

Models covered

200 SX

1990-

Engine code

CA18DET

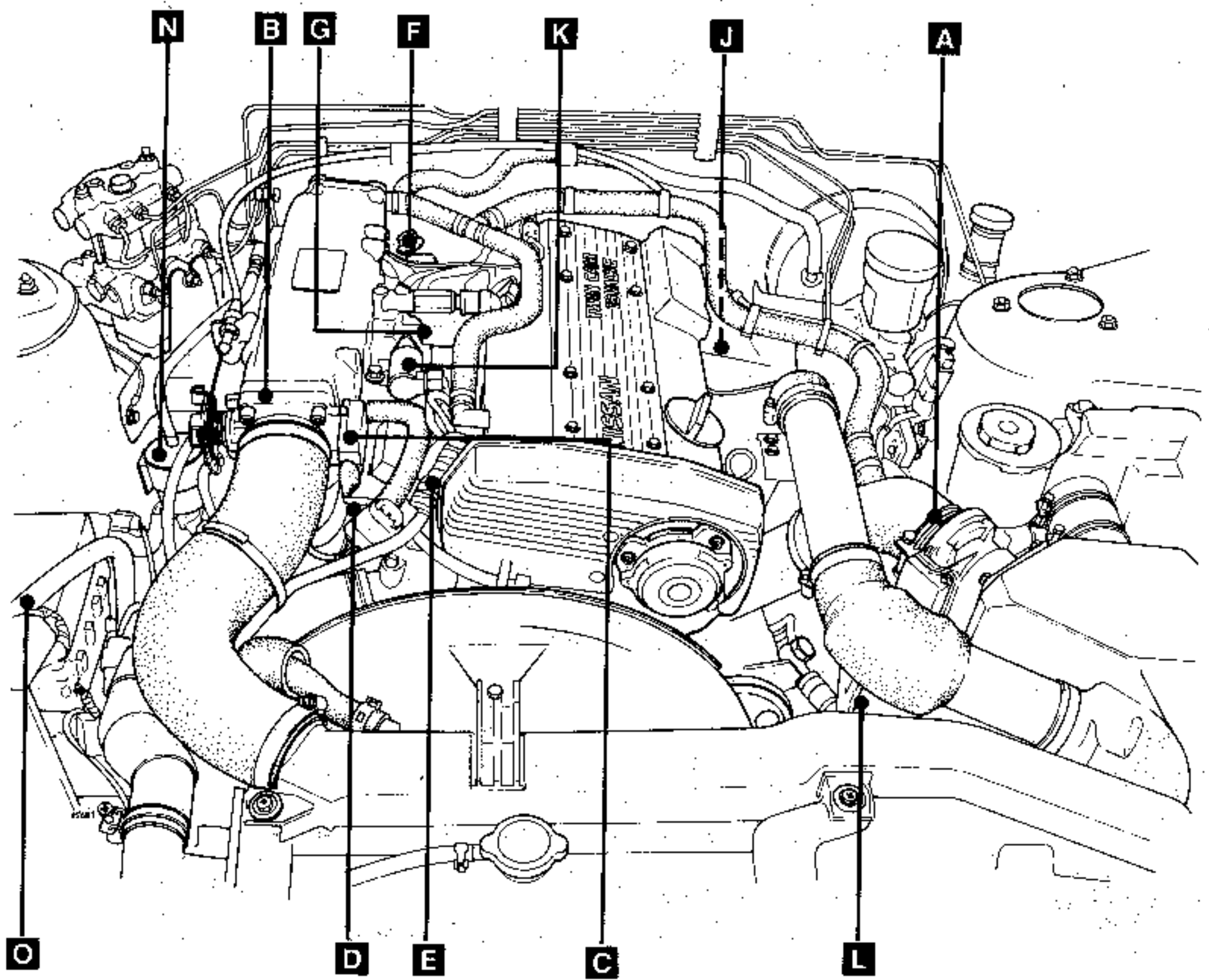
Injection system

Nissan ECCS

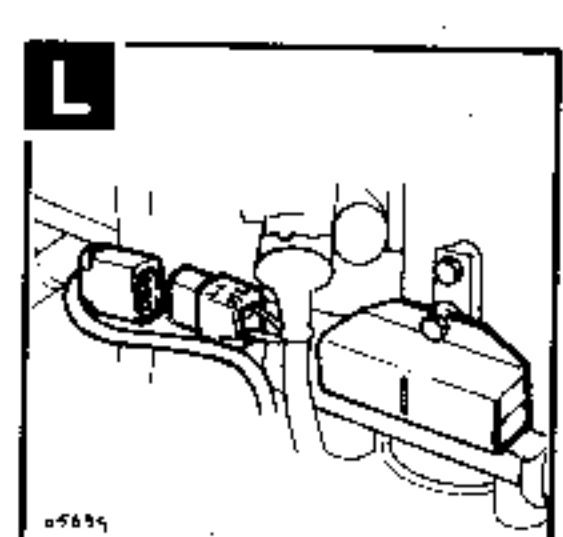
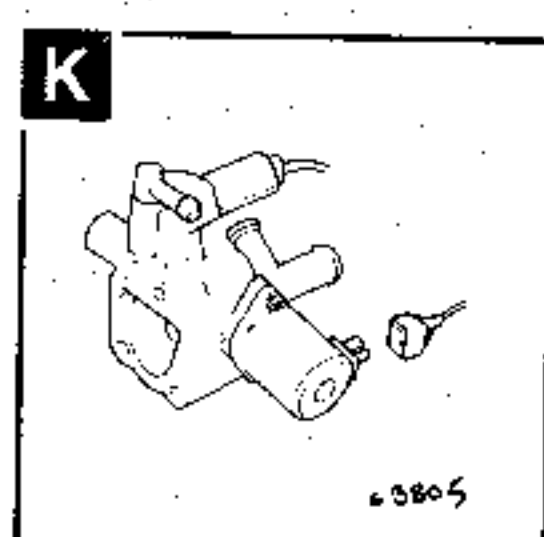
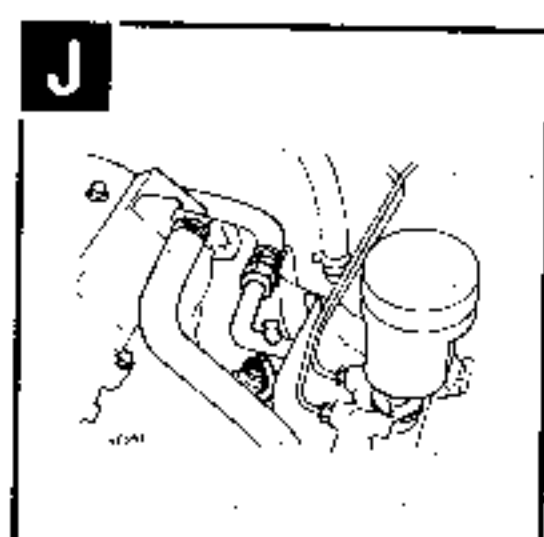
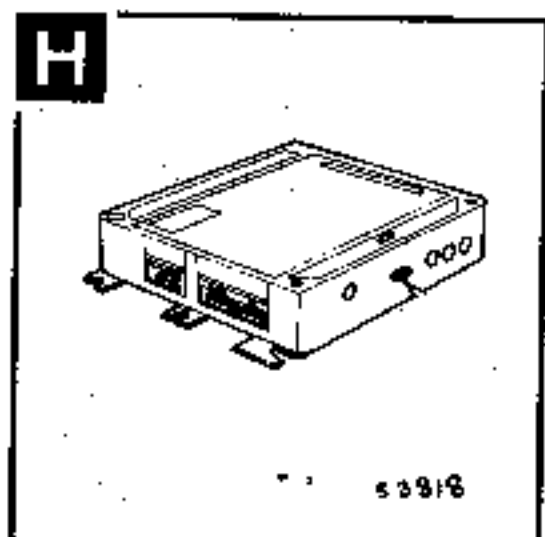
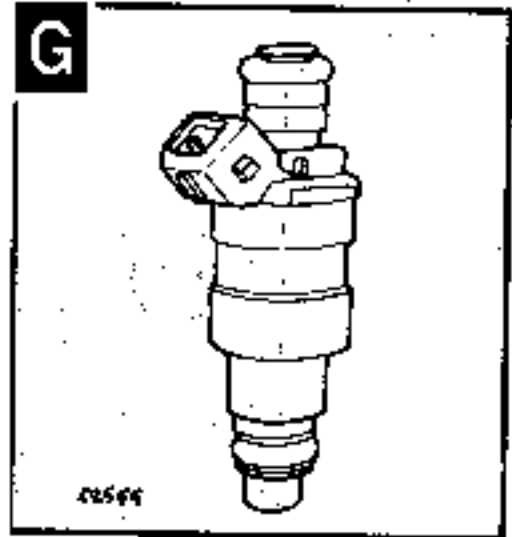
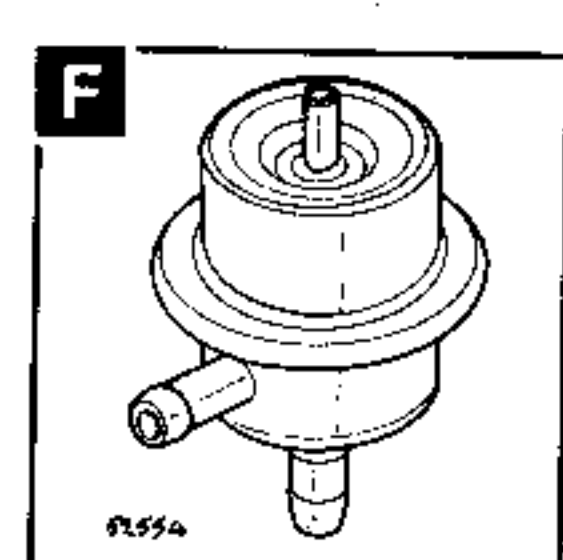
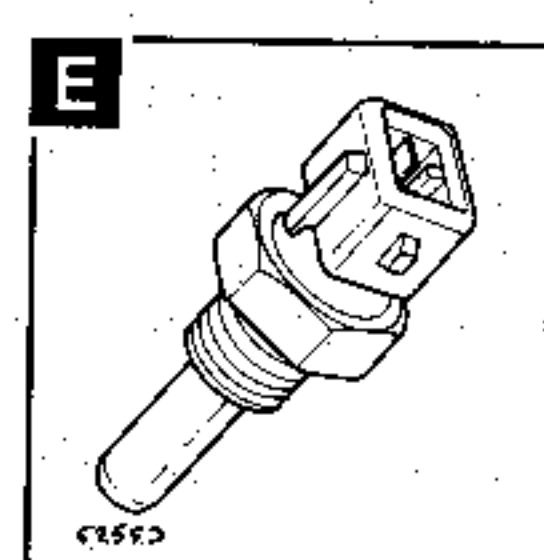
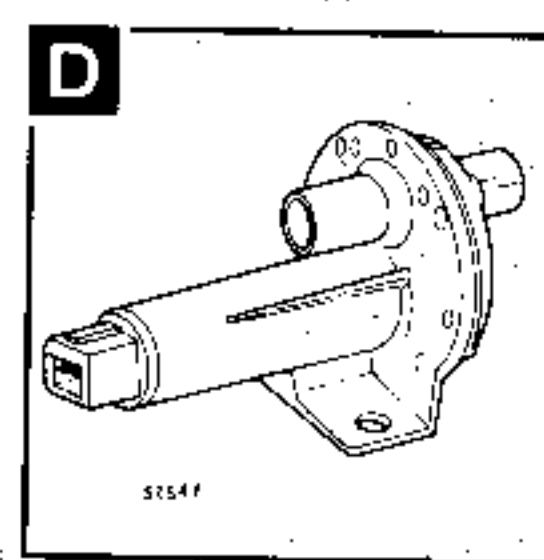
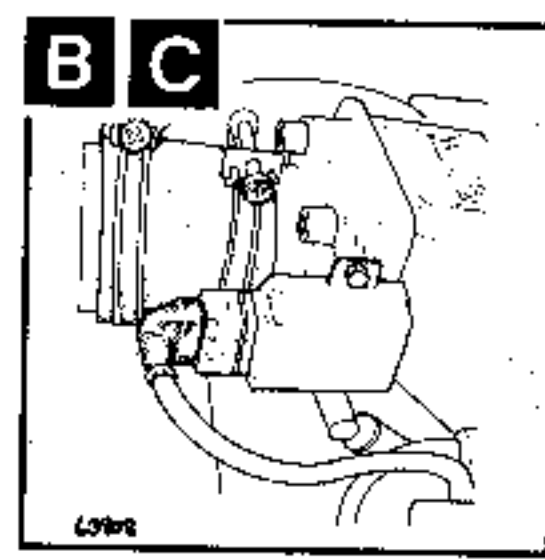
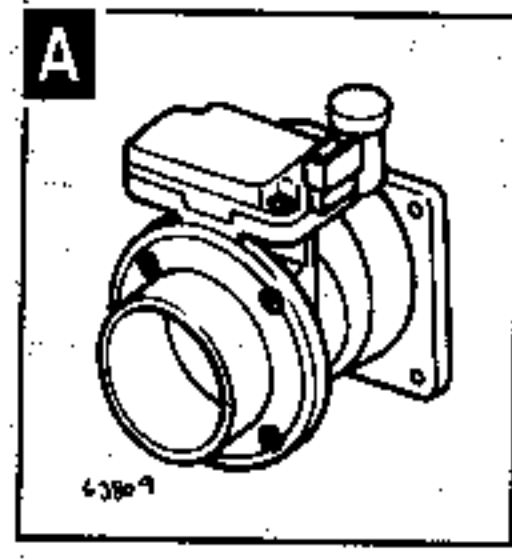
Fault finding

Trouble shooter 9

### Fuel injection system layout and components



- A** Air flow sensor
- B** Throttle body
- C** Throttle switch
- D** Auxiliary air valve
- E** Coolant temperature sensor
- F** Fuel pressure regulator
- G** Injector valves
- H** Control unit (RH footwell)
- I** Oxygen sensor
- K** AAC & FICD valves
- L** Injector resistor
- M** Fuel pump (in tank)
- N** Fuel filter
- O** Fuel pump relay



## Service adjustments

### Preparatory conditions

- Engine at normal operating temperature.
- Plugs and ignition timing correct.
- Air filter in position and in good condition.
- Headlamps and air conditioning OFF.
- Air intake and vacuum hoses in good condition.
- Automatic gear selector in N or P.
- Insert gas analyser probe at least 40 cm into exhaust pipe.

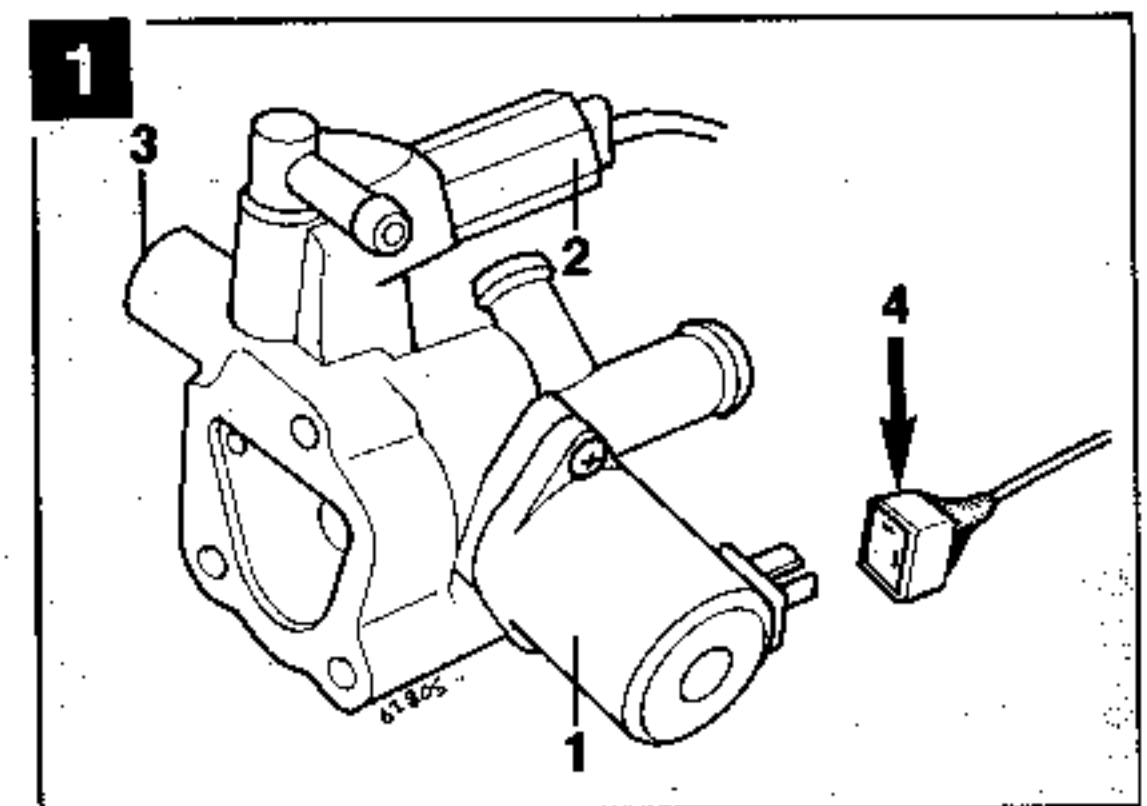
### 1.1 Idle speed

#### Technical Data

Manual transmission	850±50 rpm
Auto transmission in N	850±50 rpm

#### Checking - 1

- Run engine at about 2000 rpm for approximately 2 minutes.
- Allow engine to return to idle speed.
- Switch engine OFF.
- Disconnect auxiliary air control (AAC) valve multi-plug [4].
- Restart engine and allow to idle.
- Adjust idle speed to 800 rpm with idle speed screw [3].
- Reconnect AAC valve multi-plug and compare idle speed with specification.



### 1.2 Throttle initial position

- Preset during manufacture - not adjustable.

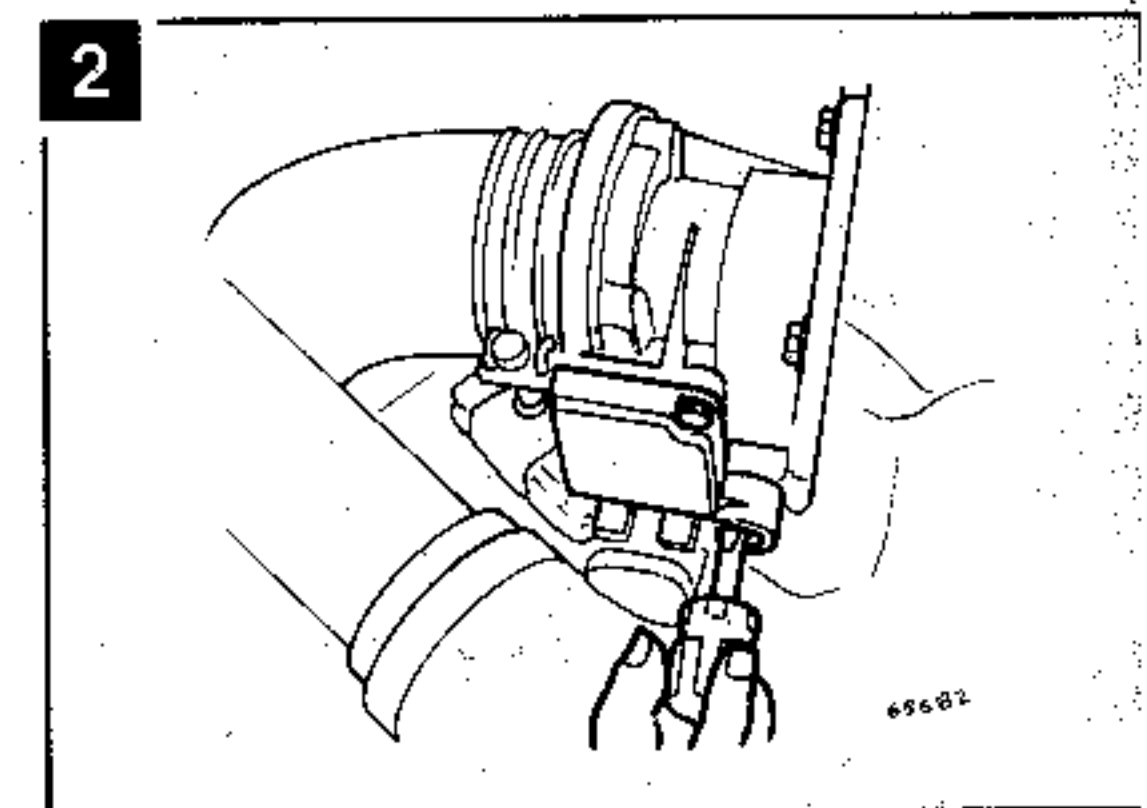
### 1.3 CO level

#### Technical Data

Non-cat models	2,0%
Cat models	0,8%

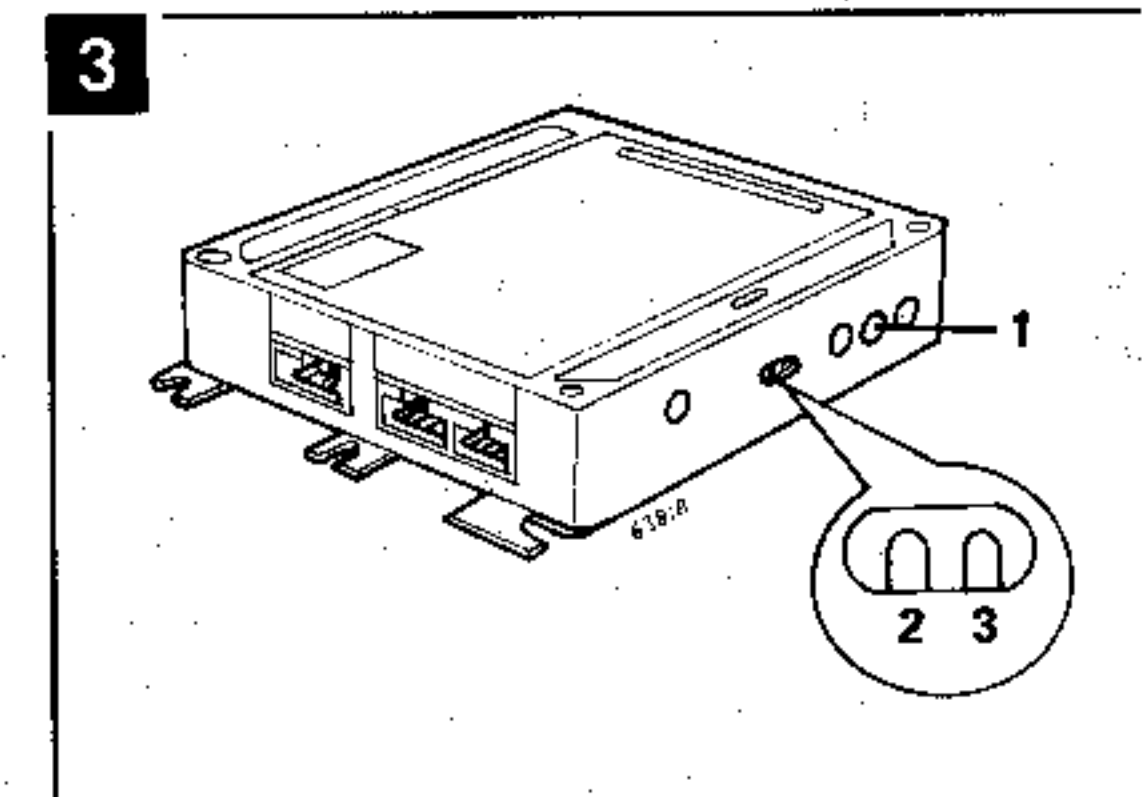
#### Adjustment (non-cat) - 2

- Run engine at 2000-3000 rpm several times.
- Allow engine to idle.
- Note CO reading and compare with that specified.
- If CO is not within specified limits, adjust by turning variable resistor adjusting screw in air flow sensor.
- Turn anti-clockwise to weaken.
- Rev engine two or three times and recheck idle speed and CO level.



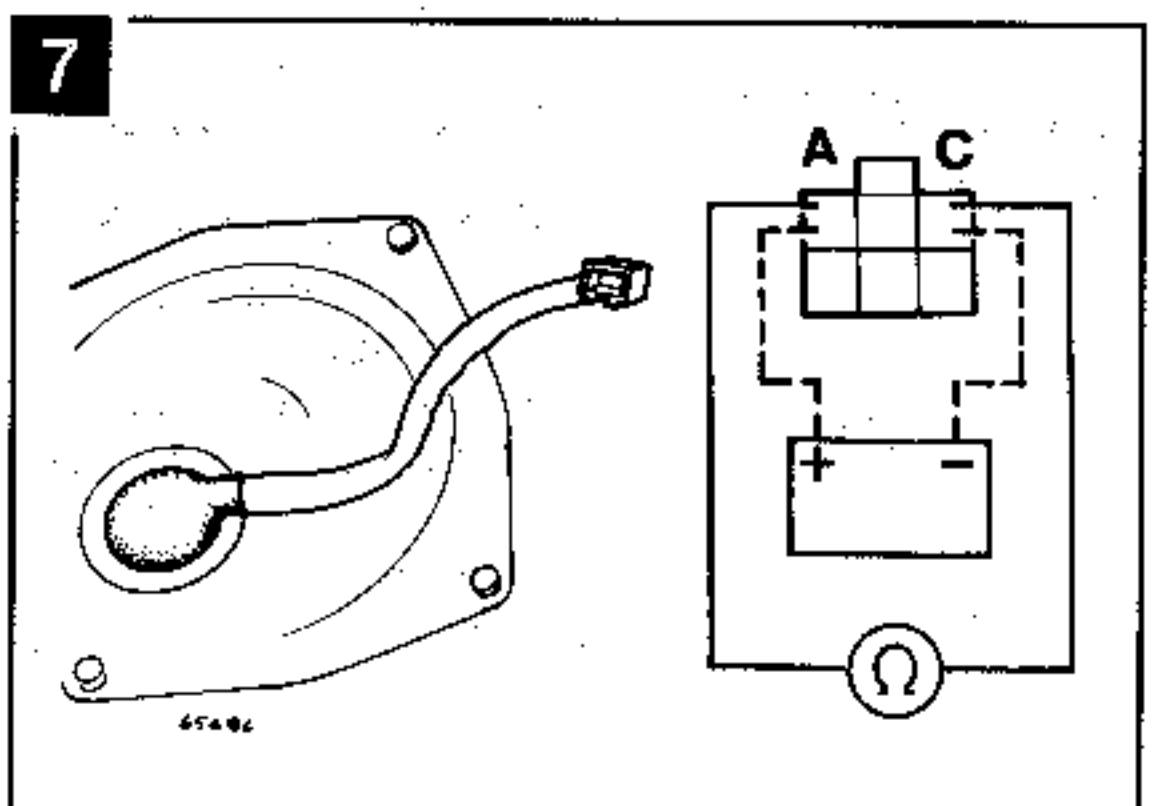
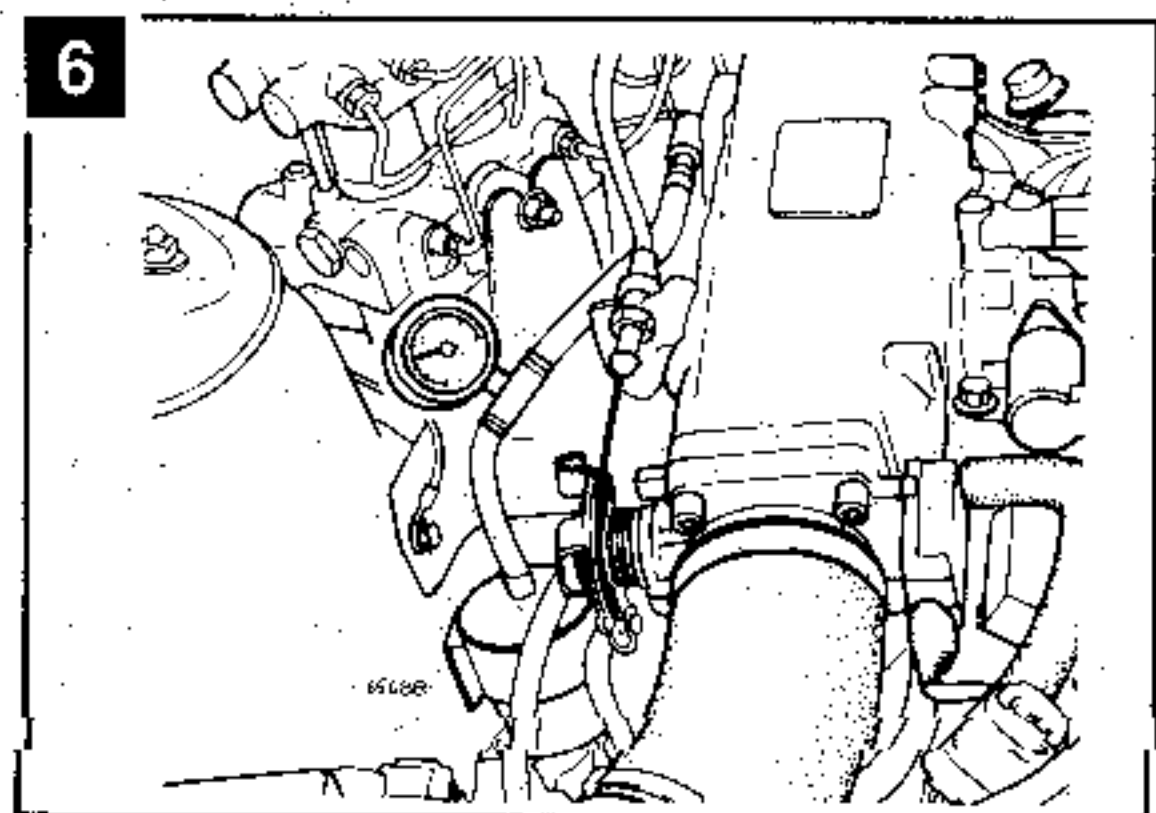
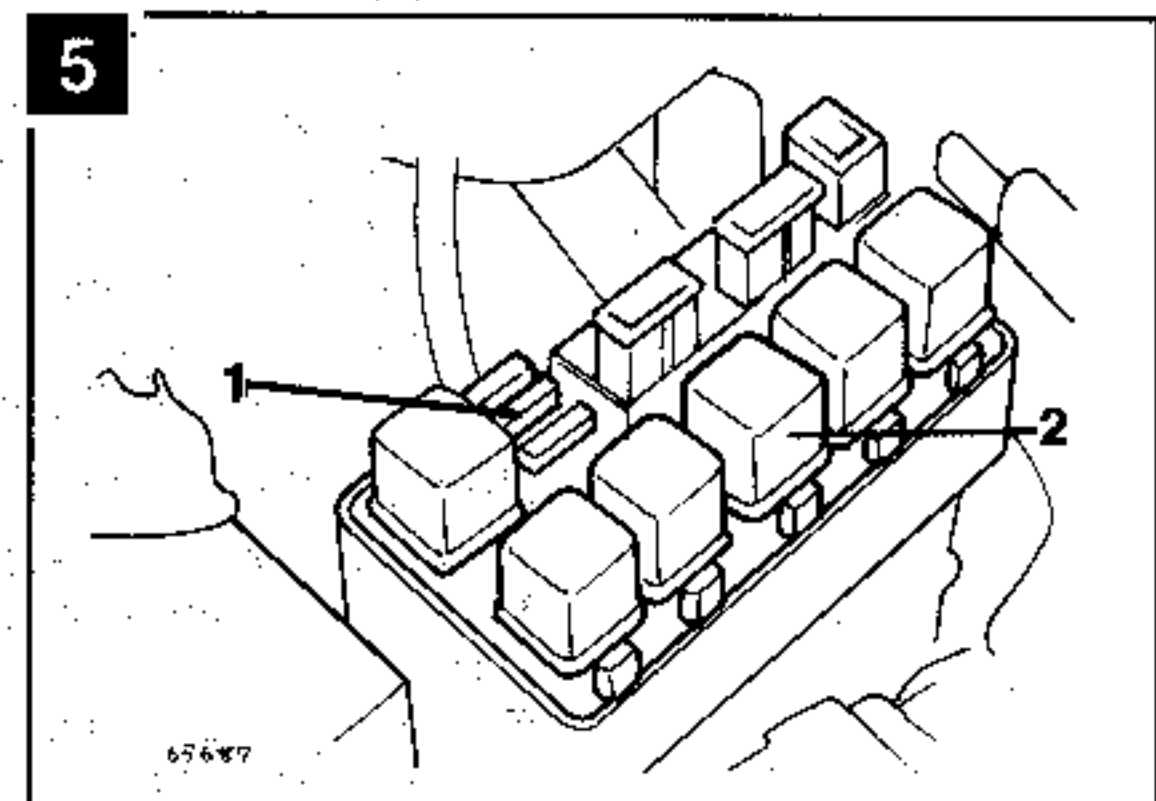
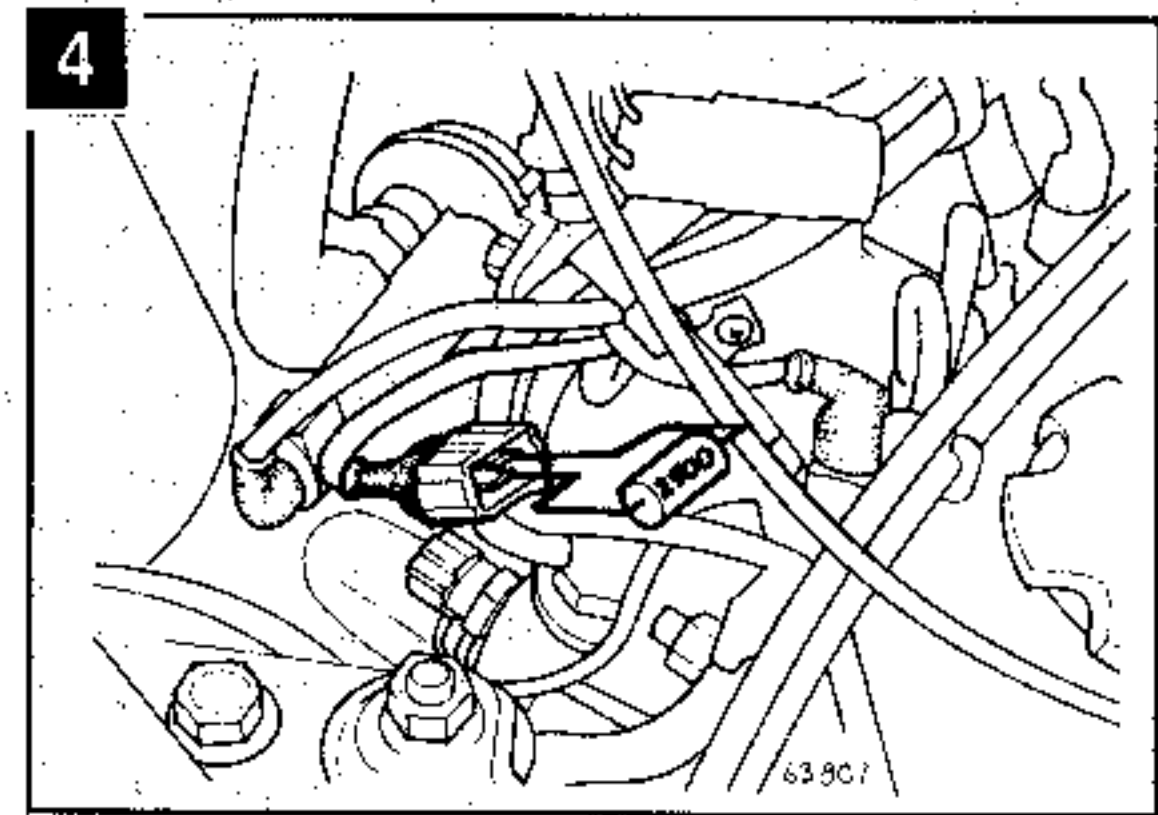
#### Preparatory conditions (cat) - 3

- Correct CO level can be confirmed by setting ECU mode selector to mode I or II [1].
- Switch ON ignition.
- Turn control unit mode selector fully clockwise.
- Wait until warning lamps flash [2] & [3].
- Count number of flashes (two will indicate mode II).
- As soon as correct number of flashes are seen, turn selector fully anti-clockwise immediately.



**Adjustment**

- Run engine at about 2000 rpm for approximately 2 minutes.
- Check that green warning lamp on ECU flashes on and off more than 9 times in 10 seconds **3** [3].
- Select mode II as described above.
- Check that red & green LEDs blink at 2000 rpm under no load.
- If not, proceed as follows:
- Disconnect temperature sensor multi-plug.
- Connect 2500 ohm resistor between the multi-plug terminals **4**.
- Disconnect AAC valve connector **1** [4].
- Check CO level and compare with specified value.
- If CO level is not within specified limits, adjust with CO adjusting screw **2**.
- At 2000 rpm green and red warning lamps will flash on and off together when CO level within limits.
- Reconnect temperature sensor and AAC connectors.

**Checks & adjustments****2.1 Fuel pressure****Technical Data**

System pressure (no vacuum)	2,45 bar
Regulated pressure (with vacuum)	1,96 bar
Fuel pump resistance	0,5 ohms

**Preparatory condition**

- Remove fuel pump fuse **5** [1].
- Start engine.
- When engine stops, turn engine over on starter two or three times to release fuel pressure.
- Connect pressure gauge between fuel filter and fuel rail **6**.

**Checking**

- Refit fuel pump fuse.
- Start engine and check for leaks.
- Run engine at idle speed.
- Compare fuel pressure with specified figure.
- Disconnect vacuum hose from fuel pressure regulator.
- Compare pressure with specification.

**Checking fuel pump - 7**

- Disconnect fuel pump multi-plug in luggage compartment.
- Connect ohmmeter between terminals A & C of fuel pump connector.
- Compare resistance with specification.
- To check that fuel pump is operating, connect battery voltage to terminals A & C of fuel pump connector in luggage compartment.
- Fuel pump should run continuously.

## 2.2 Throttle sensor/idle switch

Self-diagnosis code: 43

### Technical Data

Sensor terminals	Resistance - ohms
B & C, throttle closed	1000
B & C, throttle opened	1000-9000
B & C, throttle fully open	approx. 9000

### Checking idle switch - 8

- Disconnect idle switch multi-plug.
- Connect ohmmeter between terminals A & B.
- Check there is continuity with throttle closed and no continuity with throttle open.
- With engine idling at normal operating temperature.
- Connect ohmmeter between terminals A & B.
- Slowly open throttle.
- Check continuity is broken at engine speed between 100-400 rpm above idle speed.
- If not, slacken idle switch screws.
- Turn switch until correct setting obtained.
- Retighten retaining screws.

### Checking throttle sensor - 9

- Disconnect throttle sensor multi-plug.
- Connect ohmmeter between terminals B & C.
- With throttle closed, compare resistance with specification.
- Partially open throttle and then open throttle fully.
- Compare resistances with those specified.

### Checking - 10

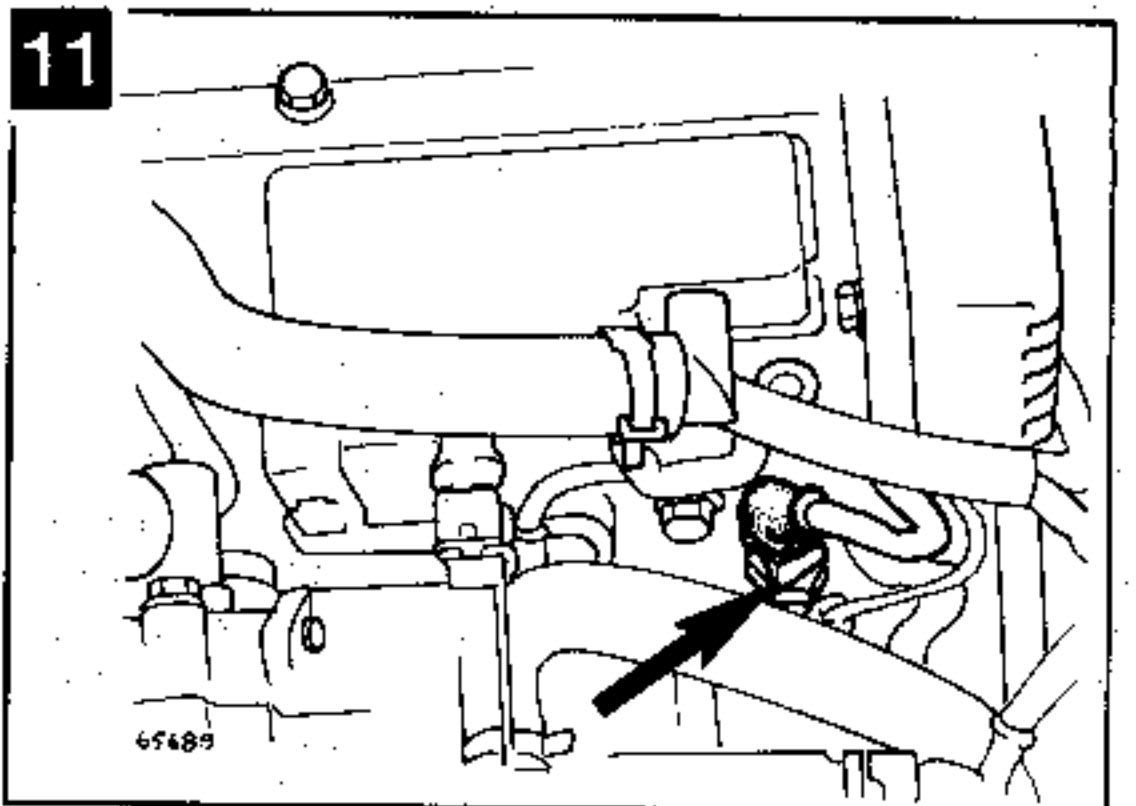
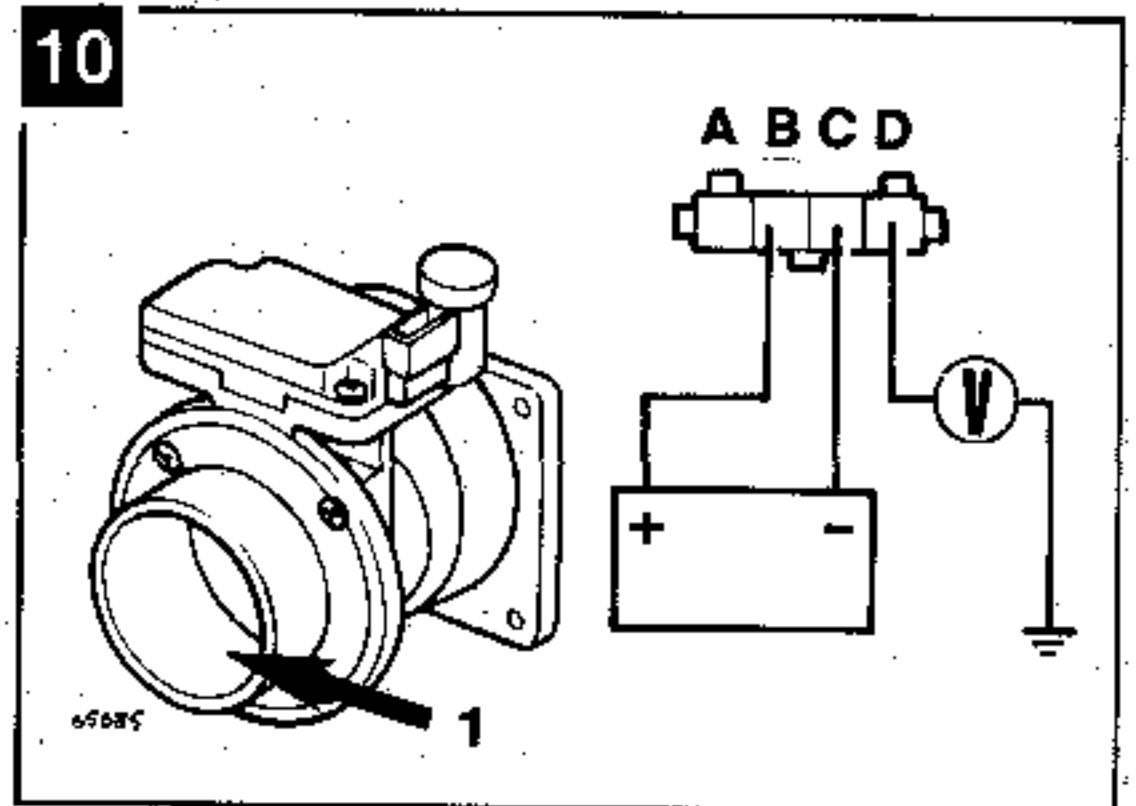
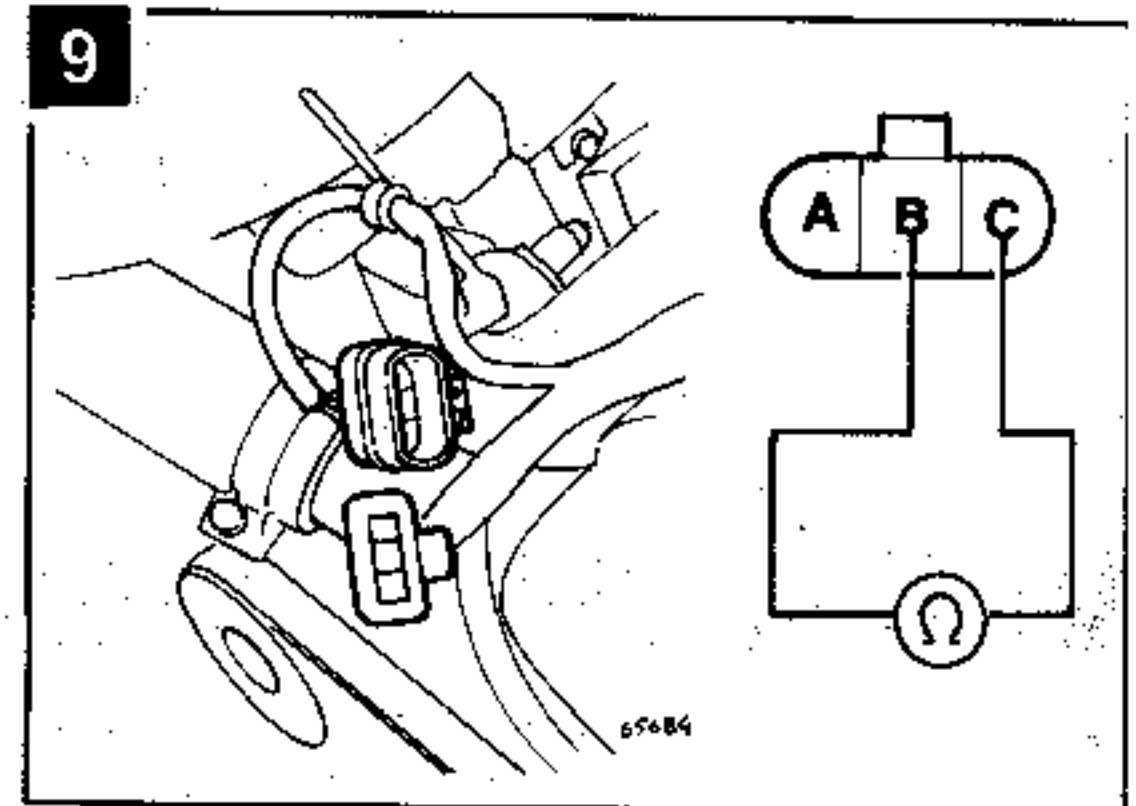
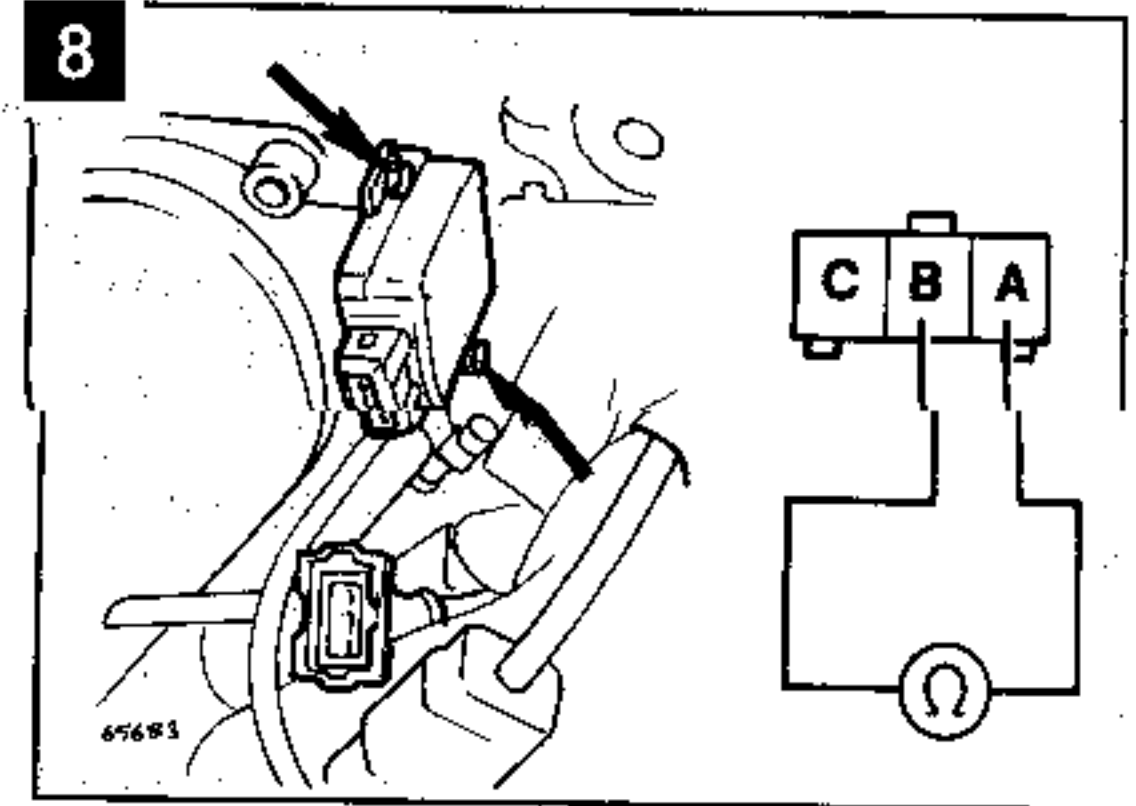
- Remove air flow sensor from vehicle.
- Check hot wire venturi for dirt and contamination.
- Connect voltmeter between terminal D & earth.
- Connect 12 volt supply to terminals B & C.
- At same time blow air into sensor venturi [1].
- Check that voltage indicated when air is blown onto hot wire increases from 1 to 2 volts.

### Technical Data

Temperature - °C	Resistance - ohms
20	2500
80	300

### Checking - 11 & 12

- Disconnect sensor multi-plug and remove sensor.
- Immerse sensor probe in coolant of specified temperature.
- Compare resistance readings with those specified.



## 2.3 Air flow sensor

Self-diagnosis code: 12

## 2.4 Coolant temperature sensor

Self-diagnosis code: 13

## 2.5 Auxiliary air valve

### Technical Data

Resistance between terminals approx. 70 ohms

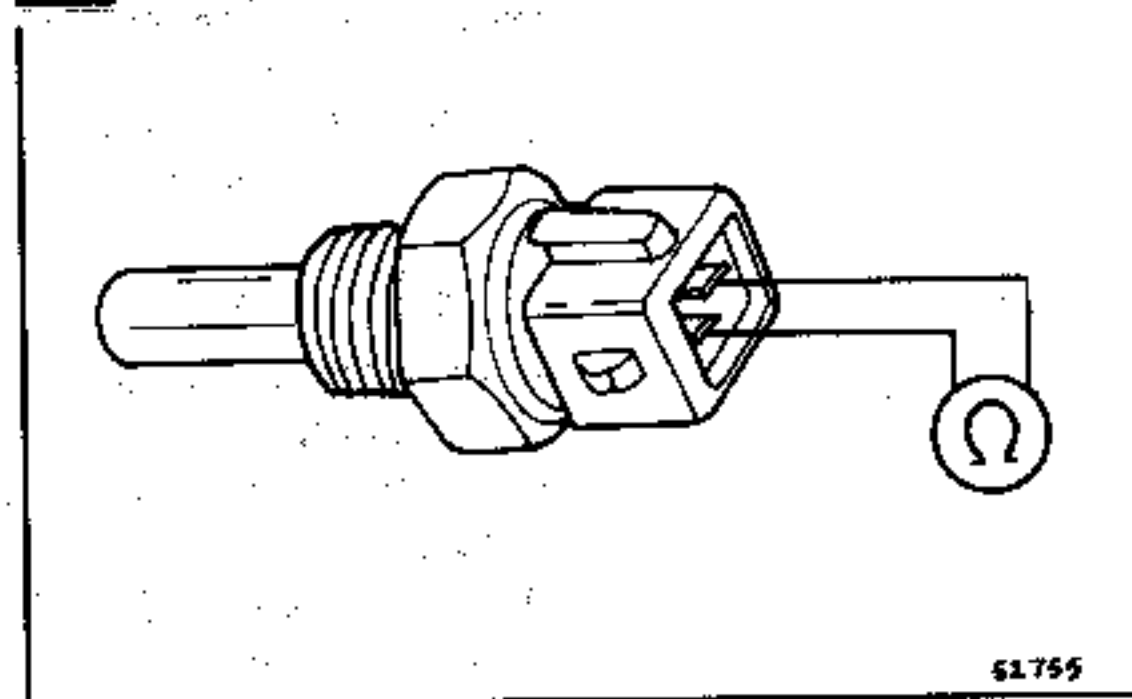
#### Checking - engine cold

- Allow engine to idle.
- Squeeze air hose between air valve and inlet manifold.
- Engine speed should drop.

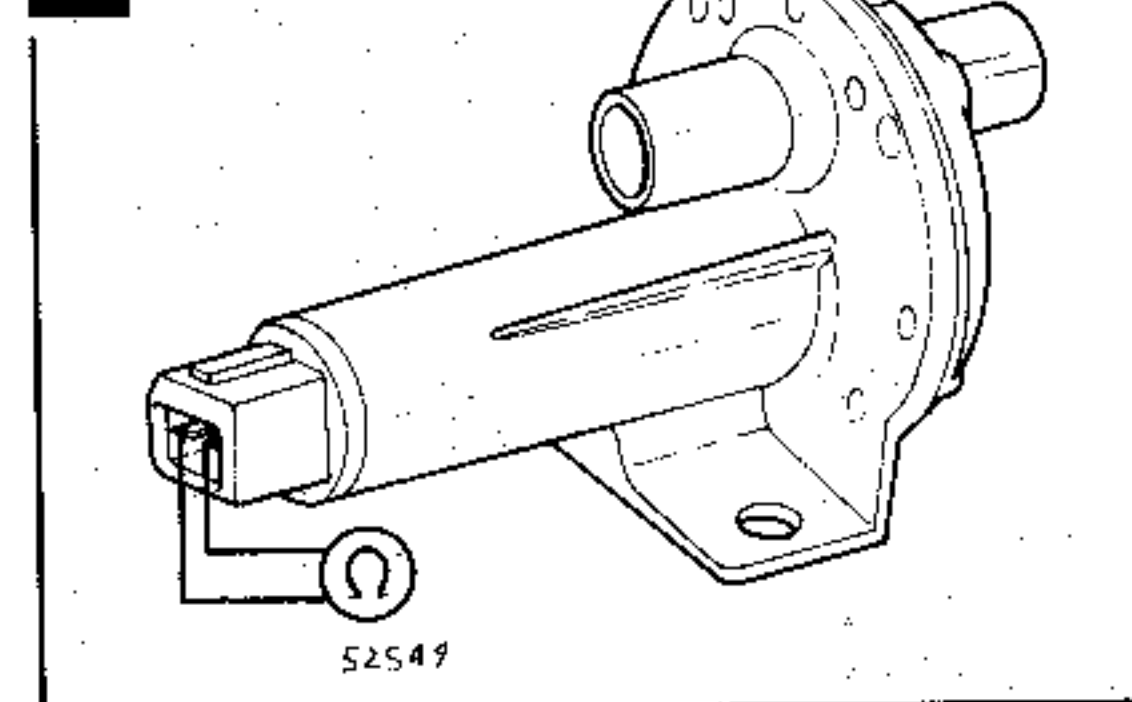
#### Checking - engine hot

- Auxiliary air valve should now be completely closed.
- Squeeze air hose between air valve and inlet manifold.
- Engine speed should not be affected.
- Disconnect multi-plug connector from auxiliary air valve.
- Connect ohmmeter between air valve terminals **13**.
- Compare resistance figure with that specified.
- Remove air valve from car and visually check shutter opening **14**.
- When hot, shutter should be closed.
- When cold, shutter should be open.
- Check that shutter opens and closes smoothly by operating with screwdriver.

12



13



## 2.6 Auxiliary air control (AAC) valve

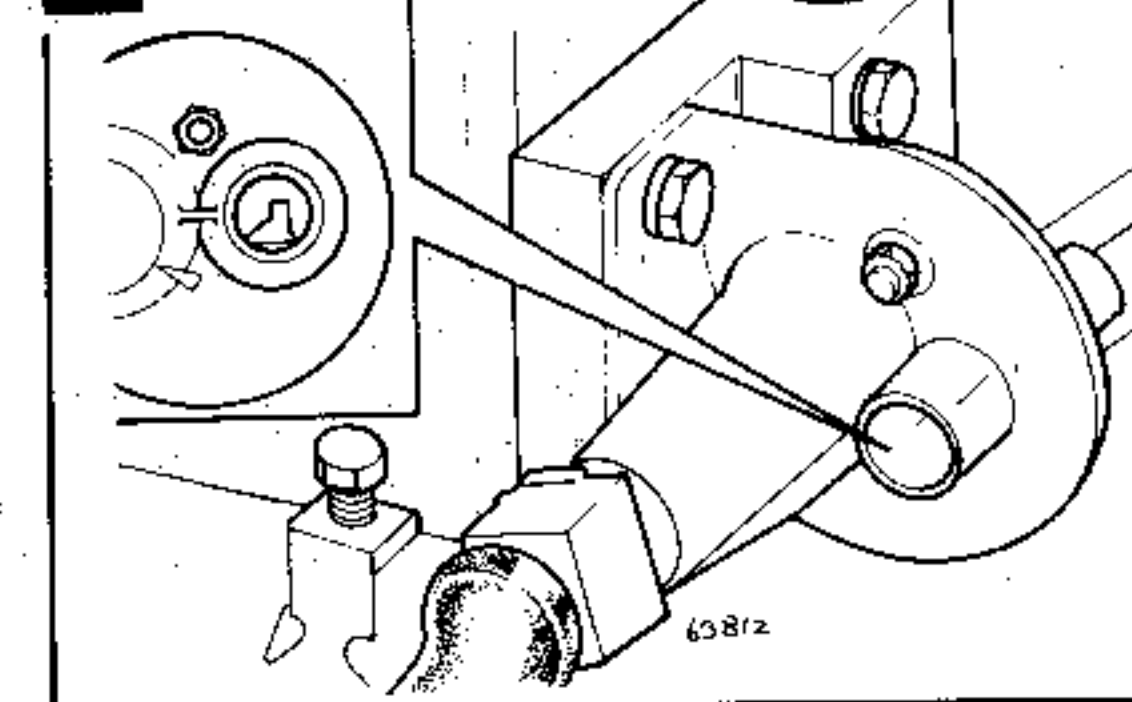
### Technical Data

Resistance between terminals approx. 9-10 ohms  
Voltage between ECU terminal: 106 & earth 6-12 volts

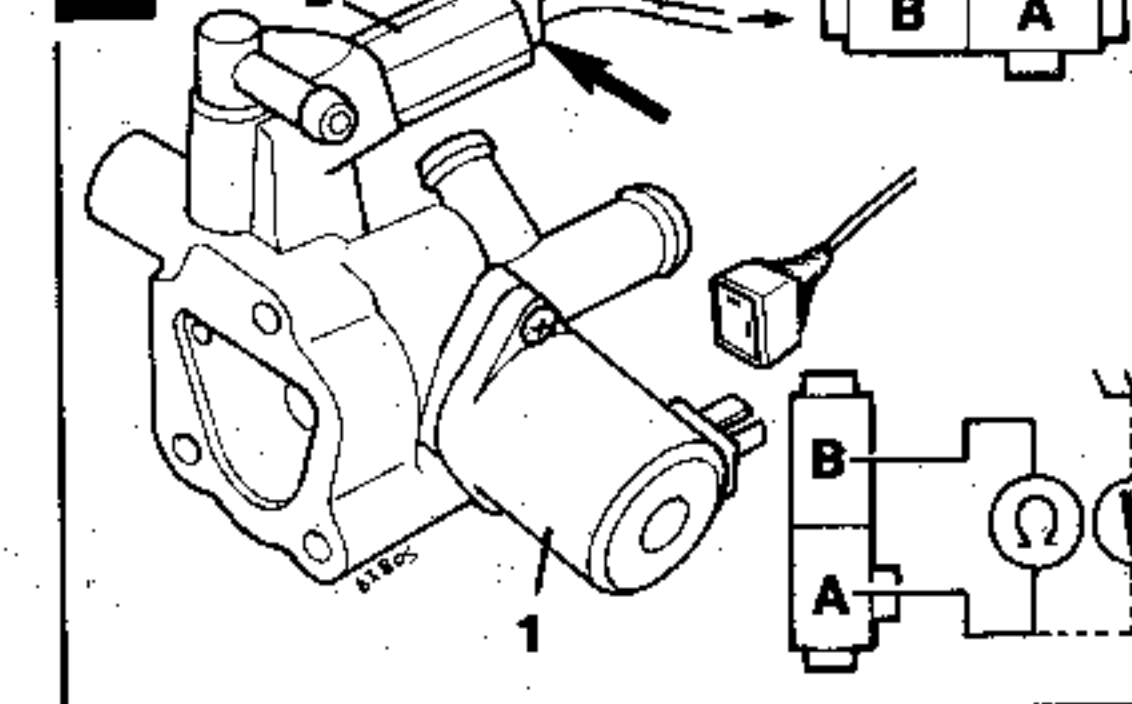
#### Checking - **15**

- Disconnect AAC valve harness connector.
- Connect ohmmeter between AAC valve terminals.
- Compare resistance reading with that specified.
- With AAC connector disconnected, switch ON ignition.
- Check for battery voltage between terminal A & earth.
- Reconnect AAC connector.
- Start engine and allow to idle.
- Connect voltmeter between terminal 106 of ECU (located in RH footwell) and earth.
- Compare the voltage with specification.

14



15



## 2.7 Injector valves

### Technical Data

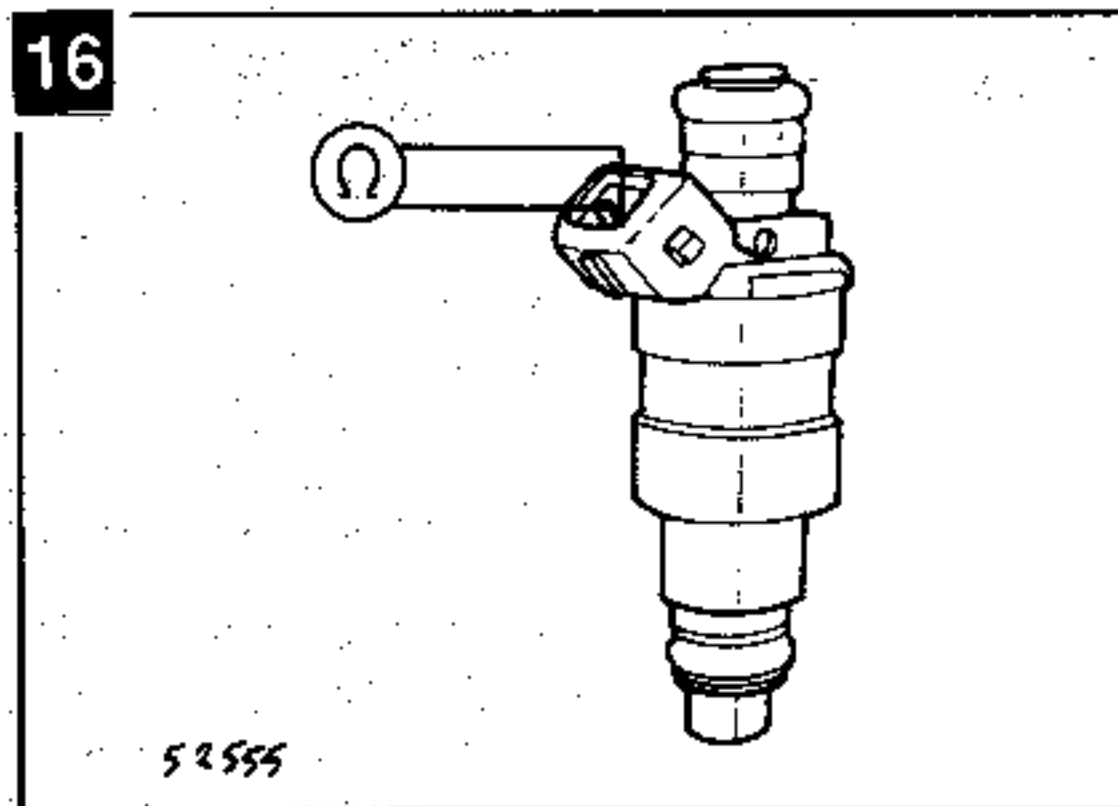
Resistance between terminals 2-3 ohms

Injector spray pattern and leak rate — refer to General Test Procedures.

### Checking - 16

- Disconnect multi-plug from injector to be checked.
- Connect ohmmeter between injector terminals.
- Compare resistance reading with specification.

16



## 2.8 Injector series resistance

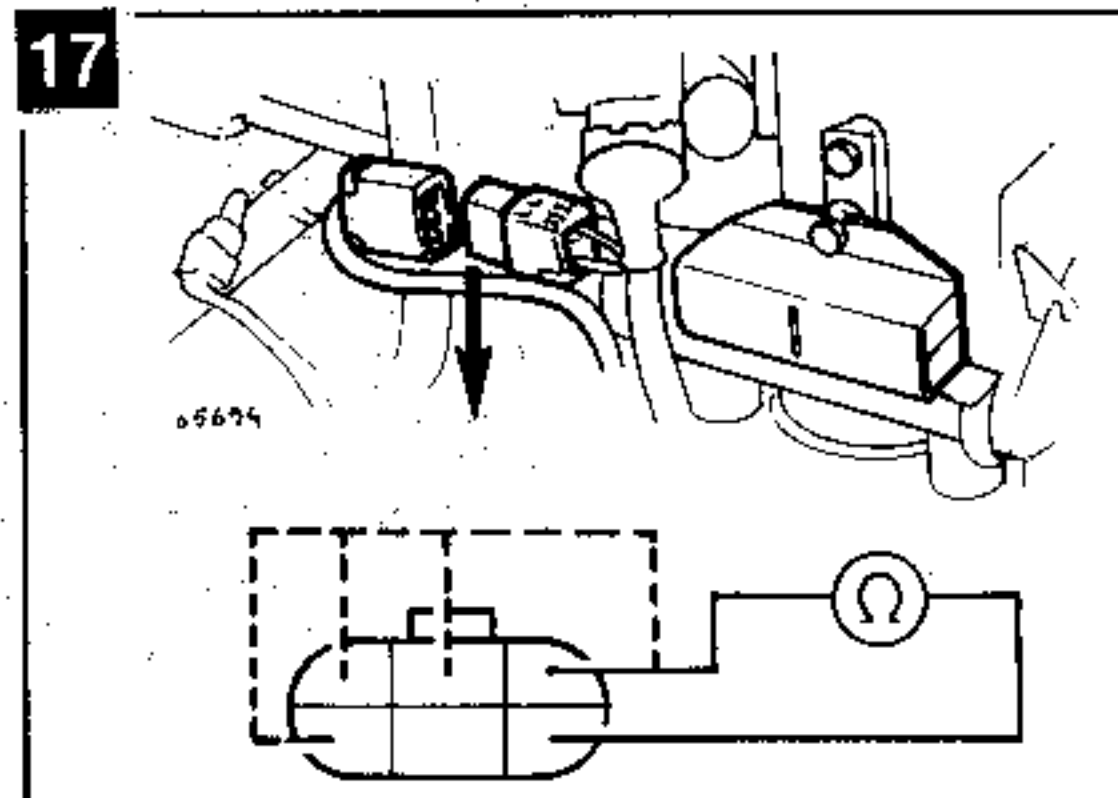
### Technical Data

Resistance between terminals 6 ohms

### Checking - 17

- Disconnect resistor multi-plug.
- Connect ohmmeter between each pair of terminals shown.
- Compare resistances with those specified.

17



## 2.9 Lambda sensor

Self-diagnosis code: 33

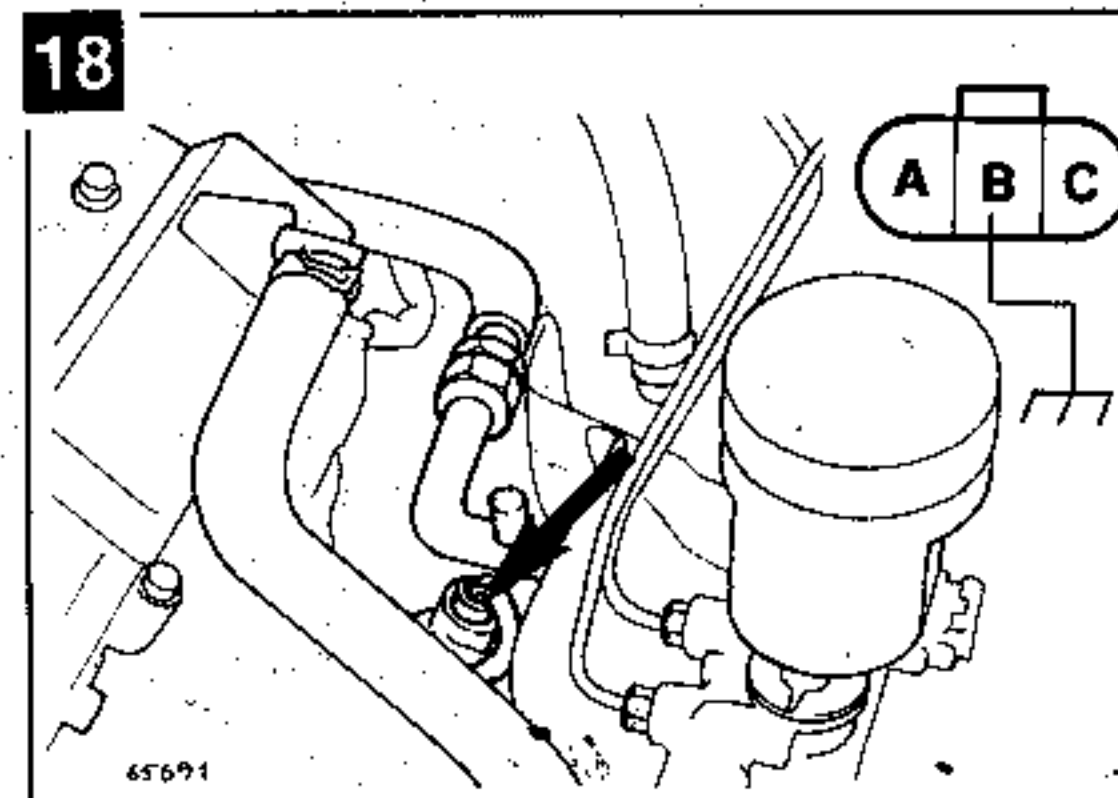
### Technical Data

Resistance between ECU terminal:  
 29 & earth approx. 0 ohms  
 115 & sensor terminal A approx. 0 ohms

### Checking - 18

- Disconnect Lambda sensor multi-plug and ECU multi-plug.
- Using jump lead connect terminal B of Lambda sensor harness plug to earth.
- Check resistance between ECU terminal 29 and earth.
- Compare with specified figure.
- Check resistance between terminal A of sensor and terminal 115 of ECU harness multi-plug.
- Compare resistance with that specified.
- Switch ON ignition.
- Check for battery voltage between terminal C of sensor harness plug and earth.

18

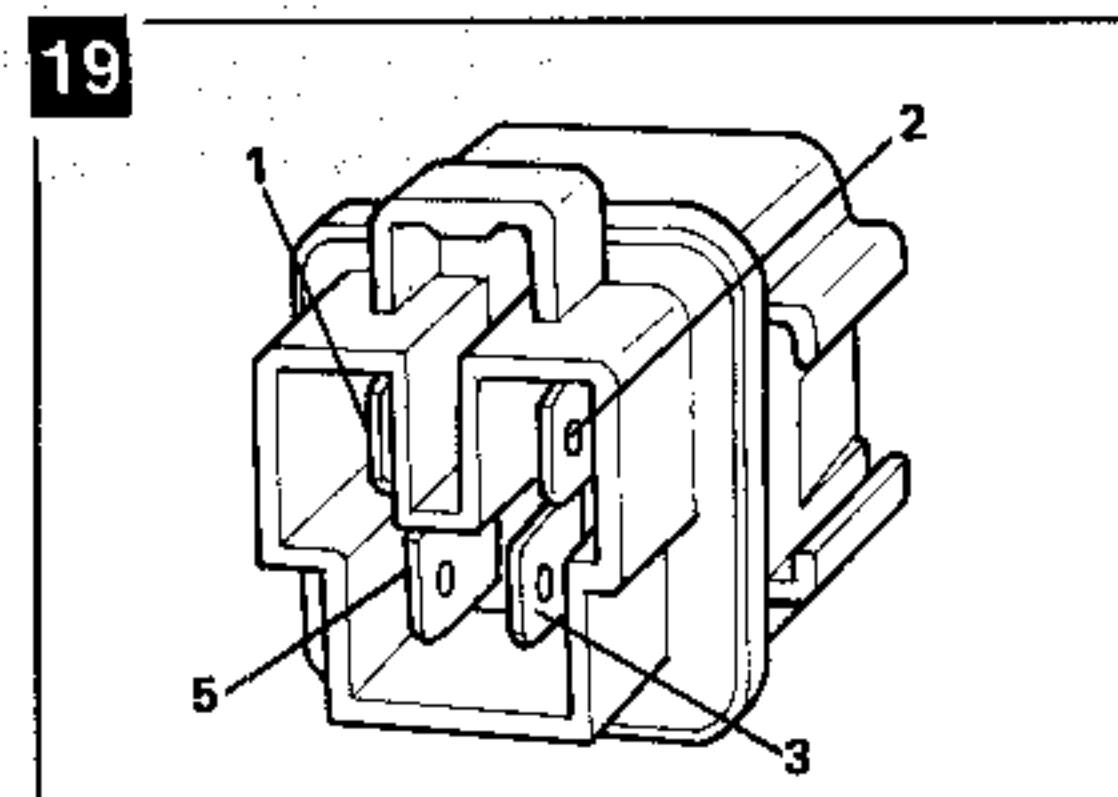


## 2.10 Fuel pump relay

### Checking

- Remove relay 5 [2].
- Connect 12 volt supply to terminals 1 & 2 19.
- Check for continuity between terminals 3 & 5.
- When 12 volt supply is disconnected, continuity between terminals 3 & 5 should be broken.

19



## 2.11 Fast idle control device (FICD) solenoid valve

### Checking - 15

- With engine idling at normal operating temperature.
- Switch air conditioning ON.
- Idle speed should rise if FICD is operating.
- Disconnect FICD multi-plug.
- Connect voltmeter between terminal A & earth.

- Switch ignition ON.
- Check for battery voltage when air conditioning switch is turned ON.
- Disconnect multi-plug connector from solenoid 15.
- Connect 12 volt supply to solenoid terminals.
- Solenoid should be heard to 'click'.
- If previous tests are satisfactory, check valve plunger is not sticking and plunger return spring is not broken.

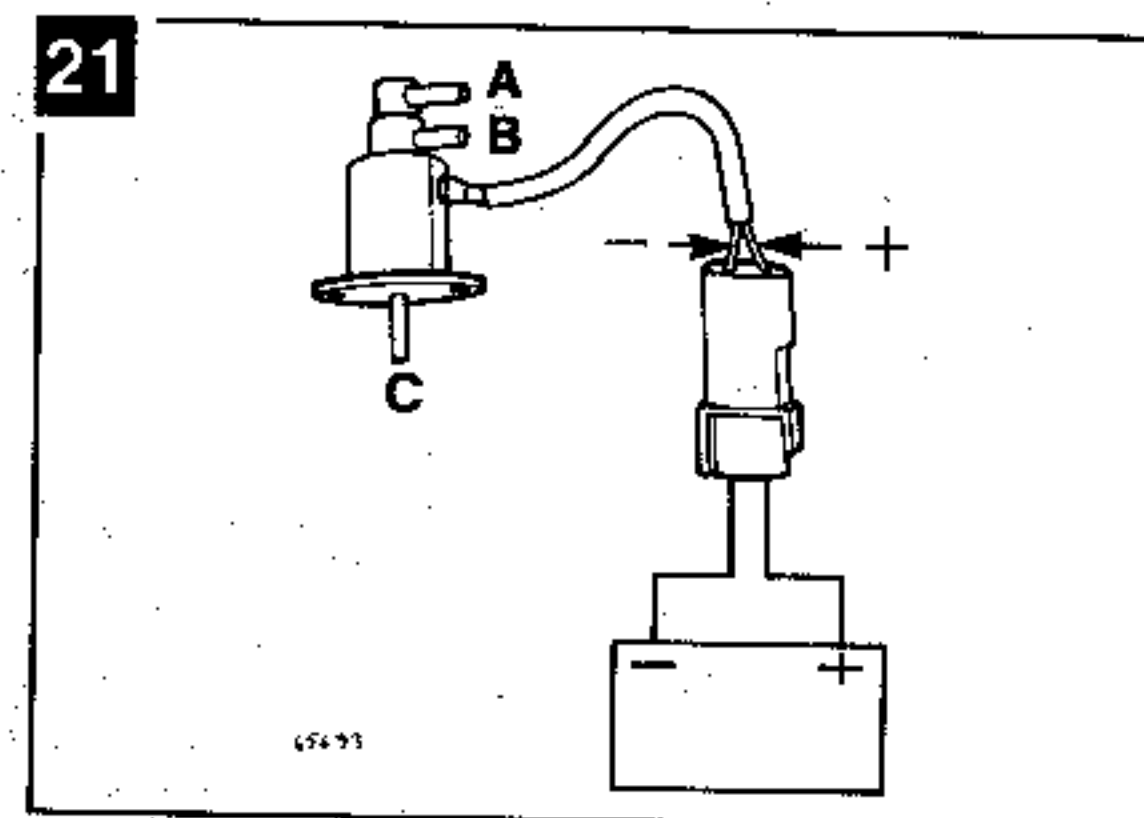
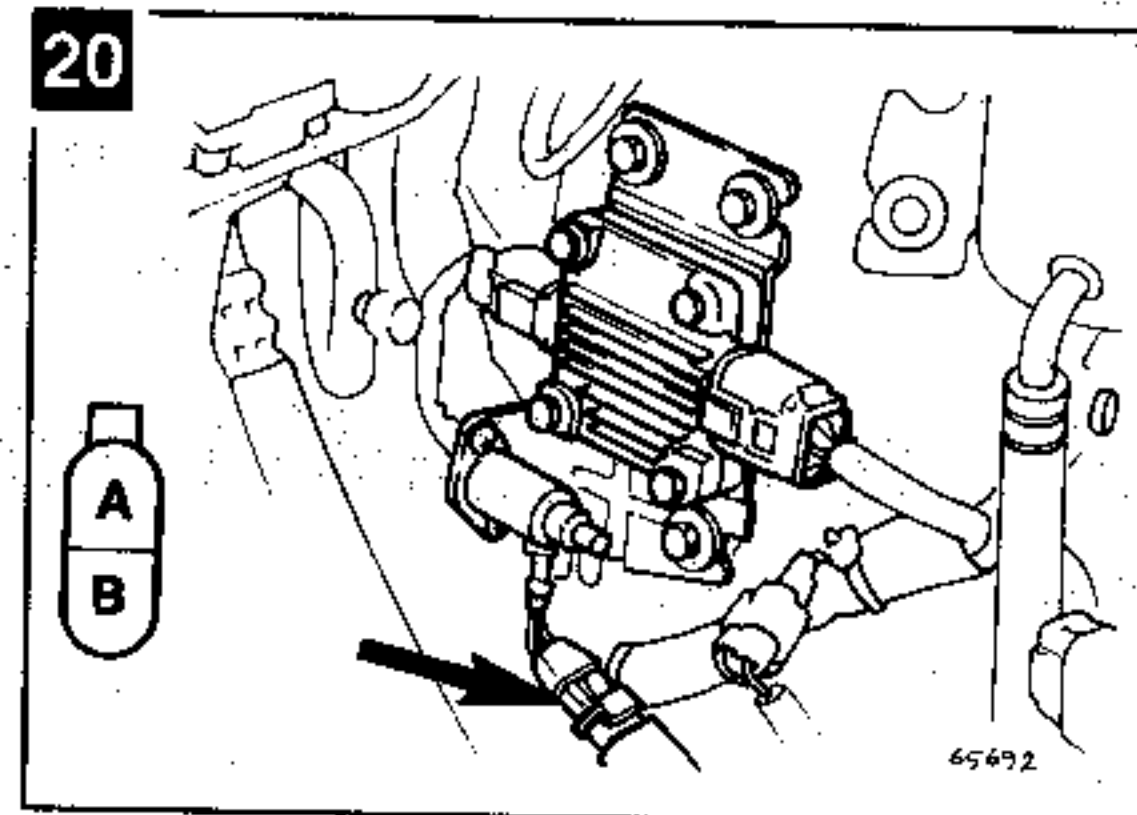
## 2.12 Pressure regulator solenoid

### Technical Data

Resistance between terminals 30-40 ohms

### Checking - 20 & 21

- Disconnect solenoid multi-plug.
- Connect voltmeter between harness plug terminal A and earth 20.
- Switch ignition ON.
- Check for battery voltage.
- Switch ignition OFF.
- Disconnect ECU multi-plug.
- Check resistance between solenoid terminal B and ECU terminal 111 20.
- Compare resistance with specification.
- Disconnect regulator multi-plug and connect ohmmeter between solenoid terminals.
- Compare resistance with specification.
- Remove solenoid.
- Connect battery supply to solenoid terminals 21.
- With battery disconnected air should flow between ports B & C.
- With battery voltage connected air should flow between ports A & B.



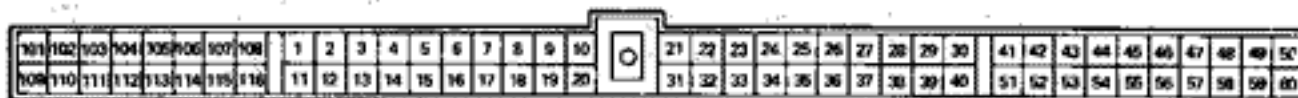
## Self-diagnosis

- If major faults occur in electronic control system ECU will store fault code in memory.
- Stored information may be retrieved by turning diagnostic mode selector fully clockwise 3.
- Note number of flashes from red and green LEDs 3 [2] & [3].
- Modes I & II only apply to models fitted with catalytic converter.
- See Self-diagnosis section at end of manual.



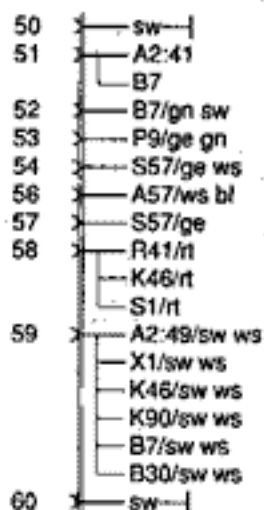
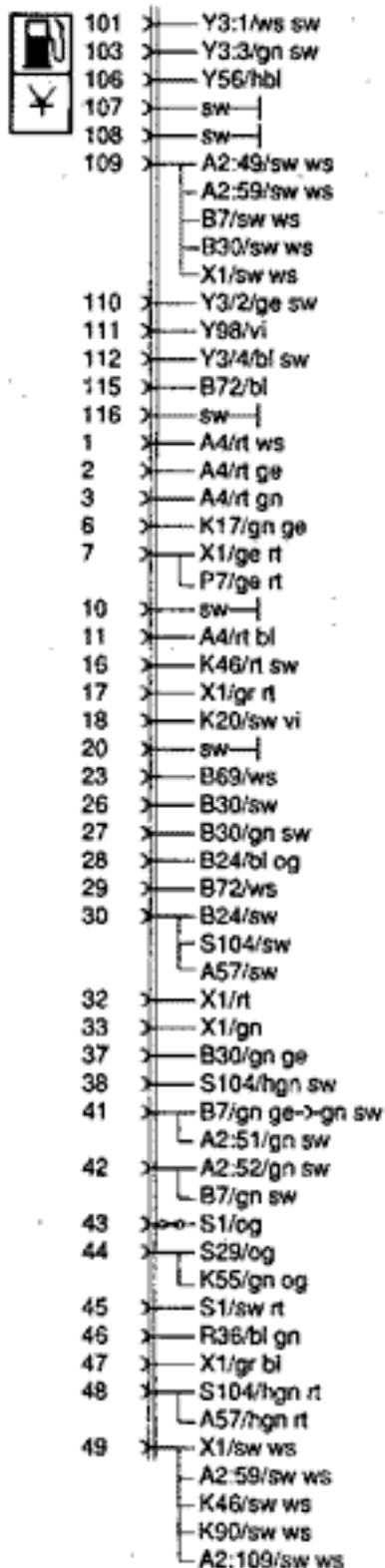
## ECU Multi-plug

200 SX

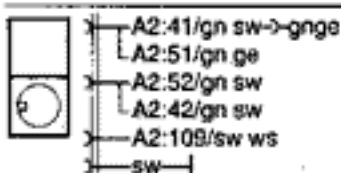


## Wiring Diagram

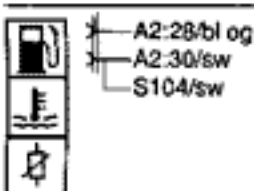
### A2 Fuel injection ECU



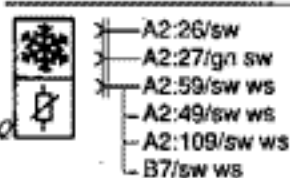
### B7 TDC sensor



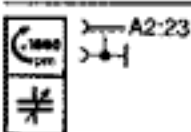
### B24 Coolant temperature sensor



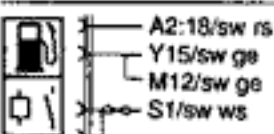
### B30 Air flow sensor



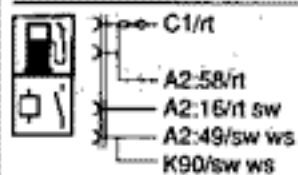
### B69 Knock sensor



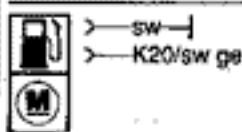
### K20 Fuel pump relay



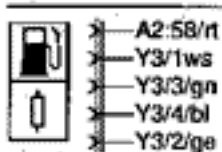
### K46 Fuel injection relay



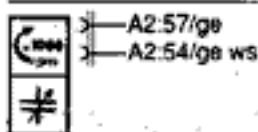
### M12 Fuel pump



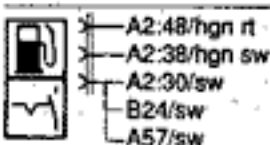
### R41 Injector resistor



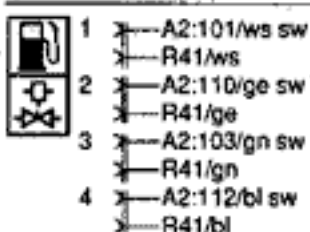
### S57 Idling switch



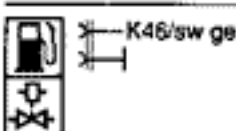
### S104 Throttle switch



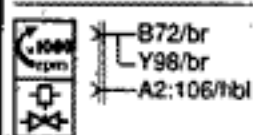
### Y3 Injector



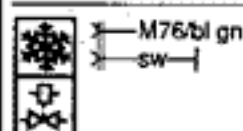
### Y15 Auxiliary air valve



### Y56 Idle speed control valve



### Y85 AC idle boost valve



### Y98 Fuel pressure control valve

