






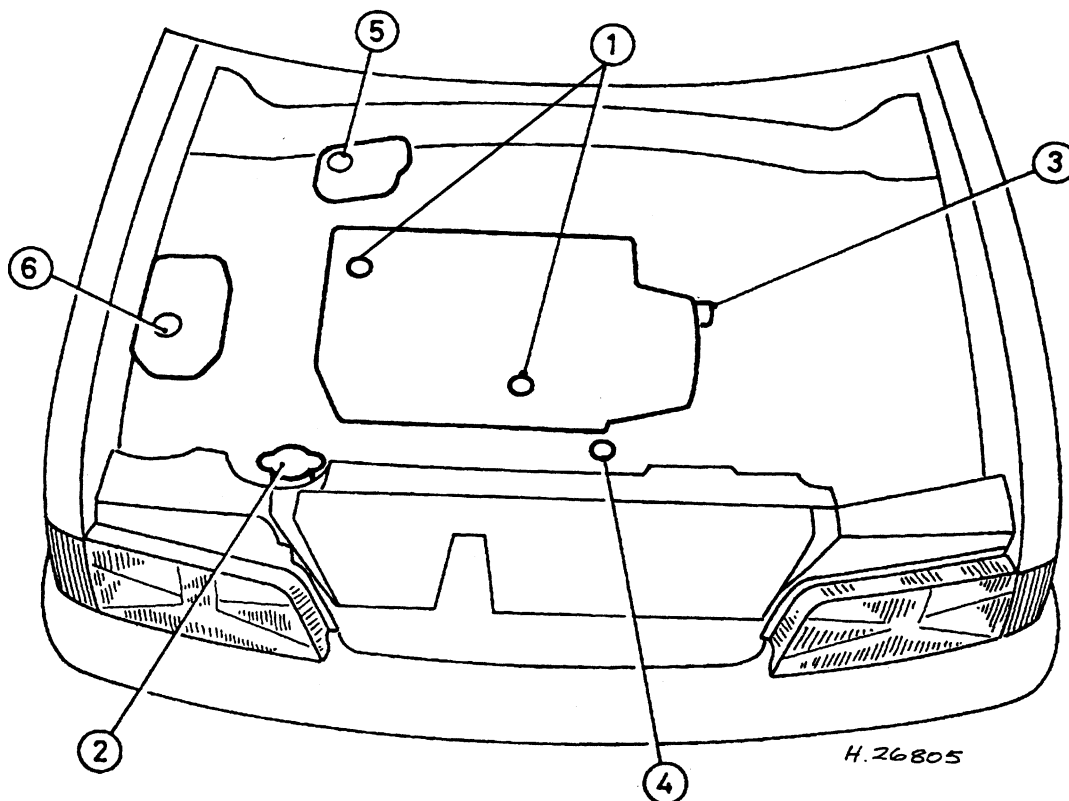
Chapter 1 Routine maintenance and servicing

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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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Lubricants and fluids

Component or system	Lubricant type/specification
1 Engine	Multigrade engine oil, viscosity SAE 10W/40or 15W/50, to API SG/CD
2 Cooling system	Ethylene glycol-based antifreeze
3 Manual transmission	Total transmission BV75/80W
4 Automatic transmission	Dexron type IIATF
5 Braking system	Total Universal Brake and Clutch Fluid
6 Power steering	Dexron type II ATF

Capacities

Engine oil

Excluding filter:

1124 cc and 1360 cc models.	3.2 litres
1580 cc and 1905 cc models.	4.5 litres
1761 cc models.	4.4 litres
1998 cc models.	4.7 litres

Including filter:

1124 cc and 1360 cc models.	3.5 litres
1580 cc and 1905 cc models.	5.0 litres
1761 cc models.	4.9 litres
1998 cc models.	5.4 litres

Difference between "MIN" and "MAX" dipstick marks (approximate):	
Models without air conditioning.	1.5 litres
Models with air conditioning.	1.3 litres

Cooling system

1124 cc and 1360 cc models:

Models without air conditioning.	6.5 litres
Models with air conditioning.	7.5 litres

1580 cc and 1905 cc models:

Models with manual transmission.	7.5 litres
Models with automatic transmission.	8.0 litres
1761 cc models.	8.0 litres
1998 cc models.	8.5 litres

Transmission

Manual.	2.0 litres
Automatic:	
From dry.	6.2 litres
Drain and refill.	2.4 litres

Power-assisted steering. 1.7 litres

Fuel tank 56 litres

Maintenance schedule

1 The maintenance intervals in this manual are provided on the assumption that you, not the dealer, will be carrying out the work. These are the minimum maintenance intervals recommended by the manufacturer for vehicles driven daily. If you wish to keep your vehicle in peak condition at all times, you may wish to perform some of these procedures more often. We encourage frequent maintenance, because it enhances the efficiency, performance and resale value of your vehicle. If the vehicle is driven in dusty areas, used to tow a trailer, or is

driven frequently at slow speeds (idling in traffic) or on short journeys, more frequent maintenance intervals are recommended.

2 Vehicles which cover a low mileage (less than 12 000 miles/20 000 km per year) should be serviced following the time interval instead of the mileage interval. This is necessary because many lubricants and fluids, as well as some components, deteriorate with time as much as with use.

3 When the vehicle is new, it should be serviced by a factory-authorised dealer service department, in order to preserve the factory warranty.

Every 250 miles (400 km) or weekly

- Check the engine oil level (Section 3)
- Check the engine coolant level (Section 3)
- Check the brake fluid level (Section 3)
- Check the power steering fluid level (Section 3)
- Check the screen washer fluid level (Section 3)
- Check the tyres for wear or damage (Section 4)
- Check and adjust the tyre pressures (Section 4)
- Check the condition of the battery (Section 6)
- Check the operation of the horn, all lights, and the wipers and washers (Sections 5 and 7)

- Check the condition of the rear brake shoes, and renew if necessary - rear drum brake models (Section 23)
- Check the condition of the rear disc brake pads, and renew if necessary - rear disc brake models (Section 24)
- Carry out a road test (Section 25)

**The manufacturer suggests this operation at the first 12 000 mile service only. After that, checking and adjusting of the valve clearances is not part of the recommended maintenance schedule.*

Every 48 000 miles (80 000 km)

- Renew the timing belt (Section 33)

Note: On all 1998 cc models, Citroen have extended the timing belt renewal interval to 72 000 miles. However, it is also stated that, should the vehicle be subjected to intensive use, ie. mainly short journeys or a lot of stop-start driving, the belt should be renewed every 36 000 miles. The actual belt renewal interval is therefore very much up to the individual owner. That being said, it is highly recommended to err on the side of safety, and renew the belt at the earlier interval. It is certainly not advisable to exceed the 48 000 mile interval recommended for all other models, bearing in mind the drastic consequences resulting from belt failure.

Every 72 000 miles (116 000 km)

- Renew the manual transmission oil (Section 34)

Every 18 000 miles (30 000 km) or 18 months - whichever comes first

In addition to all the items listed above, carry out the following:

- Renew the air filter (Section 26)
- Lubricate all hinges and locks (Section 27)

Every 24 000 miles (40 000 km) or 2 years - whichever comes first

In addition to all the items listed above, carry out the following:

- Check the manual transmission oil level, and top-up if necessary (Section 28)
- Renew the automatic transmission fluid (Section 29)
- Renew the brake fluid (Section 30)

Every 40 000 miles (60 000 km) or 2 years - whichever comes first

- Renew the coolant (Section 31)
- Renew the fuel filter - fuel injection models (Section 32)

Every 6000 miles (10 000 km) or 6 months - whichever comes first

- Renew the engine oil and filter* (Section 8)
- Check all components and hoses for fluid leaks (Section 9)
- Check the automatic transmission fluid level (Section 10)
- Check the steering and suspension components for condition and security (Section 11)
- Check the condition of the driveshaft gaiters (Section 12)
- Check the condition of the front brake pads, and renew if necessary (Section 13)

The manufacturer specifies that the oil filter should be renewed at the first 6000 mile service, and then at 12 000 miles intervals, with only the oil being drained and renewed every 6000 miles. Owners may prefer to carry out filter renewal at the 6000-mile interval, as a precautionary task.

Every 12 000 miles (20 000 km) or 12 months - whichever comes first

In addition to all the items listed above, carry out the following:

- Check the condition of the air conditioning system refrigerant - where applicable (see Section 14)
- Check and, if necessary, adjust the valve clearances - 1124 cc and 1360 cc models (Section 15)*
- Renew the spark plugs (Section 16)
- Renew the fuel filter - carburettor models (Section 17)
- Check the ignition system and ignition timing (Section 18)
- Check the idle speed and mixture adjustment (Section 19)
- Check the condition of the emission control system hoses and components (Section 20)
- Check the condition of the auxiliary drivebelt, and renew if necessary (Section 21)
- Check the clutch mechanism adjustment (Section 22)
- Lubricate the clutch control mechanism (Section 22)

1 Introduction

1 This Chapter is designed to help the home mechanic maintain his/her vehicle for safety, economy, long life and peak performance.

2 The Chapter contains a master maintenance schedule, followed by Sections dealing specifically with each task on the schedule. Visual checks, adjustments, component renewal, and other helpful items are included. Refer to the accompanying illustrations of the engine compartment and of the underside of the vehicle for the locations of the various components.

3 Servicing your vehicle in accordance with the mileage/time maintenance schedule and the following Sections will provide a planned maintenance programme, which should result in a long and reliable service life. This is a comprehensive plan, so maintaining some items but not others at the specified service intervals, will not produce the same results.

4 As you service your vehicle, you will discover that many of the procedures can - and should - be grouped together, either because of the particular procedure being performed, or because of the close proximity of two otherwise-unrelated components to one another. For example, if the vehicle is

raised for any reason, the exhaust can be inspected at the same time as the suspension and steering components.

5 The first step in this maintenance programme is to prepare yourself before the actual work begins. Read through all the Sections relevant to the work to be carried out, then make a list of, and gather together, all the parts and tools required. If a problem is encountered, seek advice from a parts specialist, or a dealer service department.

2 Intensive maintenance

1 If, from the time the vehicle is new, the routine maintenance schedule is followed closely, and frequent checks are made of fluid levels and high-wear items, as suggested throughout this manual, the engine will be kept in relatively good running condition, and the need for additional work will be minimised.

2 It is possible that there will be times when the engine is running poorly, due to the lack of regular maintenance. This is even more likely if a used vehicle, which has not received regular and frequent maintenance checks, is purchased. In such cases, additional work

may need to be carried out, outside of the regular maintenance intervals.

3 If engine wear is suspected, a compression test (Chapter 2, Part A) will provide valuable information regarding the overall performance of the main internal components. Such a test can be used as a basis to decide on the extent of the work to be carried out. If, for example, a compression test indicates serious internal engine wear, the conventional maintenance described in this Chapter will not greatly improve the performance of the engine, and may prove a waste of time and money, unless extensive overhaul work is carried out first.

4 The following series of operations are those most often required to improve the performance of a generally poor-running engine:

Clean, inspect and test the battery (Section 6).

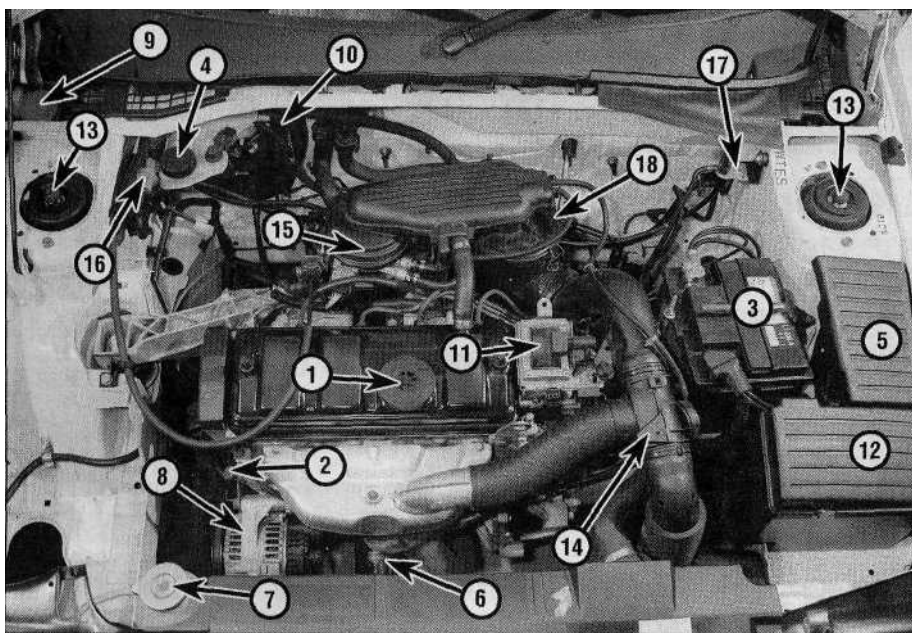
Check the levels of all the engine-related fluids (Section 3).

Check the condition and tension of the auxiliary drivebelt (Section 21).

Check the fuel filter, and renew if necessary (Sections 17 or 32).

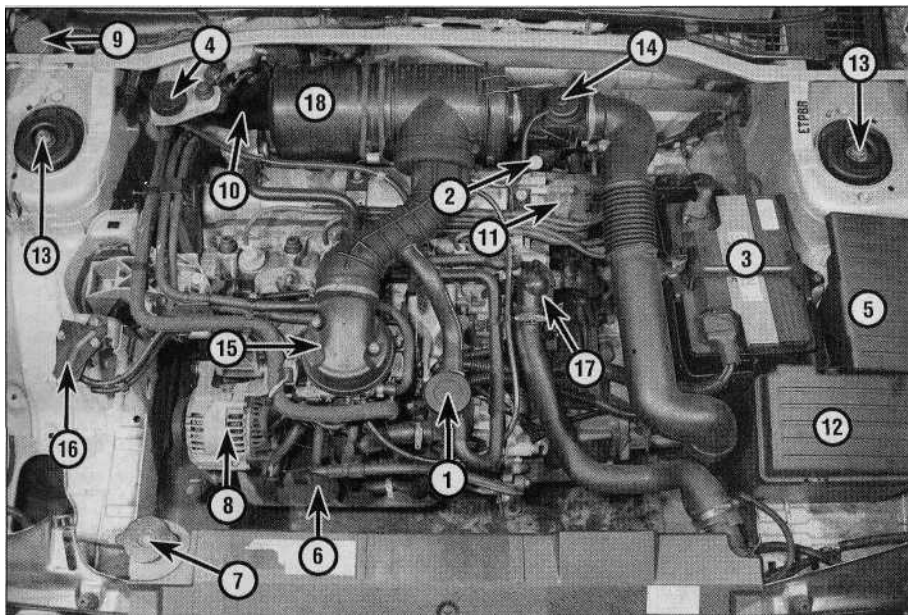
Check the condition of the air filter, and renew if necessary (Section 26).

Check the condition of all hoses, and check for fluid leaks (Section 9).



Underbonnet view of a 1360 cc fuel injection (KDY engine) model

- 1 Engine oil filler cap
- 2 Engine oil dipstick
- 3 Battery
- 4 Master cylinder brake fluid reservoir
- 5 Engine compartment junction box
- 6 Engine oil filter
- 7 Radiator filler cap
- 8 Alternator
- 9 Windscreen/tailgate washer fluid reservoir filler cap
- 10 Braking system vacuum servo unit
- 11 Ignition HT coil
- 12 Plastic box containing the fuel injection ECU, relay unit and injector resistor
- 13 Suspension strut upper mounting
- 14 Air cleaner air temperature control valve
- 15 Throttle body assembly
- 16 Evaporative emission control purge valves
- 17 Ignition timing retard system solenoid valve
- 18 Air cleaner housing

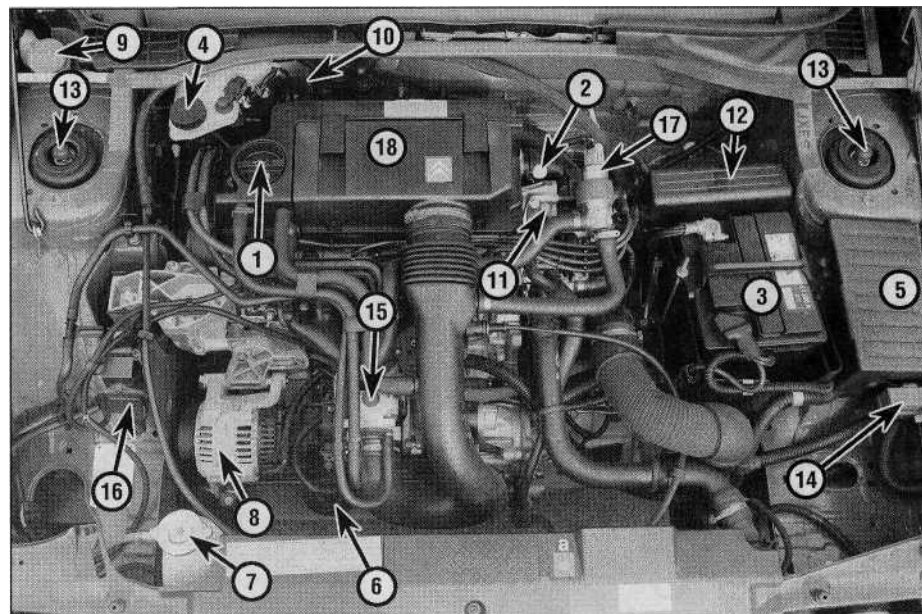


**Underbonnet view of a 1580 cc
(BDY engine) model**

- 1 Engine oil filler cap
- 2 Engine oil dipstick
- 3 Battery
- 4 Master cylinder brake fluid reservoir
- 5 Engine compartment junction box
- 6 Engine oil filter
- 7 Radiator filler cap
- 8 Alternator
- 9 Windscreen/tailgate washer fluid reservoir filler cap
- 10 Braking system vacuum servo unit
- 11 Ignition HT coil
- 12 Plastic box containing the fuel injection ECU and relay unit
- 13 Suspension strut upper mounting
- 14 Air cleaner air temperature control valve
- 15 Throttle body assembly
- 16 Fuel injection system MAP sensor
- 17 Thermostat housing
- 18 Air cleaner housing

**Underbonnet view of a 1761 cc
(LFZ engine) model**

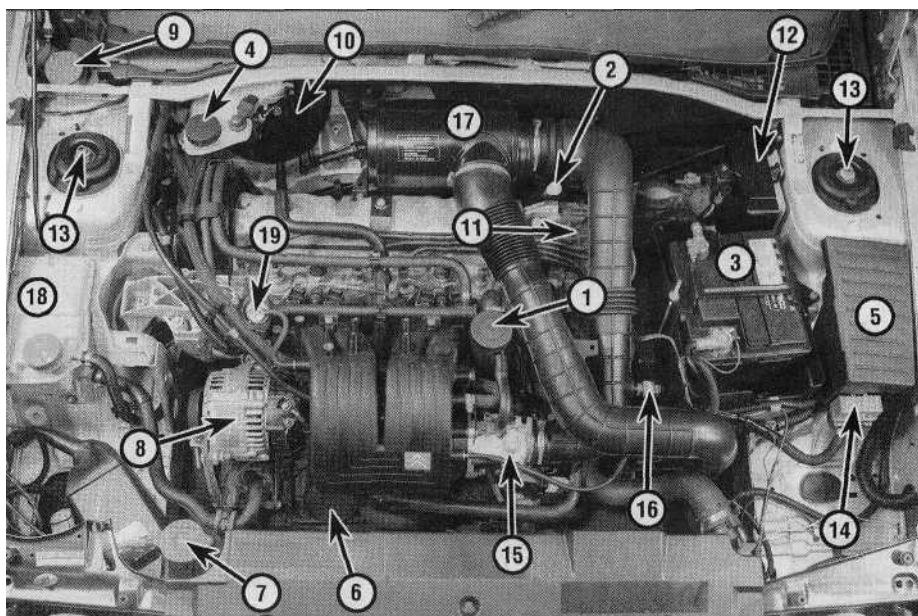
- 1 Engine oil filler cap
- 2 Engine oil dipstick
- 3 Battery
- 4 Master cylinder brake fluid reservoir
- 5 Engine compartment junction box
- 6 Engine oil filter
- 7 Radiator filler cap
- 8 Alternator
- 9 Windscreen/tailgate washer fluid reservoir filler cap
- 10 Braking system vacuum servo unit
- 11 Ignition HT coil
- 12 Plastic box containing the fuel injection ECU
- 13 Suspension strut upper mounting
- 14 Fuel injection system relay unit
- 15 Throttle housing assembly
- 16 Fuel injection system MAP sensor
- 17 Idle speed auxiliary air valve
- 18 Air cleaner element cover



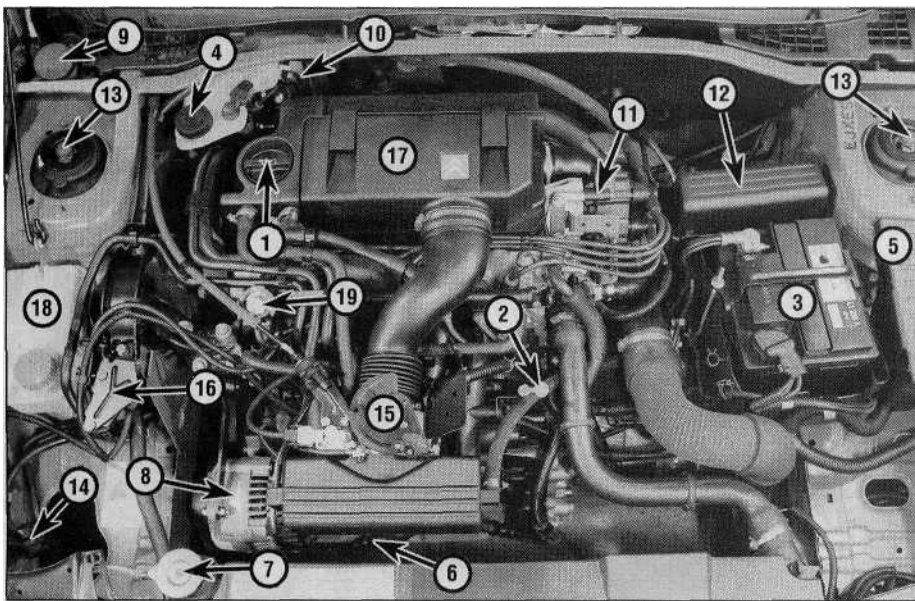
Maintenance and Servicing

**Underbonnet view of a 1905 cc
(D6E engine) model**

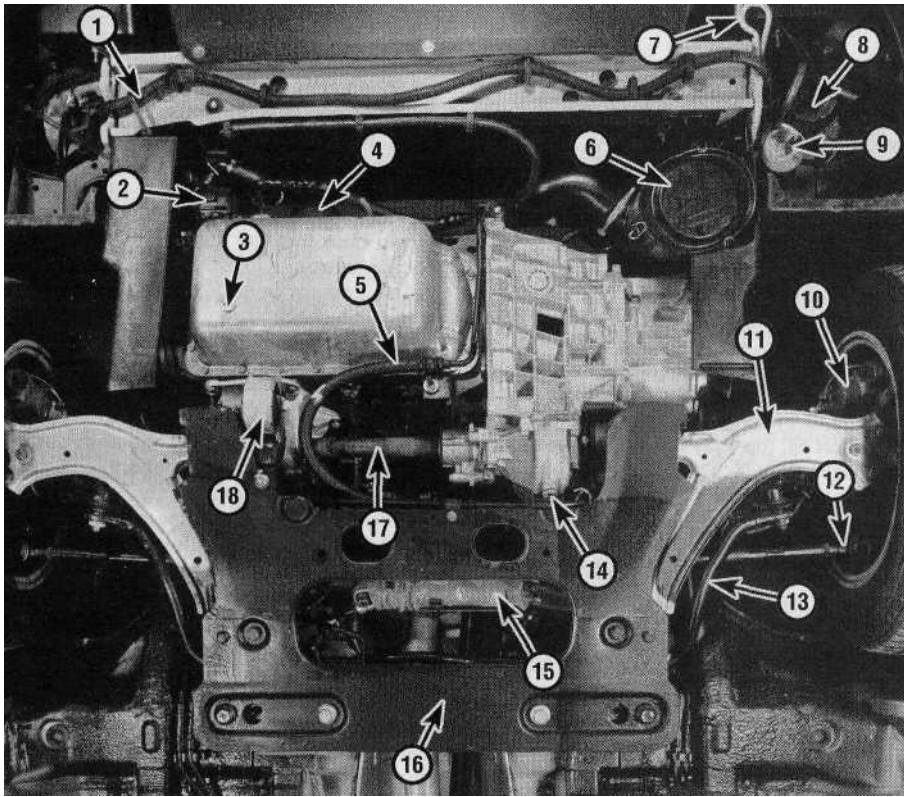
- 1 Engine oil filler cap
- 2 Engine oil dipstick
- 3 Battery
- 4 Master cylinder brake fluid reservoir
- 5 Engine compartment junction box
- 6 Engine oil filter
- 7 Radiator filler cap
- 8 Alternator
- 9 Windscreen/tailgate washer fluid reservoir filler cap
- 10 Braking system vacuum servo unit
- 11 Ignition HT coil
- 12 Fuel injection ECU
- 13 Suspension strut upper mounting
- 14 Fuel injection system relay unit
- 15 Throttle housing assembly
- 16 Fuel injection system intake air temperature sensor
- 17 Air cleaner housing
- 18 Power steering fluid reservoir
- 19 Fuel pressure regulator



**Underbonnet view of a 1998 cc 8-valve
(RFX engine) model**

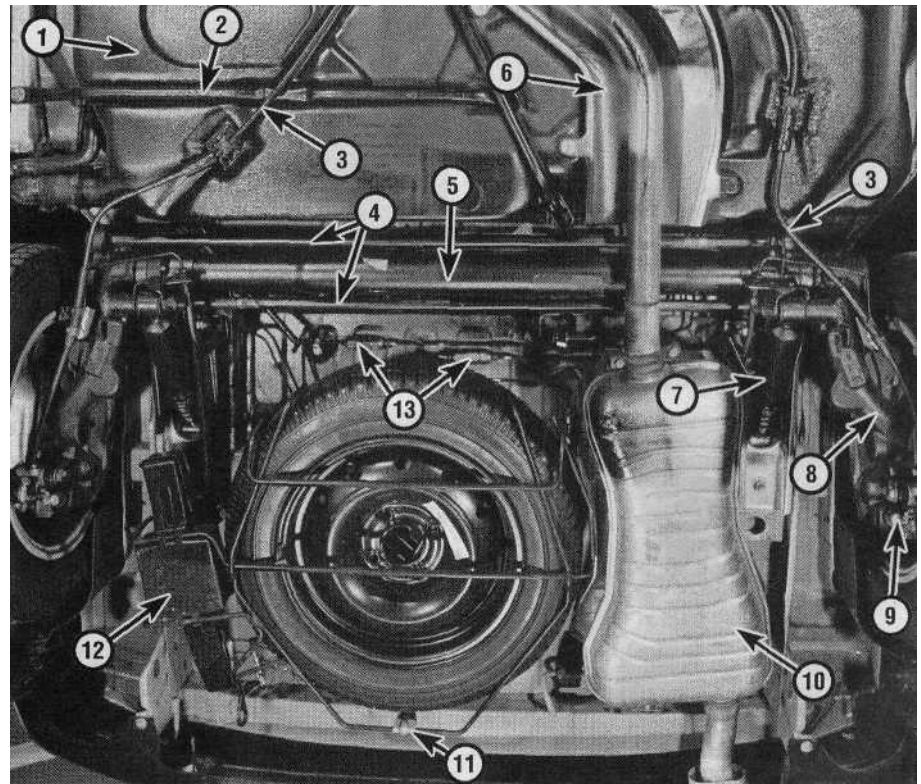


- 1 Engine oil filler cap
- 2 Engine oil dipstick
- 3 Battery
- 4 Master cylinder brake fluid reservoir
- 5 Engine compartment junction box
- 6 Engine oil filter
- 7 Radiator filler cap
- 8 Alternator
- 9 Windscreen/tailgate washer fluid reservoir filler cap
- 10 Braking system vacuum servo unit
- 11 Ignition HT coil
- 12 Plastic box containing the fuel injection ECU
- 13 Suspension strut upper mounting
- 14 Evaporative emission control system purge valve
- 15 Throttle housing assembly
- 16 Fuel injection system MAP sensor
- 17 Air cleaner housing cover
- 18 Power steering fluid reservoir
- 19 Fuel pressure regulator



Front underbody view - 1998 cc 16-valve model shown (other models similar)

- 1 Wiring harness
- 2 Power steering pump
- 3 Sump drain plug
- 4 Oil filter
- 5 Power steering fluid hose
- 6 Air filter housing
- 7 Towing eye
- 8 Horn
- 9 Horn compressor
- 10 Brake caliper
- 11 Lower suspension arm
- 12 Track rod balljoint
- 13 Anti-roll bar
- 14 Transmission oil drain plug
- 15 Steering gear assembly
- 16 Front suspension subframe
- 17 Driveshaft
- 18 Engine/transmission rear mounting



Rear underbody view - rear disc brake model shown (drum brake models similar)

- 1 Fuel tank
- 2 Fuel tank support bracket
- 3 Handbrake cables
- 4 Rear suspension torsion bars
- 5 Rear suspension tubular crossmember
- 6 Exhaust heat shield
- 7 Rear shock absorber
- 8 Rear suspension trailing arm
- 9 Brake caliper
- 10 Rear exhaust box
- 11 Spare wheel cradle retaining catch
- 12 Jack case
- 13 Rear brake pressure-regulating valves

Weekly checks

3 Fluid level checks

Engine oil

1 The engine oil level is checked with a dipstick. This extends through the dipstick tube, into the sump at the bottom of the engine. On 1124 cc, 1360 cc and 1998 cc 8-valve models, the dipstick is located at the front of the engine. On all other models, the dipstick is located at the rear of the engine. The dipstick top is brightly-coloured (usually orange) for easy identification.

2 The oil level should be checked with the vehicle standing on level ground. Check the level before the engine is started, or wait at least 5 minutes after the engine has been switched off.

HAYNES **HiNT** *If the oil is checked immediately after switching off the engine, some of the oil will remain in the upper engine components and oil galleries, resulting in an inaccurate reading on the dipstick.*

3 Withdraw the dipstick from the tube, and wipe all the oil from the end with a clean rag or paper towel. Insert the clean dipstick back into the tube as far as it will go, then withdraw

it once more. Note the oil level on the end of the dipstick. Add oil as necessary until the level is between the upper ("MAX") mark and lower ("MIN") mark on the dipstick (**see illustration**). Approximately 1.5 litres of oil will be required to raise the level from the lower mark to the upper mark, on models without air conditioning. The amount is 1.3 litres on models with air conditioning.

4 Always maintain the level between the two dipstick marks. If the level is allowed to fall below the lower mark, oil starvation may result, which could lead to severe engine damage. If the engine is overfilled by adding too much oil, this may result in oil leaks or oil seal failures.

5 Oil is added to the engine either via the filler cap on the cylinder head cover (1124 cc, 1360 cc, 1761 cc and 1998 cc 8-valve models) or via the filler/breather cap (1580 cc, 1905 cc and 1998 cc 16-valve models). Unscrew the cap and top-up the level - an oil can spout or funnel may help to reduce spillage. Always use the correct grade and type of oil, as shown in "Lubricants, fluids and capacities".

Coolant



Warning: DO NOT attempt to remove the expansion tank pressure cap when the engine is hot, as there is a very great risk of scalding.

6 All vehicles covered by this manual are

equipped with a pressurised cooling system. An expansion tank is incorporated in the right-hand side of the radiator. As the engine temperature increases, the coolant expands, and the level in the expansion tank rises. As the engine cools, the coolant is automatically drawn back into the system, to maintain the correct level.

7 The coolant level in the expansion tank should be checked regularly. The level in the tank varies with the temperature of the engine. When the engine is cold, the coolant level should be between the "MIN" and "MAX" marks on the side of the tank. When the engine is hot, the level may rise slightly above the "MAX" mark (**see illustration**).

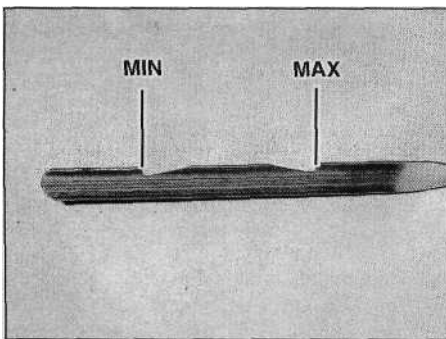
8 If topping-up is necessary, wait until the engine is cold, then turn the pressure cap on the expansion tank anti-clockwise until it reaches the first stop. Wait until any pressure remaining in the system is released, then push the cap down, turn it anti-clockwise to the second stop, and lift it off.

9 Add a mixture of water and antifreeze (see Section 31) through the expansion tank filler neck, until the coolant is approximately halfway between the two level marks (**see illustration**). Refit the cap, turning it clockwise as far as it will go to secure.

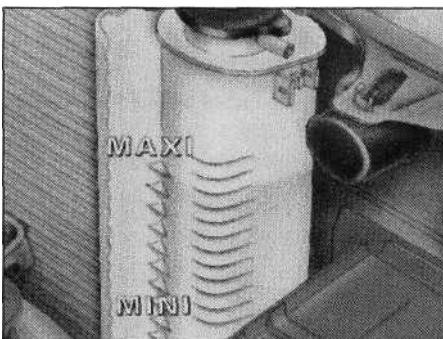
10 With a "sealed" cooling system such as this, the addition of coolant should only be necessary at very infrequent intervals. If frequent topping-up is required, it is likely there is a leak in the system. Check the radiator, and all hoses and joint faces, for any sign of staining or actual wetness, and rectify as necessary. If no leaks can be found, it is advisable to have the pressure cap (and the entire system) pressure-tested by a dealer or suitably-equipped garage. This will often show up small leaks which were not previously visible.

Brake fluid

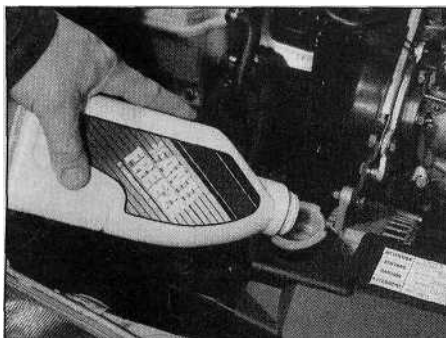
11 The brake master cylinder and fluid reservoir assembly is mounted on the front of the vacuum servo unit in the engine compartment. The maximum and minimum marks are indicated on the side of the reservoir (**see illustration**). The fluid level



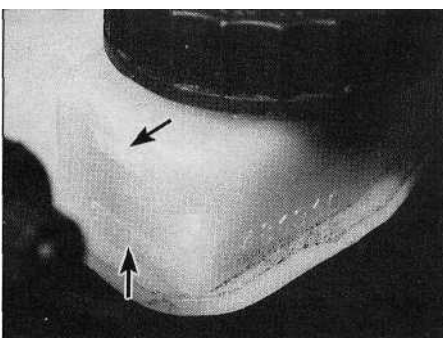
3.3 Engine oil level dipstick markings



3.7 Coolant expansion tank level markings



3.9 Topping-up the coolant level



3.11 Brake fluid reservoir level markings



3.12 Topping-up the brake fluid level

should be maintained between these marks at all times.

12 If topping-up is necessary, first wipe the area around the **"filler"** cap with a clean rag before removing the cap. When adding fluid, pour it carefully into the reservoir, to avoid spilling it on surrounding painted surfaces (see illustration). Be sure to use only the specified brake hydraulic fluid, since mixing different types of fluid can cause damage to the system. Refer to "Lubricants fluids and capacities" at the beginning of this Chapter.



Warning: Brake hydraulic fluid can harm your eyes, and will damage painted surfaces, so use extreme caution when handling and pouring it. It is also highly-flammable. Do not use fluid that has been standing open for some time, as it absorbs moisture from the air. Excess moisture in the fluid can cause a dangerous loss of braking effectiveness.

13 When adding fluid, it is a good idea to inspect the reservoir for contamination. The system should be drained and refilled if deposits, dirt particles or contamination are seen in the fluid.

14 After filling the reservoir to the correct level, make sure that the cap is refitted securely, to avoid leaks and the entry of foreign matter.

15 The fluid level in the master cylinder reservoir will drop **slowly** as the brake pads and shoes wear down during normal operation. Provided that the level does not drop below the minimum mark, there is no need to top up to compensate for this fall. The level will rise again when new brake pads or linings are fitted. If the reservoir requires repeated replenishing to maintain the proper level, this is an indication of a hydraulic leak somewhere in the system, which should be investigated immediately.

Power steering fluid

16 The power steering fluid reservoir is located on the right-hand side of the engine compartment.

17 For the check, the car should be parked on level ground, with the front wheels pointing straight-ahead. The engine should be

switched off. For the check to be accurate, the steering *must not* be turned once the engine has been stopped.

18 The fluid level is visible in the reservoir, and should be between the "MAX" and "MIN" level lines cast on the side of the reservoir (see illustration).

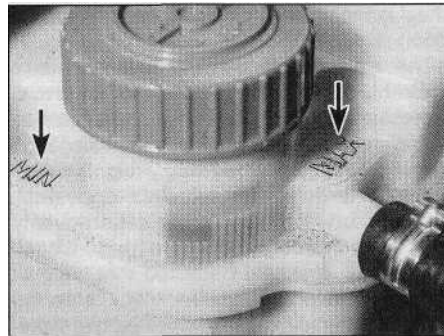
19 If topping-up is necessary, wipe the area around the reservoir cap clean, then unscrew the cap. Top-up to the "MAX" mark using the specified type of fluid (see illustration). Take great care not to allow any dirt or foreign matter to enter the hydraulic system, and do not overfill the reservoir. When the level is correct, refit the cap. Note that the need for frequent topping-up of the system indicates a leak, which should be investigated immediately.

Washer fluid

20 The windscreen/tailgate washer fluid reservoir filler is located at the rear right-hand corner of the engine compartment, behind the suspension strut (see illustration).

21 On models fitted with a headlight washer system, an additional reservoir is located under the front right-hand wing. To top-up the reservoir, turn and extend the filler neck which protrudes into engine compartment.

22 When topping-up the reservoir(s), a screenwash additive should be added, in its manufacturer's recommended quantities. The additive used in winter must give protection against freezing. Do **not** use engine antifreeze in the screen washer reservoir; it will damage the wiper blades and the paintwork.



3.18 Power steering fluid reservoir markings

4 Tyre checks

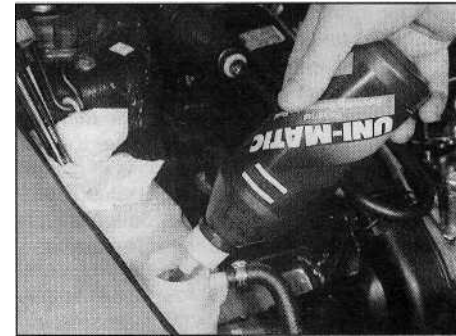


1 The original tyres on this car are equipped with tread wear safety bands, which will appear when the tread depth reaches approximately 1.6 mm. Tread wear can be monitored with a simple, inexpensive device known as a tread depth indicator gauge (see illustration).

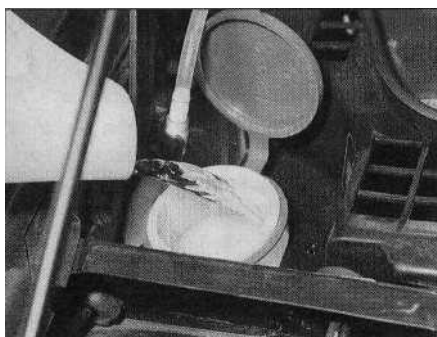
2 Wheels and tyres should give no real problems in use, provided that a close eye is kept on them with regard to excessive wear or damage. To this end, the following points should be noted.

3 Ensure that the tyre pressures are checked regularly and maintained correctly. Checking should be carried out with the tyres cold, and not immediately after the vehicle has been in use (see illustration). If the pressures are checked with the tyres hot, an apparently-high reading will be obtained, owing to heat expansion. *Under no circumstances* should an attempt be made to reduce the pressures to the quoted cold reading in this instance, or effective under-inflation will result.

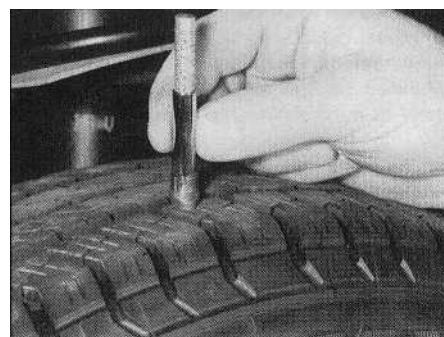
4 Note any abnormal tread wear (see illustration). Tread pattern irregularities such as feathering, flat spots, and more wear on one side than the other, are indications of front wheel alignment and/or balance problems. If any of these conditions are noted, they should be rectified as soon as possible.



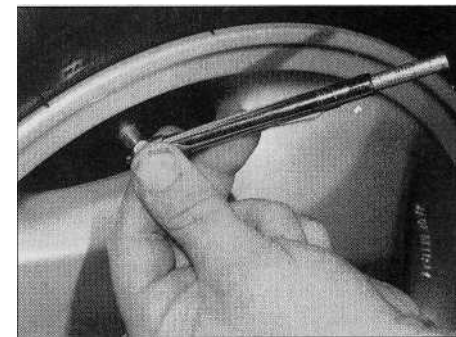
3.19 Topping-up the power steering fluid level



3.20 Topping-up the washer fluid level



4.1 Checking a tyre tread depth with a depth gauge



4.3 Checking a tyre pressure with a tyre pressure gauge

Tyre Tread Wear Patterns



Shoulder Wear

Underinflation
(wear on both sides)

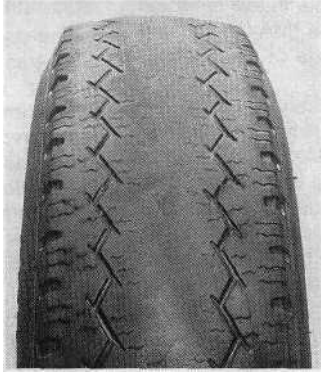
Check and adjust pressures

Incorrect wheel camber
(wear on one side)

Repair or renew suspension parts

Hard cornering

Reduce speed!



Centre Wear

Overinflation

Check and adjust pressures

If you sometimes have to inflate your car's tyres to the higher pressures specified for maximum load or sustained high speed, don't forget to reduce the pressures to normal afterwards.



Toe Wear

Incorrect toe setting

Adjust front wheel alignment

Note: The feathered edge of the tread which characterises toe wear is best checked by feel.



Uneven Wear

Incorrect camber or castor

Repair or renew suspension parts

Malfunctioning suspension

Repair or renew suspension parts

Unbalanced wheel

Balance tyres

Out-of-round brake disc/drum

Machine or renew

5 Under-inflation will cause overheating of the tyre, owing to excessive flexing of the casing, and the tread will not sit correctly on the road surface. This will cause a consequent loss of adhesion and excessive wear, not to mention the danger of sudden tyre failure due to heat build-up.

6 Over-inflation will cause rapid wear of the centre part of the tyre tread, coupled with reduced adhesion, harsher ride, and the danger of shock damage occurring in the tyre casing.

7 Regularly check the tyres for damage in the form of cuts or bulges, especially in the sidewalls. Remove any nails or stones embedded in the tread, before they penetrate the tyre to cause deflation. If a nail is removed, revealing that the tyre has been punctured, refit the nail so that its point of penetration is clearly marked. Change the wheel immediately, and have the tyre repaired by a tyre dealer. Do not drive on a tyre in such a condition. If in any doubt as to the possible consequences of any damage found, consult your local tyre dealer for advice.

8 Periodically remove the wheels, and clean any dirt or mud from the inside and outside surfaces. Examine the wheel rims for signs of rusting, corrosion or other damage. Light alloy wheels are easily damaged by "kerbing" whilst parking, and similarly, steel wheels may become dented or buckled. Renewal of the

wheel is very often the only course of remedial action possible.

9 The balance of each wheel and tyre assembly should be maintained, to avoid excessive wear, not only to the tyres, but also to the steering and suspension components. Wheel imbalance is normally signified by vibration through the vehicle's bodyshell, although in many cases it is particularly noticeable through the steering wheel. Conversely, it should be noted that wear or damage in suspension or steering components may cause excessive tyre wear. Out-of-round or out-of-true tyres, damaged wheels, and worn wheel bearings also fall into this category. Balancing alone will not usually cure vibration caused by such wear.

10 Wheel balancing may be carried out with the wheel either on or off the vehicle. If balanced on the vehicle, ensure that the wheel-to-hub relationship is marked in some way prior to subsequent wheel removal, so that it may be refitted in its original position.

11 General tyre wear is influenced to a large degree by driving style - harsh braking and acceleration, or fast cornering, will all produce more rapid tyre wear. Interchanging of tyres may result in more even wear. However, it is worth bearing in mind that if this is completely effective, the added expense is incurred of renewing four tyres at once, which may prove financially restrictive for many owners.

12 Front tyres may wear unevenly as a result of wheel misalignment. The front wheels should always be correctly aligned according to the settings specified by the vehicle manufacturer.

13 Legal restrictions apply to many aspects of tyre fitting and usage. In the UK, this information is contained in the Motor Vehicle Construction and Use Regulations. It is suggested that a copy of these regulations is obtained from your local police, if you are in doubt as to current legal requirements with regard to tyre type and condition, minimum tread depth, etc.

5 Electrical system check



1 Check the operation of all the electrical equipment (lights, direction indicators, horn, etc). Refer to the appropriate Sections of Chapter 12 for details if any of the circuits are found to be inoperative.

2 Note that stop-light switch adjustment is described in Chapter 9.

3 Visually check all accessible wiring connectors, harnesses and retaining clips for security, and for signs of chafing or damage. Rectify any faults found.

6 Battery check



Caution: Before carrying out any work on the vehicle battery, read through the precautions given in "Safety first!" at the beginning of this manual.

- 1 The battery is located on the left-hand side of the engine compartment. The exterior of the battery should be inspected periodically for damage such as a cracked case or cover.
- 2 Check the tightness of the battery cable clamps, to ensure good electrical connections. Check the entire length of each cable for cracks and fraying.
- 3 If corrosion (visible as white, fluffy deposits) is evident, remove the cables from the battery terminals, clean them with a small wire brush, then refit them. It is advisable to wear gloves and

eye protection when removing these deposits. Further corrosion can be kept to a minimum by applying a layer of petroleum jelly to the clamps and terminals after they are reconnected.

- 4 Make sure that the battery tray is in good condition, and that the retaining clamp is tight.

5 Corrosion on the tray, retaining clamp, or the battery itself, can be removed with a solution of water and baking soda. Again, wear gloves and eye protection. Thoroughly rinse all cleaned areas with plain water.

- 6 Any metal parts of the vehicle damaged by corrosion should be covered with a zinc-based primer, then painted.

7 Periodically (approximately every three months), check the state of charge of the battery, as described in Chapter 5.

- 8 Further information on the battery, charging and jump-starting can be found in Chapter 5, and in the preliminary sections of this manual.

7 Wiper blade check



- 1 Check the condition of the wiper blades. If they are cracked, or show any signs of deterioration, or if the glass swept area is smeared, renew them.



For maximum clarity of vision, wiper blades should be renewed annually, as a matter of course.

- 2 To remove a wiper blade, pull the arm fully away from the glass until it locks. Swivel the blade through 90°, press the locking tab(s) with your fingers, and slide the blade out of the arm's hooked end. On refitting, ensure that the blade locks securely into the arm.

Every 6000 miles or 6 months

8 Engine oil and filter renewal



Note: The manufacturer specifies that the oil filter should be renewed at the first 6000-mile or 6-month service. After that, the recommendation is for filter renewal at 12 000 miles or 12-monthly intervals, with only the oil being drained and renewed every 6000 miles or 6 months. Owners of high-mileage vehicles, or those who do a lot of stop-start driving, may prefer to carry out filter renewal at the 6000-mile or 6-month interval as a precautionary task.

- 1 Frequent oil and filter changes are the most important preventative maintenance procedures which can be undertaken by the DIY owner. As engine oil ages, it becomes diluted and contaminated, which leads to premature engine wear.

- 2 Before starting this procedure, gather together all the necessary tools and materials. Also make sure that you have plenty of clean rags and newspapers handy, to mop up any spills. Ideally, the engine oil should be warm,

as it will drain better, and more built-up sludge will be removed with it. Take care, however, not to touch the exhaust or any other hot parts of the engine when working under the vehicle. To avoid any possibility of scalding, it is advisable to wear gloves when carrying out this work. This will also protect you from possible skin irritants and other harmful contaminants in used engine oils. Access to the underside of the vehicle will be greatly improved if it can be raised on a lift, driven onto ramps, or jacked up and supported on axle stands (see "Jacking, towing and wheel changing"). Whichever method is chosen, make sure that the vehicle remains level; if it is at an angle, make sure that the oil will flow towards the drain plug.

- 3 Using a suitable key (typically 8 mm square), slacken the drain plug about half a turn (see illustration). Position a suitable container under the drain plug, then remove the plug completely. If possible, try to keep the plug pressed into the sump while unscrewing it by hand the last couple of turns. As the plug releases from the threads, move it away sharply, so the stream of oil issuing from the sump runs into the container, not up your

sleeve! Recover the sealing ring from the drain plug.

- 4 Allow some time for the old oil to drain, noting that it may be necessary to reposition the container as the oil flow slows to a trickle.

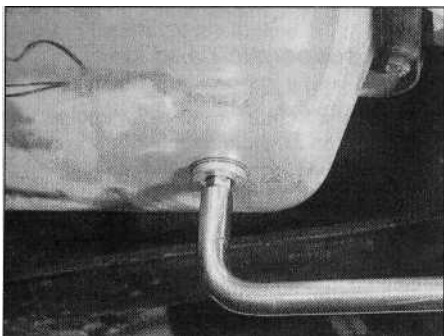
5 After all the oil has drained, wipe off the drain plug with a clean rag, and renew the sealing washer. Clean the area around the drain plug opening, and refit the plug. Tighten the plug securely.

- 6 If the filter is also to be renewed, move the container into position under the oil filter, which is located on the front side of the cylinder block, below the inlet manifold.

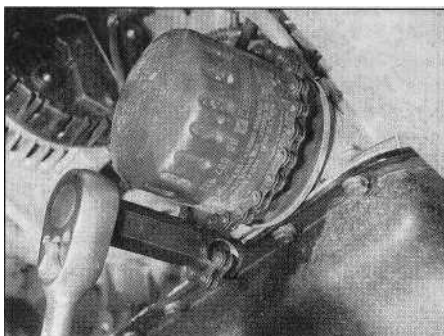
7 Using an oil filter removal tool, slacken the filter initially, then unscrew it by hand the rest of the way (see illustration). Empty the oil in the old filter into the container.

- 8 Use a clean rag to remove all oil, dirt and sludge from the filter sealing area on the engine. Check the old filter to make sure that the rubber sealing ring hasn't stuck to the engine. If it has, carefully remove it.

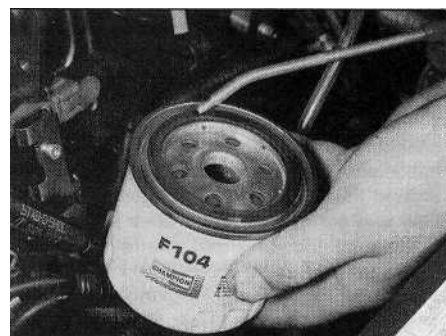
9 Apply a light coating of clean engine oil to the sealing ring on the new filter, then screw it into position on the engine (see illustration). Tighten the filter firmly by hand only - do not



8.3 Slackening the sump drain plug (1905 cc model shown)



8.7 Using an oil filter removal tool to slacken the oil filter (1360 cc model shown)



8.9 Lubricate the oil filter sealing ring before fitting

use any tools. Follow the tightening instructions printed on the filter, if applicable.

10 Remove the old oil and all tools from under the car, then (if applicable) lower the car to the ground.

11 Remove the dipstick, then unscrew the oil filler cap from the filler/breather neck or cylinder head cover (as applicable). Fill the engine, using the correct grade and type of oil (refer to "Lubricants fluids and capacities"). An oil can spout or funnel may help to reduce spillage. Pour in half the specified quantity of oil first, then wait a few minutes for the oil to run down to the sump. Continue adding oil, a small quantity at a time, until the level is up to the lower mark on the dipstick. Adding a further 1.5 litres (models without air conditioning) or 1.3 litres (models with air conditioning), will bring the level up to the upper mark on the dipstick. Refit the filler cap.

12 Start the engine, and run it for a few minutes, checking for leaks around the oil filter seal and the sump drain plug. Note that there may be a delay of a few seconds before the low oil pressure warning light goes out when the engine is first started. The oil takes time to circulate through the new oil filter and the engine oil galleries before the pressure builds up. Do not rev the engine while the warning light is on.

13 Switch off the engine, and wait a few minutes for the oil to settle in the sump once more. With the new oil circulated and the filter now completely full, recheck the level on the dipstick, and add more oil as necessary.

14 Dispose of the used engine oil and filter safely, with reference to "General repair procedures" in the reference Sections of this manual.



Note: It is antisocial and illegal to dump oil down the drain. To find the location of your local oil recycling bank, call this number free.

9 Hose and fluid leak check

1 Visually inspect the engine joint faces, gaskets and seals for any signs of water, oil or fuel leaks. Pay particular attention to the areas around the camshaft cover, cylinder head, oil filter and sump joint faces. Bear in mind that, over a period of time, some very slight seepage from these areas is to be expected. What you are really looking for is any indication of a serious leak. Should a leak be found, renew the offending gasket or oil seal by referring to the appropriate Chapters in this manual.

2 Also check the security and condition of all the engine-related pipes and hoses. Ensure that all cable ties or securing clips are in place and in good condition. Clips which are broken or missing can lead to chafing of the hoses, pipes, or wiring, which could cause more serious problems in the future.

3 Carefully check the radiator hoses and heater hoses along their entire length. Renew any hose which is cracked, swollen, or deteriorated. Cracks will show up better if the hose is squeezed. Pay close attention to the hose clips that secure the hoses to the cooling system components. Hose clips can pinch and puncture hoses, resulting in cooling system leaks. If the original Citroen crimped-type hose clips are used, it may be a good idea to replace them with standard worm-drive hose clips.

4 Inspect all the cooling system components (hoses, joint faces, etc.) for leaks. A leak in the cooling system will usually show up as white or rust-coloured deposits on the area adjoining the leak. Where any problems of this nature are found on system components, renew the component or gasket with reference to Chapter 3.

5 Where applicable, inspect the automatic transmission fluid cooler hoses for leaks or deterioration.

6 With the vehicle raised, inspect the petrol tank and filler neck for punctures, cracks, and other damage. The connection between the filler neck and tank is especially critical. Sometimes, a rubber filler neck or connecting hose will leak due to loose retaining clamps or deteriorated rubber.

7 Carefully check all rubber hoses and metal fuel lines leading away from the petrol tank. Check for loose connections, deteriorated hoses, crimped lines, and other damage. Pay particular attention to the vent pipes and hoses, which often loop up around the filler neck, and can become blocked or crimped. Follow the lines to the front of the vehicle, carefully inspecting them all the way. Renew damaged sections as necessary.

8 From within the engine compartment, check the security of all fuel hose attachments and pipe unions, and inspect the fuel hoses and vacuum hoses for kinks, chafing and deterioration.

9 Where applicable, check the condition of the power steering fluid hoses and pipes.

10 Automatic transmission fluid level check

1 Take the vehicle on a short journey, to warm the transmission up to normal operating temperature, then park the vehicle on level ground. The fluid level is checked using the dipstick located at the front of the engine compartment, directly in front of the engine/transmission. The dipstick top is brightly-coloured (usually orange) for easy identification.

2 With the engine idling and the selector lever in the "P" (Park) position, withdraw the dipstick from the tube, and wipe all the fluid from its end with a clean rag or paper towel. Insert the clean dipstick back into the tube as far as it will go, then withdraw it once more. Note the fluid level on the end of the dipstick; it should be between the upper and lower marks (**see illustration**).

3 If topping-up is necessary, add the required quantity of the specified fluid to the transmission via the dipstick tube. **Note:** *A/ever overfill the transmission so that the fluid level is above the upper mark.*



Use a funnel with a fine mesh gauze to avoid fluid spillage, and to ensure that no foreign matter enters the transmission

4 After topping-up, take the vehicle on a short run to distribute the fresh fluid, then recheck the level again, topping-up if necessary.

5 Always maintain the level between the two dipstick marks. If the level is allowed to fall below the lower mark, fluid starvation may result, which could lead to severe transmission damage.

6 Frequent need for topping-up indicates that there is a leak, which should be found and corrected before it becomes serious.

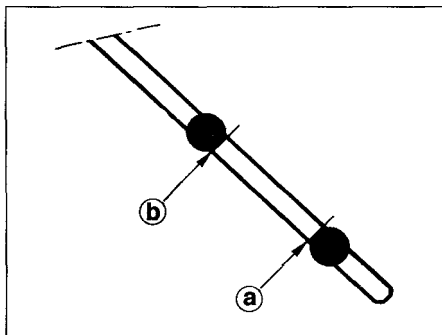
11 Steering and suspension check

Front suspension and steering check

1 Raise the front of the vehicle, and securely support it on axle stands.

2 Visually inspect the balljoint dust covers and the steering rack-and-pinion gaiters for splits, chafing or deterioration (**see illustration**). Any wear of these components will cause loss of lubricant, together with dirt and water entry, resulting in rapid deterioration of the balljoints or steering gear.

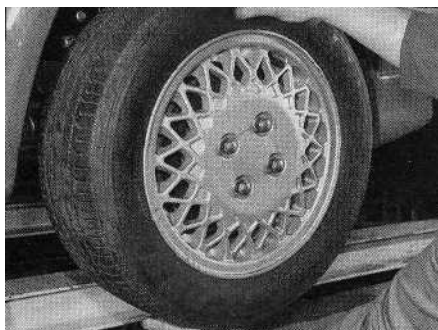
3 On vehicles with power steering, check the fluid hoses for chafing or deterioration, and the pipe and hose unions for fluid leaks. Also



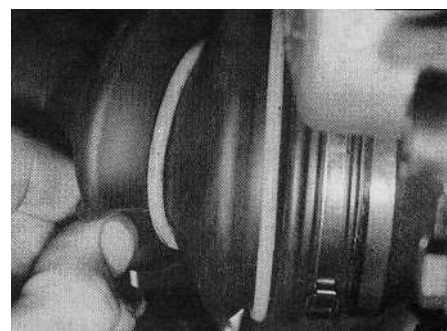
10.2 Automatic transmission fluid dipstick lower (a) and upper (b) fluid level markings



11.2 Checking a steering gear gaiter



11.4 Rocking the roadwheel to check steering/suspension components



12.1 Checking driveshaft outer constant velocity (CV) joint gaiter

check for signs of fluid leakage under pressure from the steering gear rubber gaiters, which would indicate failed fluid seals within the steering gear.

4 Grasp the roadwheel at the 12 o'clock and 6 o'clock positions, and try to rock it (**see illustration**). Very slight free play may be felt, but if the movement is appreciable, further investigation is necessary to determine the source. Continue rocking the wheel while an assistant depresses the footbrake. If the movement is now eliminated or significantly reduced, it is likely that the hub bearings are at fault. If the free play is still evident with the footbrake depressed, then there is wear in the suspension joints or mountings.

5 Now grasp the wheel at the 9 o'clock and 3 o'clock positions, and try to rock it as before. Any movement felt now may again be caused by wear in the hub bearings or the steering track-rod balljoints. If the outer balljoint is worn, the visual movement will be obvious. If the inner joint is suspect, it can be felt by placing a hand over the rack-and-pinion rubber gaiter and gripping the track-rod. If the wheel is now rocked, movement will be felt at the inner joint if wear has taken place.

6 Using a large screwdriver or flat bar, check for wear in the suspension mounting bushes by levering between the relevant suspension component and its attachment point. Some movement is to be expected, as the mountings are made of rubber, but excessive wear should be obvious. Also check the condition of any visible rubber bushes, looking for splits, cracks or contamination of the rubber.

7 With the car standing on its wheels, have an assistant turn the steering wheel back and forth, about an eighth of a turn each way. There should be very little, if any, lost movement between the steering wheel and roadwheels. If this is not the case, closely observe the joints and mountings previously described. In addition, check the steering column universal joints for wear, and also check the rack-and-pinion steering gear itself.

Suspension strut/shock absorber check

8 Check for any signs of fluid leakage around the suspension strut/shock absorber body, or from the rubber gaiter around the piston rod. Should any fluid be noticed, the suspension strut/shock absorber is defective internally, and should be renewed. **Note:** *Suspension struts/shock absorbers should always be renewed in pairs on the same axle.*

9 The efficiency of the suspension strut/shock absorber may be checked by bouncing the vehicle at each corner. Generally speaking, the body will return to its normal position and stop after being depressed. If it rises and returns on a rebound, the suspension strut/shock absorber is probably suspect. Examine also the suspension strut/shock absorber upper and lower mountings for any signs of wear.

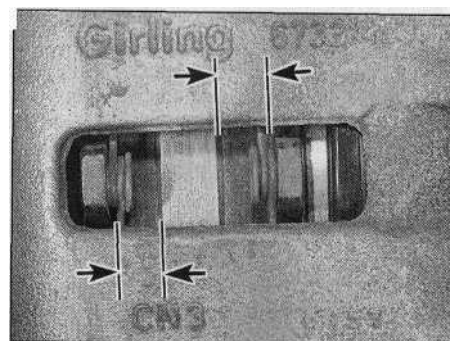
12 Driveshaft gaiter check



Driveshaft rubber gaiter and CV joint check

1 With the vehicle raised and securely supported on stands, turn the steering onto full lock, then slowly rotate the roadwheel. Inspect the condition of the outer constant velocity (CV) joint rubber gaiters, while squeezing the gaiters to open out the folds (**see illustration**). Check for signs of cracking, splits, or deterioration of the rubber, which may allow the grease to escape, and lead to water and grit entry into the joint. Also check the security and condition of the retaining clips. Repeat these checks on the inner CV joints. If any damage or deterioration is found, the gaiters should be renewed without delay as described in Chapter 8.

2 At the same time, check the general condition of the CV joints themselves, by first



13.2 Front brake friction material can be checked through slot in caliper body - Girling caliper shown

holding the driveshaft and attempting to rotate the wheel. Repeat this check by holding the inner joint and attempting to rotate the driveshaft. Any appreciable movement indicates wear in the joints, wear in the driveshaft splines, or a loose driveshaft retaining nut.

13 Front brake pad condition check



1 Firmly apply the handbrake, then jack up the front of the car and support it securely on axle stands. Remove the front roadwheels.

2 For a quick check, the thickness of friction material remaining on each brake pad can be measured through the slot in the caliper body (**see illustration**). If any pad's friction material is worn to the specified minimum thickness or less, all four pads must be renewed as a set.

3 For a comprehensive check, the brake pads should be removed and cleaned. This will permit the operation of the caliper to be checked, and the condition of the brake disc itself to be fully examined on both sides. Refer to Chapter 9 for further information.

Every 12 000 miles or 12 months**14 Air conditioning system refrigerant check**

Warning: Do not attempt to open the refrigerant circuit. Refer to the precautions given in Chapter 3.

1 In order to check the condition of the refrigerant, a humidity indicator and a sight glass are provided on top of the drier bottle, which is located at the front right-hand corner of the engine compartment.

Refrigerant humidity check

2 Check the colour of the humidity indicator (see illustration). Blue indicates that the condition of the refrigerant is satisfactory. Red indicates that the refrigerant is saturated with humidity. If the indicator shows red, the system should be drained and recharged, and a new drier bottle should be fitted. **Note:** The system should be drained and recharged **only** by a Citroen dealer or air conditioning specialist. Do **not** attempt to carry out the work yourself.

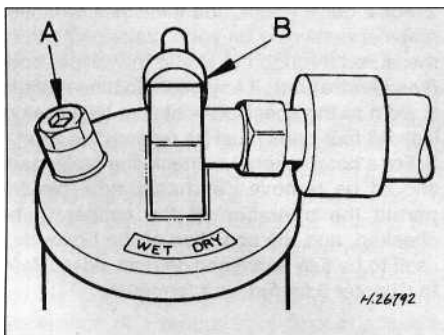
Refrigerant flow check

3 Run the engine, and switch on the air conditioning.

4 After a few minutes, inspect the sight glass, and check the fluid flow. Clear fluid should be visible - if not, the following will help to diagnose the problem:

- (a) Clear fluid flow, perhaps with occasional bubbles - the system is functioning correctly.
- (b) No fluid flow - have the system checked for leaks by a Citroen dealer or air conditioning specialist.
- (c) Continuous stream of clear air bubbles in fluid - refrigerant level low. Have the system recharged by a Citroen dealer or air-conditioning specialist.
- (d) Milky air bubbles visible - high humidity (see paragraph 2).

5 Do not operate the air conditioning system if the refrigerant level is known to be low; damage may result.



14.2 Air conditioning system refrigerant humidity indicator (A) and sight glass (B)

15 Valve clearance check and adjustment - 1124 cc and 1360 cc models

Note: The valve clearances must be checked and adjusted only when the engine is cold.

Note: The manufacturer suggests this operation at the first 12 000 mile service only. After that, checking and adjusting of the valve clearances is not part of the recommended maintenance schedule. The operation should therefore only need to be carried out after engine overhaul, or when investigating noise or power loss which could be attributed to the valve gear.

1 The importance of having the valve clearances correctly adjusted cannot be overstressed, as they vitally affect the performance of the engine. If the clearances are too big, the engine will be noisy (characteristic rattling or tapping noises) and engine efficiency will be reduced, as the valves open too late and close too early. A more serious problem arises if the clearances are too small, however. If this is the case, the valves may not close fully when the engine is hot, resulting in serious damage to the engine (eg. burnt valve seats and/or cylinder head warping/cracking). The clearances are checked and adjusted as follows.

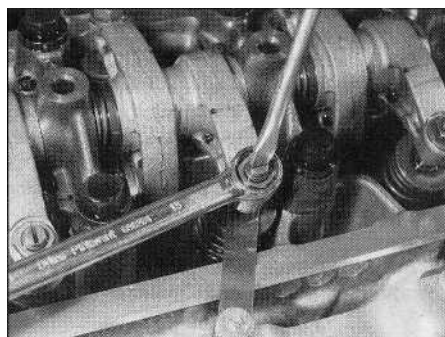
2 Remove the cylinder head cover as described in Chapter 2A.

3 The engine can now be turned using a suitable socket and extension bar fitted to the crankshaft sprocket/pulley bolt.



Turning the engine will be easier if the spark plugs are removed.

4 It is important that the clearance of each valve is checked and adjusted only when the valve is fully closed, with the rocker arm resting on the heel of the cam (directly opposite the peak). This can be ensured by carrying out the adjustments in the following sequence, noting that No 1 cylinder is at the transmission end of



15.5 Adjusting a valve clearance - 1124 cc and 1360 cc models

the engine. The correct valve clearances are given in the Specifications at the end of this Chapter. The valve locations can be determined from the position of the manifolds.

Valve fully open**Adjust valves**

No 1 exhaust

No 3 inlet and No 4 exhaust

No 3 exhaust

No 4 inlet and No 2 exhaust

No 4 exhaust

No 2 inlet and No 1 exhaust

No 2 exhaust

No 1 inlet and No 3 exhaust

5 With the relevant valve fully open, check the clearances of the two valves specified. Clearances are checked by inserting a feeler gauge of the correct thickness between the valve stem and the rocker arm adjusting screw. The feeler gauge should be a light, sliding fit. If adjustment is necessary, slacken the adjusting screw locknut, and turn the screw as necessary. Once the correct clearance is obtained, hold the adjusting screw and securely tighten the locknut (see illustration). Recheck the valve clearance, and adjust again if necessary.

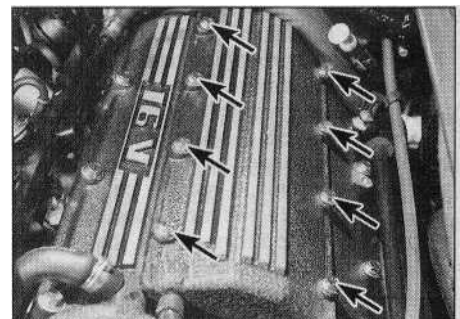
6 Rotate the crankshaft until the next valve in the sequence is fully open, and check the clearances of the next two specified valves.

7 Repeat the procedure until all eight valve clearances have been checked (and if necessary, adjusted), then refit the cylinder head cover as described in Chapter 2A.

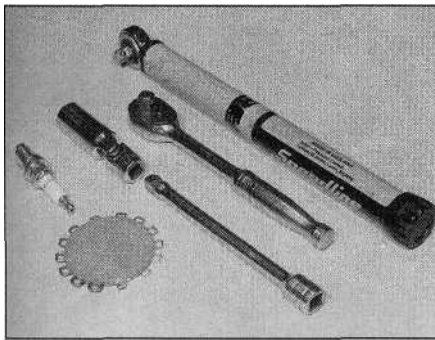
16 Spark plug renewal

1 The correct functioning of the spark plugs is vital for the correct running and efficiency of the engine. It is essential that the plugs fitted are appropriate for the engine (the suitable type is specified at the end of this Chapter). If this type is used, and the engine is in good condition, the spark plugs should not need attention between scheduled replacement intervals. Spark plug cleaning is rarely necessary, and should not be attempted unless specialised equipment is available, as damage can easily be caused to the firing ends.

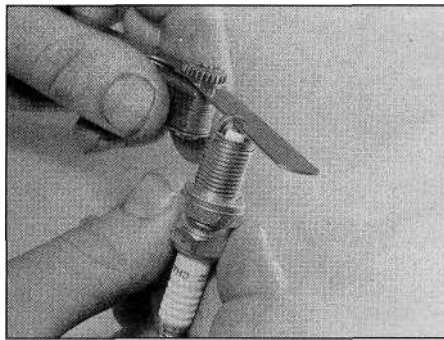
2 On 1998 cc 16-valve models, to gain access to the spark plugs, the access cover



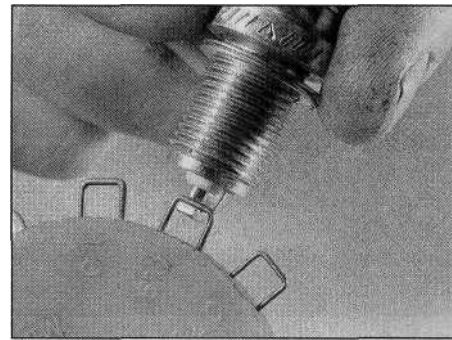
16.2 On 1998 cc 16-valve models, undo the eight bolts (arrowed) and remove the access cover to reach the spark plugs



16.7 Tools required for spark plug removal, gap adjustment and refitting



16.12 Measuring the spark plug gap with a feeler gauge



16.13a Measuring the spark plug gap with a wire gauge ...

fitted in the centre of the cylinder head cover must first be removed. Undo the eight bolts, noting the position of the wiring retaining clip, and remove the cover (**see illustration**).

3 On some other models, to improve access to some of the plugs, it may be necessary to remove the air intake duct (refer to Chapter 4 for further information).

4 On 1998 cc 16-valve models, pull the HT coils off the spark plugs. If necessary, to remove the possibility of the HT coils being connected to the wrong spark plugs on refitting, mark the coils 1 to 4 (No 1 cylinder is at the transmission end of the engine).

5 On all other models, if the marks on the original-equipment spark plug (HT) leads cannot be seen, mark the leads 1 to 4, corresponding to the cylinder the lead serves (No 1 cylinder is at the transmission end of the engine). Pull the leads from the plugs by gripping the end fitting, not the lead, otherwise the lead connection may be fractured.

6 It is advisable to remove the dirt from the spark plug recesses, using a clean brush, vacuum cleaner or compressed air before removing the plugs, to prevent dirt dropping into the cylinders.

7 Unscrew the plugs using a spark plug spanner, suitable box spanner, or a deep socket and extension bar (**see illustration**). Keep the socket aligned with the spark plug - if it is forcibly moved to one side, the ceramic insulator may be broken off. As each plug is removed, examine it as follows.

8 Examination of the spark plugs will give a good indication of the condition of the engine. If the insulator nose of the spark plug is clean and white, with no deposits, this is indicative of a weak mixture. It could also indicate that the plug is too "hot" for the engine (a hot plug transfers heat away from the electrode slowly, a cold plug transfers heat away quickly). If this condition is apparent, either correct the mixture setting (where possible), or ensure that the correct grade of plug is fitted.

9 If the tip and insulator nose are covered with hard black-looking deposits, then this is indicative that the mixture is too rich. Should the plug be black and oily, then it is likely that the engine is fairly worn, as well as the mixture being too rich.

10 If the insulator nose is covered with light tan to greyish-brown deposits, then the mixture is correct, and it is likely that the engine is in good condition.

11 The spark plug electrode gap is of considerable importance as, if it is too large or too small, the size of the spark and its efficiency will be seriously impaired. The gap should be set to the value given in the Specifications at the end of this Chapter.

12 To set it, measure the gap with a feeler gauge. If necessary, bend the outer plug electrode open or closed until the correct gap is achieved (**see illustration**). The centre electrode should never be bent, as this may crack the insulator and cause plug failure, if nothing worse.

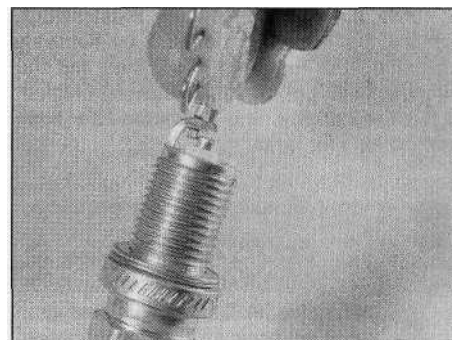
13 Special spark plug electrode gap adjusting tools are available from most motor accessory shops (**see illustrations**).

14 Before fitting the spark plugs, check that the threaded connector sleeves (on top of the plug) are tight, and that the plug exterior surfaces and threads are clean. Apply a smear of copper-based anti-seize compound to the plug threads.

15 It is very often difficult to insert spark plugs into their holes without cross-threading them. To avoid this possibility, fit a short length of 5/16 inch/8 mm internal diameter rubber or plastic hose over the end of the spark plug. (Flexible fuel hose is ideal.) The flexible hose acts as a universal joint to help align the plug with the plug hole. Should the plug begin to cross-thread, the hose will slip on the spark plug, preventing thread damage to the aluminium cylinder head. Once the plug begins to screw in correctly, remove the hose, and tighten the plug to the specified torque using the spark plug socket and a torque wrench. Refit the remaining spark plugs in the same manner.

16 On 1998 cc 16-valve models, connect the HT coils in their correct order, then refit the access cover to the cylinder head cover. Ensure that the coil wiring is correctly located in the cover recess. Refit the cover bolts, not forgetting the wiring clip, and tighten them securely.

17 On all other models, connect the HT leads in their correct order, and refit any components removed for access.



16.13b ... and adjusting the gap using a special adjusting tool

17 Fuel filter renewal - carburettor models



Warning: Before carrying out the following operation, 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.

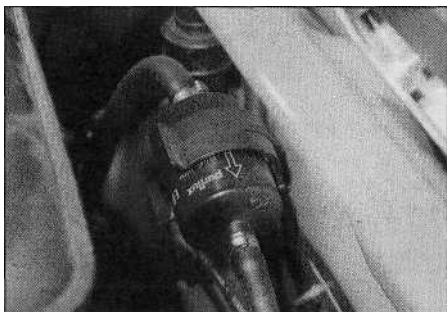
1 The fuel filter is mounted on the centre of the engine compartment bulkhead, directly behind the engine.

2 To remove the filter, release the retaining clips and disconnect the fuel hoses from the filter. Where the original Citroen crimped-type hose clips are still fitted, cut the clips and discard them; use standard worm-drive hose clips on refitting.

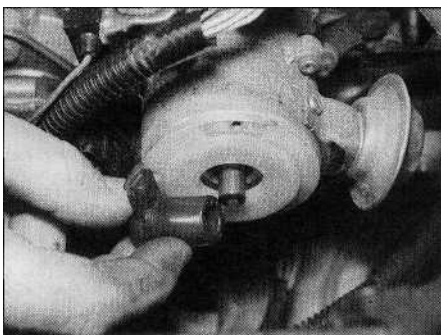
3 Note the direction of the arrow marked on the filter body. Unclip the filter from its retaining bracket, and remove it from the vehicle.

4 Dispose safely of the old filter; it will be highly-inflammable, and may explode if thrown on a fire.

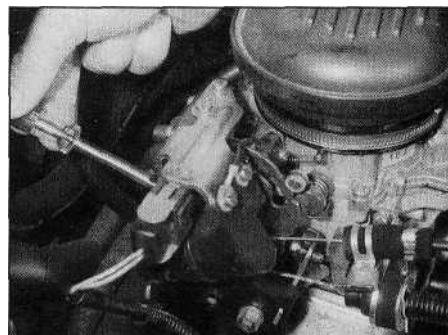
5 Connect the fuel hoses to the new filter. Make sure that the arrow on the filter body is pointing in the direction of the fuel flow, ie.



17.5 On carburettor models, ensure that the arrow on the fuel filter body points in the direction of fuel flow



18.9 The rotor arm is a push fit on the distributor shaft (1360 cc model shown)



19.4 Adjusting the idle speed -1360 cc carburettor models

towards the fuel pump (see illustration). Secure the hoses in position by securely tightening the retaining clips, then clip the filter back into position in its retaining bracket. **6** Start the engine, and check the filter hose connections for leaks.

18 Ignition system check



Warning: Voltages produced by an electronic ignition system are considerably higher than those produced by conventional ignition systems. Extreme care must be taken if working on the system with the ignition switched on. Persons with surgically implanted cardiac pacemaker devices should keep well clear of the ignition circuits, components and test equipment.

1 The ignition system components should be checked for damage or deterioration as described under the relevant sub-heading.

Ignition systems incorporating a distributor

General component check

2 The spark plug (HT) leads should be checked whenever new spark plugs are installed in the engine.

3 Ensure that the leads are numbered before removing them, to avoid confusion when refitting. Pull the leads from the plugs by gripping the end fitting, not the lead, otherwise the lead connection may be fractured.

4 Check inside the end fitting for signs of corrosion, which will look like a white crusty powder. Push the end fitting back onto the spark plug, ensuring that it is a tight fit on the plug. If not, remove the lead again, and use pliers to carefully crimp the metal connector inside the end fitting until it fits securely on the end of the spark plug.

5 Using a clean rag, wipe the entire length of the lead to remove any built-up dirt and grease. Once the lead is clean, check for

burns, cracks and other damage. Do not bend the lead excessively, or pull the lead lengthwise - the conductor inside might break.

6 Disconnect the other end of the lead from the distributor cap. Again, pull only on the end fitting. Check for corrosion and a tight fit in the same manner as the spark plug end. If an ohmmeter is available, check the resistance of the lead by connecting the meter between the spark plug end of the lead and the segment inside the distributor cap. Refit the lead securely on completion.

7 Check the remaining leads one at a time, in the same way.

8 If new spark plug (HT) leads are required, purchase a set for your specific car and engine.

9 Remove the distributor cap by unscrewing its retaining screws. Wipe it clean, and carefully inspect it inside and out for signs of cracks, carbon tracks (tracking) and worn, burned or loose contacts; check that the cap's carbon brush is unworn, free to move against spring pressure, and making good contact with the rotor arm. Also inspect the cap seal for signs of wear or damage, and renew if necessary. Remove the rotor arm from the distributor shaft and inspect it (see illustration). It is common practice to renew the cap and rotor arm whenever new spark plug (HT) leads are fitted. When fitting a new cap, remove the leads from the old cap one at a time, and fit them to the new cap in the exact same location - do not simultaneously remove all the leads from the old cap, or firing order confusion may occur. On refitting, ensure that the arm is securely pressed onto the shaft, and tighten the cap retaining screws securely.

10 Even with the ignition system in first class condition, some engines may still occasionally experience poor starting, attributable to damp ignition components. A moisture dispersant spray can be very effective.

Ignition timing checking and adjustment

11 Check the ignition timing as described in Chapter 5, Section 10.

Static (distributorless) ignition systems

General component check

12 On all except 1998 cc 16-valve models, check the condition of the HT leads as described above in paragraphs 3 to 8. On 1998 cc 16-valve models, there are no HT leads, so the only relevant check is that all the primary (LT) circuit wiring connectors are clean and free of corrosion.

Ignition timing check and adjustment

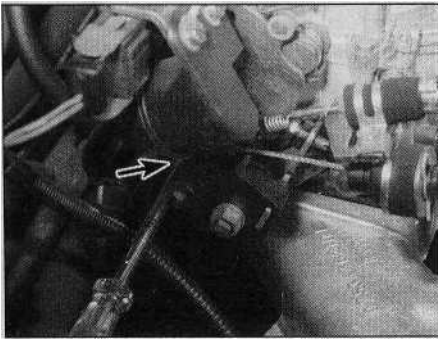
13 Refer to Chapter 5, Section 10.

19 Idle speed and mixture check and adjustment

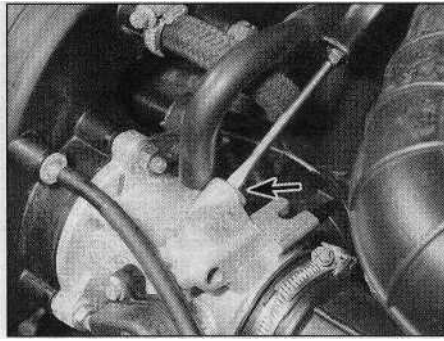
1 Before checking the idle speed and mixture setting, always check the following first:

- Check that the ignition timing is accurate (Chapter 5).
- Check that the spark plugs are in good condition and correctly gapped (Section 16).
- Check that the accelerator cable (and on carburettor models, the choke cable) is correctly adjusted (refer to the relevant Part of Chapter 4).
- Check that the crankcase breather hoses are secure, with no leaks or kinks (Section 20).
- Check that the air cleaner filter element is clean (Section 26).
- Check that the exhaust system is in good condition (refer to the relevant Part of Chapter 4).
- If the engine is running very roughly, check the compression pressures as described in Chapter 2.
- On fuel injection models, check that the fuel injection/ignition system warning light is not illuminated (refer to the relevant Part of Chapter 4).

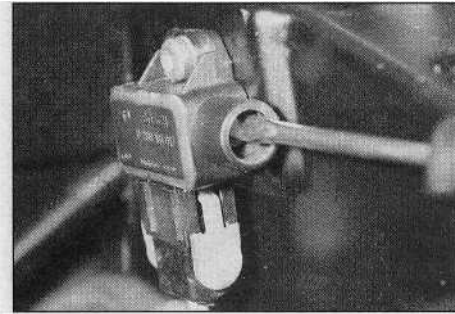
2 Take the car on a journey of sufficient length to warm it up to normal operating temperature. **Note:** Adjustment should ideally be completed within two minutes of return, without stopping the engine. If the radiator electric cooling fan operates, wait for the cooling fan to stop. If adjustment takes longer



19.7 Adjusting the idle mixture (exhaust gas CO level) - 1360 cc carburettor models



19.10 Adjusting the idle speed - 1905 cc models



19.14 Adjusting the idle mixture (exhaust gas CO level) - 1905 cc models without a catalytic converter

than stated, regularly clear any excess fuel from the inlet manifold by revving the engine two or three times to between 2000 and 3000 rpm, then allow it to idle again.

Carburettor models

3 Ensure that all electrical loads are switched off, and that the choke lever is pushed fully in. If the car does not have a tachometer, connect one following its manufacturer's instructions. Note the idle speed, and compare it with that specified.

4 The idle speed adjusting screw is on the throttle linkage on the right-hand side of the carburettor. On 1124 cc models, the screw is easily accessible from above; on 1360 cc models, the screw is adjusted from behind the carburettor, and access is a little awkward. Using a suitable flat-bladed screwdriver, screw it in (to increase the speed) or out as necessary to obtain the specified speed (see illustration).

5 The idle mixture (exhaust gas CO level) is set at the factory, and should require no further adjustment. If, due to a change in engine characteristics (carbon build-up, bore wear etc) or after a major carburettor overhaul, the mixture becomes incorrect, it can be reset. Note, however, that an exhaust gas analyser (CO meter) will be required to check the mixture, and to set it with the necessary standard of accuracy. If this is not available, the car must be taken to a Citroen dealer for the work to be carried out.

6 If an exhaust gas analyser is available, follow the manufacturer's instructions to check the exhaust gas CO level. If adjustment is required, it is made via mixture adjustment screw. On 1124 cc models, the screw is located on the left-hand side of the carburettor base; on 1360 cc models, it is located at the right-hand rear corner of the carburettor base. The screw is covered with a tamperproof plug to prevent unnecessary adjustment. To gain access to the screw, use a sharp instrument to hook out the plug.

7 Using a suitable flat-bladed screwdriver, turn the mixture adjustment screw by very small amounts until the level is correct. Screwing it in (clockwise) weakens the idle mixture and reduces the CO level; screwing it

out will richen the mixture and increase the CO level (see illustration).

8 When adjustments are complete, disconnect any test equipment, and fit a new tamperproof plug to the mixture adjustment screw. Recheck the idle speed and, if necessary, readjust.

Fuel injection models

1905 cc models

9 Ensure that all electrical loads are switched off. If the car does not have a tachometer, connect one following its manufacturer's instructions. Note the idle speed, and compare it with that specified.

10 The idle speed adjusting screw is situated in the top of the throttle housing. Using a suitable flat-bladed screwdriver, screw it in or out as necessary to obtain the specified speed (see illustration).

11 On models with a catalytic converter (DKZ engine with Motronic M1.3 system) the idle mixture (exhaust gas CO level) is under the control of the engine management ECU, and is not adjustable (see paragraph 18).

12 On models without a catalytic converter (D6E engine with Motronic MP3.1 system), the idle mixture can be adjusted if necessary. The idle mixture is set at the factory, however, and should not normally require adjustment. If, due to a change in engine characteristics (carbon build-up, bore wear etc) or after a major overhaul, the mixture becomes incorrect, it can be reset. An exhaust gas analyser (CO meter) will be required to check the mixture, and to set it with the necessary standard of accuracy. If this is not available, the car must be taken to a Citroen dealer for the work to be carried out.

13 If an exhaust gas analyser is available, follow its manufacturer's instructions to check the exhaust gas CO level. If adjustment is required, it is made using the screw on the mixture adjustment potentiometer. This is mounted on the side of the engine management ECU, in the left-hand rear corner of the engine compartment.

14 Using a suitable flat-bladed screwdriver, turn the screw in very small increments until the level is correct (see illustration).

15 When adjustments are complete, disconnect any test equipment. Recheck the idle speed and, if necessary, readjust.

All other models

16 Experienced home mechanics, with a considerable amount of skill and equipment (including a tachometer and an accurate exhaust gas analyser) may be able to check the exhaust CO level and the idle speed. However, if these are found to be in need of adjustment, the car *must* be taken to a suitably-equipped Citroen dealer.

17 On 1580 cc models, adjustment of the mixture setting (exhaust gas CO level) is possible, but adjustments can only be made by reprogramming the engine management ECU, using special electronic test equipment which is connected to the diagnostic wiring connector (see Chapter 4B).

18 On all other vehicles, adjustments are not possible. If the idle speed or the exhaust gas CO level is incorrect, then there must be a fault in the engine management system; the vehicle should be taken to a Citroen dealer for testing (refer to the relevant Part of Chapter 4).

20 Emission control systems check

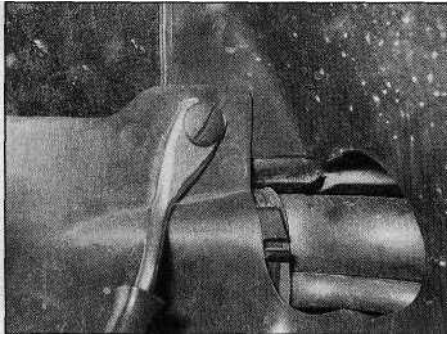
1 Details of the emission control system components are given in Chapter 4D.

2 Checking consists simply of a visual check for obvious signs of damaged or leaking hoses and joints.

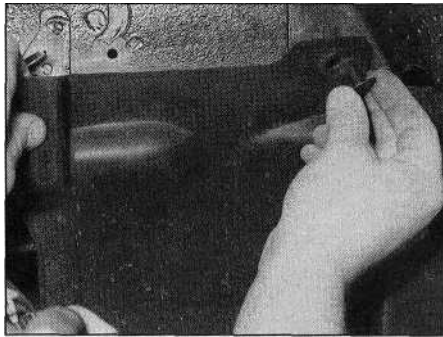
3 Detailed checking and testing of the evaporative and/or exhaust emission systems (as applicable) should be entrusted to a Citroen dealer.

21 Auxiliary drivebelt checking and renewal

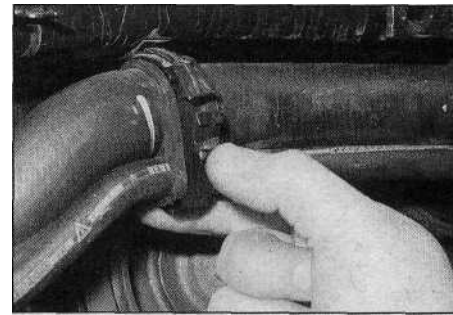
1 On 1580 cc and 1905 cc models with air conditioning, two auxiliary drivebelts are fitted; one for the air conditioning compressor, and another for the power steering pump and/or alternator (as applicable). On all other models there is only one auxiliary drivebelt.



21.3a Prise out the retaining clips ...



21.3b ... and remove the plastic cover from underneath the wheel arch ...



21.3c Where necessary, unclip the coolant hoses to improve access to the crankshaft pulley/sprocket bolt

Checking the auxiliary drivebelt condition

2 Apply the handbrake, then jack up the front of the car and support it on axle stands. Remove the right-hand front roadwheel.

3 From underneath the front of the car, prise out the two retaining clips, and remove the plastic cover from the wing valance to gain access to the crankshaft sprocket/pulley bolt. Where necessary, unclip the coolant hoses from the bracket to improve access further (see illustrations).

4 Using a suitable socket and extension bar fitted to the crankshaft sprocket/pulley bolt, rotate the crankshaft so that the entire length of the drivebelt(s) can be examined. Examine the drivebelt(s) for cracks, splitting, fraying or damage. Check also for signs of glazing (shiny patches) and for separation of the belt plies. Renew the belt if worn or damaged.

5 If the condition of the belt is satisfactory, on models where the belt is adjusted manually, check the drivebelt tension as described below. On models with an automatic spring-loaded tensioner, there is no need to check the drivebelt tension.

Auxiliary drivebelt (models with manual adjuster on the alternator lower mounting point) - removal, refitting and tensioning

Removal

6 If not already done, proceed as described

in paragraphs 2 and 3. On 1580 cc and 1905 cc models with air conditioning, remove the air conditioning drivebelt as described in paragraphs 40 to 42.

7 Disconnect the battery negative lead.

8 Slacken both the alternator upper and lower mounting nuts/bolts (as applicable).

9 Back off the adjuster bolt(s) to relieve the tension in the drivebelt, then slip the drivebelt from the pulleys (see illustration).

Refitting

10 If the belt is being renewed, ensure that the correct type is used. Fit the belt around the pulleys, and take up the slack in the belt by tightening the adjuster bolt.

11 Tension the drivebelt as described in the following paragraphs. On 1580 cc and 1905 cc models, where necessary, refit the air conditioning compressor drivebelt as described in paragraphs 43 to 49.

Tensioning

12 If not already done, proceed as described in paragraphs 2 and 3.

13 Correct tensioning of the drivebelt will ensure that it has a long life. A belt which is too slack will slip and perhaps squeal. Beware, however, of overtightening, as this can cause wear in the alternator bearings.

14 The belt should be tensioned so that, under firm thumb pressure, there is approximately 5.0 mm of free movement at

the mid-point between the pulleys on the longest belt run.

15 To adjust, with the upper mounting nut/bolt just holding the alternator firm, and the lower mounting nut/bolt loosened, turn the adjuster bolt until the correct tension is achieved (see illustration). Rotate the crankshaft a couple of times, recheck the tension, then securely tighten both the alternator mounting nuts/bolts. Where applicable, also tighten the bolt securing the adjuster strap to its mounting bracket.

16 Reconnect the battery negative lead.

17 Clip the coolant hoses into position (where necessary), then refit the plastic cover to the wing valance. Refit the roadwheel, and lower the vehicle to the ground.

Auxiliary drivebelt (models with a manually-adjusted tensioning pulley) - removal, refitting and tensioning

Note: For information on the air conditioning compressor drivebelt on 1580 cc and 1905 cc models, refer to paragraphs 40 to 49.

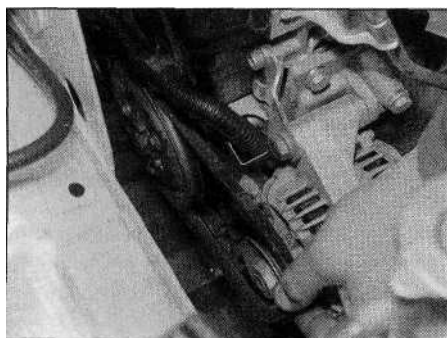
Removal

18 If not already done, proceed as described in paragraphs 2 and 3.

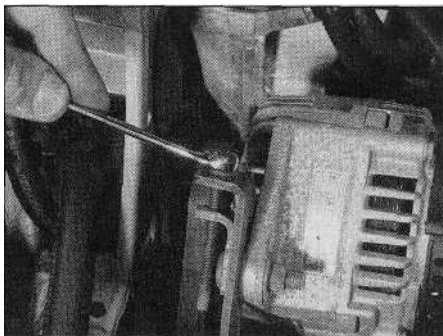
19 Disconnect the battery negative lead.

20 Slacken the two screws securing the tensioning pulley assembly to the engine (see illustration).

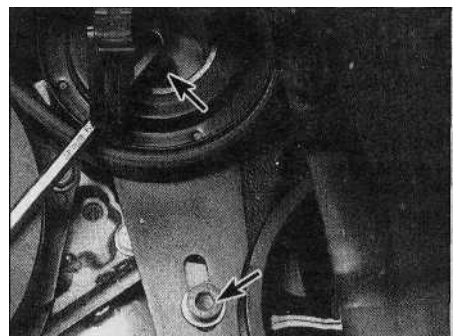
21 Rotate the adjuster bolt to move the



21.9 Removing the drivebelt - 1360 cc models



21.15 Adjusting the drivebelt tension - drivebelt adjuster on lower alternator mounting point (1905 cc model shown)



21.20 On models with a manually-adjusted tensioner pulley, slacken the two pulley retaining screws (arrowed)...

tensioner pulley away from the drivebelt until there is sufficient slack for the drivebelt to be removed from the pulleys (see illustrations).

Refitting

22 Fit the drivebelt around the pulleys in the following order:

- Power steering pump and/or air conditioning compressor.
- Crankshaft.
- Alternator.
- Tensioner roller.

23 Ensure that the ribs on the belt are correctly engaged with the grooves in the pulleys, and that the drivebelt is correctly routed. Take all the slack out of the belt by turning the tensioner pulley adjuster bolt. Tension the belt as follows.

Tensioning

24 If not already done, proceed as described in paragraphs 2 and 3.

25 Correct tensioning of the drivebelt will ensure that it has a long life. A belt which is too slack will slip and perhaps squeal. Beware, however, of overtightening, as this can cause wear in the alternator bearings.

26 The belt should be tensioned so that, under firm thumb pressure, there is approximately 5.0 mm of free movement at the mid-point between the pulleys on the longest belt run.

27 To adjust the tension, with the two tensioner pulley assembly retaining screws slackened, rotate the adjuster bolt until the correct tension is achieved. Once the belt is correctly tensioned, rotate the crankshaft a couple of times and recheck the tension.

28 When the belt is correctly tensioned, securely tighten the tensioner pulley assembly retaining screws, then reconnect the battery negative lead.

29 Clip the coolant hoses into position, then refit the plastic cover to the wing valance. Refit the roadwheel, and lower the vehicle to the ground.

Auxiliary drivebelt (models with an automatic spring-loaded tensioner pulley) - removal, refitting and tensioning

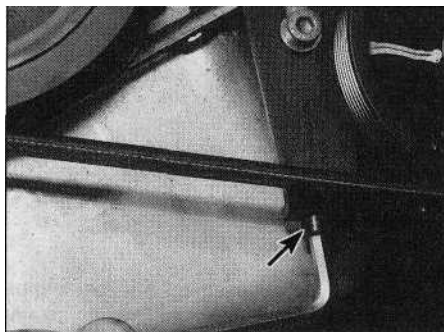
Removal

30 If not already done, proceed as described in paragraphs 2 and 3.

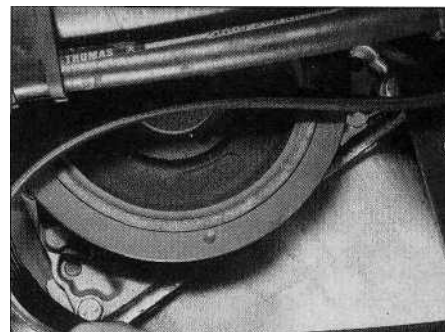
31 Disconnect the battery negative lead.

32 Where necessary, remove the retaining screws from the power steering pump pulley shield, and remove the shield to gain access to the top of the drivebelt.

33 Move the tensioner pulley away from the drivebelt, using a ratchet handle or extension bar with the same size square-section end as the hole in the base of the automatic tensioner arm. Disengage the drivebelt from all the pulleys, noting its correct routing. Remove the drivebelt from the engine, noting that in some cases, it may be necessary to slacken the automatic tensioner mounting bolts to disengage the belt from behind the tensioner pulley.



21.21a ... then slacken the pulley adjuster bolt...



21.21b ... and slip the drivebelt off its pulleys

Refitting and tensioning

34 Fit the drivebelt around the pulleys in the following order:

- Automatic tensioner pulley.
- Crankshaft.
- Air conditioning compressor.
- Power steering pump.
- Idler pulley
- Alternator.

35 Where necessary, securely tighten the automatic tensioner mounting bolts.

36 Whilst holding the tensioner arm away from the belt, ensure that the ribs on the belt are correctly engaged with the grooves in the pulleys. Release the tensioner arm; the tensioner is spring-loaded, removing the need to manually adjust the belt tension.

37 Refit the power steering pump pulley shield (where removed), and securely tighten its retaining screws.

38 Reconnect the battery negative lead.

39 Clip the coolant hoses into position, then refit the plastic cover to the wing valance. Refit the roadwheel, and lower the vehicle to the ground.

Air conditioning compressor auxiliary drivebelt (1580 cc and 1905 cc models) - removal, refitting and tensioning

Removal

40 If not already done, proceed as described in paragraphs 2 and 3.

41 Disconnect the battery negative lead.

42 Slacken the three bolts securing the tensioner pulley to the sump, to release the drivebelt tension, and unhook the drivebelt from the pulleys.

Refitting

43 Fit the new drivebelt around the pulleys, ensuring that its ribs are correctly located in the pulley grooves.

44 Obtain a suitable ratchet handle or extension bar with the same size square-section end as one of the holes in the tensioner arm. Using this, force the tensioner pulley against the drivebelt to remove the drivebelt slack. Tension the belt as follows.

Tensioning

45 If not already done, proceed as described in paragraphs 2 and 3.

46 Correct tensioning of the drivebelt will ensure that it has a long life. Beware, however, of overtightening, as this can cause wear in the compressor bearings.

47 The belt should be tensioned so that, under firm thumb pressure, there is approximately 5.0 mm of free movement at the mid-point between the pulleys on the top belt run.

48 To adjust the tension, first slacken the three tensioner pulley assembly retaining bolts. Using the ratchet handle or extension bar described in paragraph 44, force the tensioner pulley against the drivebelt until the correct drivebelt tension is obtained. Hold the pulley in this position, and securely tighten its three retaining bolts. Rotate the crankshaft a couple of times, and recheck the tension.

49 When the belt is correctly tensioned, clip the coolant hoses into position, then refit the plastic cover to the wing valance. Refit the roadwheel, and lower the vehicle to the ground.

22 Clutch adjustment check and control mechanism lubrication

1 Check that the clutch pedal moves smoothly and easily through its full travel.

2 The clutch itself should function correctly, with no trace of slip or drag.

3 Adjust the clutch cable if necessary, as described in Chapter 6.

4 If excessive effort is required to operate the clutch, check first that the cable is correctly routed and undamaged. Remove the pedal, and make sure that its pivot is properly greased. Refer to Chapter 6 for further information.

23 Rear brake shoe condition check - models with rear drum brakes

1 Remove the rear brake drums, and check the brake shoes for signs of wear or contamination. At the same time, also inspect the wheel cylinders for signs of leakage, and the brake drum for signs of wear. Refer to the relevant Sections of Chapter 9 for further information.

24 Rear brake pad condition check - models with rear disc brakes



1 Chock the front wheels, then jack up the rear of the vehicle and support it on axle stands. Remove the rear roadwheels.

2 For a quick check, the thickness of friction material remaining on each brake pad can be measured through the top of the caliper body. If any pad's friction material is worn to the specified thickness or less, all four pads must be renewed as a set.

3 For a comprehensive check, the brake pads should be removed and cleaned. This will permit the operation of the caliper to be checked, and the condition of the brake disc itself to be fully examined on both sides. Refer to Chapter 9 for further information.

25 Road test



Instruments and electrical equipment

1 Check the operation of all instruments and electrical equipment.

2 Make sure that all instruments read correctly, and switch on all electrical equipment in turn, to check that it functions properly.

Steering and suspension

3 Check for any abnormalities in the steering, suspension, handling or road "feel".

4 Drive the vehicle, and check that there are no unusual vibrations or noises.

5 Check that the steering feels positive, with no excessive "sloppiness", or roughness, and check for any suspension noises when cornering and driving over bumps.

Drivetrain

6 Check the performance of the engine, clutch (where applicable), transmission and driveshafts.

7 Listen for any unusual noises from the engine, clutch and transmission.

8 Make sure that the engine runs smoothly when idling, and that there is no hesitation when accelerating.

9 Check that, where applicable, the clutch action is smooth and progressive, that the drive is taken up smoothly, and that the pedal travel is not excessive. Also listen for any noises when the clutch pedal is depressed.

10 On manual transmission models, check that all gears can be engaged smoothly without noise, and that the gear lever action is not abnormally vague or "notchy".

11 On automatic transmission models, make sure that all gearchanges occur smoothly, without snatching, and without an increase in engine speed between changes. Check that all the gear positions can be selected with the vehicle at rest. If any problems are found, they

should be referred to a Citroen dealer.

12 Listen for a metallic clicking sound from the front of the vehicle, as the vehicle is driven slowly in a circle with the steering on full-lock. Carry out this check in both directions. If a clicking noise is heard, this indicates wear in a driveshaft joint, in which case the joint should be renewed.

Check the operation and performance of the braking system

13 Make sure that the vehicle does not pull to one side when braking, and that the wheels do not lock prematurely when braking hard.

14 Check that there is no vibration through the steering when braking.

15 Check that the handbrake operates correctly, without excessive movement of the lever, and that it holds the vehicle stationary on a slope.

16 Test the operation of the brake servo unit as follows. Depress the footbrake four or five times to exhaust the vacuum, then start the engine. As the engine starts, there should be a noticeable "give" in the brake pedal as vacuum builds up. Allow the engine to run for at least two minutes, and then switch it off. If the brake pedal is now depressed again, it should be possible to detect a hiss from the servo as the pedal is depressed. After about four or five applications, no further hissing should be heard, and the pedal should feel considerably harder.

Every 18 000 miles or 18 months

26 Air filter renewal



1124 cc and 1360 cc models

1 Slacken the retaining clips (where fitted), and disconnect the vacuum hose and breather hose from the front of the air cleaner housing-to-carburettor duct (see illustration). Where the crimped-type Citroen hose clips are fitted, cut the clips and discard them; use standard worm-drive hose clips on refitting.

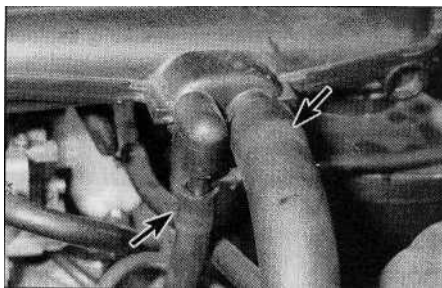
2 Slacken the retaining clip securing the duct to the carburettor/throttle body. Release the retaining clips securing the lid to the top of the air cleaner housing. Lift the duct and air cleaner lid assembly away, and position it clear of the air cleaner housing (see illustrations).

3 Lift the air cleaner element out of the housing (see illustration).

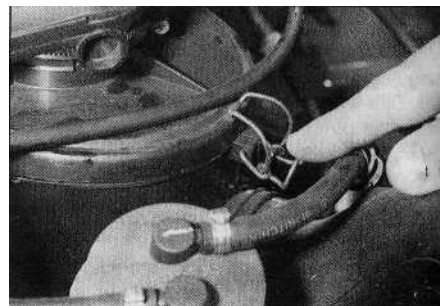
4 Fit the new element into the housing, and secure it in position with the retaining clips.

5 Refit the sealing ring to the top of the filter (where fitted), and refit the air cleaner-to-carburettor duct. Ensure that the duct and its sealing rings are correctly seated, and securely tighten the retaining clips.

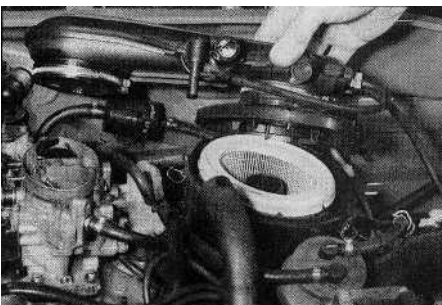
6 Reconnect the vacuum and breather hoses



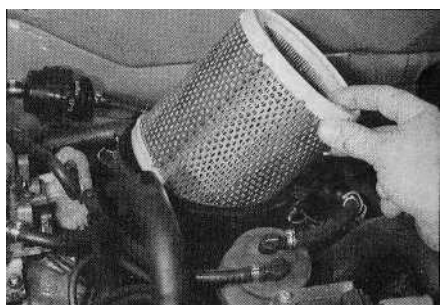
26.1 On 1124 cc and 1360 cc models, disconnect the breather and vacuum hoses from the front of the duct...



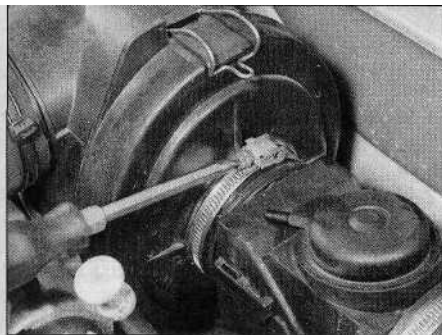
26.2a ... then release the air cleaner lid retaining clips, and the duct retaining clip...



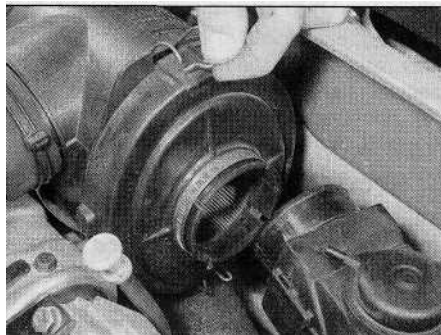
26.2b ... and remove the duct, positioning it clear of the air cleaner housing



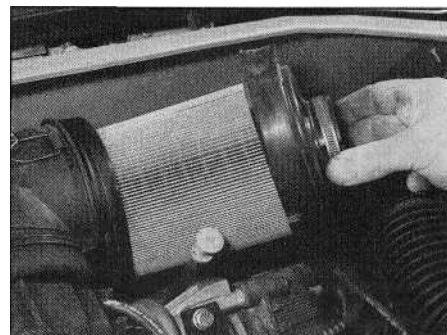
26.3 Removing the air cleaner element - 1124 cc and 1360 cc models



26.7 On 1580 cc models, slacken the retaining clip and disconnect the air temperature control valve ...



26.8a ... then release the retaining clips...



26.8b ... and remove the cover and filter element

to the duct, and secure them in position with the retaining clips (where fitted).

1580 cc models

7 Slacken the retaining clip, and disengage the air temperature control valve from the air cleaner housing (**see illustration**).

8 Release the retaining clips, then remove the cover from the side of the air cleaner housing. Withdraw the filter element, noting which way round it is fitted (**see illustrations**).

9 Install the new filter element in the housing, ensuring that it is fitted the correct way round. Refit the cover, securing it in position with the retaining clips.

10 Reconnect the air temperature valve to the filter housing, and securely tighten its retaining clip.

1761 cc and 1998 cc 8-valve models

11 Slacken the retaining clip, and disconnect the intake duct from the front of the cylinder head cover (**see illustration**).

12 Slacken and remove the two retaining screws situated at the front of the cylinder head cover, then release the two air filter cover retaining clips. Remove the filter cover from the cylinder head cover, and withdraw the filter element (**see illustrations**).

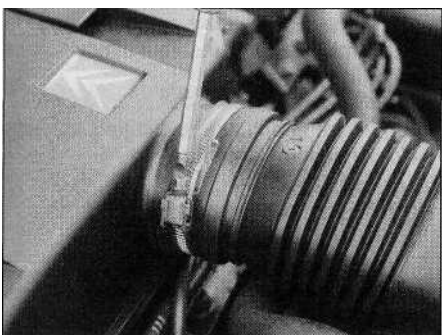
13 Fit the new element in position in the cylinder head cover. Refit the filter cover, securing it in position with its retaining screws and clips.

14 Reconnect the intake duct to the cylinder head cover, and securely tighten its retaining clip.

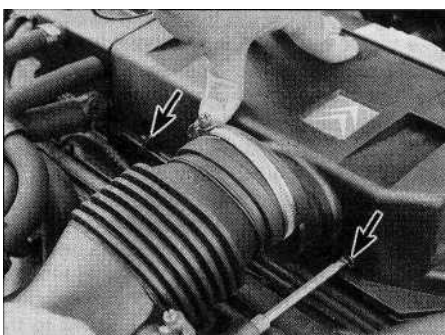
1905 cc models

15 Slacken the retaining clip, and disconnect the intake duct from the end of the air cleaner housing.

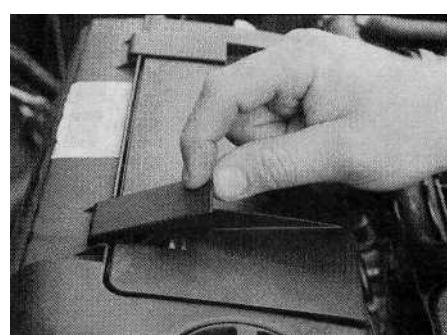
16 Slacken and remove the two retaining nuts, then remove the cover from the end of the filter housing. Withdraw the filter element,



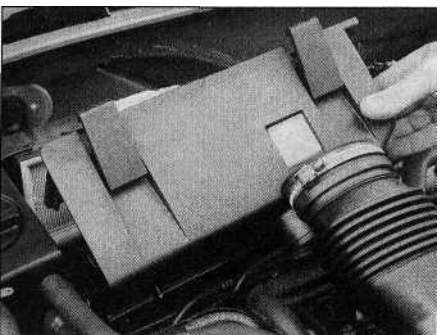
26.11 On 1761 cc and 1998 cc 8-valve models, disconnect the intake duct from the front of the cylinder head cover ...



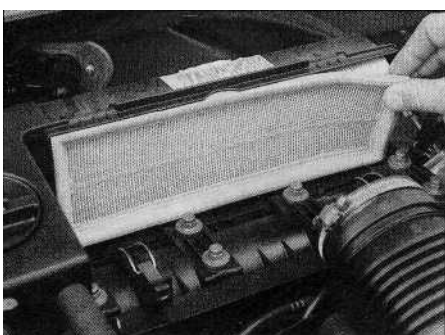
26.12a ... then slacken the retaining screws (arrowed)...



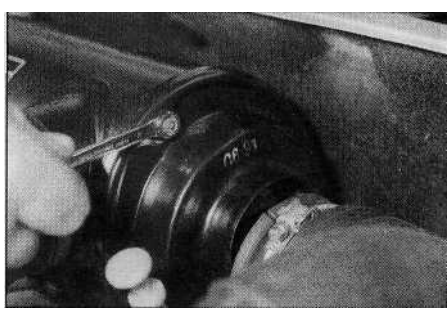
26.12b ... and release the retaining clips



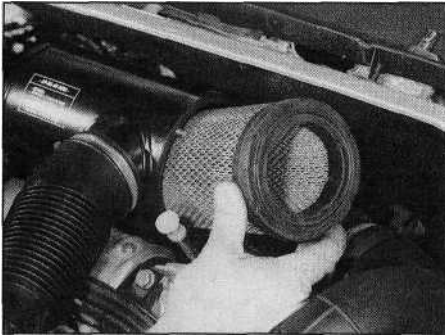
26.12c Lift off the filter cover ...



26.12d ... and withdraw the filter element



26.16a On 1905 cc models, disconnect the intake duct and undo the retaining nuts, remove the end cover ...



26.16b ... and withdraw the filter element

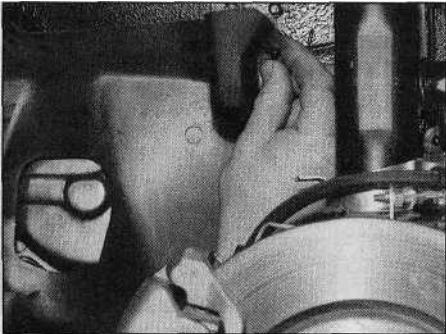
noting which way round it is fitted (see illustrations).

Every 24 000 miles or 2 years

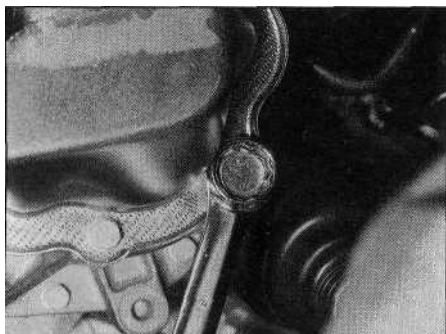
28 Manual transmission oil level check

Note: A new sealing washer will be required for the transmission filler/level plug, when refitting.

1 Park the car on a level surface. Check the oil level before the car is driven, or wait at least 5 minutes after the engine has been switched off. If the oil level is checked immediately after driving the car, some of the oil will remain distributed



28.2 Removing the access cover from the left-hand wheel arch liner



28.3 Removing the manual transmission filler/level plug (1905 cc model shown)

17 Install the new filter element in the housing, ensuring that it is fitted the correct way round. Refit the housing end cover, and securely tighten its retaining nuts.

18 Reconnect the intake duct to the filter housing, and securely tighten its retaining clip.

1998 cc 16-valve models

19 Firmly apply the handbrake, then jack up the front of the vehicle and support it on axle stands.

20 Working from underneath the vehicle, release the retaining clips and remove the filter housing cover, then lower out the filter element.

21 Install the new element in the filter housing, and refit the housing cover. Secure the cover in position with the retaining clips, then lower the vehicle to the ground.

around the transmission components, resulting in an inaccurate level reading.

2 Prise out the three retaining clips, and remove the small access cover from the left-hand wheel arch liner (see illustration).

3 Wipe clean the area around the filler/level plug, which is the largest bolt among those securing the end cover to the transmission. Unscrew the plug and clean it; discard the sealing washer (see illustration).

4 The oil level should reach the lower edge of the filler/level hole. A certain amount of oil will have gathered behind the filler/level plug, and will trickle out when it is removed; this does *not* necessarily indicate that the level is correct. To ensure that a true level is established, wait until the initial trickle has stopped, then add oil as necessary until a trickle of new oil can be seen emerging. The level will be correct when the flow ceases; use only good-quality oil of the specified type.

5 Refilling the transmission is an awkward operation; above all, allow plenty of time for the oil level to settle properly before checking it. If a large amount had to be added to the transmission, or if a large amount flowed out on checking the level, refit the filler/level plug and take the vehicle on a short journey. With the new oil distributed fully around the



28.5 Topping-up the manual transmission oil

27 Hinge and lock lubrication

1 Work around the vehicle, and lubricate the hinges of the bonnet, doors and tailgate with a light machine oil.

2 Lightly lubricate the bonnet release mechanism and exposed section of inner cable with a smear of grease.

3 Check carefully the security and operation of all hinges, latches and locks, adjusting them where required. Check the operation of the central locking system (if fitted).

4 Check the condition and operation of the tailgate struts, renewing them if either is leaking or is no longer able to support the tailgate securely when raised.

transmission components, recheck the level after allowing time for it to settle again (see illustration).

6 If the transmission has been overfilled so that oil flows out as soon as the filler/level plug is removed, first check that the car is completely level (front-to-rear and side-to-side). Allow any surplus oil to drain off into a suitable container.

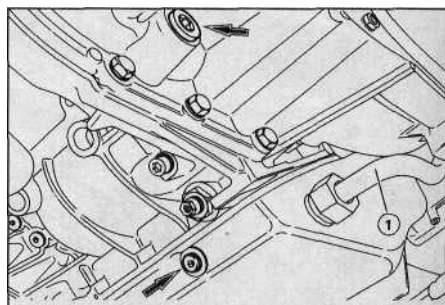
7 When the level is correct, fit a new sealing washer to the filler/level plug. Tighten the plug to the specified torque wrench setting. Wash off any spilt oil. Refit the access cover to the wheel arch liner, and secure it in position with its retaining clips.

8 Frequent need for topping-up indicates a leak, which should be found and corrected before it becomes serious.

29 Automatic transmission fluid renewal

1 Take the vehicle on a short run, to warm the transmission up to normal operating temperature.

2 Park the car on level ground, then switch off the ignition and apply the handbrake firmly. For improved access, jack up the front of the



29.3 Automatic transmission fluid drain plugs (arrowed). Transmission is refilled via the dipstick tube (1)

car and support it securely on axle stands. Note that, when refilling and checking the fluid level, the car must be lowered to the ground, and level, to ensure accuracy.

3 Remove the dipstick, then position a suitable container under the transmission. The transmission has two drain plugs: one on the sump, and another on the bottom of the differential housing (see illustration).

4 Unscrew both drain plugs, and allow the fluid to drain completely into the container.



Warning: If the fluid is hot, take precautions against scalding.

Clean the drain plugs, being especially careful to wipe any metallic particles off the magnetic insert. Discard the original sealing washers; these should be renewed whenever they are disturbed.

5 When the fluid has finished draining, clean the drain plug threads and those of the transmission casing. Fit a new sealing washer to each drain plug, and refit the plugs to the transmission, tightening each securely. If the car was raised for the draining operation, now lower it to the ground. Make sure that the car is level (front-to-rear and side-to-side).

6 Refilling the transmission is an awkward operation, adding the specified type of fluid to the transmission a little at a time via the dipstick tube. Use a funnel with a fine mesh gauze, to avoid spillage, and to ensure that no foreign

matter enters the transmission. Allow plenty of time for the fluid level to settle properly.

7 Once the level is up to the MAX mark on the dipstick, refit the dipstick. Start the engine, and allow it to idle for a few minutes. Switch the engine off, then recheck the level, topping-up if necessary. Take the car on a short run to fully distribute the new fluid around the transmission, then recheck the fluid level as described in Section 10.

30 Brake fluid renewal



Warning: Brake hydraulic fluid can harm your eyes, and will damage painted surfaces, so use extreme caution when handling and pouring it. It is also poisonous and highly-inflammable. Do not use fluid that has been standing open for some time, as it absorbs moisture from the air. Excess moisture in the fluid can cause a dangerous loss of braking effectiveness.

1 The procedure is similar to that for bleeding the hydraulic system, described in Chapter 9. Allowance should be made for all the old fluid to be expelled when bleeding a section of the circuit. The brake fluid reservoir should be emptied by syphoning, using a clean poultry

baster or similar, before starting. *Take care not to spill fluid onto the surrounding paintwork.*

2 Fill the brake fluid reservoir with fresh fluid. Working as described in Chapter 9, open the first bleed nipple in the sequence, and pump the brake pedal gently until the fluid level approaches the "MIN" mark. Do not allow the fluid in the reservoir to fall below this level.

3 Top-up the reservoir to the "MAX" level with new fluid, and continue pumping until new fluid can be seen emerging from the bleed nipple. Old hydraulic fluid is invariably much darker in colour than the new, making it easy to distinguish the two. Tighten the nipple, and top the reservoir level up to the "MAX" level.

4 Work through all the remaining nipples in the sequence, until new fluid can be seen at all of them. Be careful to keep the master cylinder reservoir topped-up to above the "MIN" level at all times, or air may enter the system and greatly increase the length of the task.

5 When the operation is complete, check that all nipples are securely tightened, and that their dust caps are refitted. Wash off all traces of spilt fluid, and recheck the master cylinder reservoir fluid level.

6 Check the operation of the brakes before taking the car on the road. In particular, check for any "sponginess" felt through the pedal; this would indicate that air has been allowed to enter the system, necessitating further bleeding.

Every 40 000 miles or 2 years

31 Coolant renewal



Cooling system draining



Warning: Wait until the engine is cold before starting this procedure. Do not allow antifreeze to come in contact with your skin, or with the painted surfaces of the vehicle. Rinse off spills immediately with plenty of water.

Never leave antifreeze lying around in an open container, or in a puddle in the driveway or on the garage floor. Children and pets are attracted by its sweet smell, but antifreeze can be fatal if ingested.

1 To drain the cooling system, remove the expansion tank filler cap. Turn the cap anti-clockwise until it reaches the first stop. Wait until any pressure remaining in the system is released, then push the cap down, turn it anti-clockwise to the second stop, and lift off.

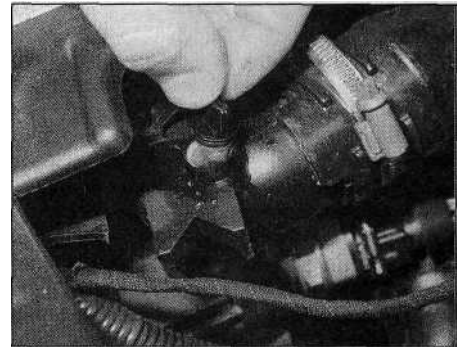
2 Position a suitable container beneath the coolant drain outlet at the lower left-hand side of the radiator. If desired, a suitable length of tubing can be attached to the outlet, to direct the flow of coolant (see illustration).

3 Loosen the drain plug (there is no need to remove it completely), and allow the coolant to drain into the container.

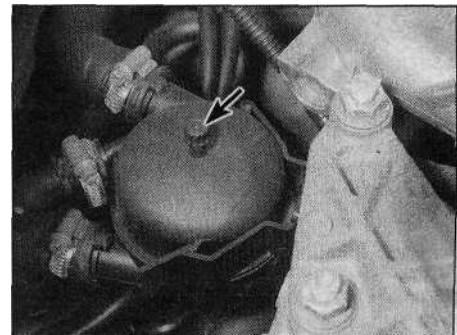
4 To assist draining, open the cooling system bleed screws, which are located as follows:

1124 cc and 1360 cc models

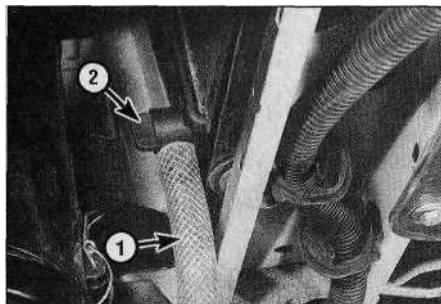
- At the top left-hand corner of the radiator (see illustration).
- In the top of the coolant outlet housing mounted on the left-hand end of the cylinder head.
- In the heater outlet hose connection (to improve access, this bleed screw may be located in the end of an extension hose joined to the connection).
- In the top of the cooling system de-aeration chamber mounted on the right-hand rear corner of the cylinder block - pre-1993 models without air conditioning (see illustration).



31.4a Removing the radiator bleed screw



31.4b Cooling system de-aeration chamber bleed screw (arrowed) - pre-1993 1124 cc and 1360 cc models without air conditioning



31.2 Tubing (1) attached to radiator coolant drain outlet. Note drain plug (2)

Specifications

Engine

Valve clearances -1124 cc and 1360 cc models:

Inlet020 mm
Exhaust040 mm
Oil filter (all models).	Champion F104

Cooling system

Antifreeze mixture:

28% antifreeze.	Protection down to -15°C (5°F)
50% antifreeze.	Protection down to -30°C (-22°F)

Note: Refer to antifreeze manufacturer for latest recommendations.

Fuel system

Idle speed (all models).	850 ± 50 rpm
Idle mixture CO content:	
Carburettor models.	0.8 to 1.2 %
Fuel injection models:	
Without a catalytic converter.1 to 2 %
With a catalytic converter.	Less than 1.0 %
Air filter element:	
1124 cc, 1360 cc and 1580 cc models.	Champion V401
Other models.	Champion type not available
Fuel filter:	
Carburettor models.	Champion L101
Fuel injection models.	Champion L201

Ignition system

Ignition timing.	Refer to Chapter 5
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Spark plugs:

1905 cc (D6E engine) models and 1998 cc 16-valve models.	Champion RC7YCC
All other models.	Champion RC9YCC

Spark plug electrode gap*.	0.8 mm
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Ignition HT lead resistance.	Approximately 600 ohms per 100 mm length
--------------------------------------	--

**The spark plug gap quoted is that recommended by Champion for their specified plugs listed above. If spark plugs of any other type are to be fitted, refer to their manufacturer's spark plug gap recommendations.*

Brakes

Brake pad friction material minimum thickness (front and rear).	2.0 mm
Brake shoe friction material minimum thickness.	1.5 mm

Tyres

Tyre size.	165/70 R 13, 175/65 R 14, 185/60 R 14 or 195/55 R 15 (depending on model)
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Pressures - (tyres cold):	Front	Rear
165/70 R 13 tyres.	2.2 bar (32 psi)	2.2 bar (32 psi)
175/65 R 14 tyres.	2.1 bar (30 psi)	2.1 bar (30 psi)
185/60 R 14 tyres*.	2.2 bar (32 psi)	2.2 bar (32 psi)
195/55 R 15 tyres*.	2.2 bar (32 psi)	2.3 bar (33 psi)

Note: Pressures apply only to original-equipment tyres, and may vary if any other make or type is fitted; check with the tyre manufacturer or supplier for correct pressures if necessary.

** Models with these tyres have a "space-saver" spare wheel, fitted with a smaller tyre. The smaller spare tyre should run at 2.4 bars (35 psi). Note that the vehicle should not be driven at speeds exceeding 100 mph (160 km/h) whilst the "space-saver" spare wheel is fitted.*

Wiper blades

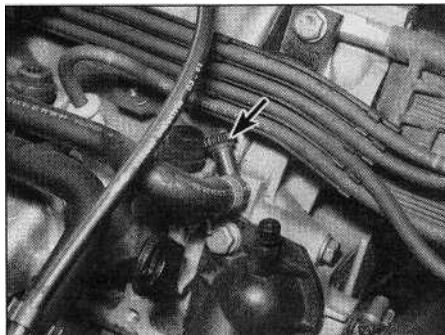
Front.	Champion X-5503
Rear.	Champion X-4503

Torque wrench settings

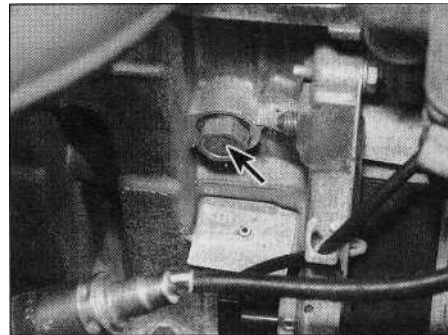
	Nm	lbf ft
Rocker arm adjusting screw locknut -1124 cc and 1360 cc models ...	18	13
Spark plugs.	25	18
Manual transmission:		
1124 cc and 1360 cc models:		
Filler/level and drain plugs.	25	18
1580 cc and larger-engined models:		
Filler/level plug.	22	16
Drain plug.	35	26



31.4c Removing the heater outlet hose bleed screw (screw located in extension hose)



31.4d Thermostat housing coolant hose bleed screw (arrowed) -1580 cc model



31.6 Cylinder block drain plug (arrowed) - 1124 cc and 1360 cc models

1580 cc and larger-engined models

- At the top left-hand corner of the radiator.
- In the top of the thermostat housing cover.
- In the heater outlet hose connection (to improve access, this bleed screw may be located in the end of an extension hose joined to the connection) (see illustration).
- In the coolant hose located directly above the thermostat housing cover - all except 1998 cc 16-valve models (see illustration).
- One on the front coolant hose connection, and one on the rear coolant hose connection to the coolant outlet housing mounted on the left-hand end of the cylinder head - 1998 cc 16-valve models.

5 When the flow of coolant stops, reposition the container below the cylinder block drain plug. On 1998 cc models, the drain plug is located at the rear of the cylinder block; on all other models, the plug is located on the front of the block.

6 Remove the drain plug, and allow the coolant to drain into the container (see illustration).

7 If the coolant has been drained for a reason other than for renewal, then provided it is clean and less than two years old, it can be re-used.

Cooling system flushing

Note: A new sealing ring will be required when refitting the radiator bottom hose.

8 If coolant renewal has been neglected, or if the antifreeze mixture has become diluted, then in time, the cooling system may gradually lose efficiency. The coolant passages will eventually become restricted due to rust, scale deposits, and other sediment. This situation can be remedied by flushing the system clean.

9 The radiator should be flushed independently of the engine, to avoid unnecessary contamination.

Radiator flushing

10 To flush the radiator, first tighten the radiator drain plug and the radiator bleed screw.

11 Disconnect the top and bottom hoses from the radiator (it is only necessary to disconnect the larger radiator bottom hose), as described in Chapter 3, Section 2.

12 Insert a garden hose into the radiator top inlet. Direct a flow of clean water through the radiator, and continue flushing until clean water emerges from the radiator bottom outlet.

13 If, after a reasonable period, the water still does not run clear, the radiator can be flushed with a good proprietary cleaning agent. It is important that the cleaning agent manufacturer's instructions are followed carefully. If the contamination is particularly bad, insert the hose in the radiator bottom outlet, and flush the radiator in the reverse direction to normal flow.

Engine flushing

14 To flush the engine, first refit the cylinder block drain plug, and tighten the cooling system bleed screws.

15 Remove the thermostat as described in Chapter 3, then temporarily refit the thermostat cover.

16 With the top and bottom hoses disconnected from the radiator, insert a garden hose into the radiator top hose. Direct a clean flow of water through the engine, and continue flushing until clean water emerges from the radiator bottom hose.

17 On completion of flushing, refit the thermostat and reconnect the hoses with reference to Chapter 3. Note that a new sealing ring should be used when reconnecting the radiator bottom hose.

Cooling system filling

18 Before attempting to fill the cooling system, make sure that all hoses and clips are in good condition, and that the clips are tight. Note that antifreeze must be used all year round, to prevent corrosion of the engine components (refer to the following sub-Section). Also check that the radiator and cylinder block drain plugs are in place and tight.

19 Remove the expansion tank filler cap.

20 Open all the cooling system bleed screws (see paragraph 4).

21 Some of the cooling system hoses are

positioned at a higher level than the top of the radiator expansion tank. It is therefore necessary to use a "header tank" when refilling the cooling system, to reduce the possibility of air being trapped in the upper parts of the system. Although Citroen dealers use a special header tank, the same effect can be achieved by using a suitable bottle, with a seal, between the bottle and the expansion tank (see illustration).

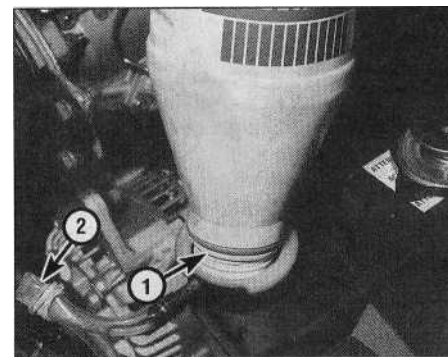
22 Clamp the expansion tank breather hose, then fit the "header tank" to the expansion tank, and slowly fill the system. Coolant will emerge from each of the bleed screws in turn, starting with the lowest screw. As soon as coolant free from air bubbles emerges from the lowest screw, tighten that screw, and watch the next bleed screw in the system. Repeat the procedure until the coolant is emerging from the highest bleed screw in the cooling system, then tighten all bleed screws securely.

23 Start the engine, and run it at a fast idle speed (do not exceed 2000 rpm) until the cooling fans cut in.

24 Remove the "header tank", taking great care not to scald yourself with the hot coolant, then fit the expansion tank cap. Unclamp the expansion tank breather hose.

25 Stop the engine, and allow it to cool.

26 Check the coolant level, which should be up to the "MAX" mark on the side of the expansion tank. Top-up the level if necessary.



31.21 A "header tank" arrangement will be required to refill the cooling system. Note the O-ring seal (1) and the clamped breather hose (2)

Antifreeze mixture

27 The antifreeze should always be renewed at the specified intervals. This is necessary not only to maintain the antifreeze properties, but also to prevent corrosion which would otherwise occur as the corrosion inhibitors become progressively less effective.

28 Always use an ethylene-glycol-based antifreeze which is suitable for use in mixed-metal cooling systems. The quantity of antifreeze required, and the levels of protection, are indicated in the Specifications.

29 Before adding antifreeze, the system should be drained, preferably flushed, and all hoses checked for condition and security.

30 After filling with antifreeze, a label should be attached to the expansion tank, stating the type and concentration of antifreeze used, and the date installed. Any subsequent topping-up should be made with the same type and concentration of antifreeze.

31 Do not use engine antifreeze in the windscreen/tailgate washer system, as it will cause damage to the vehicle paintwork. A screenwash additive should be added to the washer system in its manufacturer's recommended quantities.

32 Fuel filter renewal - fuel injection models



Warning: Before carrying out the following operation, 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.

1 The fuel filter is situated underneath the rear of the vehicle, mounted on the right-hand side of the fuel tank. To gain access to the filter, chock the front wheels, then jack up the rear of the vehicle and support it on axle stands.

2 Clamp the fuel hose on the tank side of the filter. Bearing in mind the information given in the relevant Part of Chapter 4.8 on depressurising the fuel system, release the retaining clips and disconnect the fuel hoses from the filter. Be prepared for fuel spillage.

3 Note the direction of the arrow marked on the filter body. Slacken the retaining clamp screw, then slide the filter out of the clamp, and remove it from underneath the vehicle.

4 Dispose safely of the old filter; it will be highly-inflammable, and may explode if thrown on a fire.

5 Slide the new filter into position in the clamp, ensuring that the arrow on the filter body is pointing in the direction of the fuel flow, ie. towards the throttle body/fuel rail. This can be determined by tracing the fuel hoses back along their length.

6 Connect the fuel hoses to the filter, and secure them in position with their retaining clips. Remove the hose clamp.

7 Start the engine, and check the filter hose connections for leaks. Lower the vehicle to the ground on completion.

Every 48 000 miles

33 Timing belt renewal

Refer to the relevant Part of Chapter 2.

Every 72 000 miles

34 Manual transmission oil renewal

Note: New sealing washers will be required for the transmission filler/level and drain plugs, when refitting.

1 This operation is much quicker and more efficient if the car is first taken on a journey of sufficient length to warm the engine and transmission up to normal operating temperature.

2 Park the car on level ground, then switch off the ignition and apply the handbrake firmly. For improved access, jack up the front of the car and support it securely on axle stands. Note that, when refilling and checking the oil level, the car must be lowered to the ground, and level, to ensure accuracy.

3 Prise out the three retaining clips, and remove the small access cover from the left-hand wheel arch liner.

4 Wipe clean the area around the filler/level plug, which is the largest bolt among those securing the end cover to the transmission. Unscrew the filler/level plug, and remove it from the transmission.

5 Position a suitable container under the drain plug (situated at the rear of the transmission) and unscrew the plug. On 1124 cc and 1360 cc models, the plug is on the left-hand side of the differential housing; on 1580 cc and larger-engined models, it is on the base of the differential housing. A square-section wrench

(the same as that used for the engine sump drain plug) may be required to undo the drain plug on some models (see illustrations).

6 Allow the oil to drain completely into the container. If the oil is hot, take precautions against scalding. Clean both the filler/level and the drain plugs, being especially careful to wipe any metallic particles off the magnetic inserts. Discard the original sealing washers; they should be renewed whenever they are disturbed.

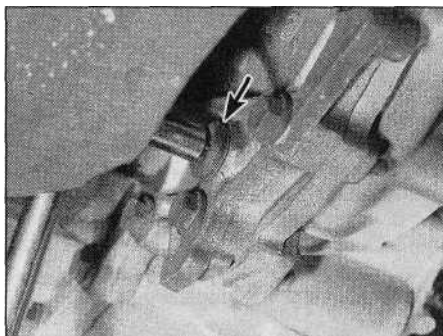
7 When the oil has finished draining, clean the drain plug threads and those of the transmission casing. Fit a new sealing washer, and refit the drain plug, tightening it to the specified torque wrench setting. If the car was raised for the draining operation, now lower it to the ground. Make sure that the car is level,

both front-to-rear and side-to-side.

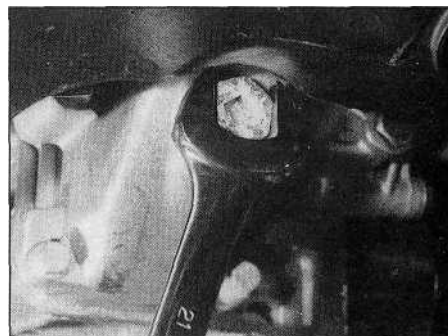
8 Refilling the transmission is an awkward operation. Above all, allow plenty of time for the oil level to settle properly before checking it.

9 Refill the transmission with the exact amount of the specified type of oil, then check the oil level as described in Section 28. If the correct amount was poured into the transmission, and a large amount flows out on checking the level, refit the filler/level plug and take the car on a short journey. With the new oil distributed fully around the transmission components, recheck the level after allowing time for it to settle again.

10 Once the level is correct, refit the access cover to the wheel arch liner, securing it in position with its retaining clips.



34.5a Removing the manual transmission drain plug (arrowed) - 1124 cc and 1360 cc models



34.5b Removing the manual transmission drain plug - 1580 cc and larger-engined models