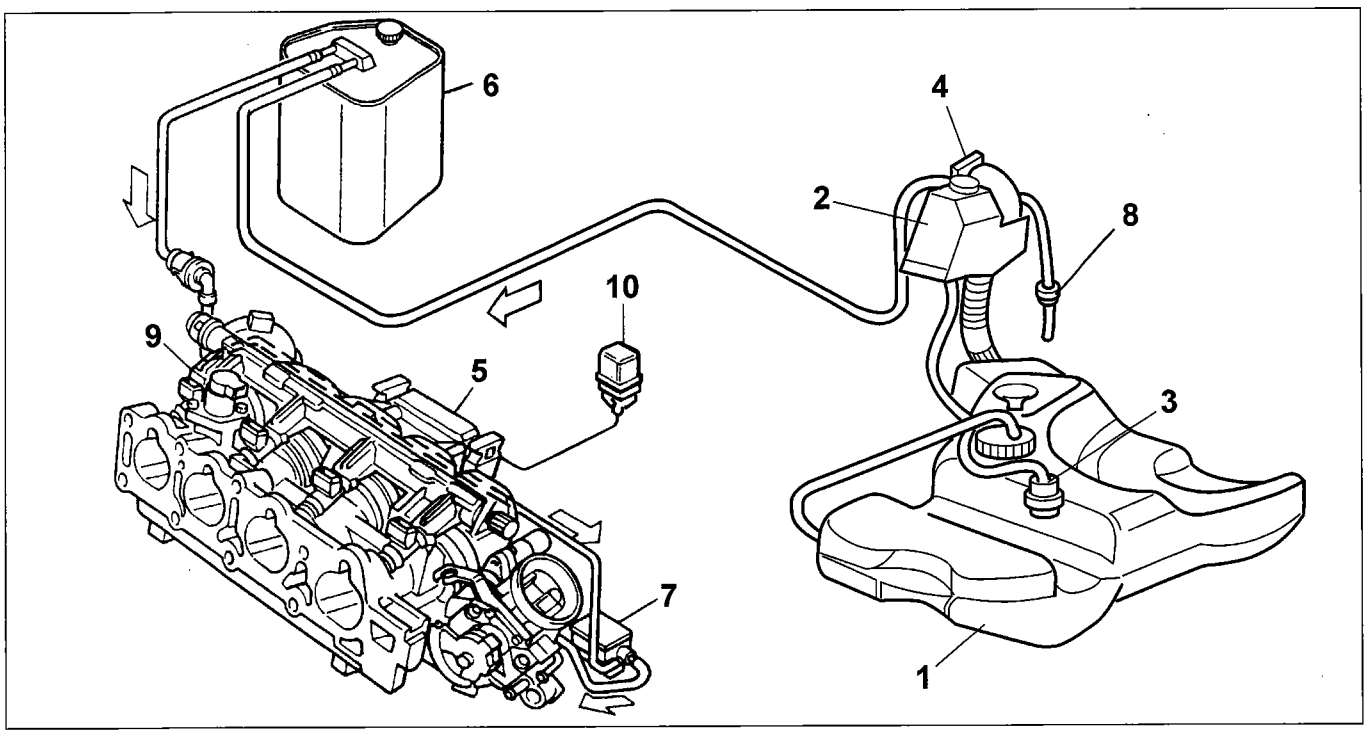
FUEL EVAPORATION CONTROL SYSTEM

The evaporation control system prevents fuel vapour (the lighter hydrocarbon fractions formed mainly in the tank) from being released into the atmosphere.
The system consists of a tank, vapour separator, two float valves, one two-way ventilation valve, a carbon filter and a carbon filter flushing solenoid, controlled by an ECU. The cap contains a two-way pressure relief valve.

Principle of operation

The system operates particularly with high outdoor temperatures when fuel temperature increase and evaporation rate is higher. Pressure increases inside the tank under these circumstances.
Even when tank (1) is full, the two float valves (3) remain open because they are located higher than the breather pipe and therefore allow fuel vapour to reach separator (2) under all circumstances to prevent fuel escaping.
Fuel vapour reaches carbon filter (6) when pressure inside the tank brings about opening of ventilation valve (8). This valve also allows air into the tank through the carbon filter if this proves necessary following a drop in fuel level.
When the engine is running, the ECU turns on the carbon filter flushing solenoid. This allows vapour to be taken up by the engine in order to flush the carbon filter.
If pressure inside the tank rises to dangerous levels as a result of component malfunction, the pressure relief valve located in plug (4) allows pressure to vent outside. If necessary, this valve may open in the opposite direction to ventilate the tank and prevent the vacuum reaching excessive levels.



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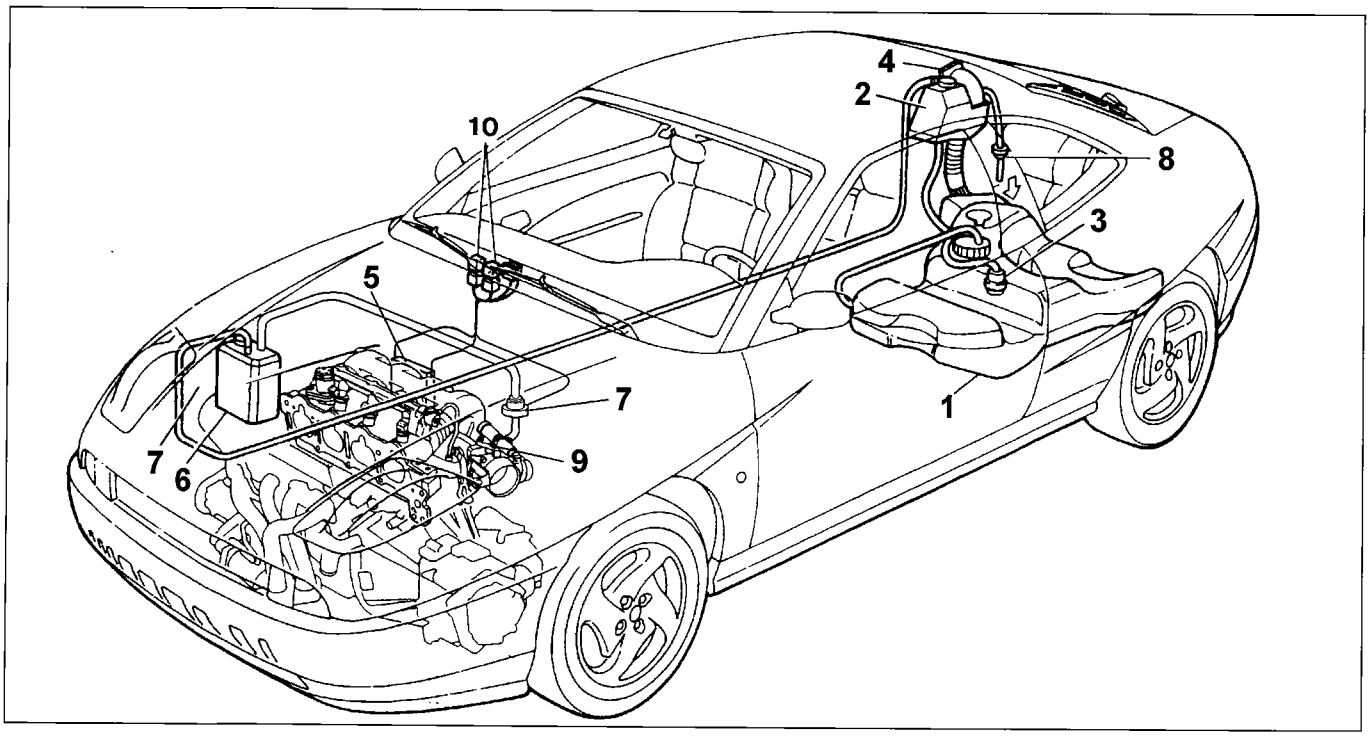
1. Fuel tank
2. Vapour separator
3. Float valve
4. Plug with pressure relief valve
5. Engine control unit
6. Carbon filter
7. Carbon filter flushing solenoid
8. Safety and ventilation valve
9. Inlet manifold
10. System relay

Location of evaporation control system components

1. Fuel tank
2. Vapour separator
3. Roll-over valve
4. Plug with pressure relief valve
5. Engine control unit
6. Carbon filter
7. Carbon filter flushing solenoid
8. Ventilation valve
9. Inlet manifold
10. Dual relay



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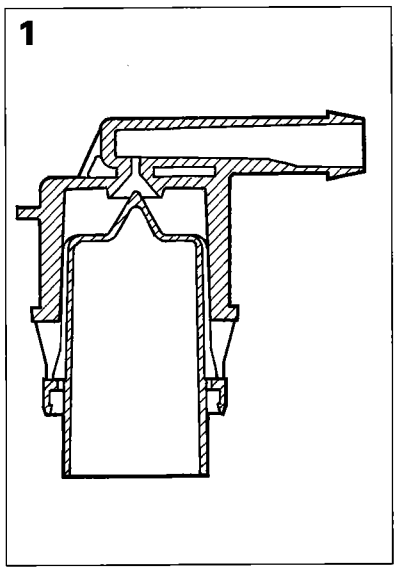
Float valve

The float valve allows vapour to flow out toward the separator without allowing liquid fuel to emerge. This valve contains a float with ends designed to close off the valve outlet hole under the following conditions:

- high acceleration laterally (vehicle cornering) or longitudinally (vehicle braking) and movement of the fuel mass due to inertia forces;
- vehicle rolling over.



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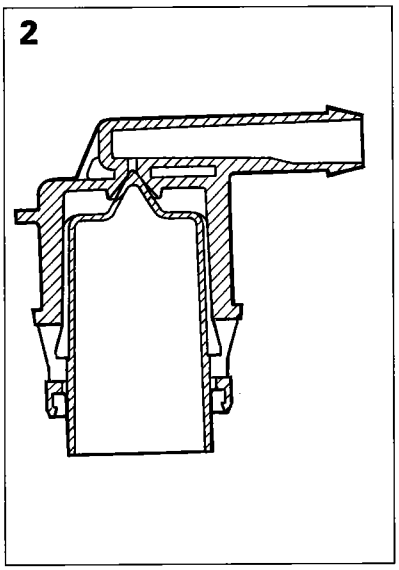

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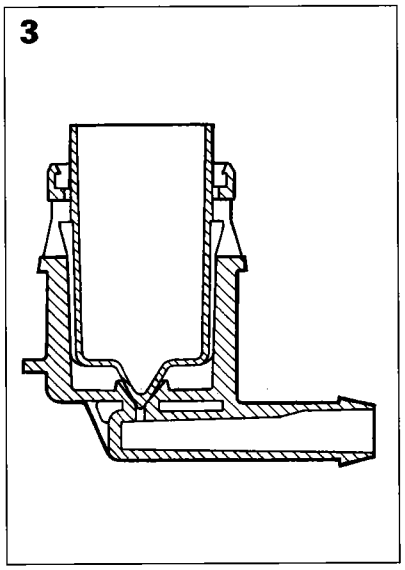

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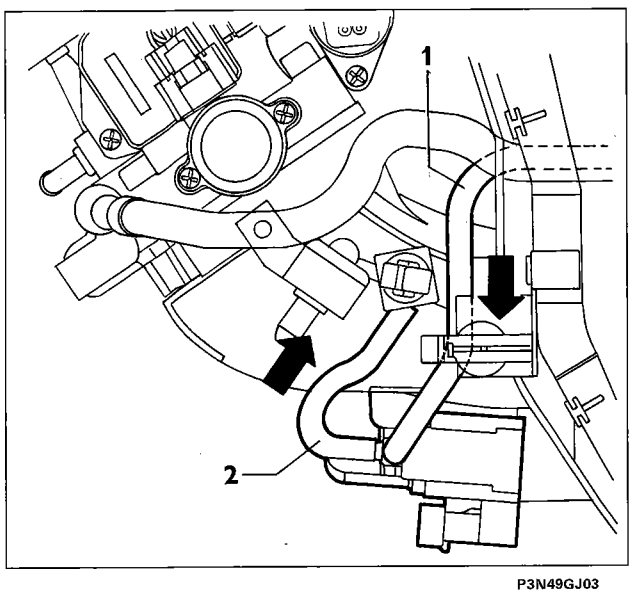
1. Normal operating conditions: valve open
2. Fuel pushes float upward due to high acceleration: valve closed;
3. Vehicle rolled over: valve closed.



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Carbon filter flushing solenoid

This normally closed valve controls the flow of vapour to the intake manifold. It is controlled by the control unit via a duty cycle signal.

1. From carbon filter
2. To inlet manifold