

Chapter 4 Part A:

Fuel system - petrol injection models

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Degrees of difficulty

Easy, suitable for novice with little experience		Fairly easy, suitable for beginner with some experience		Fairly difficult, suitable for competent DIY mechanic		Difficult, suitable for experienced DIY mechanic		Very difficult, suitable for expert DIY or professional	
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Specifications

System type

2.0 injection models (up to 1994)	Bosch LE2 Jetronic or Magneti Marelli
2.0 injection models (from 1994)	Bosch Motronic MP 5.1
2.0 turbo models	Bosch Motronic MP 3.2

Fuel system data

Fuel pump type	Electric, immersed in tank
Fuel pump regulated constant pressure (at specified idle speed):	
Bosch LE2 Jetronic/Magneti Marelli system	2.5 to 3.0 bar
Bosch MP3.2/MP5.1 system	3.0 bar
Specified idle speed:	
2.0 litre injection models	
Manual transmission	850 ± 50 rpm
Automatic transmission	750 ± 50 rpm
2.0 litre 16v models:	
Manual transmission	800 ± 50 rpm
Automatic transmission	750 ± 50 rpm
Air conditioning	880 ± 50 rpm
2.0 litre turbo models:	
Manual transmission	800 ± 50 rpm
Automatic transmission	850 ± 50 rpm
Air conditioning	900 ± 50 rpm
Idle mixture CO content:	
Non-catalyst models	1.5 - 2.0 %
Catalyst models	Less than 0.5 %

Recommended fuel

Minimum octane rating	95 RON unleaded (UK unleaded premium). Leaded fuel not to be used
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Torque wrench setting

	Nm	lbf ft
Inlet manifold nuts	35	26
Knock sensor	20	15

1 General information and precautions

The fuel supply system consists of a fuel tank (which is mounted under the rear of the car, with an electric fuel pump immersed in it), a fuel filter, fuel feed and return lines. The fuel pump supplies fuel to the fuel rail, which acts as a reservoir for the four fuel injectors which inject fuel into the inlet tracts. The fuel filter incorporated in the feed line from the pump to the fuel rail ensures that the fuel supplied to the injectors is clean.

Refer to Section 6 for further information on the operation of the individual fuel injection systems. Throughout this Section, it is also occasionally necessary to identify vehicles by their engine codes rather than by engine capacity alone. Refer to the relevant Part of Chapter 2 for information on engine code identification.



Warning: Many procedures in this Chapter require the removal of fuel lines and connections, which may result in fuel spillage.

Before carrying out any operation on the fuel system, refer to the precautions given in Safety first! at the beginning of this

manual, and follow them implicitly. Petrol is a highly dangerous and volatile liquid, and the precautions necessary when handling it cannot be overstressed.

Note: Residual pressure will remain in the fuel lines long after the vehicle was last used. When disconnecting any fuel line, first depressurise the fuel system as described in Section 7.

2 Air cleaner assembly and inlet ducts - removal and refitting

Removal

1 Slacken the retaining clips and disconnect the intake duct from the throttle housing and air cleaner housing lid. On LE2 Jetronic models, slacken the clips and detach the two hose sections from the air flow meter (see illustration).

2 Undo the screws securing the lid to the air cleaner casing. Lift off the lid and take out the filter element (see Chapter 1A).

3 Slacken and remove the screws securing the air cleaner casing to the bodywork. Lift the air cleaner casing upwards to disengage it from the lower locating lugs. On some

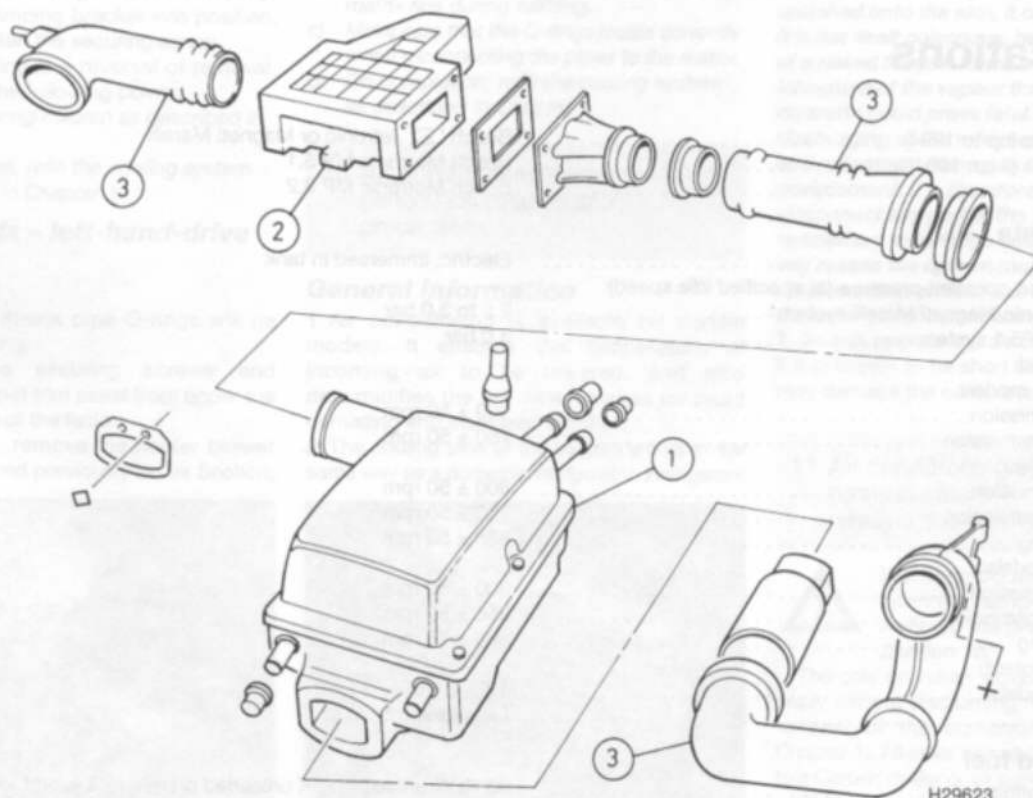
models, as the housing is lifted up, it will be necessary to disengage a small plastic retaining tag at the front securing the housing to the cold air intake duct underneath.

4 On turbo models, the intake ducting is complex arrangement consisting of flexible hoses and rigid ducts connecting the air cleaner assembly, intercooler and turbocharger. The intake ducts pass over the top and rear of the engine and also along the top of the transmission bellhousing. To remove the underside ducts it will be necessary to jack up the front of the car and support it on axle stands, then remove the engine splash guard.

5 To remove a section of intake ducting, slacken the retaining clips at each end and undo the bolts securing the relevant duct to its mounting bracket or support. The air inlet and outlet ducts are secured to the turbocharger flanges by a number of screws - these are accessible from the underside of the engine compartment.

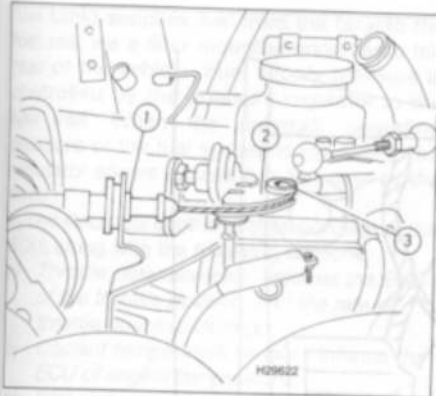
Refitting

6 Refitting is a reversal of the removal procedure, ensuring that all hoses are properly reconnected, and that all ducts are correctly seated and securely held by their retaining clips.



2.1 Air cleaner and intake ducting arrangement - models with LE2 Jetronic fuel injection

1 Air cleaner housing 2 Air flow meter 3 Intake ducts



3.1 Disconnect the accelerator cable from the throttle housing

- 1 Retaining clip
- 2 Throttle lever
- 3 Accelerator inner cable end stop

3 Accelerator cable - removal, refitting and adjustment

Removal

1 Working in the engine compartment, free the accelerator inner cable end stop from the throttle lever, then pull the outer cable out

from its mounting bracket rubber grommet. Slide the flat washer off the end of the cable, and remove the spring clip (see illustration).

2 Working back along the length of the cable, free it from any retaining clips or ties, noting its correct routing.

3 Release the retaining clips, and remove the panel from underneath the driver's side of the fascia panel.

4 Release the retaining clip, and detach the inner cable from the top of the accelerator pedal.

5 Release the outer cable from its retainer on the pedal mounting bracket, then tie a length of string to the end of the cable.

6 Return to the engine compartment, release the cable grommet from the bulkhead and withdraw the cable. When the end of the cable appears, untie the string and leave it in position - it can then be used to draw the cable back into position on refitting.

Refitting

7 Tie the string to the end of the cable, then use the string to draw the cable into position through the bulkhead. Once the cable end is visible, untie the string, then clip the outer cable into its pedal bracket retainer, and clip the inner cable into position in the pedal end.

8 Check that the cable is securely retained, then refit the cover panel to the fascia.

9 From within the engine compartment, ensure that the outer cable is correctly seated in the bulkhead grommet, then work along the cable, securing it in position with the retaining clips and ties, and ensuring that the cable is correctly routed.

10 Slide the flat washer onto the cable end, and refit the spring clip.

11 Pass the outer cable through the mounting bracket grommet on the throttle housing, and reconnect the inner cable to the throttle cam. Adjust the cable as described below.

Adjustment

12 Remove the spring clip from the accelerator outer cable. Ensuring that the throttle cam is fully against its stop, gently pull the cable through its grommet until all free play is removed from the inner cable.

13 With the cable held in this position, refit the spring clip to the last exposed outer cable groove in front of the rubber grommet and washer. When the clip is refitted and the outer cable is released, there should be only a small amount of free play in the inner cable.

14 Have an assistant depress the accelerator pedal, and check that the throttle cam opens fully and returns smoothly to its stop.

15 On models with automatic transmission, once the accelerator cable is correctly adjusted, check the kick-down cable adjustment as described in Chapter 7B.

4 Accelerator pedal - removal and refitting

Removal

1 Disconnect the accelerator cable from the pedal as described in Section 3.

2 Slacken and withdraw the two screws (or screw and nut on left hand drive models), then lift the bearing away from the pedal pivot shaft (see illustration).

3 Lift the pedal from the mounting bracket.

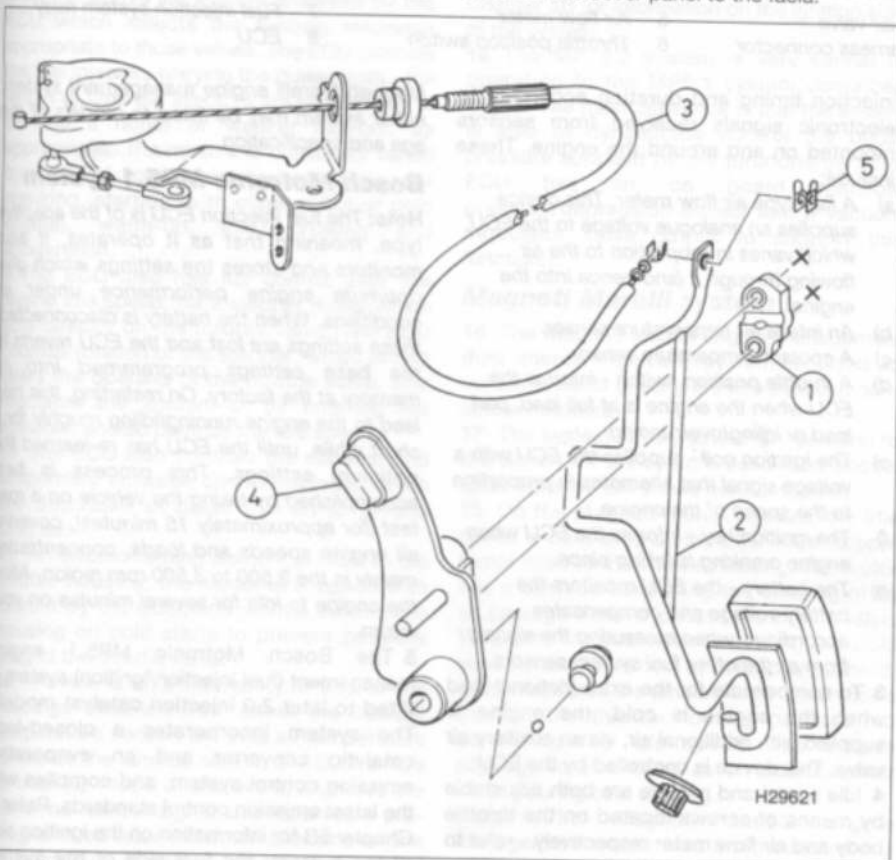
4 Examine the pivot shaft for signs of wear or damage and, if necessary, renew the pedal assembly.

Refitting

5 Refitting is a reversal of the removal procedure, applying a little multi-purpose grease to the pedal pivot point. On completion, refit and adjust the accelerator cable as described in Section 3.

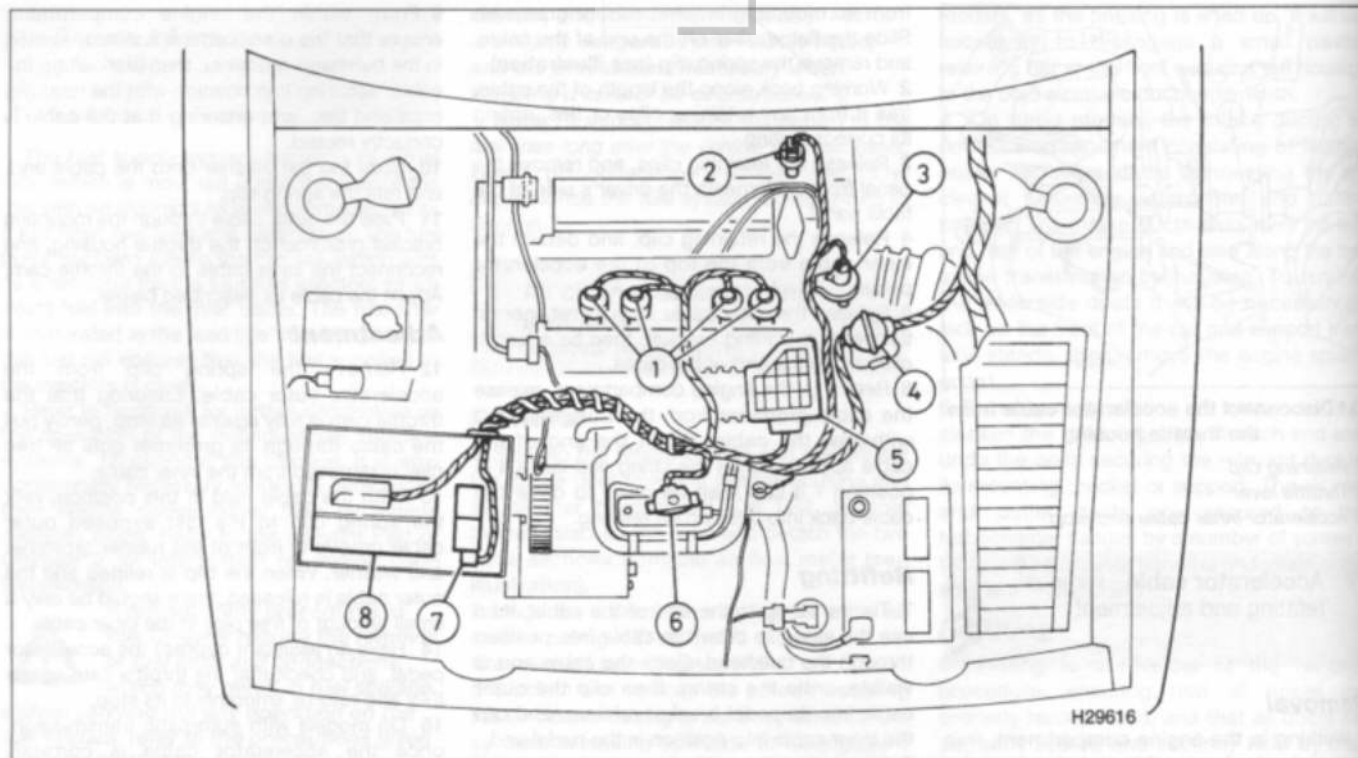
5 Unleaded petrol - general information and usage

Note: The information given in this Chapter is correct at the time of writing. If the latest information is required, check with a Citroën dealer. If travelling abroad, consult one of the



4.2 Accelerator pedal and cable mounting details - right hand drive version shown

- 1 Bearing
- 2 Pedal
- 3 Accelerator cable
- 4 Pedal mounting bracket
- 5 Clip



6.1 Component locations - models with Bosch LE2 Jetronic injection

- | | | | |
|------------------------------|----------------------------|----------------------------|-------------------------------|
| 1 Fuel injectors | 3 Auxiliary air valve | 5 Air flow meter | 7 Fuel injection system relay |
| 2 Coolant temperature sensor | 4 Wiring harness connector | 6 Throttle position switch | 8 ECU |

motoring organisations (or a similar authority) for advice on the fuel available.

1 The fuel recommended by Citroën is given in the Specifications, followed by the equivalent petrol currently on sale in the UK.

2 Some earlier models are not fitted with a catalytic converter, but note that *all* catalytic converter models must be run on unleaded fuel **only**. Under no circumstances should leaded fuel (UK '4-star') be used, as this may damage the converter.

6 Fuel injection systems - general information

Bosch LE2 Jetronic system

1 The Bosch LE2 Jetronic system is fitted to earlier, non-catalyst 2.0 litre injection models. Unlike the Bosch Motronic systems, which are self-contained engine management systems, controlling both the fuel injection and ignition, the LE2 injection system controls only the fuel injection (*see illustration*).

2 Fuel is supplied to the engine via four fuel injectors which are mounted on the inlet manifold. The injectors are electro-magnetically operated pintle valves that open and close under the control of an Electronic Control Unit (ECU). The ECU calculates the

injection timing and duration according to electronic signals received from sensors mounted on and around the engine. These include:

- A flap-type air flow meter. This device supplies an analogue voltage to the ECU, which varies in proportion to the air flowing through it (and hence into the engine).
- An intake air temperature sensor.
- A coolant temperature sensor.
- A throttle position switch - informs the ECU when the engine is at full load, part load or idling/overrunning.
- The ignition coil - supplies the ECU with a voltage signal that alternates in proportion to the speed of the engine.
- The ignition key - informs the ECU when engine cranking is taking place.
- The battery - the ECU monitors the battery voltage and compensates accordingly when measuring the signals from all the other fuel system sensors.

3 To compensate for the extra frictional load when the engine is cold, the engine is supplied with additional air, via an auxiliary air valve. This device is controlled by the ECU.

4 Idle speed and mixture are both adjustable by means of screws located on the throttle body and air flow meter respectively - refer to the relevant Section for details.

Note: The Bosch LE2 Jetronic fuel injection system was fitted concurrently with the

Magneti Marelli engine management system; either system may be fitted to models of this age and specification

Bosch Motronic MP5.1 system

Note: The fuel injection ECU is of the adaptive type, meaning that as it operates, it also monitors and stores the settings which give optimum engine performance under all conditions. When the battery is disconnected, these settings are lost and the ECU reverts to the base settings programmed into its memory at the factory. On restarting, this may lead to the engine running/idling roughly for a short while, until the ECU has re-learned the optimum settings. This process is best accomplished by taking the vehicle on a road test (for approximately 15 minutes), covering all engine speeds and loads, concentrating mainly in the 2,500 to 3,500 rpm region. Allow the engine to idle for several minutes on your return.

5 The Bosch Motronic MP5.1 engine management (fuel injection/ignition) system is fitted to later 2.0 injection catalyst models. The system incorporates a closed-loop catalytic converter and an evaporative emission control system, and complies with the latest emission control standards. Refer to Chapter 5B for information on the ignition side of the system; the fuel side of the system operates as follows.

6 The fuel pump (which is immersed in the

fuel tank) supplies fuel from the tank to the fuel rail, via a filter mounted underneath the rear of the vehicle. Fuel supply pressure is controlled by the pressure regulator in the fuel rail. When the optimum operating pressure of the fuel system is exceeded, the regulator allows excess fuel to return to the tank.

7 The electrical control system consists of the ECU, along with the following sensors:

- Throttle potentiometer - informs the ECU of the throttle position, and the rate of throttle opening/closing.
- Coolant temperature sensor - informs the ECU of engine temperature.
- Inlet air temperature sensor - informs the ECU of the temperature of the air passing through the throttle housing.
- Lambda sensor - informs the ECU of the oxygen content of the exhaust gases (explained in greater detail in Part C of this Chapter).
- Crankshaft sensor - informs the ECU of the crankshaft position and speed of rotation.
- Manifold Absolute Pressure (MAP) sensor - informs the ECU of the load on the engine (expressed in terms of inlet manifold vacuum).
- Vehicle speed sensor - informs the ECU of the vehicle speed.

8 All the above signals are analysed by the ECU which selects the fuelling response appropriate to those values. The ECU controls the fuel injectors (varying the pulse width - the length of time the injectors are held open - to provide a richer or weaker mixture, as appropriate). The mixture is constantly varied by the ECU, to provide the best setting for cranking, starting (with either a hot or cold engine), warm-up, idle, cruising and acceleration.

9 The ECU also has full control over the engine idle speed, via a stepper motor which acts directly on the throttle valve. The ECU controls rotation of the stepper, which in turn alters the opening of the throttle valve. This regulates the amount of air entering the manifold, and so controls the idle speed.

10 The ECU also controls the exhaust and evaporative emission control systems, which are described in detail in Part C of this Chapter.

11 An electric heating element is fitted to the throttle housing; the heater is supplied with current by the ECU, and warms the throttle housing on cold starts to prevent possible icing of the throttle valve.

12 If there is an abnormality in any of the readings obtained from either the coolant temperature sensor, the inlet air temperature sensor or the lambda sensor, the ECU enters its back-up mode. In this event, it ignores the abnormal sensor signal and assumes a pre-programmed value which will allow the engine to continue running (albeit at reduced efficiency). If the ECU enters this back-up mode, the warning light on the instrument

panel will come on, and the relevant fault code will be stored in the ECU memory.

13 If the warning light comes on, the vehicle should be taken to a Citroën dealer at the earliest opportunity. A complete test of the engine management system can then be carried out, using a special electronic diagnostic test unit which is simply plugged into the system's diagnostic connector located near the fusebox on the fascia.

Bosch Motronic MP 3.2 system

Note: The fuel injection ECU is of the adaptive type, meaning that as it operates, it also monitors and stores the settings which give optimum engine performance under all conditions. When the battery is disconnected, these settings are lost and the ECU reverts to the base settings programmed into its memory at the factory. On restarting, this may lead to the engine running/idling roughly for a short while, until the ECU has re-learned the optimum settings. This process is best accomplished by taking the vehicle on a road test (for approximately 15 minutes), covering all engine speeds and loads, concentrating mainly in the 2,500 to 3,500 rpm region. Allow the engine to idle for several minutes on your return.

14 The Motronic MP3.2 is fitted to all turbo-charged 2.0 litre petrol models. Refer to Chapter 5B for information on the ignition side of the system.

15 The MP 3.2 system is very similar in operation to the MP5.1 system described above. The main difference is that the system is able to dynamically control the boost pressure supplied by the turbocharger. The ECU has an on board manifold pressure/depression sensor and a vacuum modulator valve output to support this function.

Magneti Marelli system

16 The Magneti Marelli engine management (fuel injection/ignition) system is fitted to certain variants of early 2.0 litre injection non-catalyst models.

17 The system is very similar in operation to the Bosch MP5.1 system described above, apart from the idle speed control system.

18 On the Magneti Marelli system, the idle speed is controlled by the ECU via a stepper motor fitted to the throttle housing. The motor has a pushrod controlling the opening of an air passage which bypasses the throttle valve. When the throttle valve is closed, the ECU controls the movement of the motor pushrod, which regulates the amount of air which flows through the throttle housing passage, so controlling the idle speed. The bypass passage is also used as an additional air supply during cold starting.

Note: The Magneti Marelli engine management system was fitted concurrently with the Bosch LE2 Jetronic fuel injection system; either system may be fitted to models of this age and specification.

7 Fuel injection system - depressurisation

Note: Refer to the warning note in Section 1 before proceeding.

1 The fuel system referred to in this Section is defined as the tank-mounted fuel pump, the fuel filter, the fuel injectors, the fuel rail and the pressure regulator, and the metal pipes and flexible hoses of the fuel lines between these components. All these contain fuel which will be under pressure while the engine is running, and/or while the ignition is switched on. The pressure will remain for some time after the ignition has been switched off, and must be relieved in a controlled fashion when any of these components are disturbed for servicing work.

2 On non-catalyst models only, locate the fuel injection pump relay (where applicable) and disconnect it from its base. Crank the engine on the starter motor. If the engine fires, allow it to run for a few seconds until it stalls through fuel starvation. This will relieve the line fuel pressure via the fuel injectors. DO NOT attempt this procedure on models equipped with a catalytic converter - there is a danger that partially burnt fuel will be supplied to the catalyst and this could cause irreparable damage.

3 Disconnect the battery negative terminal.

4 Place a small container beneath the connection/union to be disconnected, and have a large rag ready to soak up any escaping fuel not being caught by the container.

5 Slowly loosen the connection or union nut to avoid a sudden release of pressure, and position the rag around the connection, to catch any fuel spray which may be expelled. Once the pressure is released, disconnect the fuel line. Plug the pipe ends, to minimise fuel loss and prevent the entry of dirt into the fuel system.

Warning: This procedure will merely relieve the pressure in the fuel system - remember that fuel will still be present in the system components and take precautions accordingly before disconnecting them.



8 Fuel pump - removal and refitting

Note: Refer to the warning note in Section 1 before proceeding.

Removal

1 Disconnect the battery negative lead.

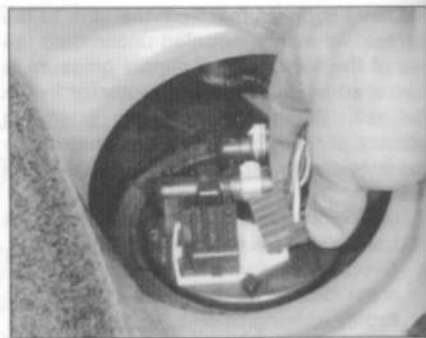
2 For access to the fuel pump, tilt the rear seat forwards and pull back the carpet from the right-hand side of the rear passenger compartment.



8.3a Remove the plastic cover . . .



8.3b . . . for access to the fuel pump



8.4 Disconnecting the wiring from the fuel pump

3 Using a screwdriver, carefully prise the plastic access cover from the floor to expose the fuel pump (see illustrations).

4 Disconnect the wiring connector from the fuel pump, and tape the connector to the vehicle body, to prevent it from disappearing behind the tank (see illustration).

5 Mark the hoses for identification purposes, then slacken the feed and return hose retaining clips. Where the crimped-type Citroën hose clips are fitted, cut the clips and discard them; use standard worm-drive hose clips on refitting. Disconnect both hoses from the top of the pump, and plug the hose ends.

6 Noting the alignment marks on the tank, pump cover and the locking ring, unscrew the ring and remove it from the tank (see illustration). This is best accomplished by using a screwdriver on the raised ribs of the locking ring. Carefully tap the screwdriver to turn the ring anti-clockwise until it can be unscrewed by hand.

7 Displace the pump cover, then reach into the tank and unclip the pump from the tank base. Lift the fuel pump assembly out of the fuel tank, taking great care not to damage the filter, or to spill fuel onto the interior of the vehicle. Recover the rubber sealing ring and discard it - a new one must be used on refitting.

8 Note that the fuel pump is only available as a complete assembly - no components are available separately.

Refitting

9 Ensure that the fuel pump pick-up filter is clean and free of debris. Fit the new sealing ring to the top of the fuel tank.

10 Carefully manoeuvre the pump assembly into the fuel tank, and clip it into position in the base of the tank.

11 Align the mark on the fuel pump cover with the centre of the three alignment marks on the fuel tank, then refit the locking ring. Securely tighten the locking ring, then check that the locking ring, pump cover and tank marks are all correctly aligned.

12 Reconnect the feed and return hoses to the top of the fuel pump, using the marks made on removal to ensure that they are correctly reconnected, and securely tighten their retaining clips.

13 Reconnect the pump wiring connector.

14 Reconnect the battery negative terminal and start the engine. Check the fuel pump feed and return hoses unions for signs of leakage.

15 If all is well, refit the plastic access cover. Tilt or refit the rear seat as described in Chapter 12 (as applicable).

9 Fuel gauge sender unit - removal and refitting

The fuel gauge sender unit is incorporated in the fuel pump - refer to Section 8 for details.

10 Fuel tank - removal and refitting

Removal

1 Before removing the fuel tank, all fuel must be drained out. Since a fuel tank drain plug is not provided, it is therefore preferable to carry out the removal operation when the tank is nearly empty. Before proceeding, disconnect the battery negative lead and syphon or hand-pump the remaining fuel from the tank.

2 Jack up the rear of the car and support on axle stands (see *Jacking and Vehicle Support*). Remove the right-hand rear wheel, then extract the fixings and remove the wheel arch liner.

3 With reference to Chapter 4C, unbolt the rear section of the exhaust pipe from the

intermediate section. Unhook the silencers from their rubber mountings and lower the exhaust pipe away from the car.

4 Unhook the front silencer unit from its rubber mountings, and lower it away from the floorpan. Unbolt and remove the heat shield above the silencer.

5 Remove the metal clip and disconnect front end of the rear suspension height manual control linkage from the side of the control lever mechanism (see Chapter 11). Remove the bolt and disconnect the rear end of the control linkage from the rear corrector. Slide the linkage out of its mounting bracket and remove it from the car.

6 Remove the covers from the hydraulic pipes located on the underbody, leaving the pipes attached to the covers.

7 Disconnect the rigid fuel supply and return lines at the rubber hoses connections - be prepared for some fuel spillage.

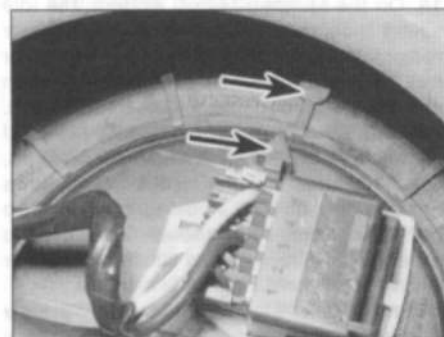
8 Release the rear ABS wiring from the clips and cable supports on the floor pan.

9 Where necessary disconnect the wiring for the hydractive suspension from the clips on the underside of the vehicle.

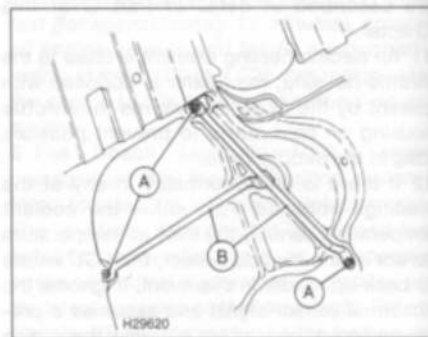
10 Loosen the clips and disconnect the filler and vent hoses from the fuel tank. Make a careful note of their order of connection.

11 Unclip the heat shield, then release the fuel filter from its mounting and move it to one side.

12 Remove the screws and lower the retaining bars from the underside of the fuel tank (see illustration).



8.6 Note the alignment marks on the fuel pump and locking ring



10.12 Remove the screws (A) and lower the retaining bars (B) from the underside of the fuel tank

13 Place a trolley jack with an interposed block of wood beneath the tank, then raise the jack carefully until it is supporting the weight of the tank.

14 Unscrew the fuel tank mounting bolts, then using the jack, lower the fuel tank slightly. Release the wiring and fuel hoses from the clips and straps on fuel tank, as they become accessible.

15 Disconnect the wiring from the fuel pump by pressing on the plastic tab.

16 Loosen the clips and disconnect the hoses from the fuel pump.

17 Lower the fuel tank slowly to the ground, checking that nothing else remains connected. Remove the tank from under the car.

18 If the tank is contaminated with sediment or water, remove the fuel pump and pick-up unit, and swirl the tank out with clean fuel. The tank is injection-moulded from a synthetic material - if seriously damaged, it should be renewed. However, in certain cases, it may be possible to have small leaks or minor damage repaired. Seek the advice of a specialist before attempting to repair the fuel tank.

Refitting

19 Refitting is the reverse of the removal procedure, noting the following points:

- When lifting the tank back into position, take care to ensure that none of the hoses become trapped between the tank and vehicle body.
- Ensure that all pipes and hoses are correctly routed, and securely held in position with their retaining clips.
- Before reconnecting the height operation linkage, set the height control to LOW.
- On completion, refill the tank with a small amount of fuel, and check for leakage prior to taking the vehicle out on the road.

11 Fuel injection system - testing and adjustment

Testing

1 If a fault appears in the fuel injection system, first ensure that all the system wiring connectors are securely connected and free of corrosion. Ensure that the fault is not due to poor maintenance; ie, check that the air cleaner filter element is clean, the spark plugs are in good condition and correctly gapped, the cylinder compression pressures are correct, the ignition timing is correct, and that the engine breather hoses are clear and undamaged, referring to Chapters 1, 2 and 5 for further information.

2 If these checks fail to reveal the cause of the problem, the vehicle should be taken to a suitably-equipped Citroën dealer or fuel injection specialist for testing. A wiring block connector is incorporated in the engine management circuit, into which a special

electronic diagnostic tester can be plugged; the connector is located near the fusebox on the fascia. The tester will locate the fault quickly and simply, alleviating the need to test all the system components individually, which is a time-consuming operation that carries a risk of damaging the ECU.

Adjustment

Bosch LE2 Jetronic models

Note: The following adjustments should be carried out when the engine has just reached normal operating temperature after starting from cold, rather than after a long drive. Ideally, the adjustments should be completed before the engine temperature exceeds 100°C, or before the auxiliary cooling fan cuts in.

3 When carrying out the adjustment, the air cleaner should be in position, with all vacuum and breather hoses connected. The instrument pack tachometer is sufficiently accurate to allow idle speed adjustment.

4 Connect an exhaust gas analyser to the exhaust tailpipe/sample pipe, in accordance with the manufacturers instructions.

5 Start the engine and allow it to idle. On vehicles with automatic transmission, select 'PARK'. Ensure that all ancillaries are switched off, including the air conditioning (where fitted).

6 The idle speed adjustment screw is located at the side of the throttle body (see illustration).

7 Turn the idle speed adjustment screw until the idle speed is within the limits given in the Specifications. Accelerate the engine briefly, then allow it to idle again.

8 Re-check the idle speed and adjust if necessary. Switch off the engine on completion.

9 To adjust the exhaust gas CO content, prise the tamperproof plug from the CO adjustment screw hole, which is located on the underside of the air flow meter housing (see illustration).

10 Start the engine and accelerate it to roughly 2000 rpm. Maintain this speed for about 10 seconds, then allow it to return to idle.

11 Check the CO reading on the exhaust gas analyser. If it is not as specified, insert an Allen key into the CO adjustment screw hole and engage it with the end of the screw.

12 Turn the adjustment screw as required to correct the exhaust gas CO content; clockwise enriches the mixture and anticlockwise weakens it.

13 Re-check the exhaust gas CO content after accelerating the engine, as described from paragraph 10 onwards, and continue adjusting the mixture as required. Only turn the adjustment screw through half a turn at a time, between measurements, to avoid overshooting.

14 On completion, disconnect all test instruments and fit a new tamperproof plug to the mixture adjustment screw tube.

All other models

15 Experienced home mechanics with a considerable amount of skill and equipment (including a tachometer and an accurately calibrated exhaust gas analyser) may be able to check the exhaust CO level and the idle speed, as described in the previous subsection. However, if these are found to be in need of adjustment, the car must be taken to a Citroën dealer or fuel injection specialist for further testing. The mixture (exhaust gas CO content) and idle speed are controlled dynamically by the engine management system are not adjustable without the aid of dedicated test equipment.

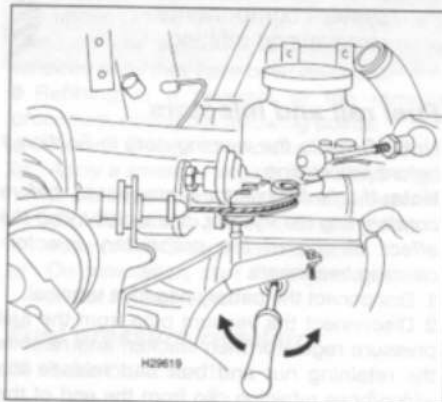
12 Throttle housing - removal and refitting

Removal

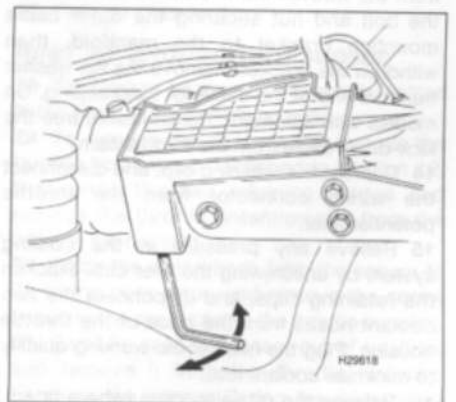
1 Disconnect the negative cable from the battery and position it away from the terminal.

Bosch LE2 Jetronic and Magneti-Marelli models

2 Remove the air cleaner/air flow meter-throttle housing duct, with reference to Section 2.



11.6 Idle speed adjustment screw location - models with LE2 Jetronic fuel injection



11.9 Exhaust CO/mixture adjustment screw location - models with LE2 Jetronic fuel injection



3 Disconnect the accelerator inner cable from the throttle cam then withdraw the outer cable from the mounting bracket along with its flat washer and spring clip. Where necessary, also disconnect the kick-down cable as described in Chapter 7B.

4 Depress the retaining clips, and disconnect the wiring connectors from the throttle potentiometer, the electric heating element, the air temperature sensor and idle control stepper motor (as applicable).

5 Release the retaining clips (where fitted), and disconnect all the relevant vacuum and breather hoses from the throttle housing. Make identification marks on the hoses, to ensure that they are connected correctly on refitting.

6 Slacken and remove the retaining screws, and remove the throttle housing from the inlet manifold.

7 Remove the gasket from the manifold, and discard it - a new one must be used on refitting.

Bosch MP5.1 models

8 Slacken the retaining clip then disconnect the inlet duct from the throttle housing and recover the sealing ring.

9 Disconnect the accelerator inner cable from the throttle cam, then withdraw the outer cable from the mounting bracket, along with its flat washer and spring clip.

10 Depress the retaining clip and disconnect the wiring connector(s) from the throttle potentiometer, and, where necessary, from the electric heating element, and the air temperature sensor.

11 Slacken and remove the three retaining screws and remove the throttle housing from the inlet manifold. Recover the O-ring from manifold and discard it; a new one must be used on refitting.

Bosch MP3.1 models

12 Slacken the retaining clip, disconnect the intake duct from the end of the throttle housing, and recover the rubber sealing ring (where fitted).

13 Disconnect the accelerator inner cable from the throttle cam. Slacken and remove the bolt and nut securing the outer cable mounting bracket to the manifold, then withdraw the bracket. Remove the flat washer from the end of the cable for safekeeping. On models with automatic transmission, free the kick-down cable from the throttle cam.

14 Depress the retaining clip, and disconnect the wiring connector from the throttle potentiometer.

15 Relieve any pressure in the cooling system by unscrewing the filler cap. Slacken the retaining clips, and disconnect the two coolant hoses from the base of the throttle housing. Plug the hose ends, working quickly to minimise coolant loss.

16 Release the retaining clips (where fitted), and disconnect all the relevant vacuum and breather hose(s) from the throttle housing. Make identification marks on the hoses, to

ensure they are correctly reconnected on refitting.

17 Undo the securing screws and remove the throttle housing from the manifold. Remove the O-ring from the manifold, and discard it - a new one must be used on refitting.

Bosch MP3.2 models

18 Slacken the retaining clip then disconnect the inlet duct from the throttle housing and recover the sealing ring.

19 Slacken the clip and detach the auxiliary air valve hose from the port at the front of the of throttle body.

20 Disconnect the accelerator inner cable from the throttle cam, then withdraw the outer cable from the mounting bracket, along with its flat washer and spring clip.

21 Depress the retaining clip and disconnect the wiring connector(s) from the throttle potentiometer, and, where necessary, from the electric heating element, and the air temperature sensor.

22 Slacken and remove the three retaining screws and remove the throttle housing from the inlet manifold. Recover the gasket from manifold and discard it; a new one must be used on refitting.

Refitting

23 Refitting is a reversal of the removal procedure, noting the following points:

- Fit a new gasket to the manifold, then refit the throttle housing and securely tighten its retaining nuts or screws (as applicable).
- Ensure that all hoses are correctly reconnected and, where necessary, are securely held in position by the retaining clips.
- Ensure that all wiring is correctly routed, and that the connectors are securely reconnected.
- On completion, adjust the accelerator cable as described in Section 3 and, where necessary, the kick-down cable as described in Chapter 7B.

13 Bosch Motronic MP5.1 system components - removal and refitting



Fuel rail and injectors

Note: Refer to the warning note in Section 1 before proceeding.

Note: If a faulty injector is suspected, before condemning the injector, it is worth trying the effect of one of the proprietary injector-cleaning treatments.

1 Disconnect the battery negative terminal.

2 Disconnect the vacuum pipe from the fuel pressure regulator then slacken and remove the retaining nut and bolt and release the wiring/hose retaining clip from the end of the fuel rail.

3 Bearing in mind the information given in Section 7, slacken the retaining clips and

disconnect the fuel feed and return hoses from the fuel rail. Where the original crimped-type Citroën hose clips are still fitted, cut them and discard; replace them with standard worm-type hose clips on refitting.

4 Depress the retaining tangs and disconnect the wiring connectors from the four fuel injectors.

5 Slacken and remove the fuel rail retaining bolts and nuts then carefully ease the fuel rail and injector assembly out from the inlet manifold and remove it from the vehicle. Remove the O-rings from the end of each injector and discard them; they must be renewed whenever they are disturbed.

6 Slide out the retaining clip(s) and remove the relevant injector(s) from the fuel rail. Remove the upper O-ring from each disturbed injector and discard; all disturbed O-rings must be renewed.

7 Refitting is a reversal of the removal procedure, noting the following points.

- Fit new O-rings to all disturbed injector unions.
- Apply a smear of engine oil to the O-rings to aid installation then ease the injectors and fuel rail into position ensuring that none of the O-rings are displaced.
- On completion start the engine and check for fuel leaks.

Fuel pressure regulator

Note: Refer to the warning note in Section 1 before proceeding.

8 Disconnect the vacuum pipe from the regulator. Note that access to the regulator is poor with the fuel rail in position, if necessary, remove the fuel rail as described earlier then remove the regulator.

9 Place a wad of rag over the regulator, to catch any fuel spray which may be released, then remove the retaining clip and ease the regulator out from the fuel rail.

10 Refitting is a reversal of the removal procedure. Examine the regulator seal for signs of damage or deterioration and renew if necessary.

Throttle potentiometer

11 Disconnect the battery negative terminal.

12 Depress the retaining clip and disconnect the wiring connector from the throttle potentiometer.

13 Slacken and remove the two retaining screws then disengage the potentiometer from the throttle valve spindle and remove it from the vehicle.

14 Refitting is a reverse of the removal procedure ensuring that the potentiometer is correctly engaged with the throttle valve spindle.

Electronic Control Unit (ECU)

15 The ECU is located in a plastic box which is mounted on the right-hand front wheel arch.

16 To remove the ECU first disconnect the battery.

17 Unclip the cover from the box then lift the

retaining clip and disconnect the wiring connector from the ECU.

18 Lift the ECU from its mounting box.

19 If necessary undo the retaining screws and remove the mounting box.

20 Refitting is a reverse of the removal procedure ensuring that the wiring connector is securely reconnected.

Throttle stepper motor

21 The throttle stepper motor is mounted on the throttle body.

22 To remove it first disconnect the battery negative terminal.

23 Depress the retaining clip and disconnect the wiring connector from the motor.

24 Slacken and withdraw the retaining screws then remove the stepper motor from the throttle body.

25 Recover the O-ring seal and examine it carefully - renew it if it shows signs of wear or deterioration.

26 Refitting is a reversal of the removal procedure. Examine the mounting rubber for signs of deterioration and renew it if necessary.

Manifold absolute pressure (MAP) sensor

27 The MAP sensor is situated on the underside of the inlet manifold casting.

28 Unplug the wiring connector from the sensor. On early models, unscrew the sensor body from the inlet manifold. On later models, undo the screws and withdraw the MAP sensor from the manifold.

29 Recover the sealing gasket. Note that a new item must be used on refitting.

30 Refitting is the reverse of the removal procedure.

Coolant temperature sensor

31 Refer to Chapter 3.

Inlet air temperature sensor

32 The inlet air temperature sensor is screwed into the top of the air cleaner housing. To remove the sensor first disconnect the battery negative terminal.

33 Disconnect the wiring connector then unscrew the sensor and remove it from the vehicle.

34 Refitting is the reverse of removal.

Crankshaft sensor

35 The crankshaft sensor is situated on the front face of the transmission clutch housing.

36 To remove the sensor first disconnect the battery negative terminal.

37 Trace the wiring back from the sensor to the wiring connector and disconnect it from the main harness.

38 Prise out the rubber grommet then undo the retaining bolt and withdraw the sensor from the transmission.

39 Refitting is reverse of the removal procedure ensuring that the sensor retaining bolt is securely tightened and the grommet is correctly seated in the transmission housing.

Fuel injection system relay unit

40 The relay unit is mounted in the ECU casing, in the front right corner of the engine compartment.

41 To remove the relay unit, first remove the ECU as described earlier in this Section.

42 Disconnect the wiring connector and remove the relay unit from the mounting plate.

43 Refitting is the reverse of removal, ensuring that the relay unit is securely clipped in position.

14 Magneti Marelli system components - removal and refitting



Fuel rail and injectors

Note: Refer to the warning note in Section 1 before proceeding. If a faulty injector is suspected, before condemning the injector, it is worth trying the effect of one of the proprietary injector-cleaning treatments.

1 Disconnect the battery negative terminal.

2 Remove the air cleaner-to-throttle housing duct, referring to Section 2.

3 Disconnect the vacuum pipe from the fuel pressure regulator.

4 Release the retaining clip, and free the various hoses from the top of the fuel rail.

5 Bearing in mind the information given in Section 7, slacken the retaining clip, and disconnect the fuel feed and return hoses from the ends of the fuel rail. Where the original crimped-type Citroën hose clips are still fitted, cut them off and discard them; use standard worm-drive hose clips on refitting.

6 Depress the retaining clips, and unplug the wiring connectors from the four injectors.

7 Slacken and remove the three fuel rail retaining bolts, then carefully ease the fuel rail and injector assembly out from the inlet manifold, and remove it from the vehicle. Remove the O-rings from the end of each injector, and discard them; these must be renewed whenever they are disturbed.

8 Slide out the retaining clip(s), and remove the relevant injector(s) from the fuel rail. Remove the upper O-ring from each injector as it is removed, and discard it; all O-rings must be renewed once they have been disturbed.

9 Refitting is a reversal of the removal procedure, noting the following points:

- Fit new O-rings to all disturbed injectors.
- Apply a smear of engine oil to the O-rings to aid installation, then ease the injectors and fuel rail into position, ensuring that none of the O-rings are displaced.
- On completion, start the engine and check for fuel leaks.

Fuel pressure regulator

10 Refer to Section 13.

Throttle potentiometer

11 Remove the throttle housing (Section 12).

12 Disconnect the wiring then undo the two

retaining screws, and remove the potentiometer from the throttle housing.

13 On refitting, ensure that the potentiometer is correctly engaged with the throttle valve spindle, and securely tighten its screws.

14 Refit the throttle housing (see Section 12).

Electronic control unit (ECU)

15 The ECU is located in a plastic box which is mounted on the right-hand front wheel arch. To remove the ECU, first disconnect the battery negative terminal.

16 Unclip the lid from the plastic box, and disconnect the wiring connector from the ECU.

17 Slide the ECU out of the box and, if necessary, undo the retaining nuts and separate it from its mounting plate.

18 Refitting is the reverse of removal, ensuring that the wiring connector is securely reconnected.

Idle speed control stepper motor

19 The idle speed control stepper motor is located on the front of the throttle housing assembly. To remove the motor, first disconnect the battery negative terminal.

20 Release the retaining clip, and disconnect the wiring connector from the motor.

21 Slacken and remove the two retaining screws, and withdraw the motor from the throttle housing.

22 Refitting is a reversal of removal.

Manifold absolute pressure (MAP) sensor

23 The MAP sensor is situated on the right-hand front wheel arch. To remove the sensor, first disconnect the battery negative terminal.

24 Undo the three nuts, and free the sensor from the underside of the mounting bracket.

25 Depress the retaining clip, disconnect the wiring connector and vacuum hose from the sensor, and remove the sensor from the engine compartment.

26 Refitting is a reversal of removal.

Coolant temperature sensor

27 Refer to Chapter 3.

Inlet air temperature sensor

28 The inlet air temperature sensor is located in the base of the throttle housing.

29 To remove the sensor, first remove the throttle housing as described in Section 12, then undo the two retaining screws and remove the throttle potentiometer from the base of the housing.

30 Trace the wiring back from the sensor to its wiring connector, and remove the screw securing the connector to the throttle housing.

31 Carefully ease the sensor out of position, and remove it from the throttle housing. Examine the sensor O-ring for damage or deterioration, and renew if necessary.

32 Refitting is a reversal of removal, using a new O-ring where necessary.

Crankshaft sensor

33 Refer to Section 13.

Fuel injection system relay unit

34 Refer to Section 13.

15 Bosch Motronic MP 3.2 system components - removal and refitting



Note: Check parts availability with a Citroën dealer prior to removing individual components. At the time of writing, certain components are only available as part of a larger assembly - eg the throttle potentiometer is only available as part of the throttle housing assembly.

Fuel rail and injectors

Note: Refer to the warning note in Section 1 before proceeding. If a faulty injector is suspected, before condemning the injector, it is worth trying the effect of one of the proprietary injector-cleaning treatments.

- 1 Disconnect the battery negative terminal.
- 2 Disconnect the vacuum pipe from the fuel pressure regulator.

3 Bearing in mind the information given in Section 7, slacken the retaining clips, and disconnect the fuel feed and return hoses from the either end of the fuel rail. Where the original crimped-type Citroën hose clips are still fitted, cut them off and discard them; use standard worm-drive hose clips on refitting.

4 Depress the retaining tangs, and disconnect the wiring connectors from the four injectors.

5 Slacken and remove the two fuel rail retaining bolts, then carefully ease the fuel rail and injector assembly out from the inlet manifold and remove it from the vehicle (**see illustration**). Remove the O-rings from the end of each injector, and discard them; these must be renewed whenever they are disturbed.

6 Slide out the retaining clip(s), and remove the relevant injector(s) from the fuel rail. Remove the upper O-ring from each injector as it is removed, and discard it; all O-rings must be renewed once they have been disturbed.

7 Refitting is a reversal of the removal procedure, noting the following points:

- a) Fit new O-rings to all disturbed injectors.
- b) Apply a smear of engine oil to the O-rings

to aid installation, then ease the injectors and fuel rail into position, ensuring that none of the O-rings are displaced.

- c) On completion, start the engine and check for fuel leaks.

Fuel pressure regulator

Note: Refer to the warning note in Section 1 before proceeding.

8 Disconnect the vacuum pipe from the regulator.

9 Place a wad of clean rag over the regulator, to catch any fuel spray which may be released. Remove the retaining clip, and slide the regulator out of the end of the fuel rail.

10 Refitting is a reversal of the removal procedure. Examine the regulator seal for signs of damage or deterioration, and renew if necessary.

Throttle potentiometer

11 Disconnect the battery negative terminal.

12 Depress the retaining clip, and disconnect the wiring connector from the throttle potentiometer.

13 Slacken and remove the two retaining screws, then disengage the potentiometer from the throttle valve spindle and remove it from the vehicle.

14 Refitting is a reverse of the removal procedure, ensuring that the potentiometer is correctly engaged with the throttle valve spindle.

Electronic Control Unit (ECU)

15 The ECU is located in the rear left-hand corner of the engine compartment. To remove the ECU, first disconnect the battery negative terminal.

16 Depress the retaining clip, and disconnect the wiring connector from the idle mixture adjustment potentiometer.

17 Slacken and remove the upper bolt securing the ECU mounting bracket, then loosen the lower bolt. Withdraw the bracket and ECU assembly from the engine compartment, disconnecting the wiring connector and vacuum pipe from the ECU as they become accessible.

18 With the assembly on the bench, undo the bolts securing the ECU to the bracket, and separate the two components.

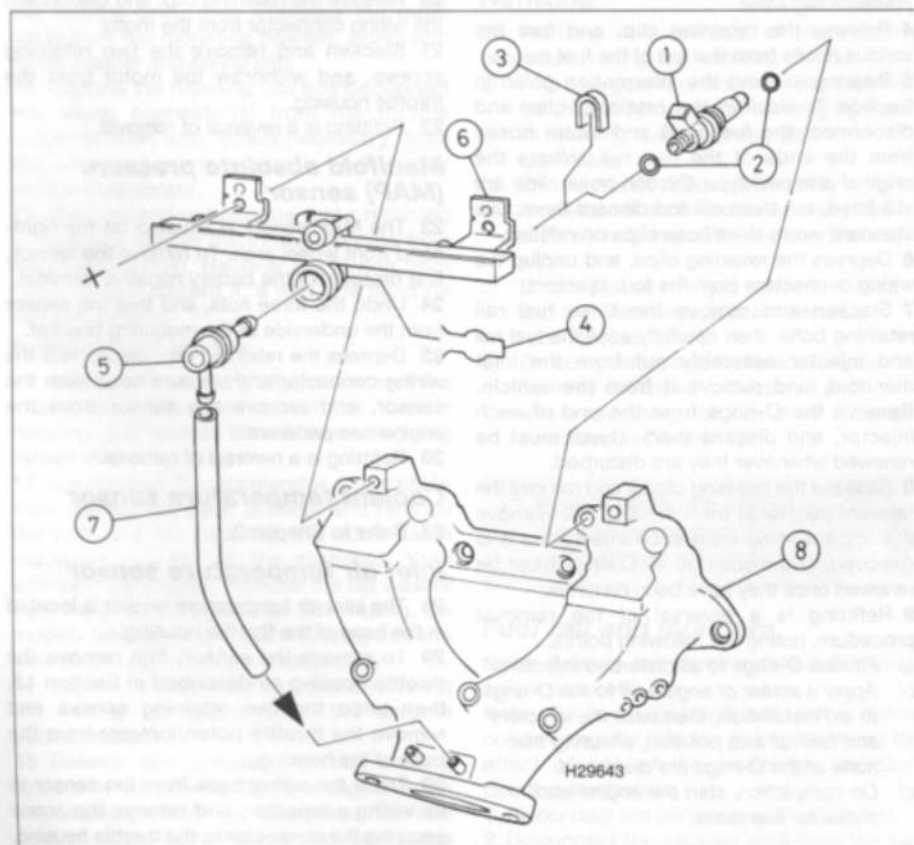
19 Refitting is a reversal of the removal procedure, ensuring that the wiring connector and vacuum pipe are securely reconnected.

Knock sensor

20 The knock sensor is bolted to the front of the engine block.

21 Unplug the wiring from the sensor flying lead, then unbolt the sensor from the engine block. Recover the washer (where fitted).

22 Refitting is a reversal of removal, but observe the correct torque when refitting the sensor securing bolt, as this has an effect on the operation of the sensor.



15.5 Fuel rail, pressure regulator and injector assembly - turbo models with Bosch Motronic MP 3.2 fuel injection

- | | | |
|----------------------------|-------------------------------------|------------------|
| 1 Injector | 4 Pressure regulator retaining clip | 6 Fuel rail |
| 2 O-ring seals | 5 Fuel pressure regulator | 7 Vacuum hose |
| 3 Injector retaining clips | | 8 Inlet manifold |

Auxiliary air valve

- 23 The auxiliary air valve is mounted on the left-hand end of the engine, adjacent to the battery holder.
- 24 Depress the retaining clip, and disconnect the wiring connector from the air valve.
- 25 Slacken the retaining clips, and disconnect the hoses from either end of the auxiliary air valve.
- 26 Undo the two retaining bolts, and remove the auxiliary air valve from the engine compartment.
- 27 Refitting is a reversal of the removal procedure.

Manifold absolute pressure (MAP) sensor

- 28 The MAP sensor is an integral part of the electronic control unit (ECU).

Coolant temperature sensor

- 29 Refer to Chapter 3.

Intake air temperature sensor

- 30 The intake air temperature sensor is located in the throttle housing. To remove the sensor, first disconnect the battery negative terminal.
- 31 Disconnect the wiring connector, then unscrew the sensor from the throttle housing and remove it from the vehicle.
- 32 Refitting is the reverse of removal.

Crankshaft sensor

- 33 The crankshaft sensor is mounted on top of the transmission housing, next to the left-hand end of the cylinder block. To remove the sensor, first disconnect the battery negative terminal.
- 34 Access to the sensor is poor, and it will be necessary to remove the battery and battery tray and/or the intake duct assembly to improve access (depending on model and specification). On some models, it will also be necessary to remove the metal plate from the top of the transmission housing; the plate is retained by one of the engine-to-transmission bolts, and by a second bolt securing the plate to the top of the transmission.
- 35 Trace the wiring back from the sensor to its wiring connector, and disconnect it from the main wiring harness. Undo the retaining bolt, and remove the sensor from the top of the transmission housing.
- 36 Refitting is a reversal of the removal procedure, ensuring that the sensor wiring is correctly routed.

Fuel injection system relay unit

- 37 The fuel injection system relay unit is mounted on the front of the engine compartment junction box. To remove the relay unit, first disconnect the battery negative terminal.
- 38 Open up the junction box lid, then slacken and remove the relay mounting nut and washer. Release the retaining clip, then disconnect the wiring connector and remove the relay unit from the engine compartment.
- 39 Refitting is the reverse of removal.

16 Bosch LE2 Jetronic system components - removal and refitting

Fuel pressure regulator

Note: Refer to the warning note in Section 1 before proceeding.

- 1 Disconnect the vacuum pipe from the regulator.
- 2 Place a wad of clean rag over the regulator, to catch any fuel spray which may be released. Slacken and remove the hose clips, then remove the fuel return hose from the regulator. Have a small container ready to catch any fuel spills.
- 3 Slacken and withdraw the screws, then pull the regulator from the fuel rail.
- 4 Refitting is a reversal of the removal procedure. Renew the regulator-to-fuel rail O-ring seal as a matter of course.

Throttle position switch

- 5 Disconnect the battery negative terminal.
- 6 Depress the retaining clip, and disconnect the wiring connector from the throttle potentiometer. Mark the relationship between the switch body and its mounting bracket.
- 7 Slacken and remove the two retaining screws, then disengage the switch from the throttle valve spindle and remove it from the vehicle (see illustration).
- 8 Refitting is a reverse of the removal procedure, ensuring that the potentiometer is correctly engaged with the throttle valve spindle. Tighten the switch mounting screws when the switch body is aligned with the markings made during removal.

Electronic Control Unit (ECU)

- 9 The ECU is located in the front right-hand corner of the engine compartment in plastic

case. To remove the ECU, first disconnect the battery negative terminal.

- 10 Remove the cover from the ECU casing.
- 11 Withdraw the ECU assembly from the casing, disconnecting the wiring connector and vacuum pipe (where applicable) from the ECU as they become accessible.
- 12 Refitting is a reversal of the removal procedure, ensuring that the wiring connector and vacuum pipe are securely reconnected.

Air flow meter

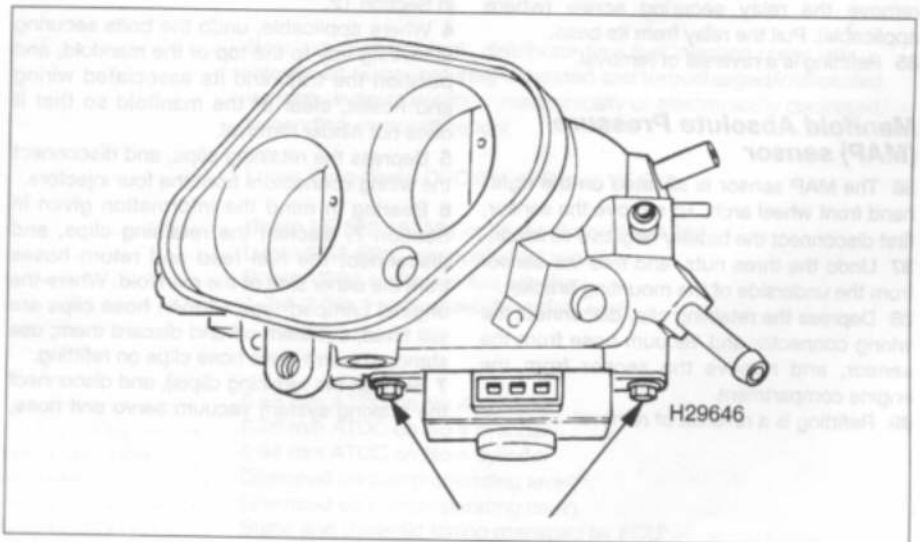
- 13 Disconnect the battery negative cable from the terminal.
- 14 Unplug the wiring connector from the air flow meter at the connector.
- 15 Slacken the large hose clips and detach the intake ducting from either side of the air flow meter housing.
- 16 Remove the bolts and lift the air flow meter away from its mounting bracket.
- 17 Refitting is a reversal of the removal procedure, ensuring that the wiring connector and intake duct clips are securely reconnected.

Auxiliary air valve

- 18 The auxiliary air valve is mounted on the left-hand end of the engine, adjacent to the battery holder.
- 19 Depress the retaining clip, and disconnect the wiring connector from the air valve.
- 20 Slacken the retaining clips, and disconnect the air hoses from either end of the auxiliary air valve.
- 21 Slacken the retaining bolts, and slide the auxiliary air valve from its mounting bracket and remove it from the engine compartment.
- 22 Refitting is a reversal of the removal procedure.

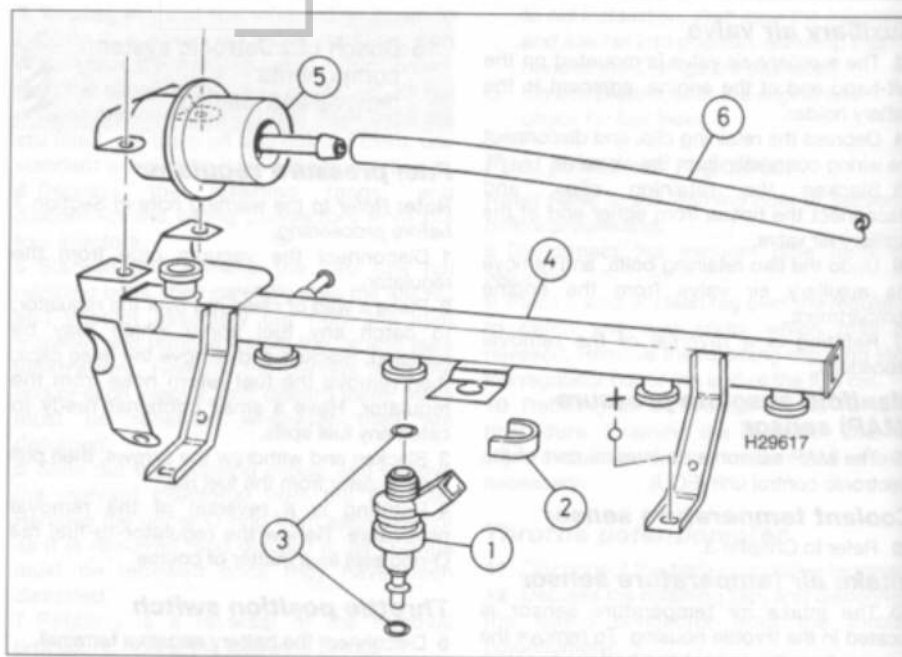
Fuel rail and injectors

- 23 Refer to Section 7 and depressurise the fuel system.



16.7 Remove the throttle position switch mounting screws (arrowed) - models with Bosch LE2 Jetronic fuel injection

- 24 Disconnect the negative battery cable and position it away from the terminal.
- 25 Remove the fuel pressure regulator as described earlier in this section.
- 26 Unplug the wiring from each of the fuel injectors and the connectors.
- 27 Slacken the clip and disconnect the fuel supply hose from the fuel rail. Be prepared for some fuel spillage.
- 28 Remove the screws and carefully lift the fuel rail away from the manifold. The injectors will remain connected to the rail - recover the lower injector O-ring seals from the manifold (see illustration).
- 29 To remove an injector, slide the metal securing clip to one side and pull the injector from the fuel rail. Recover the Upper O-ring seal.
- 30 Refitting is a reversal of the removal procedure, noting the following points:
- Fit new O-rings to all disturbed injectors.
 - Apply a smear of engine oil to the O-rings to aid installation, then ease the injectors and fuel rail into position, ensuring that none of the O-rings are displaced.
 - On completion, start the engine and check for fuel leaks.



16.28 Fuel rail, pressure regulator and injector assembly - models with Bosch LE2 Jetronic fuel injection

- | | | |
|---------------------------|----------------|---------------------------|
| 1 Injector | 3 O-ring seals | 5 Fuel pressure regulator |
| 2 Injector retaining clip | 4 Fuel rail | 6 Vacuum hose |

Coolant temperature sensor

- 31 Refer to Chapter 3.

Inlet air temperature sensor

- 32 The intake air temperature sensor is an integral part of the air flow meter assembly and cannot be renewed separately.

Fuel pump relay

- 33 The relay is mounted at the front right hand corner of the engine compartment, inside the ECU casing.
- 34 To remove the relay, ensure that the battery negative cable is disconnected, the remove the relay securing screw (where applicable). Pull the relay from its base.
- 35 Refitting is a reversal of removal.

Manifold Absolute Pressure (MAP) sensor

- 36 The MAP sensor is situated on the right-hand front wheel arch. To remove the sensor, first disconnect the battery negative terminal.
- 37 Undo the three nuts, and free the sensor from the underside of the mounting bracket.
- 38 Depress the retaining clip, disconnect the wiring connector and vacuum hose from the sensor, and remove the sensor from the engine compartment.
- 39 Refitting is a reversal of removal.

17 Inlet manifold - removal and refitting

Removal

- 1 Disconnect the battery negative terminal and proceed as described under the relevant sub-heading.
- 2 Remove the air cleaner-to-throttle housing duct as described in Section 2.
- 3 Remove the throttle housing as described in Section 12.
- 4 Where applicable, undo the bolts securing the wiring tray to the top of the manifold, and position the tray, and its associated wiring and hoses, clear of the manifold so that it does not hinder removal.
- 5 Depress the retaining clips, and disconnect the wiring connectors from the four injectors.
- 6 Bearing in mind the information given in Section 7, slacken the retaining clips, and disconnect the fuel feed and return hoses from the either side of the manifold. Where the original crimped-type Citroën hose clips are still fitted, cut them off and discard them; use standard worm-drive hose clips on refitting.
- 7 Slacken the retaining clip(s), and disconnect the braking system vacuum servo unit hose,

and all the relevant vacuum/breather hoses, from the top of the manifold. Where necessary, make identification marks on the hoses, to ensure that they are correctly reconnected on refitting.

- 8 Where applicable, slacken and remove the bolt securing the dipstick tube to the side of the manifold.

9 Undo the manifold retaining nuts, and withdraw the manifold from the engine compartment. Recover the manifold seal(s), and discard them - new ones must be used on refitting.

Refitting

- 10 Refitting is a reverse of the relevant removal procedure, noting the following points:

- Ensure that the manifold and cylinder head mating surfaces are clean and dry, then locate the new seals in their recesses in the manifold. Refit the manifold and tighten its retaining nuts and bolts to the specified torque.
- Ensure that all relevant hoses are reconnected to their original positions and are securely held (where necessary) by the retaining clips.
- Adjust the accelerator cable as described in Section 3 then, where necessary, adjust the kick-down cable (Chapter 7B).