

**FUEL FEED SYSTEM**

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**ENGINE MANAGEMENT SYSTEM**

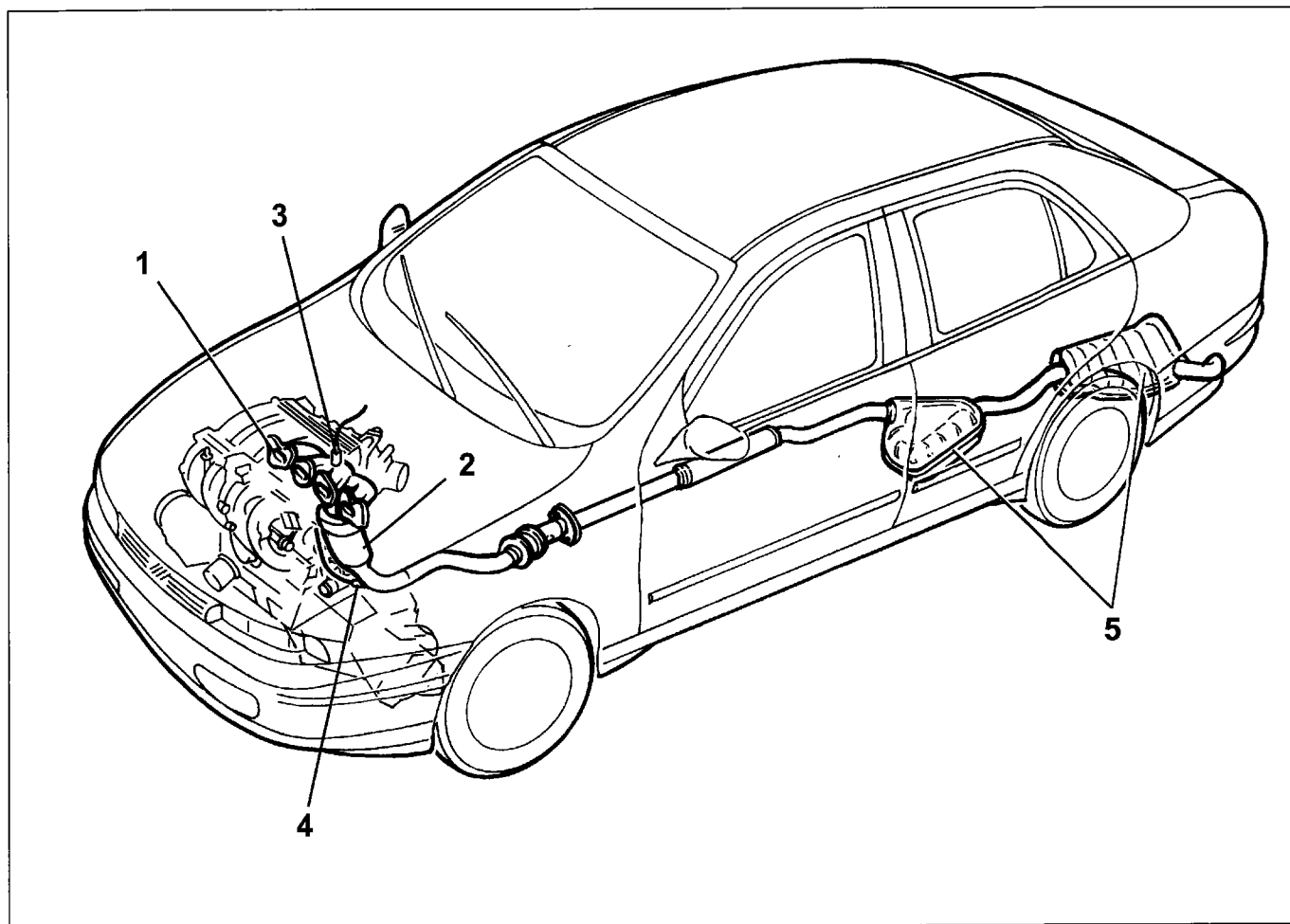
The Marea-Marea Weekend 1596 16v has a 4 cylinder in line engine, with 16 valves, 1596 cc, twin over-head camshaft and a Marelli IAW 4EF integrated electronic injection/ignition system.

The fuel system differs from the one described for the 1581 16v "99 range" version through the addition of several variants to make it compatible with the EEC Stage 3 EOBD regulations.

The main modifications to the system can be summarized as follows:

- Engine management control unit with IAW 4EF
- Catalytic converter near the exhaust manifold to take maximum advantage of the heat of the gases.
- Two Lambda sensors, one upstream (front) and one downstream (rear) which check the quality of the exhaust gases and the operation of the catalyzer.
- Adoption of a timing sensor on the inlet side timing pulley.

**DIAGRAM SHOWING ENGINE EXHAUST ASSEMBLY**



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**Key**

1. Exhaust manifold
2. Catalytic converter
3. Front Lambda sensor
4. Rear Lambda sensor
5. Silencers

### 10.

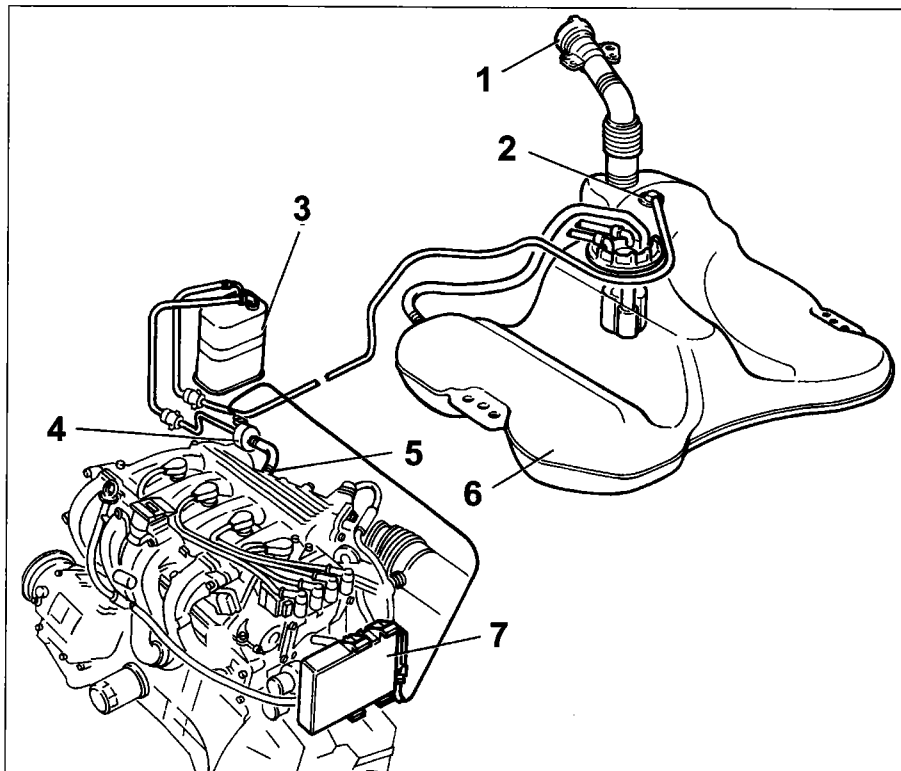
#### FUEL ANTI-EVAPORATION SYSTEM

The fuel anti-evaporation system has several improvements, compared with previous versions, aimed at sealing the fuel vapours on the outside.

In particular, the following measures have been adopted:

- multi-purpose valve on the tank to prevent leaks.
- New anti-evaporation solenoid valve and the adoption of rapid attachment connectors for the anti-evaporation system pipes.
- Plug on the fuel filler with attachment cable.

For further information on the fuel system, refer to publication: 507137.



#### Key

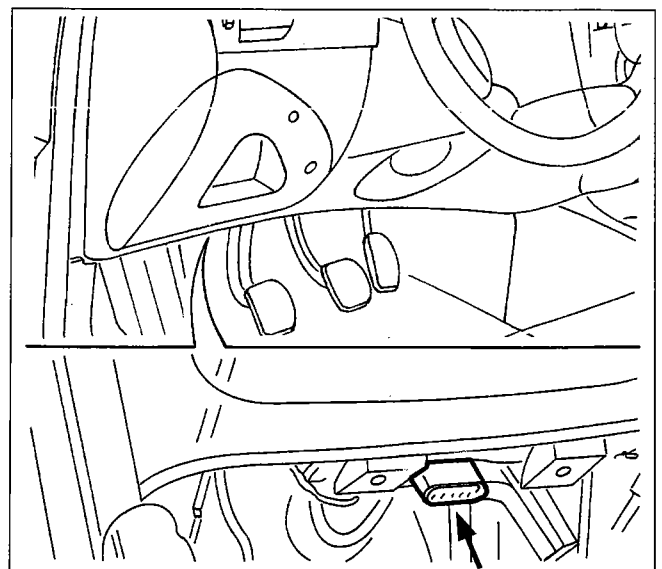
1. Filler
2. Multi-purpose valve
3. Active charcoal filter
4. Anti-evaporation solenoid valve
5. Fuel vapour intake on inlet manifold
6. Fuel tank
7. Engine management electronic control unit

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#### LOCATION OF DIAGNOSTIC SOCKET

The diagnostic socket for the analysis of the engine management system is located under the junction unit in the dashboard. This socket also makes the connection with the diagnostic equipment (Examiner or other instruments) for the other electronic control units on the vehicle.

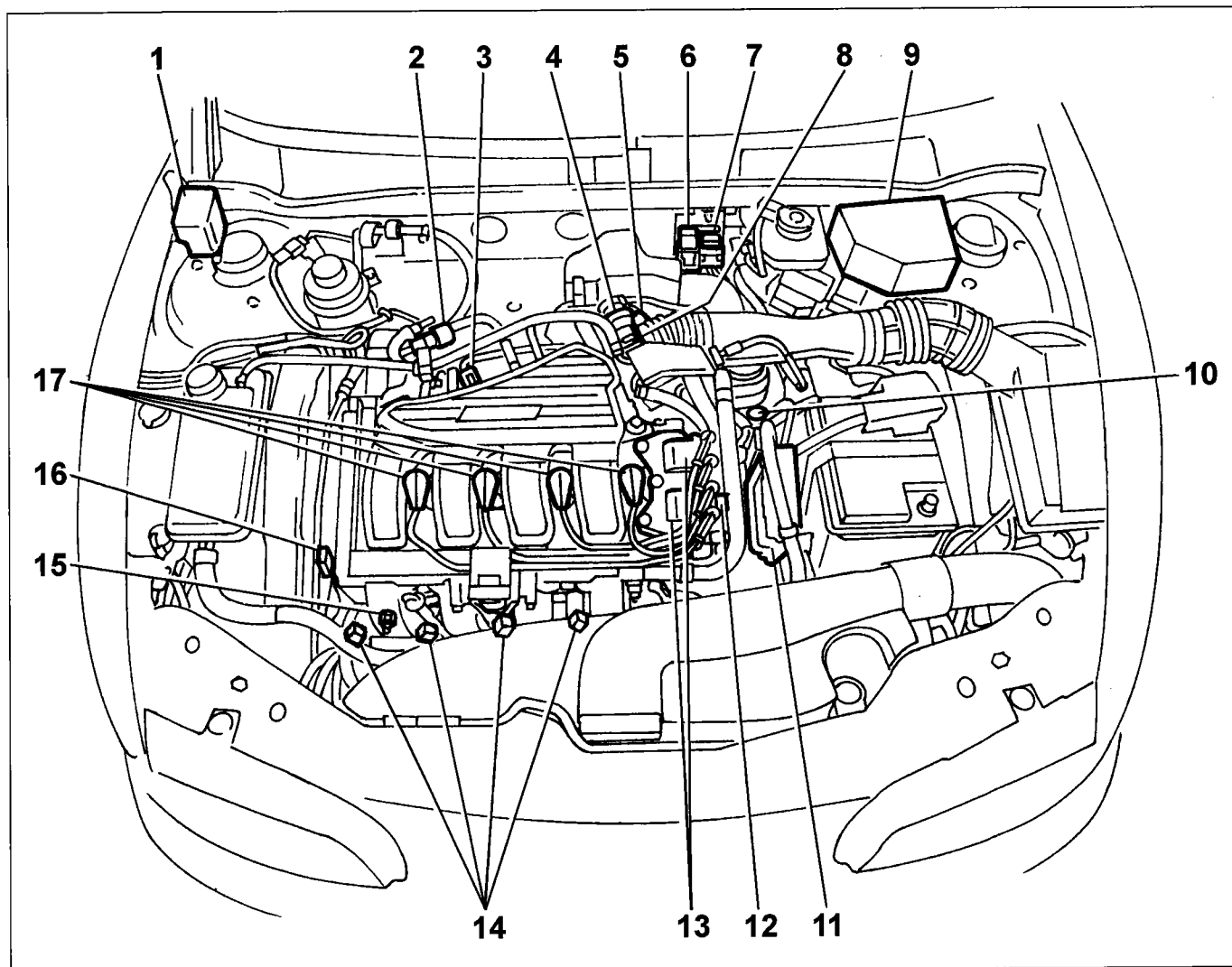
In effect, it is a "standardized" 16-way diagnostic socket which can be connected to the diagnostic equipment using the "MPX97" adaptor.



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LOCATION OF INJECTION/IGNITION SYSTEM COMPONENTS IN THE ENGINE COMPARTMENT

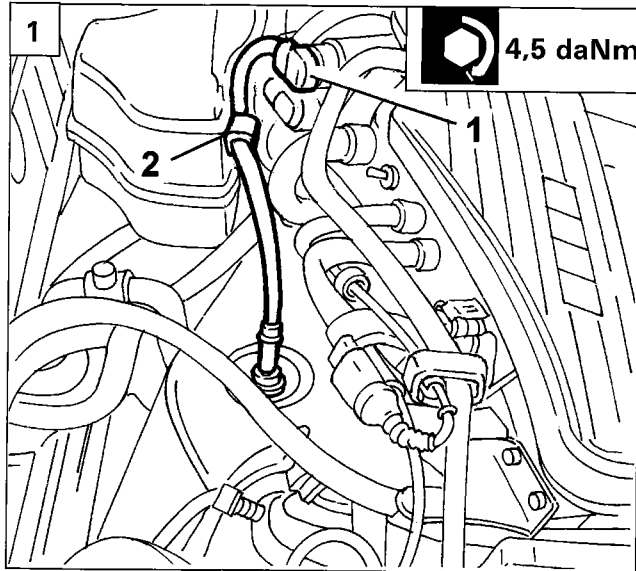


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Key

- |   |                        |
|---|------------------------|
| 1. Active charcoal filter                                   | 15. Rpm and TDC sensor |
| 2. Anti-evaporation solenoid valve                          | 16. Timing sensor      |
| 3. Intake air pressure and temperature sensor               | 17. Spark plugs        |
| 4. Engine idle adjustment stepping motor on throttle casing |                        |
| 5. Throttle valve position sensor on throttle casing        |                        |
| 6. System relay feed  |                        |
| 7. Protective fuse  |                        |
| 8. Throttle case  |                        |
| 9. Maxi-fuse protecting I.E. system (EFI)                   |                        |
| 10. Speedometer sensor                                      |                        |
| 11. Engine management control unit                          |                        |
| 12. Coolant temperature sensor                              |                        |
| 13. Ignition coil   |                        |
| 14. Injectors   |                        |

# 10.



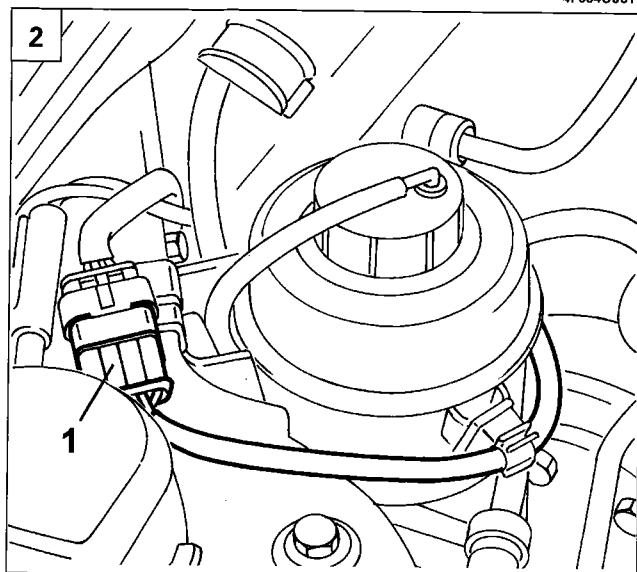
## FRONT LAMBDA SENSOR

### Removing

- Disconnect the negative battery terminal.
- 1. Disconnect the electrical connection (1a), release the wiring from the retaining band (2) and disconnect the Lambda sensor (3).

### Refitting

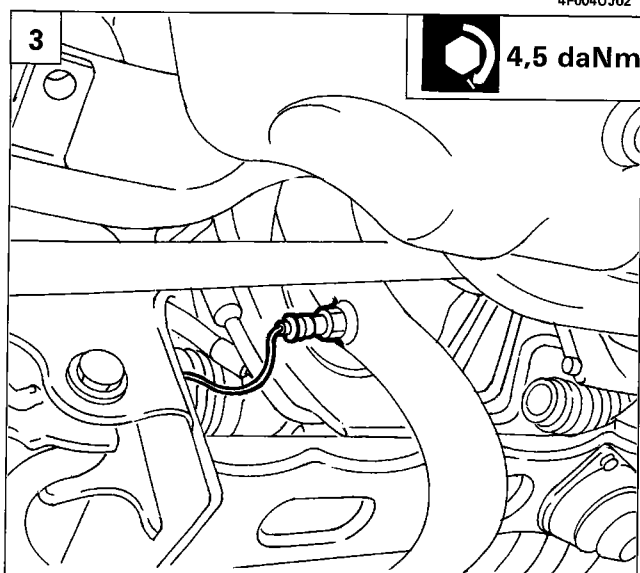
- Position the sensor and tighten it to torque avoiding forcing the component which would damage it irreparably.  
Apply special grease (e.g. Bosch 5 964080112) to the threaded part of the sensor.



## REAR LAMBDA SENSOR

### Removing

- Position the vehicle on a lift.
- Disconnect the negative battery terminal.
- 2. Disconnect the electrical connection (1) and release the wiring from the retaining bands.



- 3. Raise the vehicle and disconnect the Lambda sensor.

### Refitting

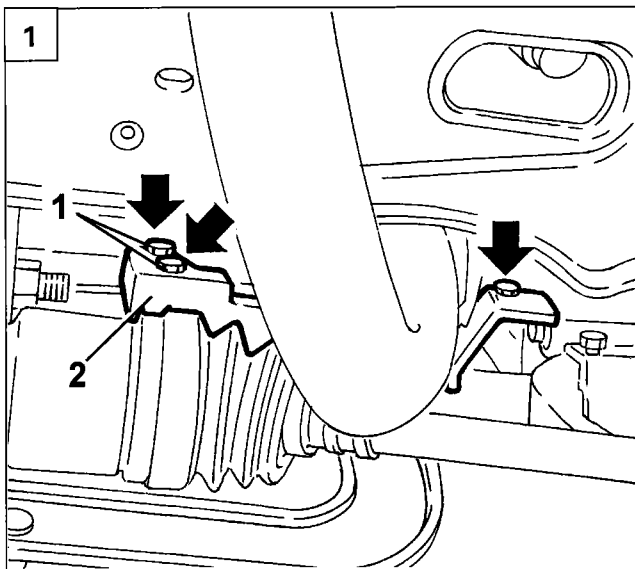
- Position the sensor and tighten it to torque avoiding force on the component which would damage it irreparably.  
Apply special grease (e.g. Bosch 5 964080112) to the threaded part of the sensor.
- Connect the connector and renew the Lambda sensor cable fastenings.

# 10.

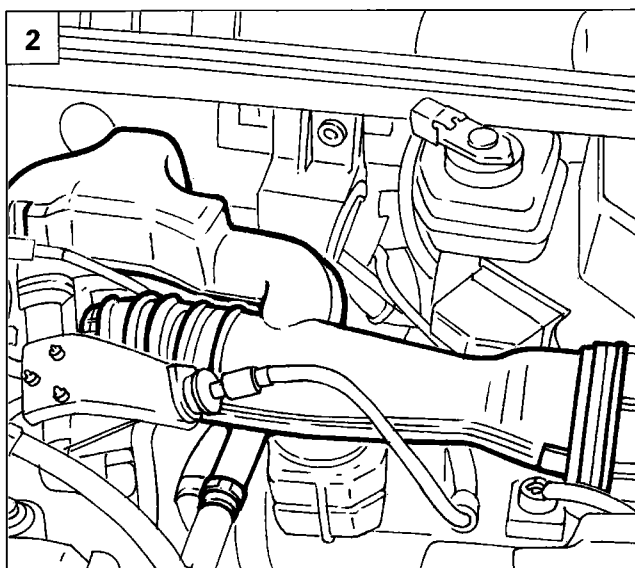
## CATALYTIC CONVERTER HEAT SHIELD

### Removing-refitting

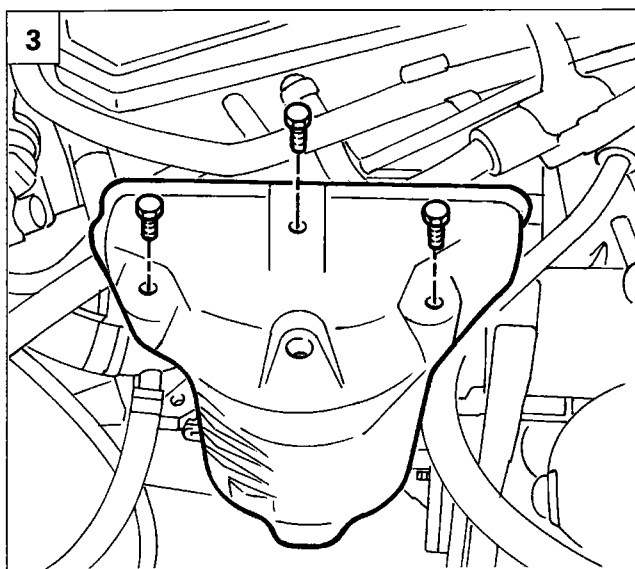
- Position the vehicle on a lift and disconnect the negative battery terminal.
- 1. Raise the vehicle and undo the bolts (1) fixing the heat shield for the driveshaft boot, then detach the heat shield (2); undo the other lower bolt for the catalyzer heat shield.
- Lower the vehicle and detach the front Lambda sensor as described in the relevant paragraph.
- 2. Loosen the bands shown and detach the air hose from the filter to the throttle casing, complete with resonator.
- 3. Undo the upper bolts fixing the heat shield and detach it.



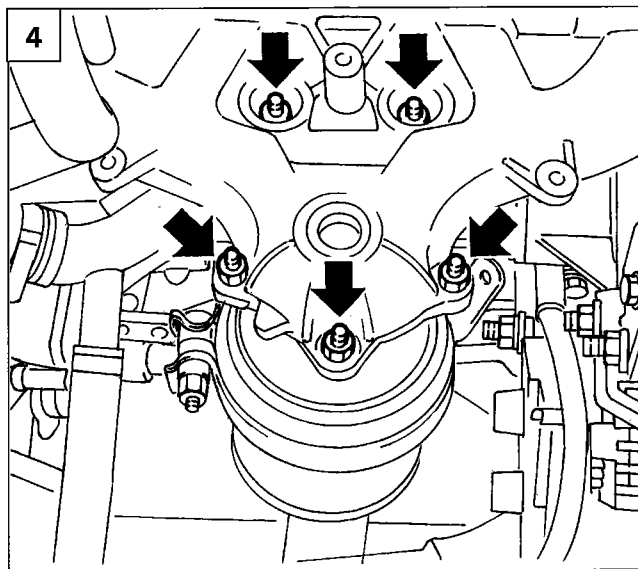
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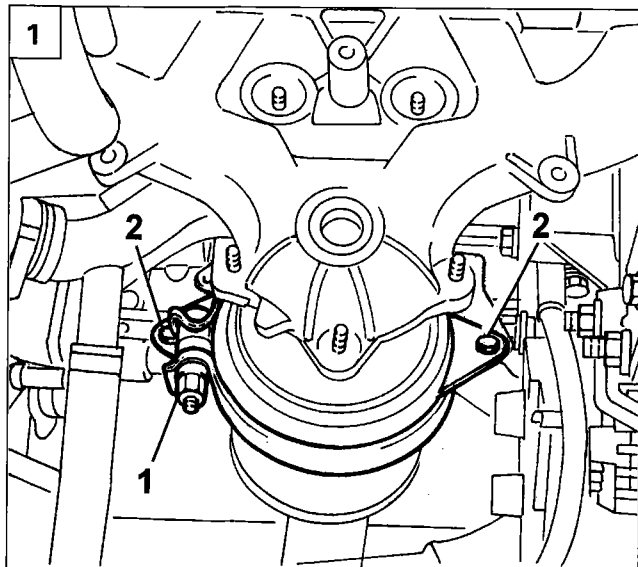
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## CATALYTIC CONVERTER

### Removing-refitting

- Position the vehicle on a lift and disconnect the negative battery terminal.
- Disconnect the front Lambda sensor as described in the relevant paragraph.
- Detach the catalytic converter heat shield as described in the relevant paragraph.
- 4. Undo the nuts fixing the catalytic converter to the exhaust manifold.

### 10.

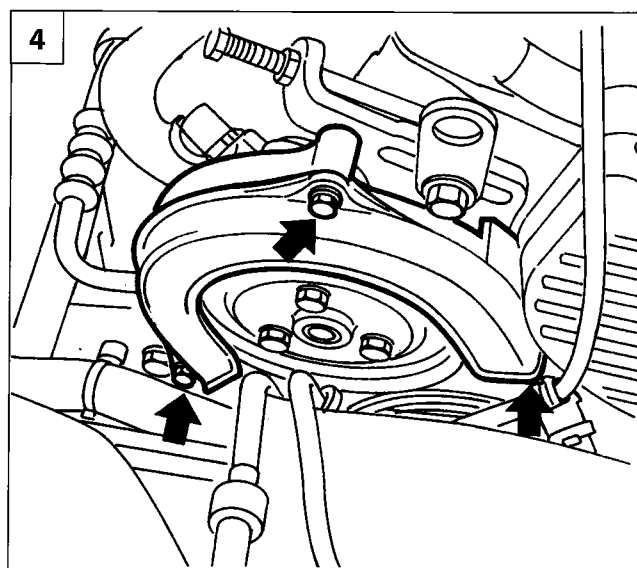
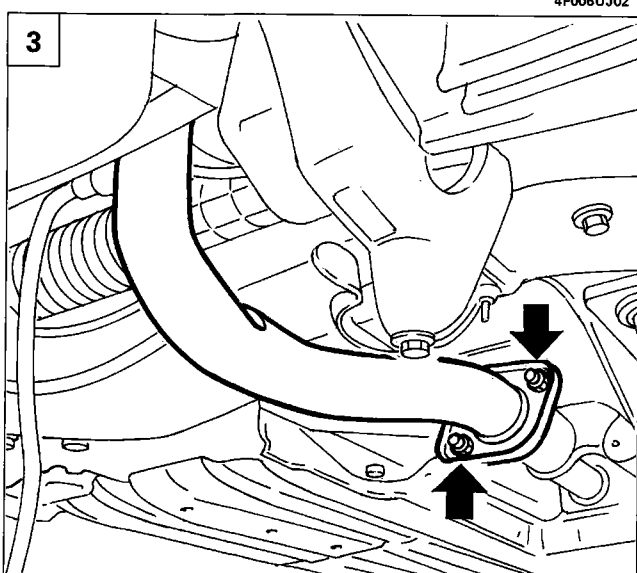
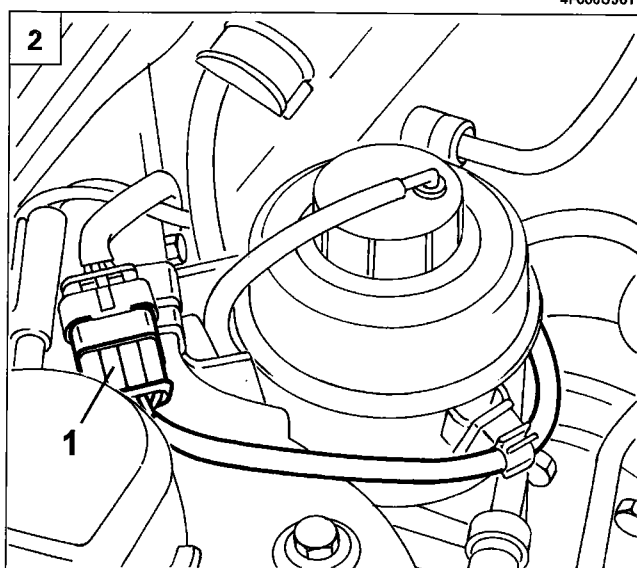


1. Loosen the band securing the catalyzer acting on the bolt (1) and undo the bolts (2) fixing the band to the bracket.
2. Disconnect the connector for the rear Lambda sensor and release the cable from the retaining bands along the routing.
3. Raise the vehicle, undo the bolts fixing the catalytic converter to the rear exhaust pipe and detach the converter, complete with rear Lambda sensor.

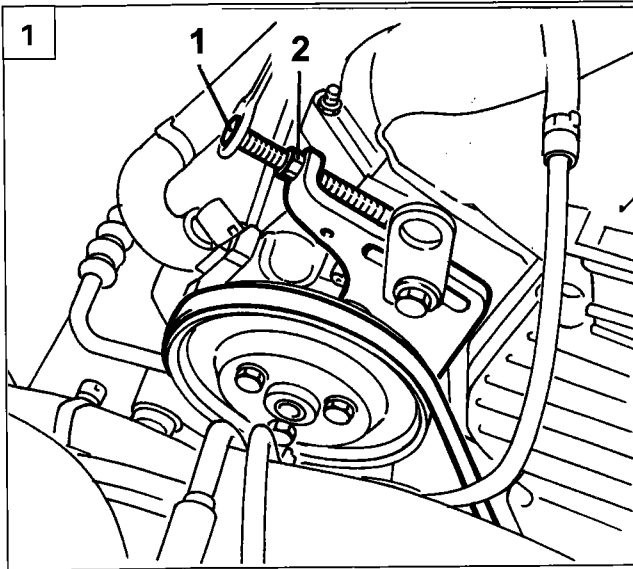
### EXHAUST MANIFOLD

#### Removing-Refitting

- Position the vehicle on a lift, disconnect the negative battery terminal and disconnect the following components, as described in the relevant paragraphs.
  - Front Lambda sensor
  - Catalytic converter heat shield
  - Catalytic converter.
4. Remove the protective cover for the power assisted steering pump drive belt.

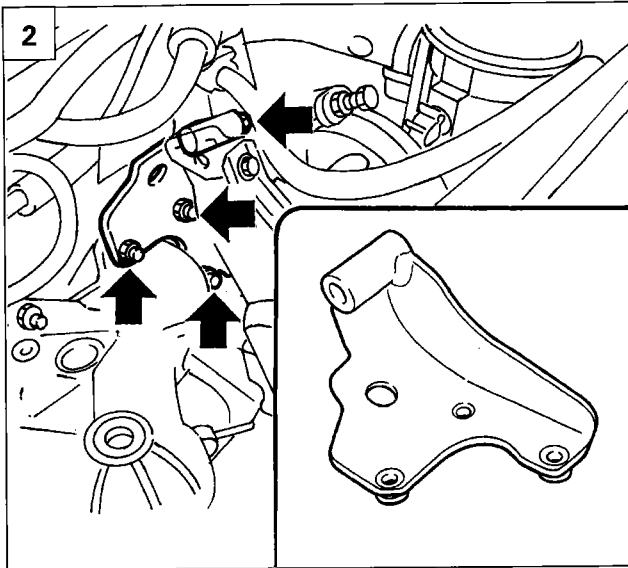


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1. Loosen the belt tension using the lock nut (2) and the adjustment screw (1); then release the belt from the pulley.
  2. Undo the bolts fixing the bracket for the power assisted steering pump mounting and detach the pump.
  3. Undo the nuts fixing the exhaust manifold to the cylinder head and detach the manifold.
- To refit, reverse the order of the operations carried out for the removal; tension the power assisted steering pump drive belt, using the adjustment screw; use tool 189576200 to check that the tension is between 32 and 45 daN.

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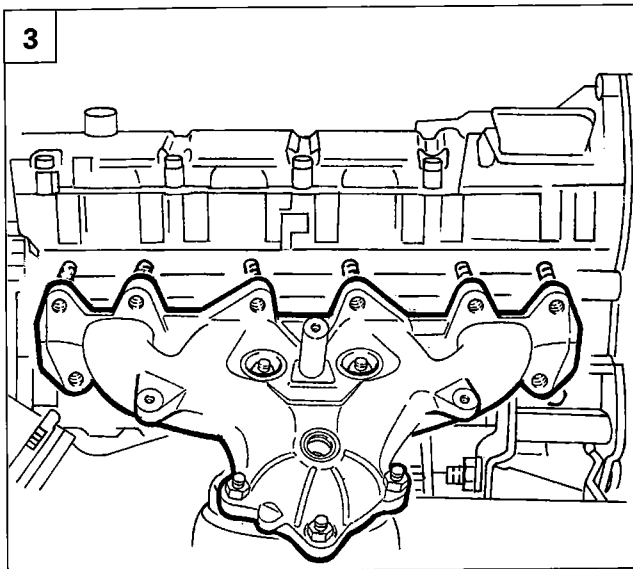
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**ELECTRIC FUEL PUMP WITH LEVEL SENDER UNIT**

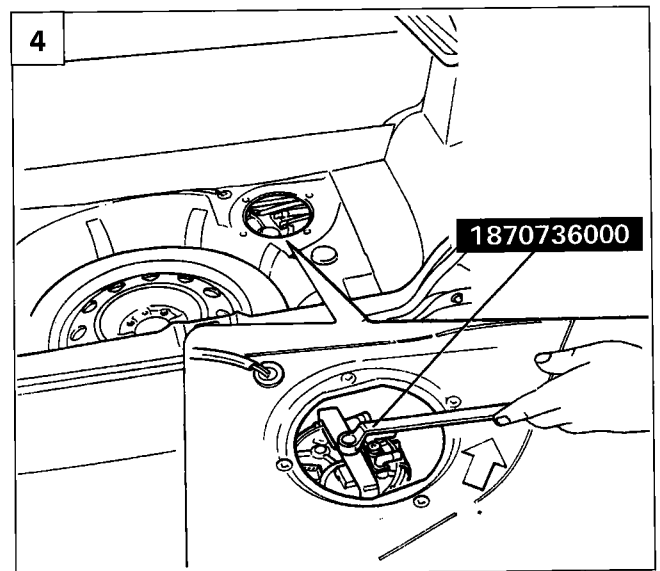
**Removing-refitting**

- Disconnect the negative battery terminal.
  - Lift up the lining in the luggage compartment and remove the fuel pump protective cover.
  - Disconnect the electrical connection for the electric pump assembly and the fuel supply and breather pipes.
4. Undo the ring nut fixing the electric fuel pump to the tank using tool 1870736000. The gasket on the tank housing should be replaced each time the pump drip tray is removed-refitted.

**NOTE** *The position of the fuel pump is fixed and is established by a reference in the housing in the tank which should correspond to the projection on the pump drip tray.*



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