chamber.

Purge valve operation is controlled by the engine control module (ECM). The purge valve has a two-pin electrical connector which links to the ECM via the engine harness. Pin-1 of the connector is the power supply source from fuse 2 in the engine compartment fusebox, and pin-2 of the connector is the switched earth from the ECM (pulse width modulated (PWM) signal) which is used to control the purge valve operation time. **Note that the harness connector for the purge valve is black, and must not be confused with the connector for the Secondary Air Injection vacuum solenoid valve which is grey.**

When the purge valve is earthed by the ECM, the valve opens to allow hydrocarbons stored in the EVAP canister to be purged to the engine inlet manifold for combustion.



If the purge valve breaks or becomes stuck in the open or closed position, the EVAP system will cease to function and there are no default measures available. The ECM will store the fault in memory and illuminate the MIL warning lamp if the correct monitoring conditions have been achieved (i.e. valve status unchanged for 45 seconds after engine has been running for 15 minutes). If the purge valve is stuck in the open position, a rich air:fuel mixture is likely to result at the intake manifold, this could cause the engine to misfire and the fuelling adaptations will change.

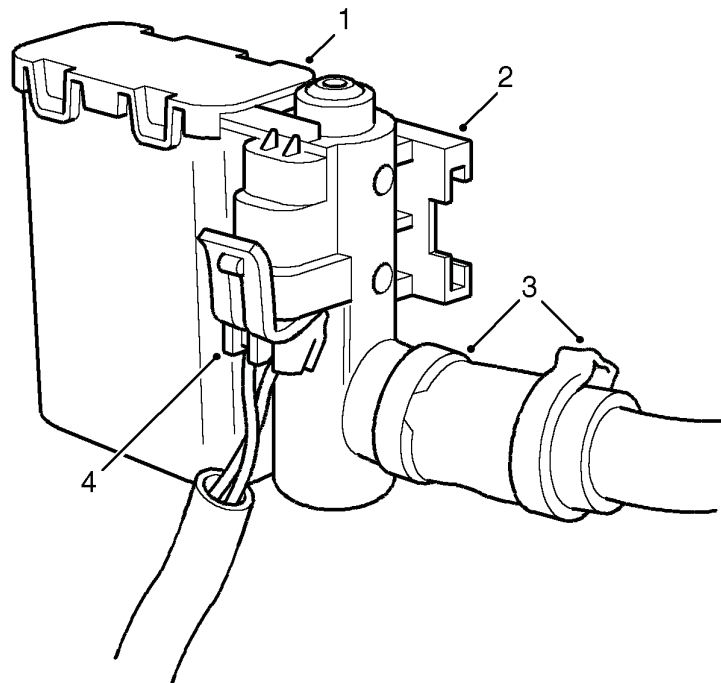
The following failure modes are possible:

- Sticking valve
- Valve blocked
- Connector or harness wiring fault (open or short circuit)
- Valve stuck open

If the purge valve malfunctions, the following fault codes may be stored in the ECM diagnostic memory, which can be retrieved using TestBook/T4:

P-code	Description
P0440	Purge valve not sealing
P0444	Purge valve open circuit
P0445	Purge valve short circuit to ground
P0443	Purge valve short circuit to battery voltage

Canister Vent Solenoid (CVS) Unit – (NAS with vacuum type, fuel evaporation leak detection system only)



M17 0165

- 1 CVS unit
2 Mounting bracket

- 3 Spring clips to pipe from EVAP canister
4 Harness connector

The canister vent solenoid (CVS) valve is mounted on a slide-on bracket which is riveted to the cruise control bracket at the right hand side of the engine compartment. The vent pipe from the EVAP canister is connected to a stub pipe on the CVS unit via a hose and plastic pipe combination. A two-pin connector links to the engine management ECM via the engine harness for solenoid control; one of the wires is the supply feed from fuse No.2 in the engine compartment fusebox, the other wire is the valve drive line to the ECM. The solenoid is operated when the ECM grounds the circuit.