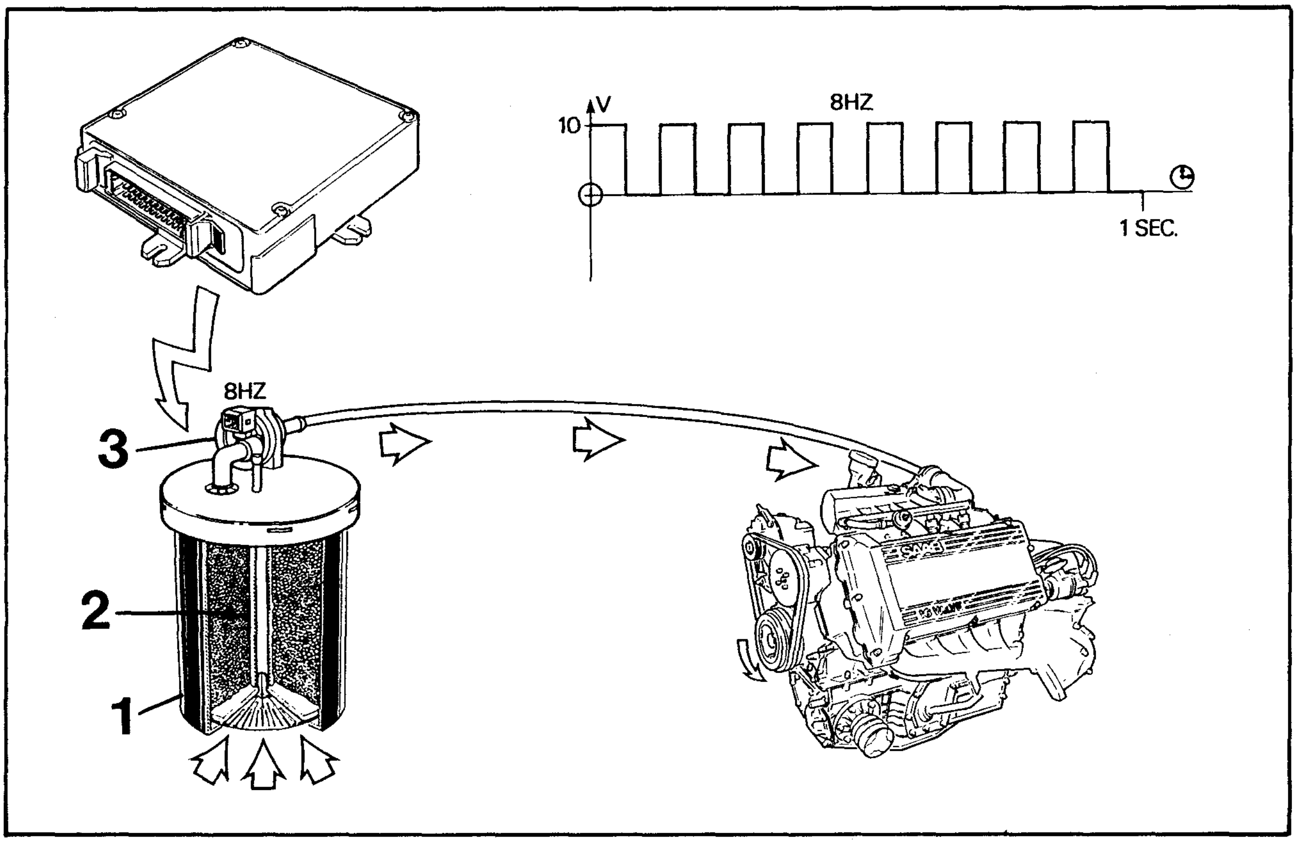
Purging of fuel vapour from the charcoal canister is controlled by the ECU via the ELCD valve, located on top of the canister, in the line to the inlet manifold.

The ECU opens the valve when the coolant temperature is higher than 20°C (68°F).

When the engine is running faster than idling speed, the valve operates continuously, with the ECU controlling the pulse ratio (open/close cycle) on the basis of engine load and speed. Under some conditions, the valve will also operates when the engine is idling.

During engine overrun, no purging of the ELCD valve takes place. The valve also remains closed on starting, opening only after the Lambda sensor has become operative.



Evaporative loss control device (ELCD)

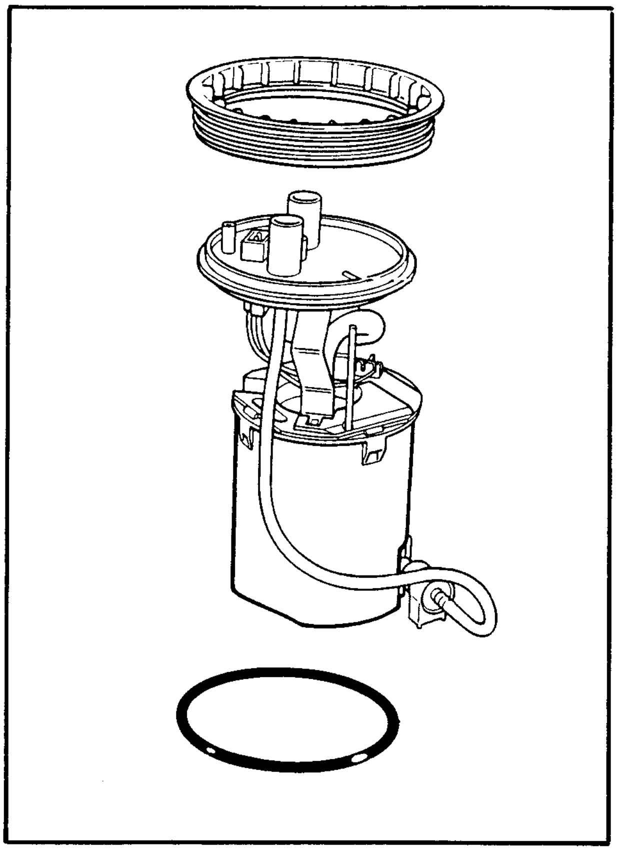
1 Charcoal canister
2 Charcoal
3 ELCD valve

The fuel pump starts running for about two seconds in conjunction with starting, to raise the fuel pressure. The pump will not start running continuously until the ECU receives engine-speed signals from the ignition coil.

Components

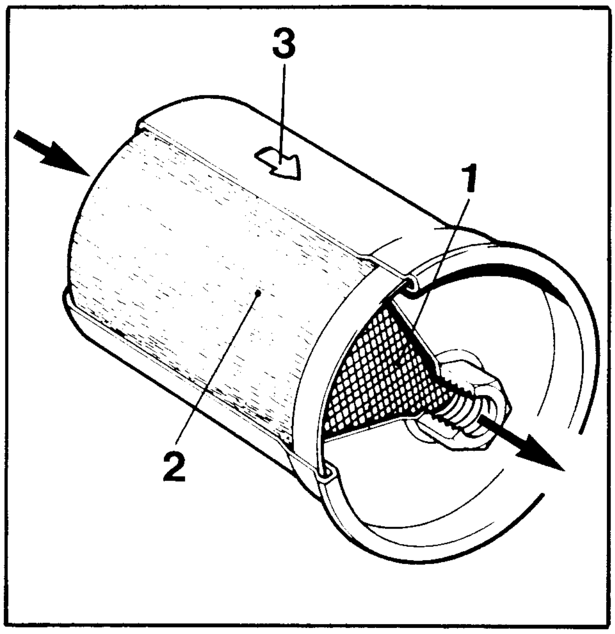
Fuel pump

The fuel pump has an ejector pump feeding the main pump and is fitted inside the fuel tank



Fuel filter

The fuel filter is of the same design as in the LH system but is made by Lucas.



Fuel filter

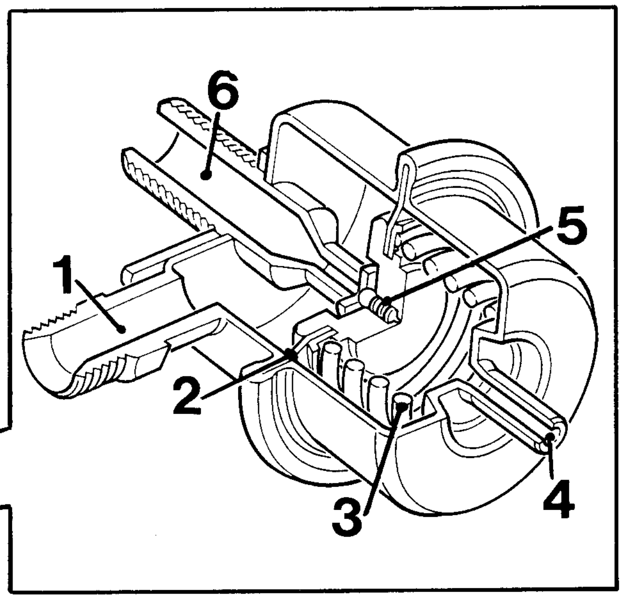
1 Nylon strainer
2 Paper element
3 Arrow indicating direction of flow

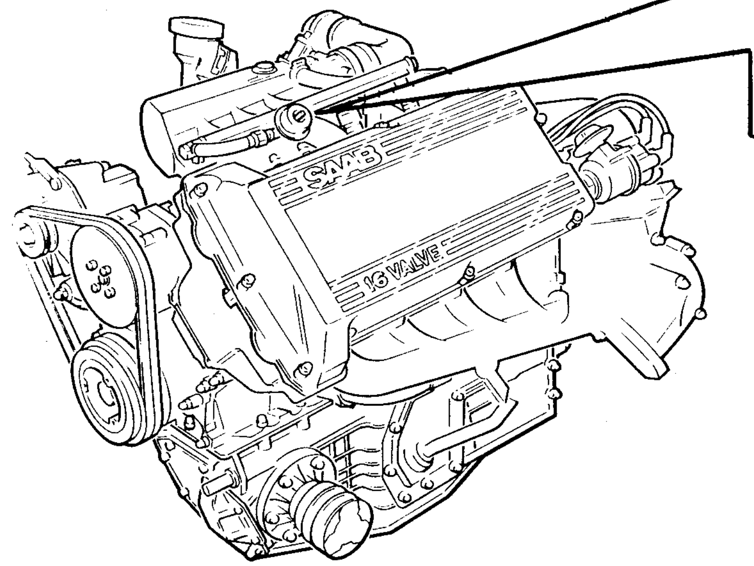
Fuel-pressure regulator

The fuel-pressure regulator maintains the fuel pressure across the injectors at a constant value in relation to the pressure in the inlet manifold.

The regulator is mounted on a special bracket and connected by a hose to the fuel-injection rail.

The fuel pressure is 3.0 bar (44 psi).





Fuel-pressure regulator

1 From fuel filter
2 Diaphragm
3 Spring
4 To inlet manifold
5 Valve
6 To fuel-injection rail

Injectors

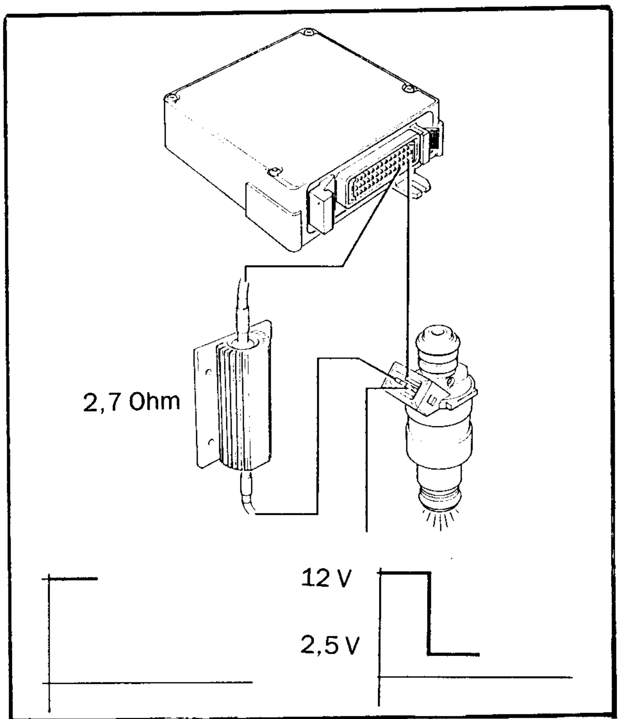
The injectors are of the low-impedance type and must never be connected direct to battery voltage, e.g. to test the flow.

The injector pulse comprises two phases, an open phase and a hold phase.

During the open phase, full battery voltage is applied to the injector solenoids, with the injectors being earthed via ECU pin 13.

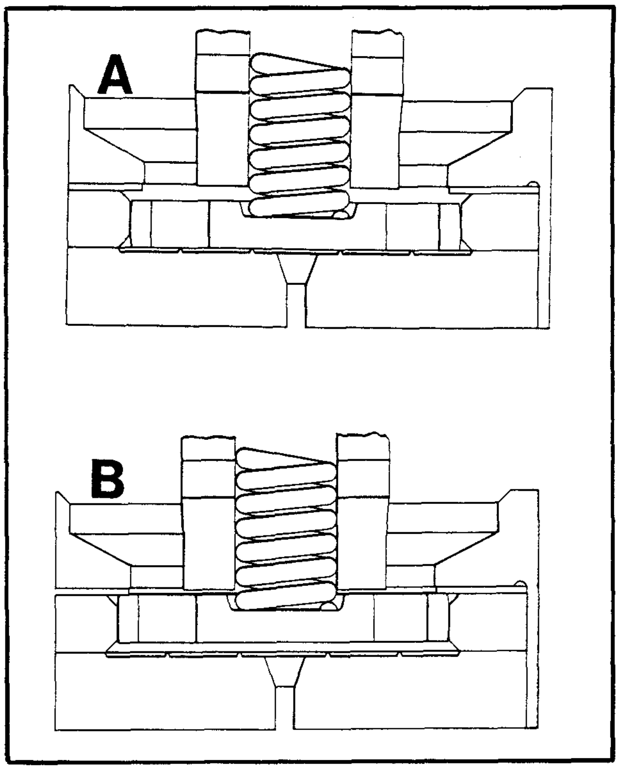
Thereafter, for the remainder of the pulse, the ECU switches to the hold phase, with the injectors being earthed by ECU pin 11, via a ballast resistor. The voltage across the injectors thereby drops to about 2.5 V.

The use of the open and hold phases enables the opening and closing of the injectors to be controlled more efficiently and thus permits more precise metering of the quantity of fuel injected.



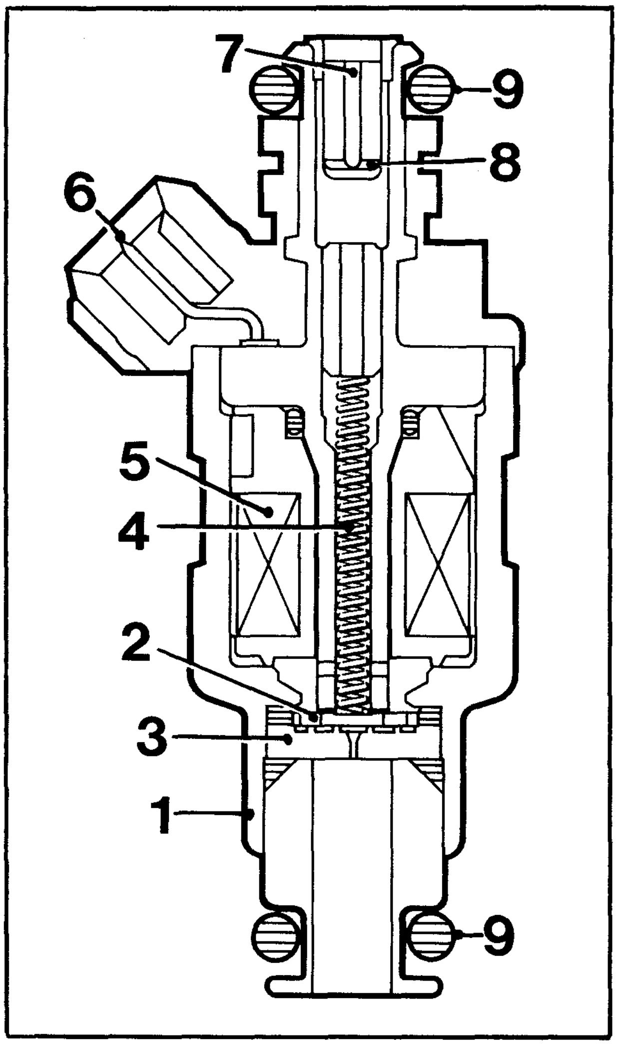
Circuit diagram of injector operation

The injectors are of a different design to those in the LH system. Instead of a needle valve, the injectors in the CU14 system incorporate a disc valve to regulate the amount of fuel injected.



The injectors incorporate a disc valve or armature to regulate the amount of fuel injected

A = Valve open
B = Valve closed



Injector

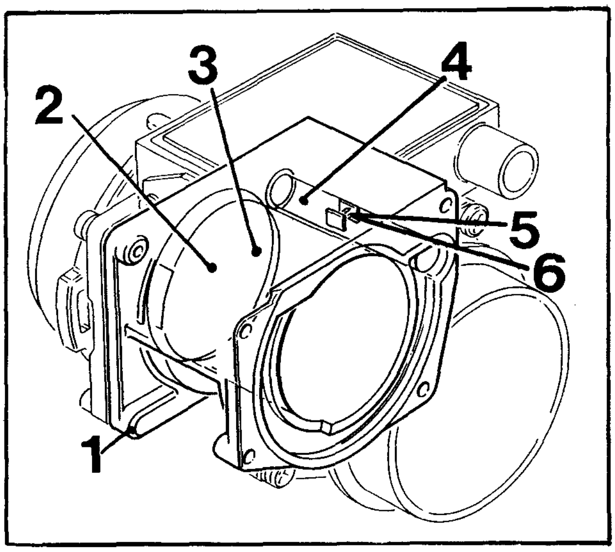
1 Valve body
2 Disc valve
3 Valve seat
4 Spring
5 Solenoid winding
6 Connector pins
7 Fuel inlet (from fuel injection ra
8 Filter
9 'O' rings

Air mass meter

The air mass meter in the CU14 system measures the air mass flowing through a separate measuring duct parallel to the main air duct. Because of the small proportion of the intake air flowing through the measuring duct, there is little danger of the filament becoming fouled, for which reason no burn-off function like that in the LH system is included.

The measured air mass is proportional to the total mass of air drawn into the inlet manifold.

A bridge circuit incorporating a detector resistor regulates the electrical current needed to keep the hot wire at a constant temperature above the temperature of the incoming air as sensed by the detector resistor. From the variations in this current, the ECU can deduce the mass of the air flowing through the meter.



Air mass meter

1 Cast alloy body
2 Fine-mesh screen
3 Main air duct
4 Air-mass measuring duct
5 Filament (hot wire)
6 Detector resistor

In the event of a break in the signal to the ECU, the Limp-home function will be actuated to enable the car to continue its journey with somewhat diminished performance.

On cars fitted with a catalytic converter, the screw for adjusting the CO content on idling is not operative.

To adjust the CO setting on cars not fitted with a catalytic converter, see page 240-23.

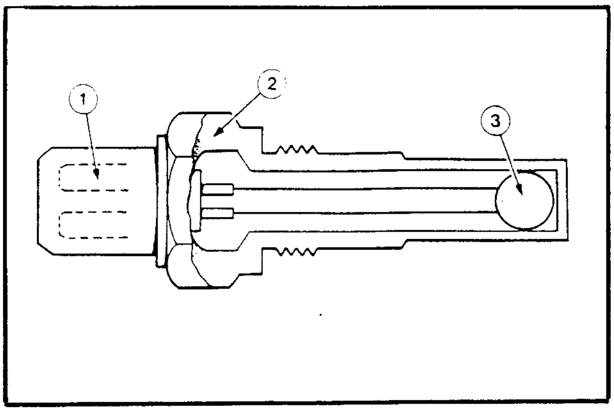
Temperature sensor

The purpose of the temperature sensor, fitted in the inlet manifold flange, is to send the ECU information on engine temperature, so that the correct amount of fuel can be injected.

On cold starting and early on in the warm-up phase, the engine requires a much higher fuel-to-air ratio, owing to losses due to condensation in the combustion chamber and inlet manifold. The fuel/air ratio is gradually reduced as the engine temperature rises.

The temperature sensor consists of a plastic body housing an NTC (negative temperature coefficient) resistor, the resistance of which decreases as the temperature rises.

In the event of a break in the signal from the temperature sensor, the ECU simulates a temperature of 10°C on starting or 35°C during driving.



Temperature sensor

1 Connector pins
2 Plastic body
3 NTC resistor

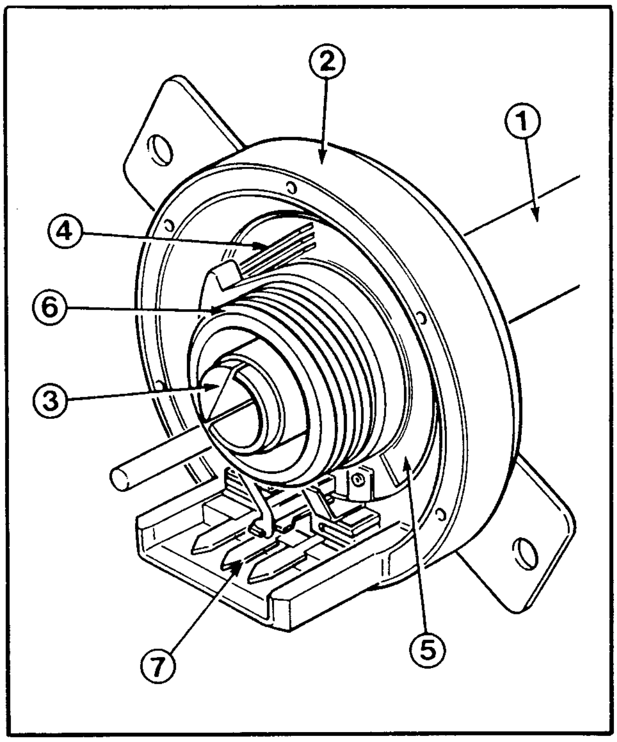
Main and fuel-pump relays

The main relay and fuel-pump relay are of the same design and perform the same function as in the LH system.

Throttle potentiometer

The throttle potentiometer is fitted to the throttle housing and connected mechanically to the throttle-butterfly spindle. A constant voltage is supplied to the potentiometer, and as the throttle butterfly moves, it changes the resistance of the potentiometer track and thus the analogue signal to the ECU.

The ECU takes into account the position of the throttle for controlling, e.g. idling, enrichment during acceleration and fuel shut-off during engine overrun.



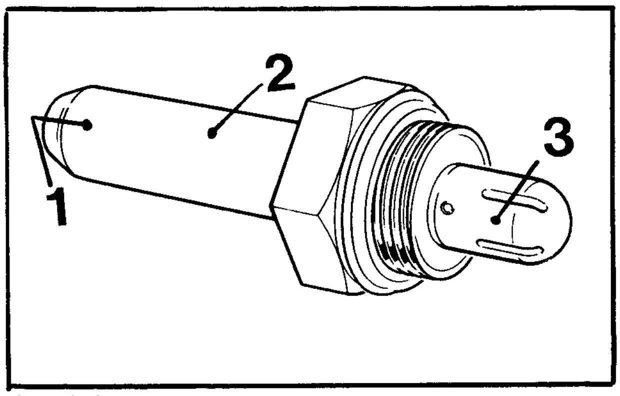
Throttle potentiometer

1 Throttle spindle
2 Throttle potentiometer
3 Drive spindle
4 Wipers
5 Resistor tracks
6 Return spring
7 Connector pins

Lambda sensor

The Lambda sensor contains a titanium dioxide thick-film resistor, the resistance of which changes with variations in the exhaust-gas composition.

The sensor is connected into an electrical circuit, which enables the ECU to deduce the composition of the exhaust gases from variations in the signal voltage. A PTC (positive temperature coefficient) heating element preheats the sensor to enable it to reach operating temperature quickly.



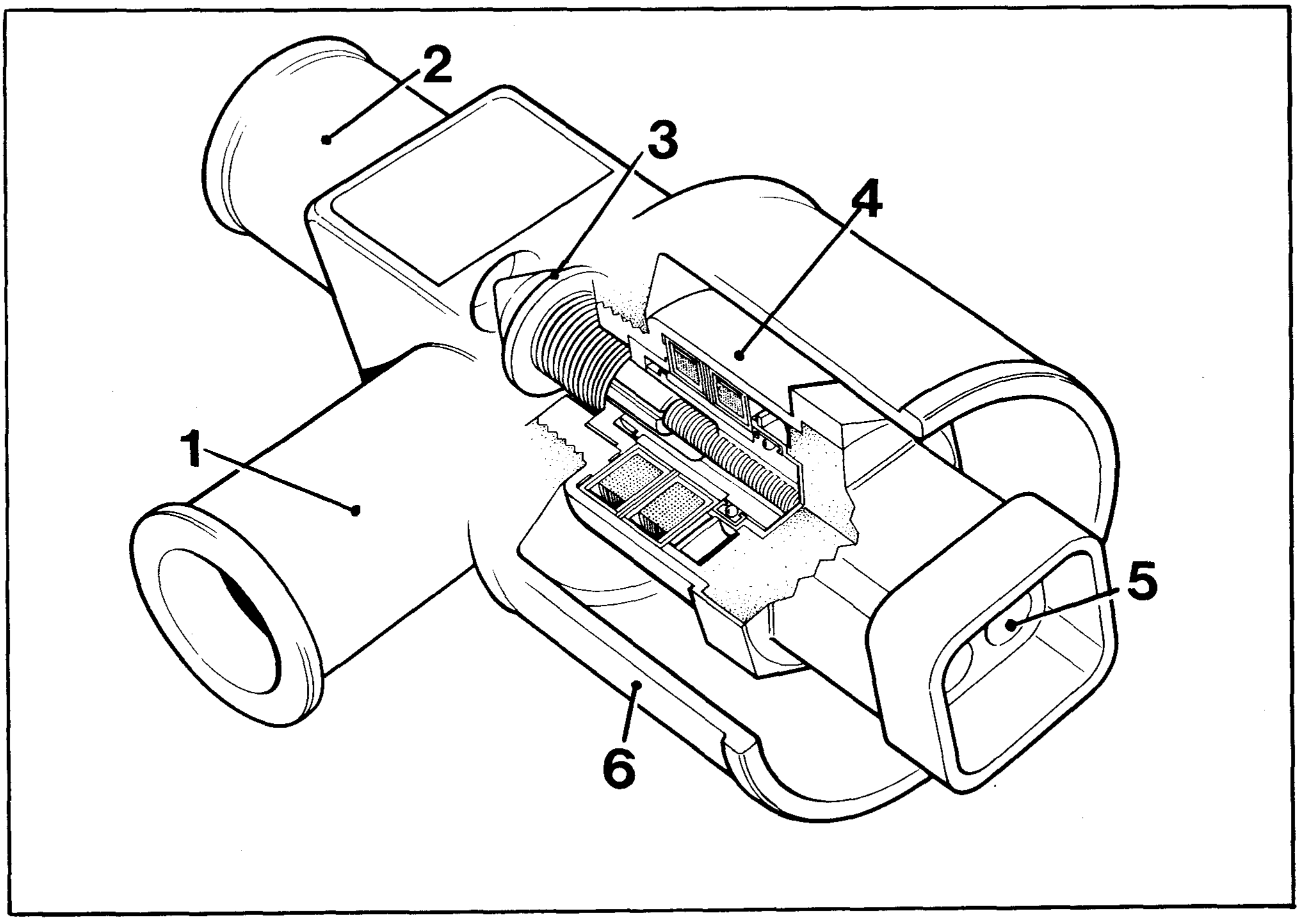
Lambda sensor

1 Connector pins
2 Casing
3 Probe

AIC valve

The AIC valve has two main functions: it gradually compensates for changes due to mechanical wear etc., thus eliminating the need for readjustment of the basic idling setting; and it also compensates for momentary drops in the idling speed caused by additional loads imposed, e.g. by the AC compressor or steering servo pump cutting in.

The AIC valve is actuated by a two-phase stepper motor controlled by the ECU. After comparing the input signals with preprogrammed values, the ECU sends electric pulses to the motor to set the valve in the correct position.



AIC valve

1 To inlet manifold
2 From throttle housing
3 Valve
4 Stepper motor
5 Connector pins
6 Valve body