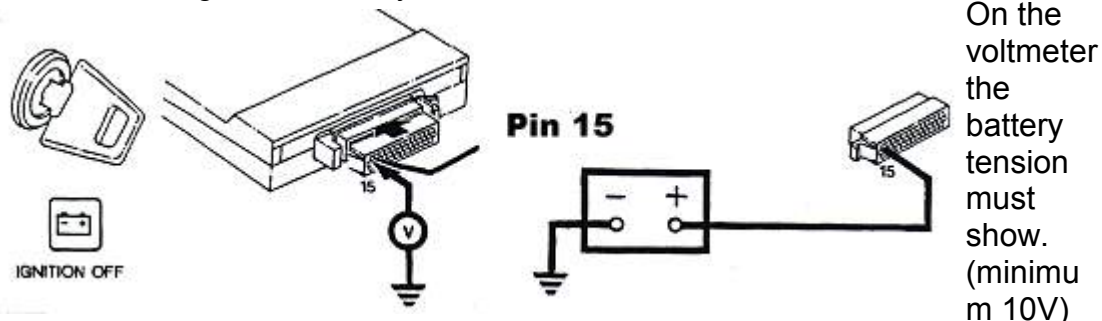


Check procedures for the 3.9 engine

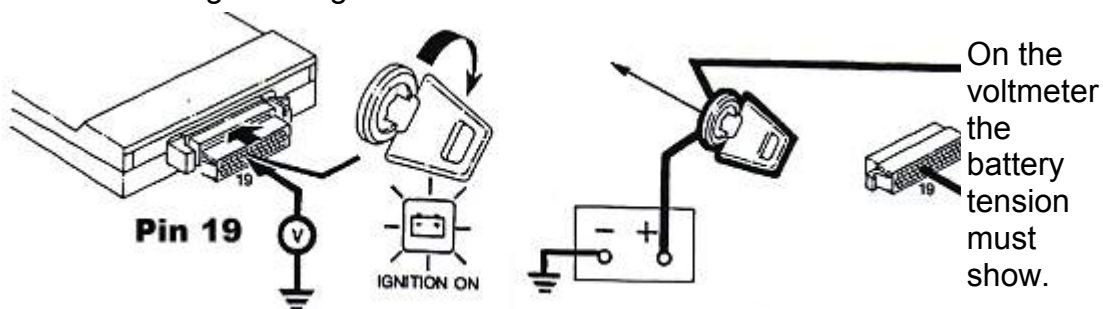
In case of differing measurements first inspect the wiring drawn in bold lines

1. Check voltage from battery to the ECU



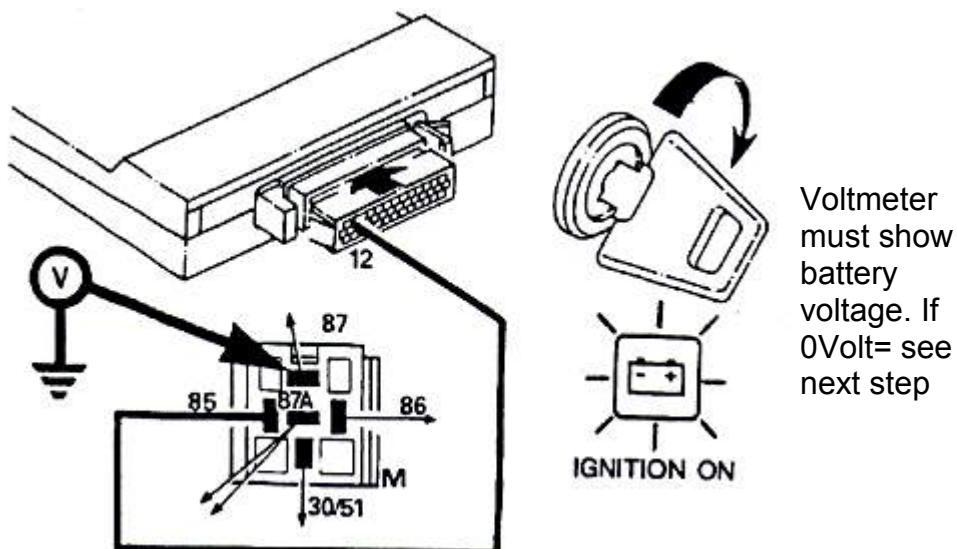
Possible fault: Check earth

2. Check voltage from ignition to the CPU

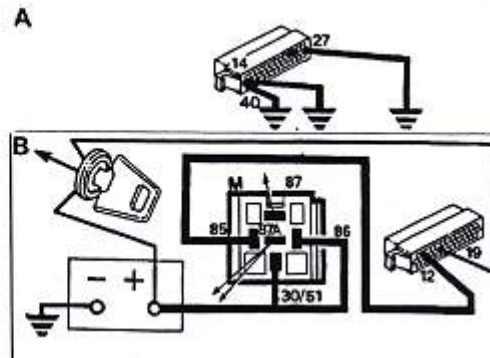
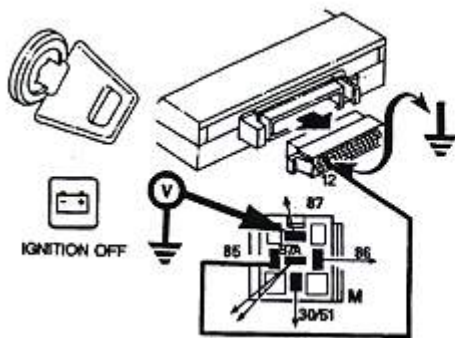


Possible fault: Check earth

3. Verify if main relays works

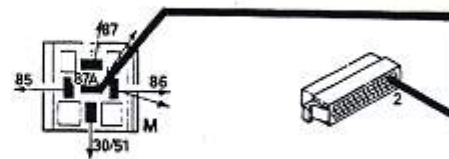
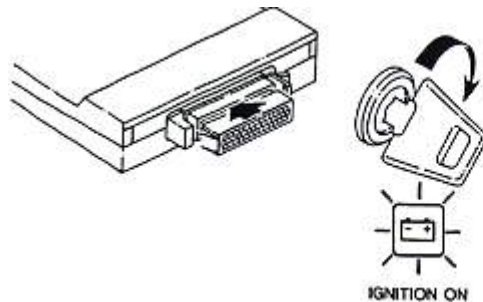


4. Verify if main relays works - second step



A = must be battery tension, if OK ECU possibly faulty, B = must be 0 Volts when ignition off

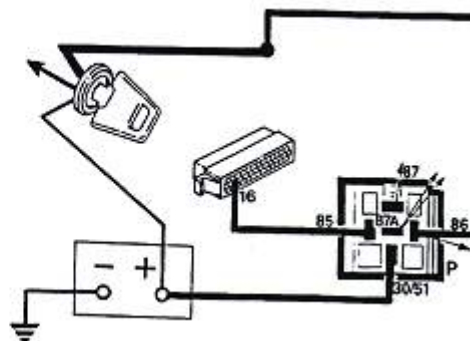
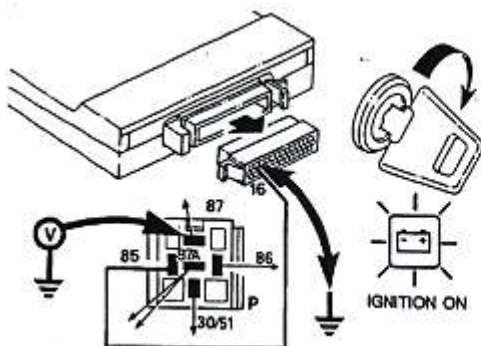
5. Verify if pump relay works



Listen to a "click" from the pump relay

If the relay is OK go to 6

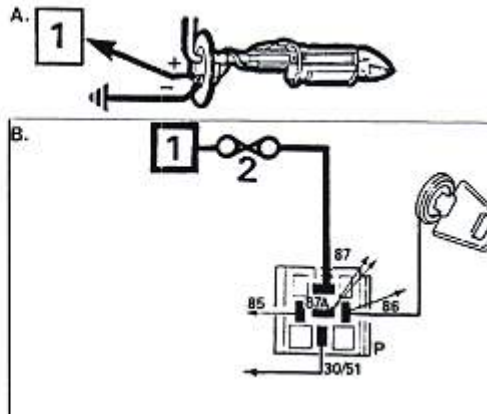
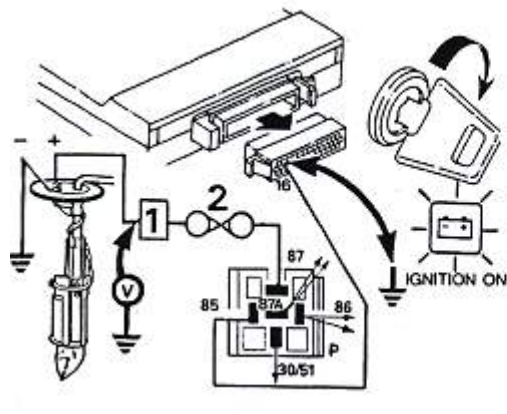
6. Verify pump relay circuits



Pin 87 must show battery voltage if other conditions fulfilled.

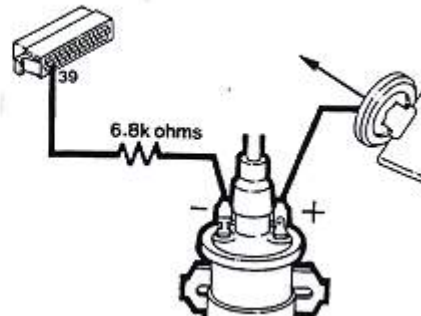
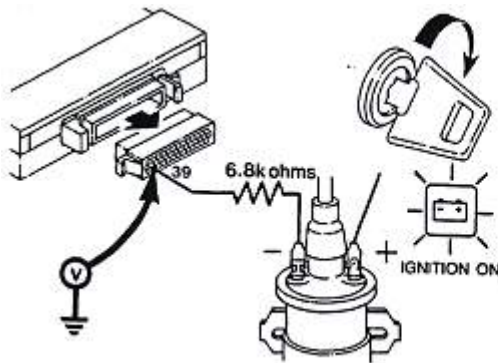
If so, the ECU is suspect.

7. Check if fuel pump gets current



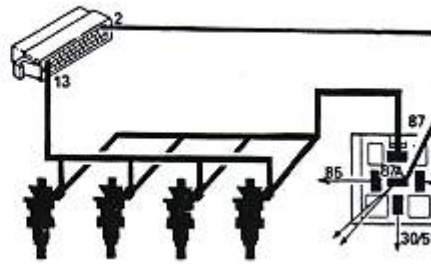
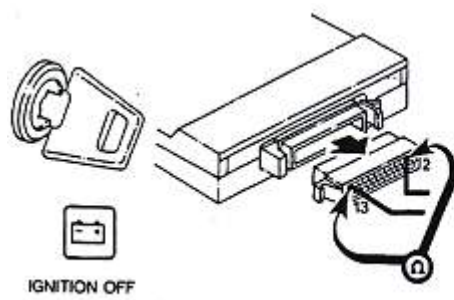
The pump is the in-tank model with connectors on the upper side of the tank- and inaccessible. However there is a connector not far away up the wiring harness where you can check voltage.

8. Check engine rpm signal and resistance



Check if Pin 39 has battery voltage on the voltmeter. Check resistance between coil and Pin 39 (6,8 KOhms)

9. Check injectors (Pin 13 is for injectors 1,3,5,7)



Connect ohmmeter between Pin 2 and 13. Reading of 4-5 ohms is OK.

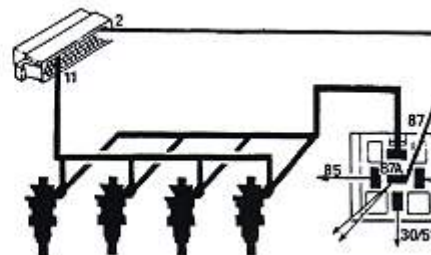
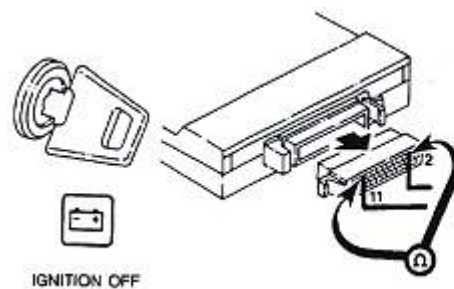
Reading of 5-6 ohms=1 injector suspect

Reading of 8-9 ohms=2 injectors suspect

Reading of 16-17 ohms=3 injectors suspect

Reading of more=get your gun and shot it!

10. Check injectors (Pin 11 is for injectors 1,3,5,7)



Connect ohmmeter between Pin 2 and 11. Reading of 4-5 ohms is OK.

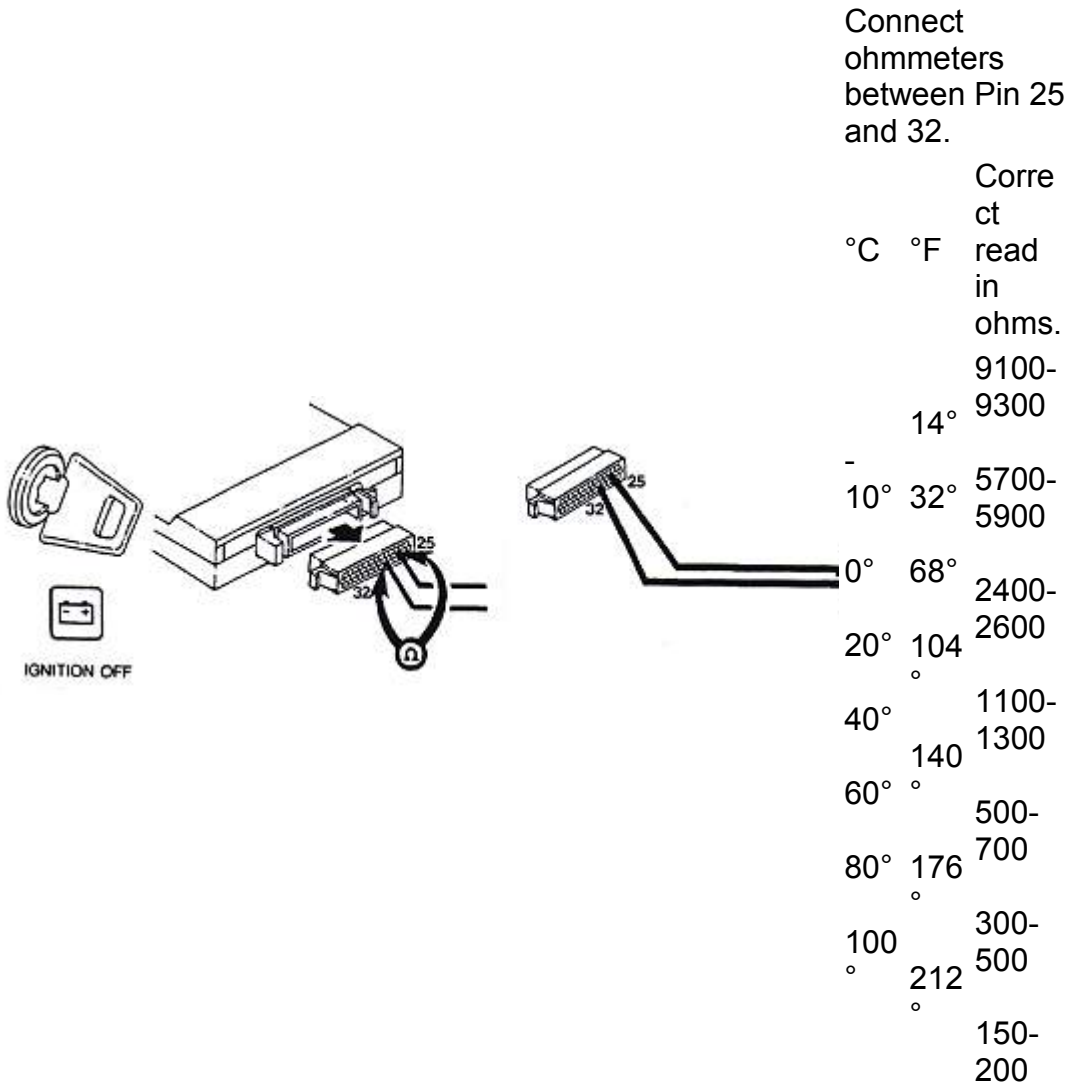
Reading of 5-6 ohms=1 injector suspect

Reading of 8-9 ohms=2 injectors suspect

Reading of 16-17 ohms=3 injectors suspect

Reading of more=get your hammer and give it a good tap!

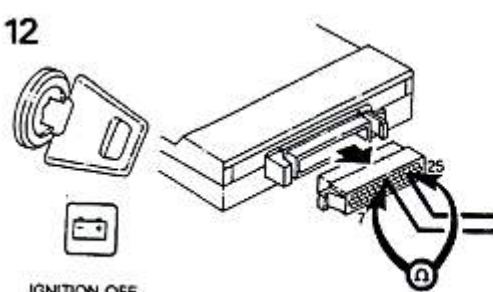
11. Fuel temperature sensor



NB: If your fuel temperature is over 80°C or 176°F - let all go and run! That thing will blow any moment

12. Coolant sensor check

12

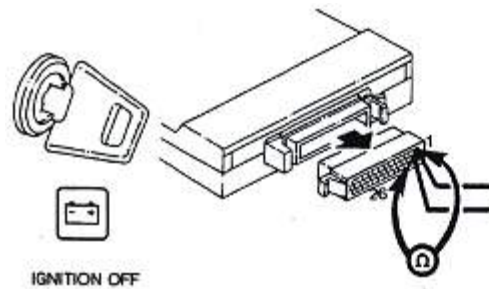


IGNITION OFF

Connect ohmmeter between Pin 25 and 7.

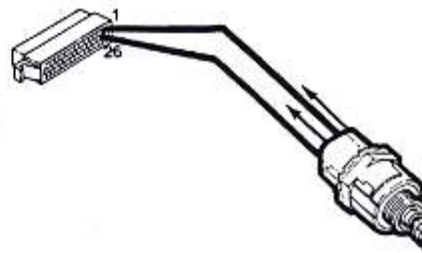
°C	°F	Correct read in ohms.
-	14°	9100-9300
10°	32°	5700-5900
0°	68°	2400-2600
20°	104°	1100-1300
40°	140°	500-700
60°	176°	300-500
80°	212°	150-200

13. Verify air bypass valve

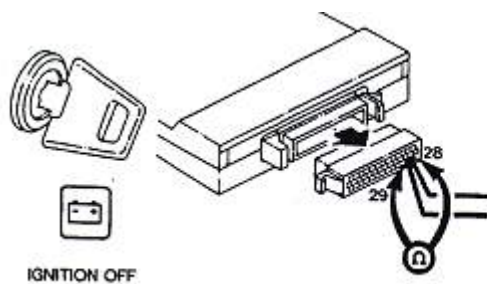


Connect ohmmeter between Pin 26 and 1.

Correct reading: 48-58 ohms. If not verify wiring

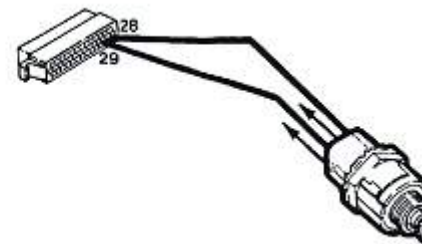


14. Verify air bypass valve - second part

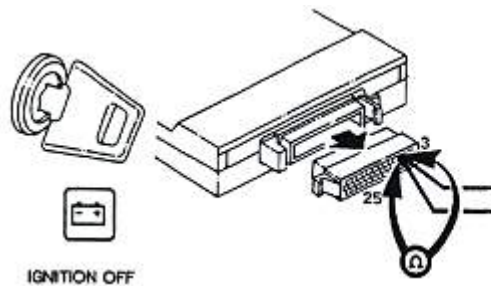


Connect ohmmeter between Pin 28 and 29.

Correct reading: 48-58 ohms. If not verify wiring

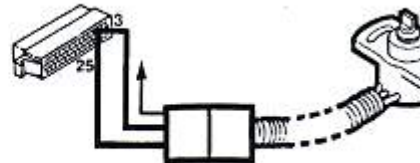


15. Check throttle potentiometer

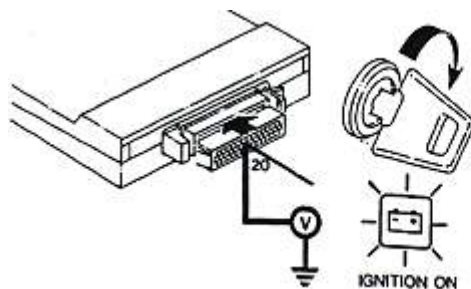


Connect ohmmeter between Pin 25 and 3.

Correct: 5000 ohms, if different go to next step



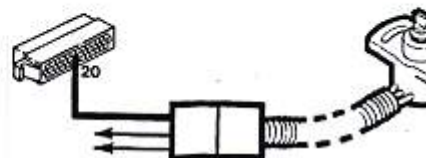
16. Check throttle potentiometer - second part



Connect voltmeter between Pin 20 and ground

Throttle closed: 0,29V-0,36V

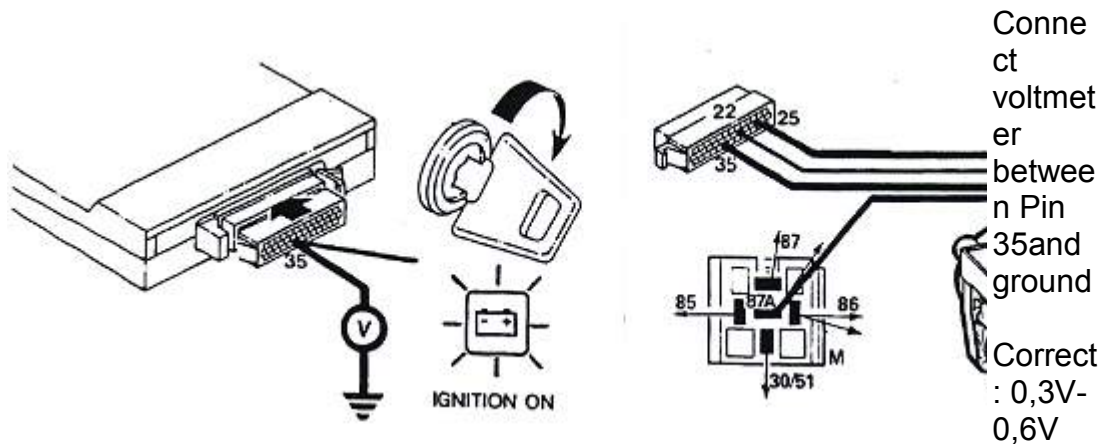
Throttle open 4,6V-5,0V



Important : Voltage must grow linear when moving

flap and
must not
jump

17. Check Hot Wire airflow sensor

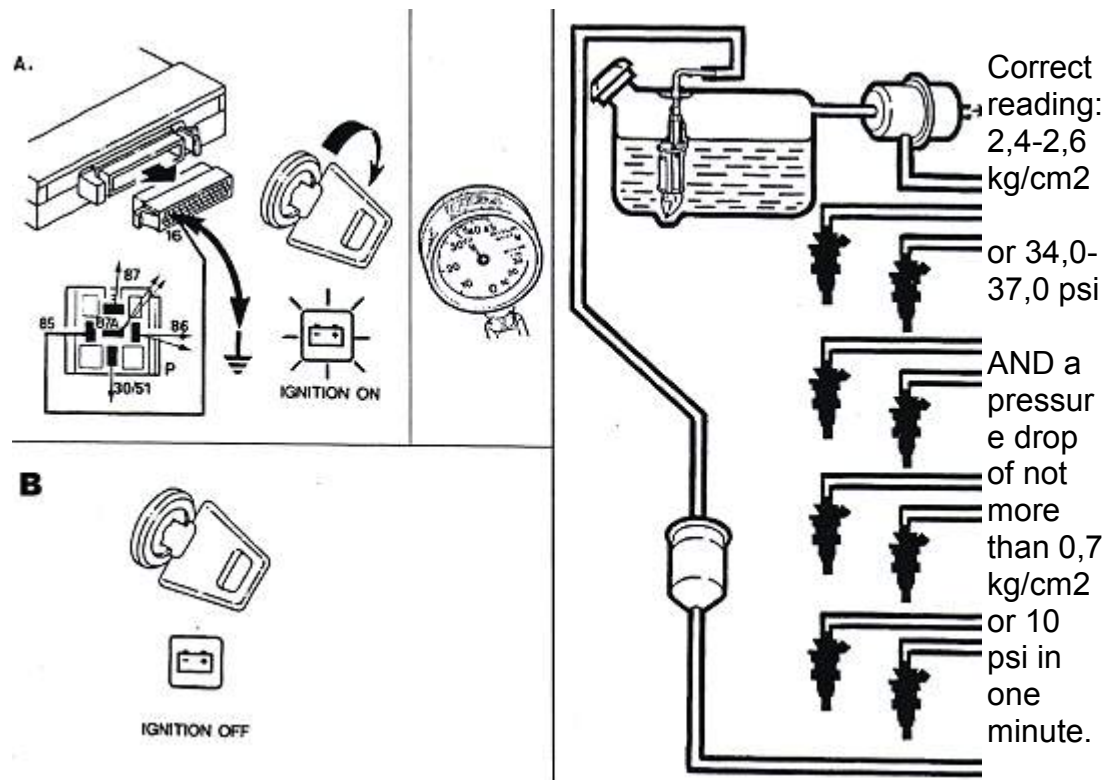


The following steps must be taken with some precautions. The fuel system must be depressurised as pressure stays inside the lines and a dangerous spray will occur when you open them. Also the slightest dirt particle in the system upstream of the filter (nearer to the engine) will definitely deteriorate the system. Some spilling can't be avoided, so take care.

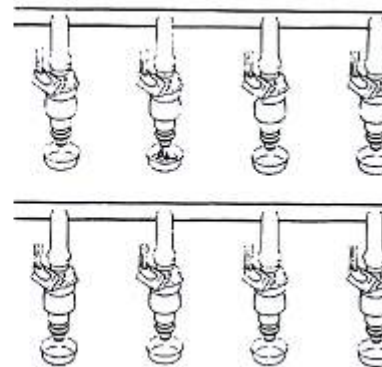
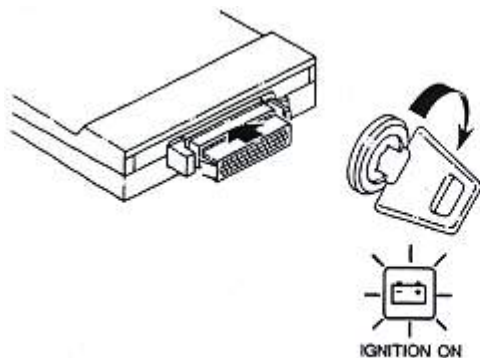
How to depressurise the system:

1. **Switch ignition off! Take fuel pump relay out of his holder.**
2. **Start the engine. It probably will start but soon will cut off when the remaining pressure drops.**
3. **Ignition off.**
4. **Insert fuel pressure manometer into the fuel line between the fuel rail and the filter, near the filter at the back of the car.**
5. **Put the fuel relay back in place**

18. Pressure check



19. Injector leak test



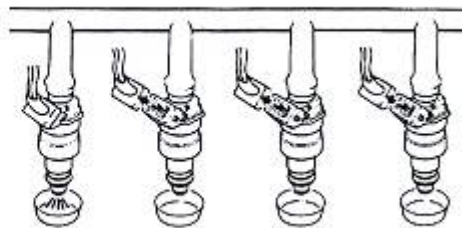
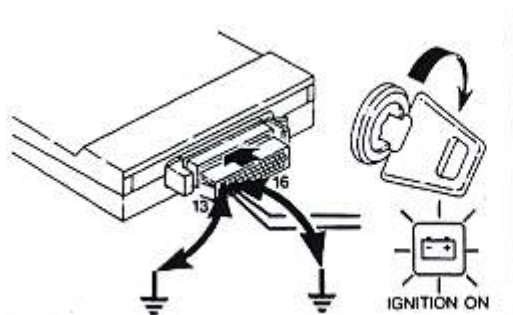
Injectors may leak. Take all the injectors out but don't disconnect them from the fuel rail. Put some sort of receptacle under them and switch on ignition. Any injector that gives off more than 2 drops a minute must be replaced.

If you have to replace a leaky injector you must inspect the spark

plugs for
fouling!

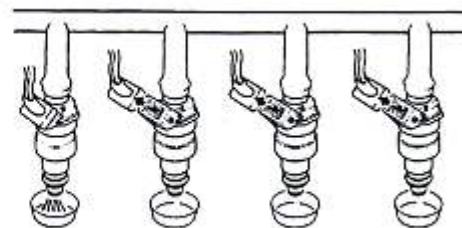
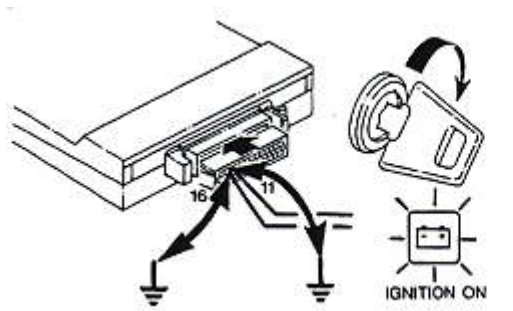
**Take care: The following steps are more dangerous as the spray can
ignite quite easily**

20. Injector flow test (left bank, 1,3,5,7)



Ground
Pin 13 and
16. This
will cause
the
injectors to
open. Place a
large
receptacle
under the
injector,
maybe a
bottle or
so. A
correct
injector will
flow **167
cm³ per
minute!**

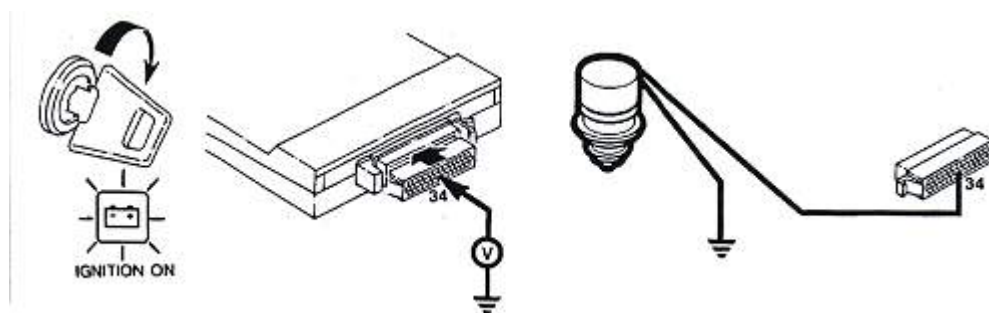
21. Injector flow test (right bank, 2,4,6,8)



Ground
Pin 11 and
16. This
will cause
the
injectors to
open. Place a
large
receptacle
under the
injector,

maybe a
bottle or
so. A
correct
injector will
flow **167**
cm3 per
minute!

22. Gear input switch (Inhibitor switch) (automatic trans only)

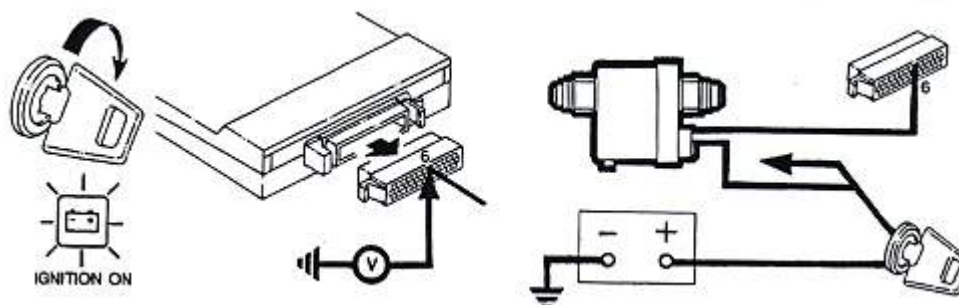


Connect
voltmeter
between
Pin 34
and
ground

Correct
reading:
0V in
Park and
Neutral

4,5V-
5,0V in
R, D, 3,
2, 1

23. Road speed input (Speed Transducer)



Jack up
and slowly
turn left
rear
wheel.

Connect
voltmeter
between
Pin 6 and
ground.

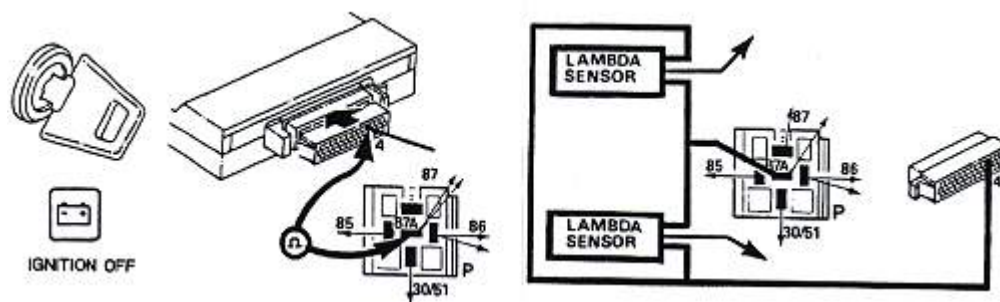
Correct
reading:
0-12V,
changing

6 times
per
revolution
of the
wheel

24. Check Lambda sensors

Take out
the fuel
pump
relay

Connect
ohmmeter
between
Pin 4 and
87A of the
fuel pump
relay
socket. Correct
reading
2,65-3,35
ohms



A reading
between
5,3 and
6,7 ohms
indicates
one of the
2 Lambda
sensors is
shot