

# Chapter 1

## Routine maintenance and servicing



1

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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



# 1.2 Servicing Specifications

**Lubricants and fluids** . . . . . Refer to end of "Weekly checks"

## Capacities

### Engine oil

XV and XW series engines (including filter) . . . . .	4.5 litres
XY and XU series engines (including filter) . . . . .	5.0 litres
TU series engines (including filter) . . . . .	3.5 litres

### Cooling system

XV8, XW7, TU9 and TU3 series engines . . . . .	5.8 litres
XY7 and XY8 engines . . . . .	6.0 litres
XU engines (except automatic transmission models) . . . . .	6.6 litres
XU engines (automatic transmission models) . . . . .	6.7 litres
TU1 series engine (except Van models) . . . . .	7.0 litres
TU1 series engine (Van models) . . . . .	5.8 litres

**Manual transmission** . . . . . 2.0 litres

### Automatic transmission

From dry . . . . .	6.2 litres
Drain and refill . . . . .	2.4 litres

**Fuel tank** . . . . . 50 litres

## Engine

### Oil filter:

XV, XW and XY series engines . . . . .	Champion C204
XU and TU series engines . . . . .	Champion F104

## Cooling system

### Antifreeze mixture:

Protection down to - 15°C (5°F) . . . . .	27% antifreeze
Protection down to - 35°C (- 31°F) . . . . .	50% antifreeze

**Note:** Refer to Chapter 3 for further details.

## Fuel system

### Air cleaner filter element:

Pre-1988 carburettor engines . . . . .	Champion W138
1988 onward carburettor engines . . . . .	Champion U401
Fuel injection engines . . . . .	Champion W175

Fuel filter . . . . . Champion L205

Idle speed and mixture CO content . . . . . Refer to Chapter 4A, 4B and 4C Specifications

## Ignition system

### Spark plugs:

XV8, XW7 and XY7 engines . . . . .	Champion RS9YCC or S281YC*
XY8 and XU5J engines . . . . .	Champion S7YCC or S279YC*
XU51C engines (up to 1988) . . . . .	Champion S9YCC or S281YC*
XU51C engines (from 1988) . . . . .	Champion RC9YCC or C9YCX*
XU5JA engines (up to 1988) . . . . .	Champion S7YCC or S279YC*
XU5JA (from 1988), XU5JA/K, XU9JA, XU9JA/K, XU9JA/Z and XU9JA/L engines . . . . .	Champion RC7YCC or C7YCX*
TU9 series, TU1 series, TU3 and TU3A engines . . . . .	Champion RC9YCC or C9YCX*
TU3S engines . . . . .	Champion RC7YCC or C7YCX*

\*Peugeot recommendation

Spark plug electrode gap\*\* . . . . . 0.7 to 0.8 mm

\*\*The spark plug electrode 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 recommendations.

## Brakes

Front brake pad minimum lining thickness . . . . . 2.0 mm

Rear brake shoe minimum lining thickness . . . . . 1.0 mm

Rear brake pad minimum lining thickness . . . . . 2.0 mm

**Tyre pressures** . . . . . See "Weekly checks"

## Torque wrench settings

	Nm	lbf ft
Spark plugs . . . . .	17	13
Manual transmission drain/filler plugs		
BE1 and BE3 transmissions:		
Main gearbox drain plug . . . . .	10	7
Final drive drain plug . . . . .	30	22
MA transmission . . . . .	25	19

The maintenance intervals in this manual are provided with the assumption that you, not the dealer, will be carrying out the work. These are the average maintenance intervals recommended for vehicles driven daily under normal conditions. Obviously some variation of these intervals may be expected depending

on territory of use, and conditions encountered. 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, driven frequently at slow speeds (idling in traffic) or on short journeys, more frequent maintenance intervals are recommended.

## Every 250 miles (400 km) or weekly

- Refer to "Weekly checks".

## Every 6000 miles (9000 km) or 6 months - whichever comes sooner

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

- Renew the engine oil and filter (Section 3)\*.
- Check the condition of the front brake pads, and renew if necessary (Section 4).
- Check the automatic transmission fluid level and top-up if necessary (Section 5).

**Note:** *Renewal of the engine oil filter at this service interval is only necessary on models fitted with the XU9J1/L engine and automatic transmission. On all other models, oil filter renewal is recommended at every second oil change (ie 12 000 miles/12 months).*

## Every 12 000 miles (18 000 km) or 12 months - whichever comes sooner

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

- Check all underbonnet components and hoses for fluid leaks (Section 6).
- Renew the spark plugs (Section 7).
- Check, adjust and lubricate the throttle and choke cables (Section 8).
- Check the condition of the auxiliary drivebelt, and renew if necessary (Section 9).
- Check the clutch pedal stroke adjustment (Section 10).
- Check the condition of the seat belts (Section 11).
- Lubricate the locks and hinges (Section 12).
- Check the condition of the rear brake shoes and renew if necessary - rear drum brake models (Section 13).
- Check the condition of the rear brake pads and renew if necessary - rear disc brake models (Section 14).
- Check the operation of the handbrake (Section 15).
- Inspect the underbody and the brake hydraulic pipes and hoses (Section 16).
- Check the condition of the fuel lines (Section 16).
- Check the condition and security of the exhaust system (Section 17).
- Check the condition of the exterior trim and paintwork (Section 18).
- Check the headlight beam alignment (Section 19).
- Check the operation of the air conditioning system (Section 20).

## Every 24 000 miles (36 000 km) or 2 years - whichever comes sooner

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

- Check the manual transmission oil level, and top-up if necessary (Section 21).
- Renew the manual transmission oil (pre-1988 BE1 transmissions only) (Section 22).
- Renew the automatic transmission fluid (Section 23).
- Check the condition of the driveshaft bellows (Section 24).
- Check the steering and suspension components for condition and security (Section 25).
- Renew the air cleaner filter element (Section 26).
- Check the ignition system (Section 27).
- Check the idle speed and mixture adjustment (Section 28).
- Check the condition of the emissions control system hoses and components (Section 29).
- Carry out a road test (Section 30).

## Every 36 000 miles (58 000 km) or 3 years - whichever comes sooner

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

- Renew the timing belt (Section 31).

**Note:** *Although the normal interval for timing belt renewal is 72 000 miles (120 000 km), it is strongly recommended that the timing belt renewal interval is halved to 36 000 miles (60 000 km) on vehicles which are subjected to intensive use, ie. mainly short journeys or a lot of stop-start driving. The actual belt renewal interval is therefore very much up to the individual owner, but bear in mind that severe engine damage will result if the belt breaks.*

## Every 48 000 miles (80 000 km) or 4 years - whichever comes sooner

- Renew the fuel filter - fuel injection models (Section 32).

## Every 72 000 miles (120 000 km)

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

- Renew the timing belt (Section 31).

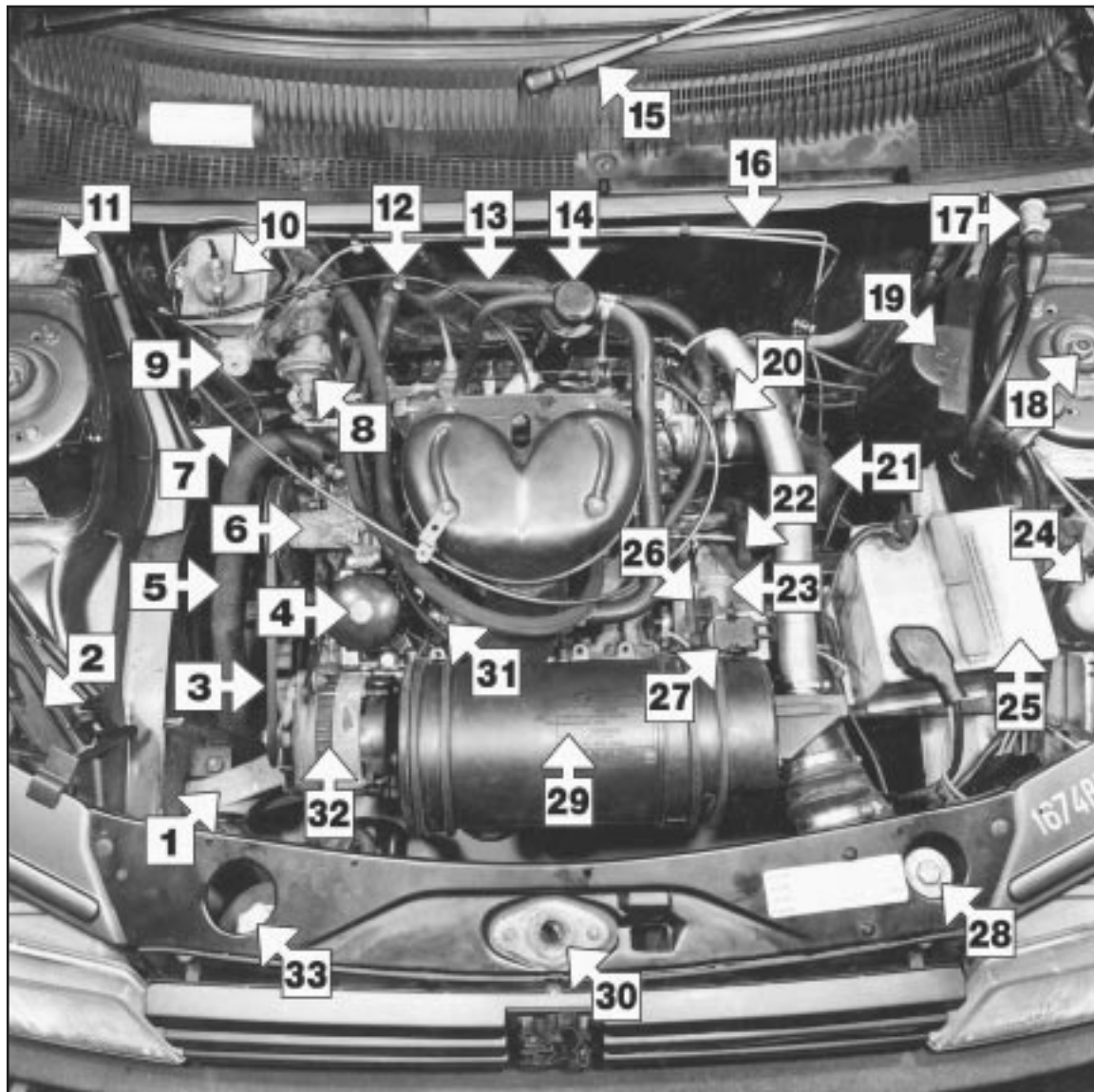
**Note:** *This is the interval recommended by Peugeot, but we recommend that the belt is changed more frequently, at 36 000 miles (60 000 km) - see above*

## Every 2 years (regardless of mileage)

- Renew the coolant (Section 33).
- Renew the brake fluid (Section 34).

## 1.4 Maintenance - component location

Underbonnet view of a 1360 cc GT model (XY8 series engine)



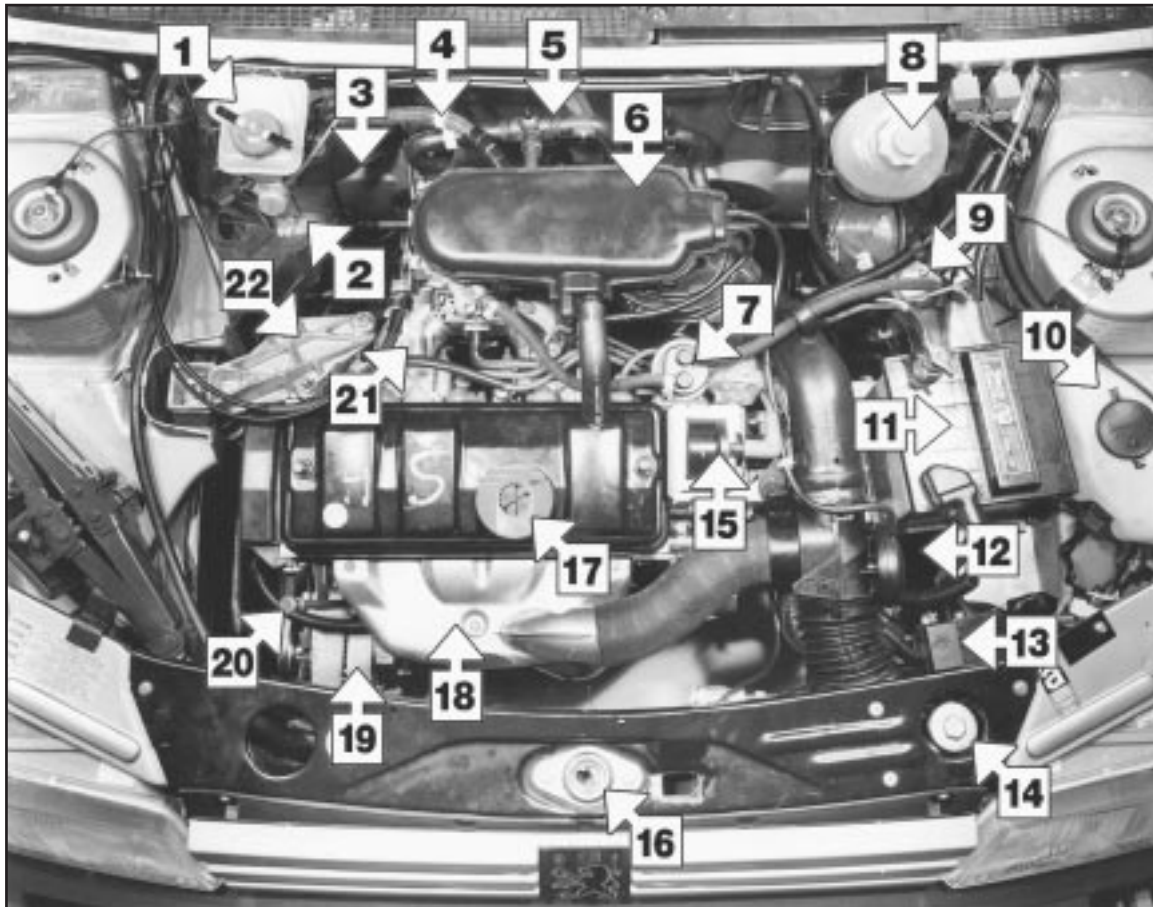
1 Right-hand front engine mounting  
2 Jack  
3 Drivebelt  
4 Oil filter  
5 Bottom hose  
6 Water pump  
7 Throttle cable  
8 Fuel pump  
9 Brake master cylinder  
10 Brake fluid reservoir filler cap  
11 Vehicle identification plate  
12 Choke cable

13 Heater hose  
14 Oil filler cap/crankcase ventilation filter  
15 Windscreen wiper arm  
16 Hydraulic brake lines  
17 Cooling fan motor resistor  
18 Front suspension shock absorber top mounting nut  
19 Ignition coil cover  
20 Distributor  
21 Bottom hose  
22 Clutch release fork

23 Clutch housing  
24 Washer reservoir  
25 Battery  
26 Ignition timing aperture  
27 Diagnostic socket  
28 Radiator filler cap  
29 Air cleaner  
30 Bonnet lock  
31 Oil pressure switch  
32 Alternator  
33 Cooling system expansion bottle



Underbonnet view of a 1360 cc XS model (TU series engine)



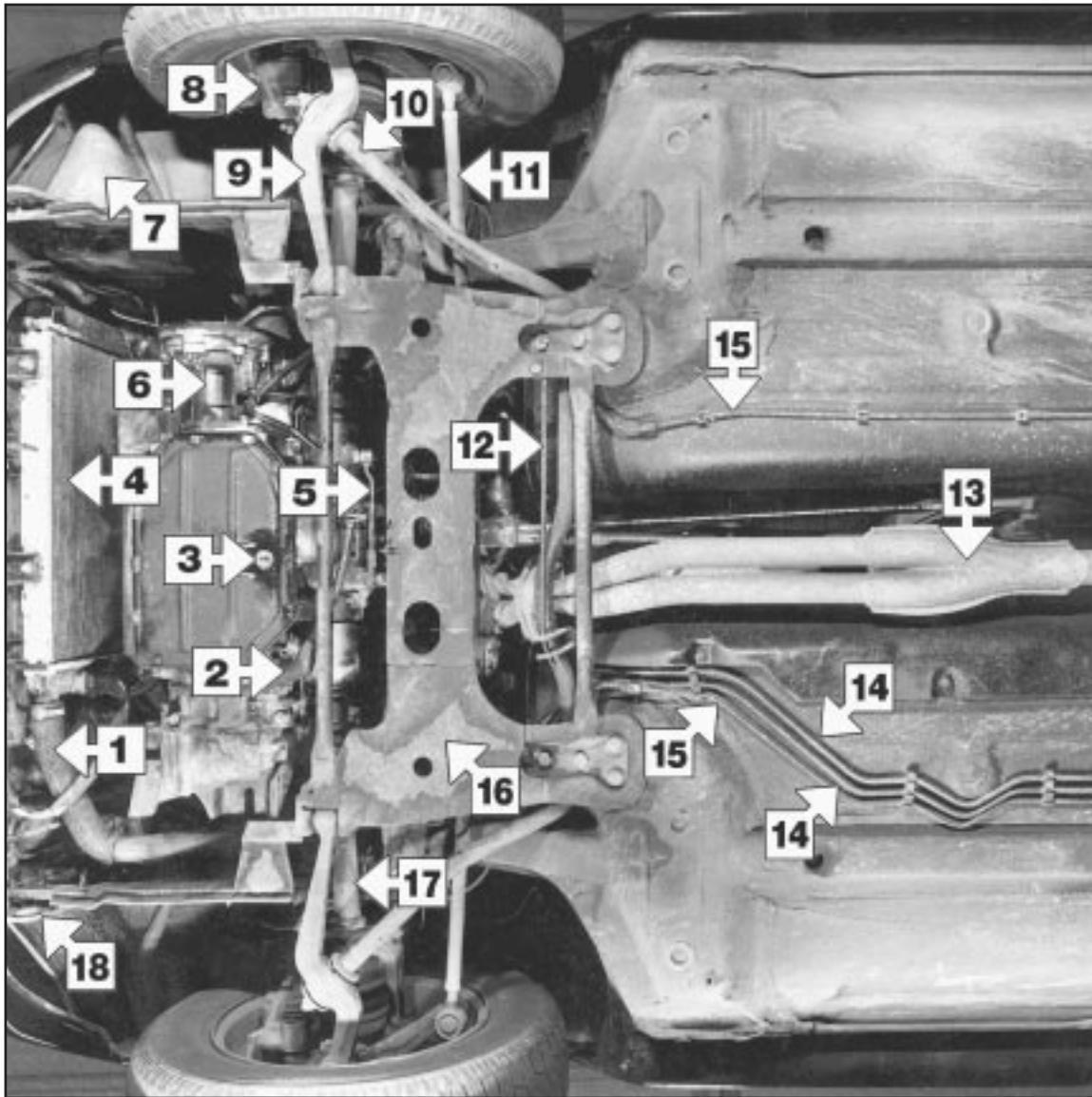
- 1 Brake fluid reservoir filler cap
- 2 Brake master cylinder
- 3 Brake vacuum servo unit
- 4 Servo vacuum hose
- 5 Cooling system bleed screw
- 6 Air cleaner cover
- 7 Fuel pump
- 8 Cooling system expansion bottle

- 9 Fuel filter
- 10 Washer fluid reservoir
- 11 Battery
- 12 Air temperature control unit
- 13 Auxiliary fusebox
- 14 Radiator filler cap
- 15 Ignition coil

- 16 Bonnet lock
- 17 Engine oil filler cap
- 18 Exhaust manifold hot air shroud
- 19 Alternator
- 20 Engine oil level dipstick
- 21 Inlet manifold
- 22 Right-hand engine mounting

## 1.6 Maintenance - component location

Front underside view of a 1360 cc GT model

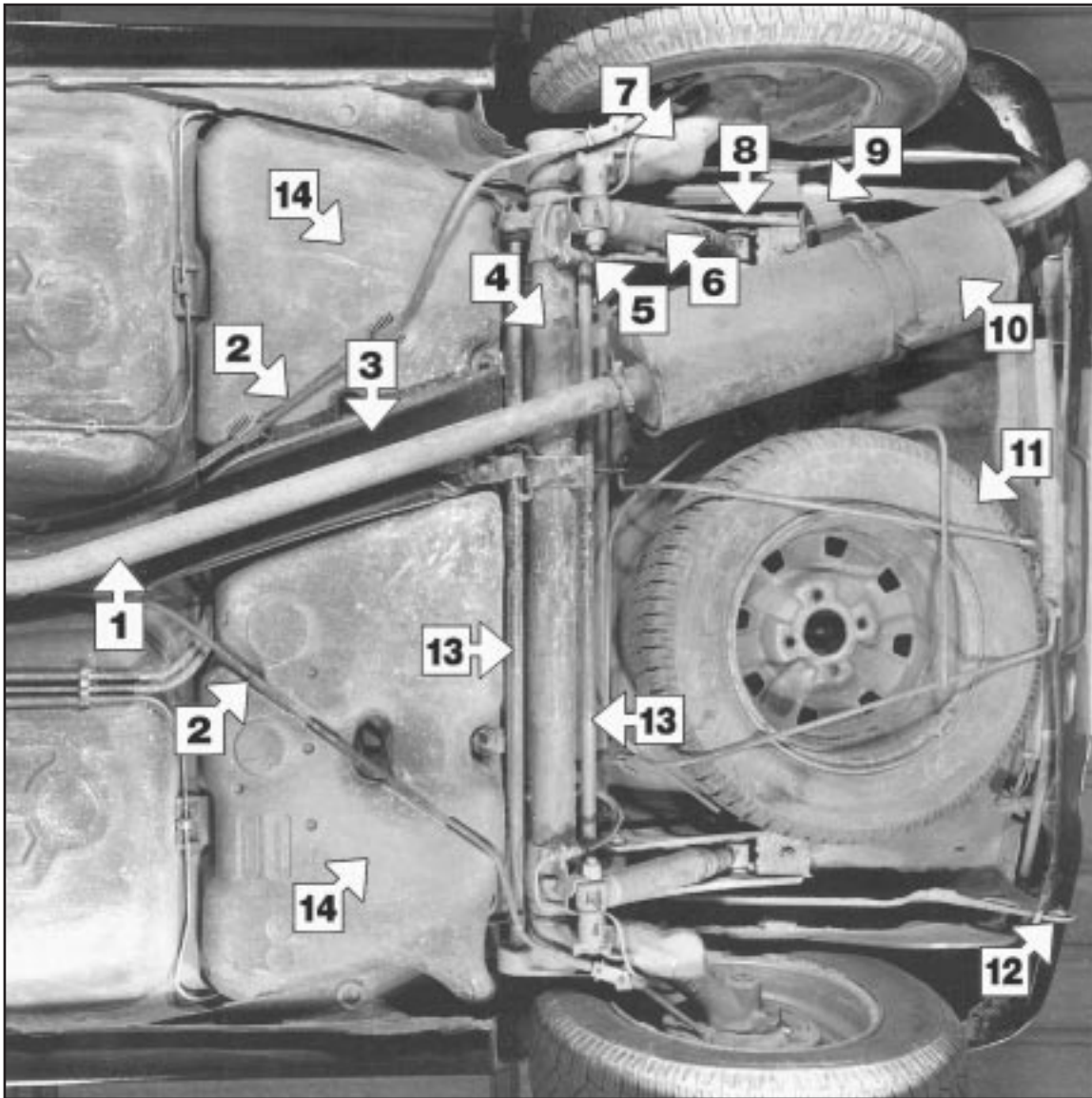


- 1 Bottom hose
- 2 Reverse lamp switch
- 3 Engine/transmission oil drain plug
- 4 Radiator
- 5 Gear linkage
- 6 Clutch housing and transfer gear assembly

- 7 Washer reservoir
- 8 Disc caliper
- 9 Lower suspension arm
- 10 Anti-roll bar
- 11 Track rod
- 12 Guide bar

- 13 Exhaust front pipe
- 14 Fuel feed and return pipes
- 15 Hydraulic brake lines
- 16 Subframe
- 17 Driveshaft
- 18 Front towing eye

## Rear underside view of a 1360 cc GT model



1 Exhaust front pipe

2 Handbrake cables

3 Heatshield

4 Rear suspension cross-tube

5 Brake hydraulic flexible hose

6 Rear shock absorber

7 Trailing arm

8 Side-member

9 Exhaust rubber mounting

10 Exhaust rear silencer

11 Spare wheel

12 Rear towing eye

13 Torsion bars

14 Fuel tank

# 1.8 Maintenance procedures

## 1 Introduction

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

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

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.

As you service your vehicle, you will discover that many of the procedures can - and should - be grouped together, 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 should be inspected at the same time as the suspension and steering components.

The first step of 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 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 some 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 (refer to Chapter 2A, B or C) 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, conventional maintenance as 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 (Chapter 2D) is carried out first.

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

### Primary operations

- Clean, inspect and test the battery (See "Weekly checks").*
- Check all the engine-related fluids (See "Weekly checks").*
- Check the condition of the auxiliary drivebelt (Section 9).*
- Inspect the distributor cap, rotor arm and HT leads (Section 27).*
- Renew the spark plugs (Section 7).*
- Check the condition of the air cleaner filter element and renew if necessary (Section 26).*
- Renew the fuel filter - fuel injection models (Section 32).*
- Check the condition of all hoses, and check for fluid leaks (Section 6).*

5 If the above operations do not prove fully effective, carry out the following operations:

### Secondary operations

All the items listed under "Primary operations", plus the following:

- Check the charging system (Chapter 5A).*
- Check the ignition system (Chapter 5B).*
- Check the fuel system (Chapter 4A, B and C).*
- Renew the distributor cap and rotor arm (Section 27).*
- Renew the ignition HT leads (Section 27).*

## Every 6000 miles or 6 months

## 3 Engine oil and filter renewal



**Note:** A suitable square-section wrench may be required to undo the sump drain plug on some models. These wrenches can be obtained from most motor factors or your Peugeot dealer.

1 Frequent oil changes are the best preventive maintenance the home mechanic can give the engine, because ageing oil becomes diluted and contaminated, which leads to premature engine wear.

2 Make sure that you have all the necessary tools before you begin this procedure. You should also have plenty of rags or newspapers handy, for mopping up any spills. The oil should preferably be changed when the engine is still fully warmed-up to normal operating temperature, just after a run; warm oil and sludge will flow out more easily. 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, and to protect yourself

from possible skin irritants and other harmful contaminants in used engine oils, it is advisable to wear gloves when carrying out this work. Access to the underside of the vehicle is greatly improved if the vehicle can be lifted on a hoist, driven onto ramps, or supported by axle stands. (see "Jacking and vehicle support"). Whichever method is chosen, make sure that the vehicle remains level, or if it is at an angle, that the drain point is at the lowest point.



3.3 Slackening the sump drain plug with a square section wrench

3 Position the draining container under the drain plug, and unscrew the plug. On some models, a square-section wrench may be needed to slacken the plug (see illustration). If possible, try to keep the plug pressed into the sump while unscrewing it by hand the last couple of turns (see Haynes Hint).

**HAYNES  
HiNT**



*Keep the drain plug pressed into the sump while unscrewing it by hand the last couple of turns. As the plug releases, move it away sharply so that the stream of oil issuing from the sump runs into the container, not up your sleeve!*





3.7 Using an oil filter removal tool to slacken the filter



5.1 Withdrawing the automatic transmission fluid dipstick

4 Allow the oil to drain into the container, and check the condition of the plug's sealing washer; renew it if worn or damaged.

5 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; when the oil has completely drained, wipe clean the drain plug and its threads in the sump and refit the plug, tightening it 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. On XV, XW and XY series engines, place some rag around the filter otherwise the oil that runs out as the filter is unscrewed will make a mess all over the front of the engine.

7 Using an oil filter removal tool if necessary, 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. Tighten the filter firmly by hand only - **do not** use any tools.

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

11 Remove the dipstick, then unscrew the oil filler cap from the rocker/cylinder head cover or oil filler/breather neck (as applicable). Fill the engine, using the correct grade and type of oil (see "Lubricants and 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 fall 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 approximately 1.5 litres 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; check 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 oil pressure warning light goes out when the engine is first started, as the oil circulates through the engine oil galleries and the new oil filter (if fitted) before the pressure builds up.

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 completely full, recheck the level on the dipstick, and add more oil as necessary.

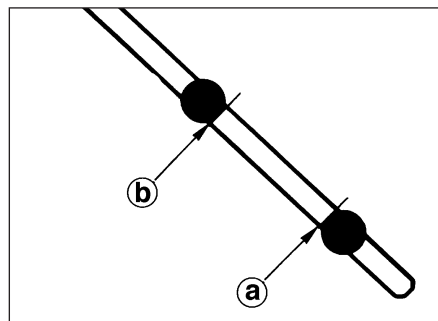
14 Dispose of the used engine oil safely, with reference to "General repair procedures" in the preliminary Sections of this manual.

#### 4 Front brake pad check

1 Jack up the front of the vehicle, and support it on axle stands (see "Jacking and vehicle support").

2 For better access to the brake calipers, remove the roadwheels.

**HAYNES HINT** For a quick check, the thickness of the friction material on each brake pad can be measured through the aperture in the caliper body



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

3 If any of the pads friction material is worn to the specified thickness or less, *all four pads must be renewed* as a set.

4 For a comprehensive check, the brake pads should be removed and cleaned. The operation of the caliper can then also be checked, and the condition of the brake disc itself can be fully examined on both sides. Refer to Chapter 9 for further information.

#### 5 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 (see illustration). The dipstick top is brightly coloured 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. Use a funnel with a fine-mesh gauze, to avoid spillage, and to ensure that no foreign matter enters the transmission. **Note:** *Never overfill the transmission so that the fluid level is above the upper mark.*

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.

## 6 Underbonnet check for fluid leaks and hose condition



**Warning:** *Renewal of any air conditioning hoses (where fitted) must be left to a dealer service department or air conditioning specialist who has the equipment to depressurise the system safely. Never remove air conditioning components or hoses until the system has been depressurised.*

### General

1 High temperatures in the engine compartment can cause the deterioration of the rubber and plastic hoses used for engine, accessory and emission systems operation. Periodic inspection should be made for cracks, loose clamps, material hardening and leaks.

2 Carefully check the large top and bottom radiator hoses, along with the other smaller-diameter cooling system hoses and metal pipes; do not forget the heater hoses/pipes which run from the engine to the bulkhead. Inspect each hose along its entire length, replacing any that are cracked, swollen or shows signs of deterioration. Cracks may become more apparent if the hose is squeezed (see Haynes Hint).

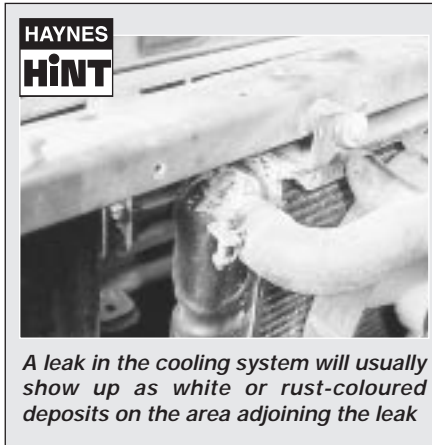
3 Make sure that all hose connections are tight. If the spring clamps that are used to secure some of the hoses appear to be slackening, they should be renewed to prevent the possibility of leaks.

4 Some other hoses are secured to their fittings with screw type clips. Where screw type clips are used, check to be sure they haven't slackened, allowing the hose to leak. If clamps or screw type clips aren't used, make sure the hose has not expanded and/or hardened where it slips over the fitting, allowing it to leak.

5 Check all fluid reservoirs, filler caps, drain plugs and fittings etc, looking for any signs of leakage of oil, transmission and/or brake hydraulic fluid, coolant and power steering fluid. If the vehicle is regularly parked in the same place, close inspection of the ground underneath will soon show any leaks; ignore the puddle of water which will be left if the air conditioning system is in use. As soon as a leak is detected, its source must be traced and rectified. Where oil has been leaking for some time, it is usually necessary to use a steam cleaner, pressure washer or similar, to clean away the accumulated dirt, so that the exact source of the leak can be identified.

### Vacuum hoses

6 It's quite common for vacuum hoses, especially those in the emissions system, to be numbered or colour-coded, or to be identified by coloured stripes moulded into them. Various systems require hoses with different wall thicknesses, collapse resistance



**A leak in the cooling system will usually show up as white or rust-coloured deposits on the area adjoining the leak**

and temperature resistance. When renewing hoses, be sure the new ones are made of the same material.

7 Often the only effective way to check a hose is to remove it completely from the vehicle. If more than one hose is removed, be sure to label the hoses and fittings to ensure correct installation.

8 When checking vacuum hoses, be sure to include any plastic T-fittings in the check. Inspect the fittings for cracks, and check the hose where it fits over the fitting for distortion, which could cause leakage.

9 A small piece of vacuum hose can be used as a stethoscope to detect vacuum leaks. Hold one end of the hose to your ear, and probe around vacuum hoses and fittings, listening for the "hissing" sound characteristic of a vacuum leak.



**Warning:** *When probing with the vacuum hose stethoscope, be very careful not to come into contact with moving engine components such as the auxiliary drivebelt, radiator electric cooling fan, etc.*

### Fuel hoses



**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.*

10 Check all fuel hoses for deterioration and chafing. Check especially for cracks in areas where the hose bends, and also just before fittings, such as where a hose attaches to the carburettor or fuel rail.

11 High-quality fuel line, usually identified by the word "Fluoroelastomer" printed on the hose, should be used for fuel line renewal. Never, under any circumstances, use unreinforced vacuum line, clear plastic tubing or water hose for fuel lines.

12 Spring-type clamps are commonly used on fuel lines. These clamps often lose their tension over a period of time, and can be "sprung" during removal. Replace all spring-

type clamps with screw clips whenever a hose is replaced.

### Metal lines

13 Sections of metal piping are often used for fuel line between the fuel filter and the engine. Check carefully to be sure the piping has not been bent or crimped, and that cracks have not started in the line.

14 If a section of metal fuel line must be renewed, only seamless steel piping should be used, since copper and aluminium piping don't have the strength necessary to withstand normal engine vibration.

15 Check the metal brake lines where they enter the master cylinder and ABS hydraulic unit for cracks in the lines or loose fittings. Any sign of brake fluid leakage calls for an immediate and thorough inspection of the brake system.

## 7 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 (a suitable type is specified at the beginning 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 If the marks on the original-equipment spark plug (HT) leads cannot be seen, mark the leads "1" to "4", to correspond 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.

3 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.

4 Unscrew the plugs using a spark plug spanner, suitable box spanner or a deep socket and extension bar (see illustration).



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



7.9 Measuring the spark plug gap with a feeler blade

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.

5 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 or too hot a plug (a hot plug transfers heat away from the electrode slowly, a cold plug transfers heat away quickly).

6 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.

7 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.

8 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 beginning of this Chapter.

9 To set the gap, measure it with a feeler blade, and then bend open, or closed, the outer plug electrode 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. If using feeler blades, the gap is correct when the appropriate-size blade is a firm sliding fit.

10 Special spark plug electrode gap adjusting tools are available from most motor accessory shops, or from some spark plug manufacturers (see illustration).

11 Before fitting the spark plugs, check that the threaded connector sleeves are tight, and that the plug exterior surfaces and threads are clean (see Haynes Hint).

12 Remove the rubber hose (if used), 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.

13 Connect the HT leads in their correct order, and refit any components removed for access.



7.10 Measuring the spark plug gap with a wire gauge

### 8 Throttle and choke cable lubrication and adjustment

1 The throttle cable is connected to a spring-loaded reel which pivots on the face of the cylinder head. On certain models, the reel then operates the throttle lever on the carburettor through a plastic balljointed control rod.

2 Sparingly apply a few drops of light oil to the throttle spindles, linkage pivot points and to the cable itself. Similarly lubricate the exposed ends of the choke cable (where fitted).

3 Check that there is a small amount of slackness in the cable so that the throttle linkage closes fully with the accelerator pedal released. Also check that full throttle can be obtained with the accelerator pedal fully depressed.

4 If there is any doubt about the cable adjustment, refer to the relevant Parts of Chapter 4 for the full adjustment procedure.

### 9 Auxiliary drivebelt check and renewal

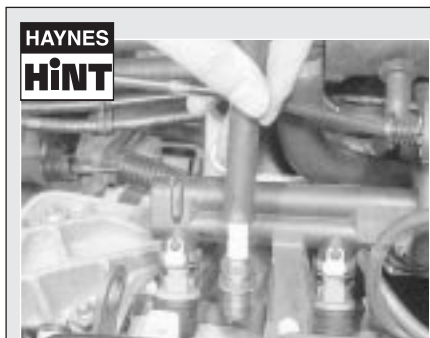
1 Depending on specification, either one or two auxiliary drivebelts are fitted. Where two belts are fitted, it will obviously be necessary to remove the outer belt in order to renew the inner belt.

#### 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 retaining clips, and remove the plastic cover from the wing valance where necessary, to gain access to the crankshaft sprocket/pulley bolt.

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



**HAYNES**  
**Hint**

*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 internal diameter rubber hose over the end of the spark plug. 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*

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, check the drivebelt tension as described below.

#### Auxiliary drivebelt - removal, refitting and tensioning

##### Removal

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

7 Disconnect the battery negative lead.

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

9 Push the alternator toward the engine until the belt is slack then slip the drivebelt from the pulleys. Where an adjuster bolt is fitted, back off the adjuster to relieve the tension in the drivebelt, then slip off the belt (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



9.9 Slackening the alternator adjuster bolt to release the auxiliary drivebelt



# 1.12 Every 12 000 miles or 12 months

by moving the alternator by hand, or tightening the adjuster bolt.

11 Tension the drivebelt as described in the following paragraphs.

## 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, lever the alternator away from the engine, or turn the adjuster bolt until the correct tension is achieved. 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 Refit the plastic cover to the wing valance. Refit the roadwheel, and lower the vehicle to the ground.

## 10 Clutch pedal stroke adjustment



1 The clutch pedal stroke adjustment is checked by measuring the clutch pedal travel. Before doing this, settle the cable by depressing and releasing it a few times.

2 Ensure that there are no obstructions beneath the clutch pedal then measure the distance from the centre of the clutch pedal pad to the base of the steering wheel with the pedal in the at-rest position. Depress the clutch pedal fully to the floor, and measure the distance from the centre of the clutch pedal pad to the base of the steering wheel (see illustration).



10.2 To check the clutch pedal stroke, measure the clutch pedal travel as described in the text

3 Subtract the first measurement from the second to obtain the clutch pedal travel. If this is not within the range given in the *Specifications* at the start of this Chapter, adjust the clutch as follows.

4 On models fitted with the BH3 transmission, loosen the locknut and turn the adjuster on the transmission intermediate lever pushrod as necessary. On all other models, slacken the locknut and turn the adjuster nut on the end of the cable.

5 Check the pedal stroke again and make further adjustments as necessary. When all is correct, tighten the relevant locknut.

## 11 Seat belt check



Check the seat belts for satisfactory operation and condition. Inspect the webbing for fraying and cuts. Check that they retract smoothly and without binding into their reels.

Check the seat belt mountings, ensuring that all the bolts are securely tightened.

## 12 Lock and hinge check and lubrication



1 Check that the doors, bonnet and tailgate close securely. Check that the bonnet safety catch operates correctly. Check the operation of the door check straps.

2 Lubricate the hinges, door check straps, the striker plates and the bonnet catch sparingly with a little oil or grease.

3 If any of the doors, bonnet or tailgate/boot lid do not close effectively or appear not to be flush with the surrounding panels, carry out the relevant adjustment procedures contained in Chapter 11.

## 13 Rear brake shoe check - models with rear drum brakes



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.

## 14 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 (see "*Jacking and vehicle support*"). 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.

## 15 Handbrake check and adjustment



Refer to Chapter 9.

## 16 Underbody and fuel/brake line check



1 With the vehicle raised and supported on axle stands (see "*Jacking and vehicle support*"), or over an inspection pit, thoroughly inspect the underbody and wheel arches for signs of damage and corrosion. In particular, examine the bottom of the side sills, and any concealed areas where mud can collect. Where corrosion and rust is evident, press and tap firmly on the panel with a screwdriver, and check for any serious corrosion which would necessitate repairs. If the panel is not seriously corroded, clean away the rust, and apply a new coating of underseal. Refer to Chapter 11 for more details of body repairs.

2 At the same time, inspect the treated lower body panels for stone damage and general condition.

3 Inspect all of the fuel and brake lines on the underbody for damage, rust, corrosion and leakage. Also make sure that they are correctly supported in their clips. Where applicable, check the PVC coating on the lines for damage.

4 Inspect the flexible brake hoses in the vicinity of the calipers, where they are subjected to most movement. Bend them between the fingers (but do not actually bend them double, or the casing may be damaged) and check that this does not reveal previously-hidden cracks, cuts or splits.

## 17 Exhaust system check



1 With the engine cold (at least three hours after the vehicle has been driven), check the complete exhaust system, from its starting point at the engine to the end of the tailpipe. Ideally, this should be done on a hoist, where unrestricted access is available; if a hoist is not available, raise and support the vehicle on axle stands (see "*Jacking and vehicle support*").



2 Check the pipes and connections for evidence of leaks, severe corrosion, or damage. Make sure that all brackets and rubber mountings are in good condition, and tight; if any of the mountings are to be renewed, ensure that the replacements are of the correct type. Leakage at any of the joints or in other parts of the system will usually show up as a black sooty stain in the vicinity of the leak.

3 At the same time, inspect the underside of the body for holes, corrosion, open seams, etc. which may allow exhaust gases to enter the passenger compartment. Seal all body openings with silicone or body putty.

4 Rattles and other noises can often be traced to the exhaust system, especially the rubber mountings. Try to move the system, silencer(s) and catalytic converter. If any components can touch the body or suspension parts, secure the exhaust system with new mountings.

## 18 Bodywork, paint and exterior trim check



1 The best time to carry out this check is after the car has been washed so that any surface blemish or scratch will be clearly evident and not hidden by a film of dirt.

2 Starting at one front corner check the paintwork all around the car, looking for minor scratches or more serious dents. Check all the trim and make sure that it is securely attached over its entire length.

3 Check the security of all door locks, door mirrors, badges, bumpers, radiator grille and wheel trim. Anything found loose, or in need of further attention should be done with reference to the relevant Chapters of this manual.

4 Rectify any problems noticed with the paintwork or body panels as described in Chapter 11.

## 19 Headlight beam alignment check



Accurate adjustment of the headlight beam is only possible using optical beam-setting setting equipment, and this work should therefore be carried out by a Peugeot dealer or service station with the necessary facilities.

Basic adjustments can be carried out in an emergency, and further details are given in Chapter 12.

## 20 Air conditioning system check



**Warning: The air conditioning system is under high pressure. Do not loosen any fittings or remove any components until after the system has been discharged. Air conditioning refrigerant must be properly discharged into an approved type of container, at a dealer service department or an automotive air conditioning repair facility capable of handling the refrigerant safely. Always wear eye protection when disconnecting air conditioning system fittings.**

1 The following maintenance checks should be performed on a regular basis, to ensure that the system continues to operate at peak efficiency:

- Check the auxiliary drivebelt. If it's worn or deteriorated, renew it.
- Check the system hoses. Look for cracks, bubbles, hard spots and deterioration. Inspect the hoses and all fittings for oil bubbles and seepage. If there's any evidence of wear, damage or leaks, renew the hose(s).
- Inspect the condenser fins for leaves, insects and other debris. Use a "fin

comb" or compressed air to clean the condenser.



**Warning: Wear eye protection when using compressed air!**

d) Check that the drain tube from the front of the evaporator is clear - note that it is normal to have clear fluid (water) dripping from this while the system is in operation, to the extent that quite a large puddle can be left under the vehicle when it is parked.

2 It's a good idea to operate the system for about 30 minutes at least once a month, particularly during the winter. Long term non-use can cause hardening, and subsequent failure, of the seals.

3 Because of the complexity of the air conditioning system and the special equipment necessary to service it, in-depth repairs are not included in this manual, apart from those procedures covered in Chapter 3.

4 The most common cause of poor cooling is simply a low system refrigerant charge. If a noticeable drop in cool air output occurs, the following quick check will help you determine if the refrigerant level is low.

5 Warm the engine up to normal operating temperature.

6 Place the air conditioning temperature selector at the coldest setting, and put the blower at the highest setting. Open the doors - to make sure the air conditioning system doesn't cycle off as soon as it cools the passenger compartment.

7 With the compressor engaged - the clutch will make an audible click, and the centre of the clutch will rotate - feel the inlet and outlet pipes at the compressor. One side should be cold, and one hot. If there's no perceptible difference between the two pipes, there's something wrong with the compressor or the system. It might be a low charge - it might be something else. Take the vehicle to a dealer service department or an automotive air conditioning specialist.

# Every 24 000 miles or 2 years

## 21 Manual transmission oil level check



**Note:** The following procedure is only applicable to models produced after approximately October 1986. There is no provision on the transmission for fluid level checking on earlier transmissions (see Chapter 7A). Suitable square-section wrench may be required to undo the transmission filler/level plug on some models. These wrenches can be obtained from most motor factors or your Peugeot dealer.

1 Park the car on a level surface. The oil level must be checked before the car is driven, or at least 5 minutes after the engine has been switched off. If the oil is checked immediately after driving the car, some of the oil will remain distributed around the transmission components, resulting in an inaccurate level reading.

2 Prise out the retaining clips and remove the access cover from the left-hand wheelarch liner.

3 Wipe clean the area around the filler/level plug, which is situated on the left-hand end of the transmission (see illustration). Unscrew the plug and clean it; discard the sealing washer.



21.3 Using a square section wrench to unscrew the transmission filler/level plug (MA transmission shown)

## 1•14 Every 24 000 miles or 2 years

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 (see **illustration**). The level will be correct when the flow ceases; use only good-quality oil of the specified type (refer to "Lubricants, fluids and capacities").

5 Filling the transmission with oil is an extremely awkward operation; above all, allow plenty of time for the oil level to settle properly before checking it. If a large amount is added to the transmission, and a large amount flows out on checking the level, refit the filler/level plug and take the vehicle on a short journey so that the new oil is distributed fully around the transmission components, then recheck the level when it has settled again.

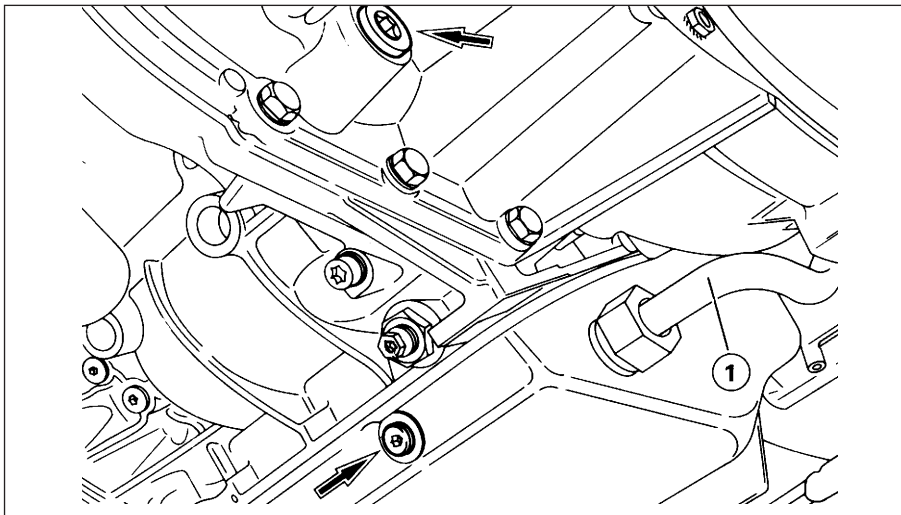
6 If the transmission has been overfilled so that oil flows out as soon as the filler/level plug is removed, check that the car is completely level (front-to-rear and side-to-side), and allow the surplus to drain off into a suitable container.

7 When the level is correct, fit a new sealing washer to the filler/level plug. Refit the plug, tightening it to the specified torque wrench setting. Wash off any spilt oil then refit the access cover securing it in position with the retaining clips.

### 22 Manual transmission oil renewal



This service requirement is only applicable to pre-1988 BE1 transmissions. Refer to the procedures contained in Chapter 7A.



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



21.4 Topping-up the transmission oil level

### 23 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 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**).



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

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

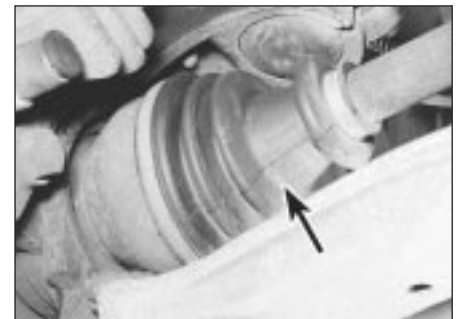
7 Once the level is up to the "MAX" mark on the dipstick, refit the dipstick. Start the engine, and allow it to idle for a few minutes. Switch the engine off, then recheck the level, topping-up if necessary. Take the car on a short run to fully distribute the new fluid around the transmission, then recheck the fluid level as described in Section 5.

### 24 Driveshaft bellows check



With the vehicle raised and securely supported on stands (see "Jacking and vehicle support"), turn the steering onto full lock, then slowly rotate the roadwheel. Inspect the condition of the outer constant velocity (CV) joint rubber bellows, squeezing the bellows 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 bellows should be renewed as described in Chapter 8.

At the same time, check the general condition of the CV joints themselves by first holding the driveshaft and attempting to rotate the wheel. Repeat this check by holding



24.1 Check the condition of the driveshaft bellows (arrowed)

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.

**25 Steering and suspension check**



**Front suspension and steering check**

- 1 Apply the handbrake then jack up the front of the vehicle and support it on axle stands (see "Jacking and vehicle support").
- 2 Visually inspect the balljoint dust covers and the steering gear bellows for splits, chafing or deterioration. 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 Check the power steering fluid hoses (where applicable) for chafing or deterioration, and the pipe and hose unions for fluid leaks. Also check for signs of fluid leakage under pressure from the steering gear rubber bellows, which would indicate failed fluid seals within the steering gear.
- 4 Check for signs of fluid leakage around the suspension strut body, or from the rubber boot around the piston rod (where fitted). Should any fluid be noticed, the shock absorber is defective internally, and renewal is necessary.



**26.1** On XV, XW and XY series engines, unscrew the wing nut on the air cleaner cover . . .



**26.2** . . . and remove the cover and filter element



**25.5 Check for wear in the hub bearings by grasping the wheel and trying to rock it**

- 5 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 wheel 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.
- 6 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 wheel bearings or the steering track rod end balljoints. If the outer track rod end 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 bellows, and gripping the track rod. If the wheel is now rocked, movement will be felt at the inner joint if wear has taken place.
- 7 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.
- 8 With the vehicle 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



**26.5a** On XU and TU series engines, unscrew the nuts . . .

roadwheels. If this is not the case, closely observe the joints and mountings previously described, but in addition, check the steering column universal joints for wear, and also check the rack-and-pinion steering gear itself.

**9** The efficiency of the shock absorber may be checked by bouncing the car at each front 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 shock absorber is probably suspect. Examine also the shock absorber upper and lower mountings for any signs of wear or fluid leakage.

**Rear suspension check**

- 10 Chock the front wheels, then raise the rear of the vehicle and support it on axle stands. (see "Jacking and vehicle support").
- 11 Check the rear hub bearings for wear, using the method described for the front hub bearings (paragraph 4).
- 12 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. Check the condition of the shock absorbers as described previously.

**26 Air cleaner filter element renewal**



**XV, XW and XY series engines**

- 1 Unscrew the wing nut on the air cleaner casing end-face (see illustration).
- 2 Withdraw the end cover with element (see illustration).
- 3 Discard the element and wipe the casing interior clean.
- 4 Fit the new element and the cover, tighten the wing nut.

**XU and TU series engines**

- 4 Disconnect the air duct from the end of the air cleaner.
- 5 Unscrew the nuts and remove the end (or top) cover (see illustrations). On some types



**26.5b** . . . or release the spring clips . . .





26.5c . . . then lift off the top, or end cover

of air cleaner, the end (or top) cover is retained by a number of spring clips.

6 Extract the element (see illustration).

7 Discard the element and wipe the casing interior clean.

8 Insert the new element then refit the end cover and air duct. Ensure that the cover is correctly seated, to prevent air leaks, before fastening with the nuts or the clips.

## 27 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 when 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.

### Carburettor models

#### General component check

2 The spark plug (HT) leads should be checked whenever new spark plugs are fitted.

3 Ensure that the leads are numbered before removing them, to avoid confusion when refitting (see Section 27). 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



26.6 With the cover removed, withdraw the filter element

the lead excessively, nor pull the lead lengthways - 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 Release the clips or unscrew its retaining screws and remove the distributor cap. Wipe it clean, and carefully inspect it inside and out for signs of cracks, black 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 the rotor arm (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. When refitting, ensure



27.9 Remove the rotor arm from the distributor for inspection

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. To disperse moisture, a water-dispersant aerosol can be very effective.

### Ignition timing - check and adjustment

11 Check the ignition timing as described in Chapter 5B.

### Fuel-injected models

#### General component check

12 On single-point fuel injection models, carry out the checks described above in paragraphs 3 to 8 noting that on some models the HT leads are removed from the ignition module, not the distributor cap. On multi-point fuel injection models, carry out the checks described above in paragraphs 3 to 10.

### Ignition timing - check and adjustment

13 Refer to Chapter 5B.

## 28 Idle speed and mixture check and adjustment

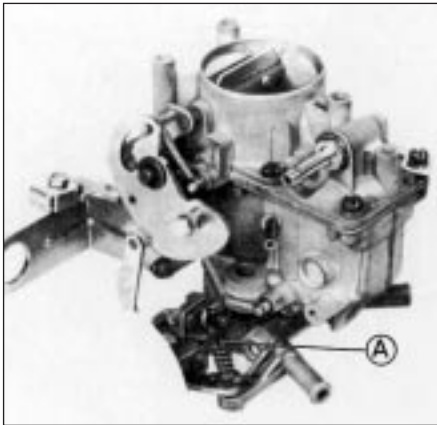


1 Before checking the idle speed and mixture setting, always check the following first:

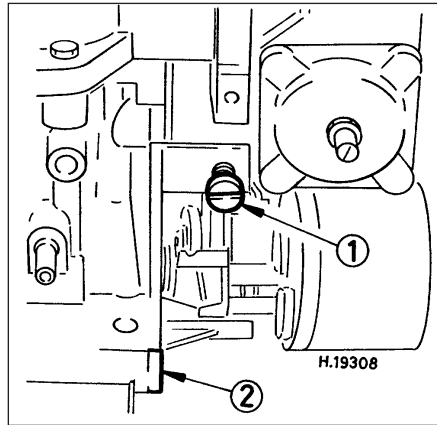
- a) Check the ignition timing (Chapter 5B).
- b) Check that the spark plugs are in good condition and correctly gapped (Section 7).
- c) Check that the throttle cable and, on carburettor models, the choke cable (where fitted) is correctly adjusted (Section 8 and Chapter 4A, 4B or 4C).
- d) Check that the crankcase breather hoses are secure, with no leaks or kinks (Section 29).
- e) Check that the air cleaner filter element is clean (Section 26).
- f) Check that the exhaust system is in good condition (Chapter 4D).
- g) If the engine is running very roughly, check the compression pressures and valve clearances as described in Chapter 2A, 2B or 2C.

2 Take the car on a journey of sufficient length to warm it up to normal operating temperature. Proceed as described under the relevant sub-heading. **Note:** Adjustment should be completed within two minutes of return, without stopping the engine. If this cannot be achieved, or if the radiator electric cooling fan operates, first wait for the cooling fan to stop. Clear any excess fuel from the inlet manifold by racing the engine two or three times to between 2000 and 3000 rpm, then allow it to idle again.

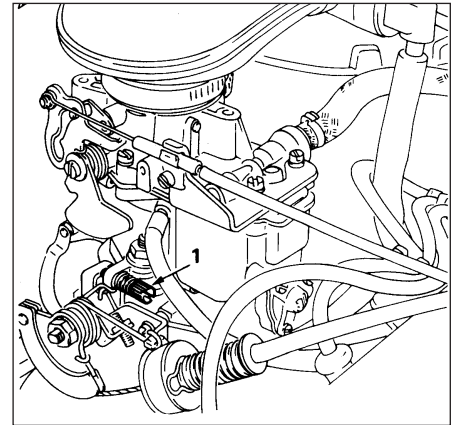




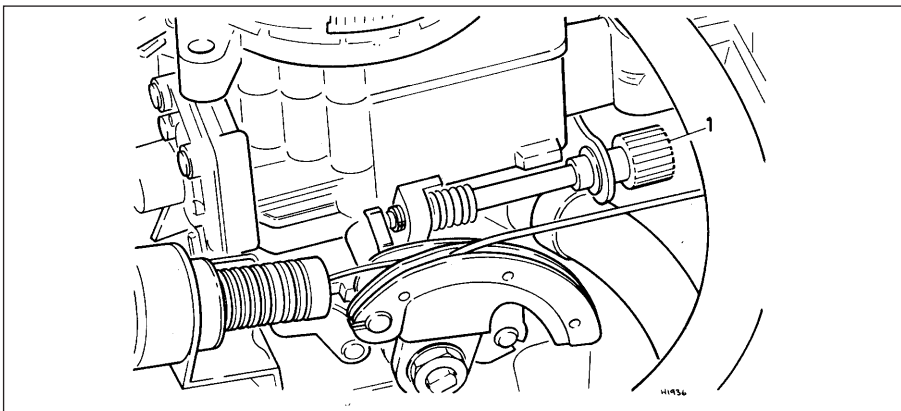
28.4a Typical idle speed adjusting screw location (A) on the Solex PBISA carburettors



28.4b Idle speed adjusting screw (1) and mixture screw (2) location on the Solex 32-34 Z2 carburettors



28.4c Idle speed adjusting screw location (1) on the Weber 32 IBSH carburettors



28.4d Idle speed adjusting screw location (1) on the Weber 36 TLC carburettors

### Carburettor models

#### Idle speed adjustment - single carburettor engines

3 Ensure that all electrical loads are switched off and, where applicable, the choke is pushed fully in; if the car does not have a tachometer (rev counter), connect one to the engine, following its manufacturer's instructions. Note the idle speed, and compare it with that specified.

4 The idle speed adjusting screw is situated in various locations according to carburettor type (see illustrations). It may be necessary to remove a retaining clip and plastic cover to gain access to the carburettor. Using a suitable flat-bladed screwdriver, turn the idle speed screw in or out as necessary to obtain the specified idling speed as given in the *Specifications*.

5 If the idle mixture CO content is not to be adjusted, switch off the engine, disconnect any instruments and refit all disturbed components.

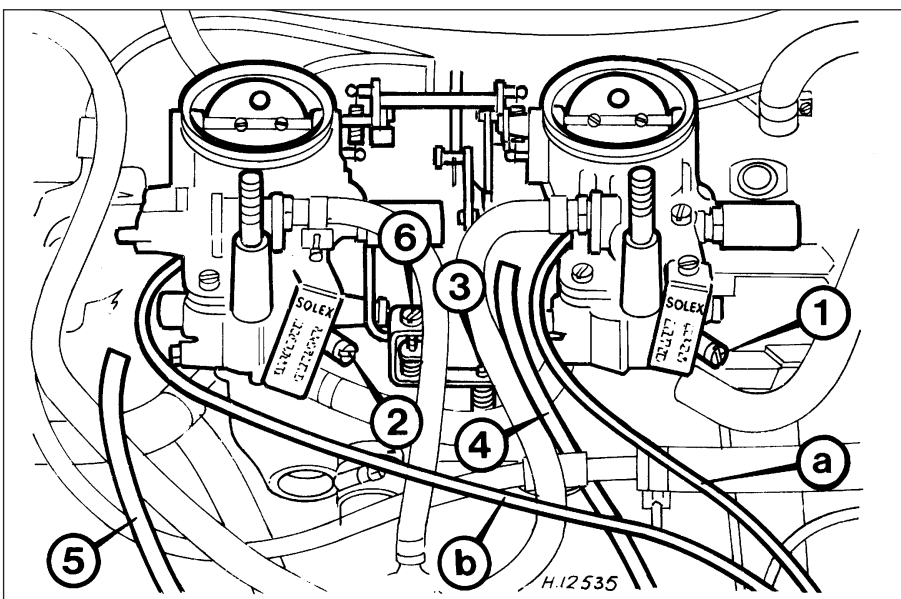
#### Idle speed adjustment - twin carburettor engines

6 On twin carburettor installations, it is necessary to balance the carburettors so that the airflow through both is the same before adjusting the idling speed. To do this a vacuum gauge or carburettor synchronising tool will be required.

7 Ensure that all electrical loads are switched off and, where applicable, the choke is pushed fully in; if the car does not have a tachometer (rev counter), connect one to the engine, following its manufacturer's instructions. Note the idle speed, and compare it with that specified.

8 Remove the air cleaner assembly as described in Chapter 4A.

9 If a vacuum gauge is being used, disconnect the vacuum pipe and connect the gauge to the vacuum pipe stub on the left-hand carburettor (see illustrations).



28.9a Adjustment points on the Solex twin carburettor installation

- |                    |                       |                     |
|--------------------|-----------------------|---------------------|
| 1 Mixture screw    | 4 Vacuum pipe         | a Vacuum gauge pipe |
| 2 Mixture screw    | 5 Vacuum pipe         | b Vacuum gauge pipe |
| 3 Idle speed screw | 6 Synchronising screw |                     |

# 1•18 Every 24 000 miles or 2 years

10 With the engine idling, turn the idle speed screw on the interconnecting linkage as necessary until the engine speed is 1000 rpm.

11 Note the reading on the vacuum gage, then transfer the gauge pipe to the vacuum pipe stub on the right-hand carburettor. If the reading is not as previously recorded, turn the synchronising screw on the linkage as necessary until an identical reading is shown on the gauge.

12 Blip the throttle once or twice and check that both vacuum readings are as previously indicated.

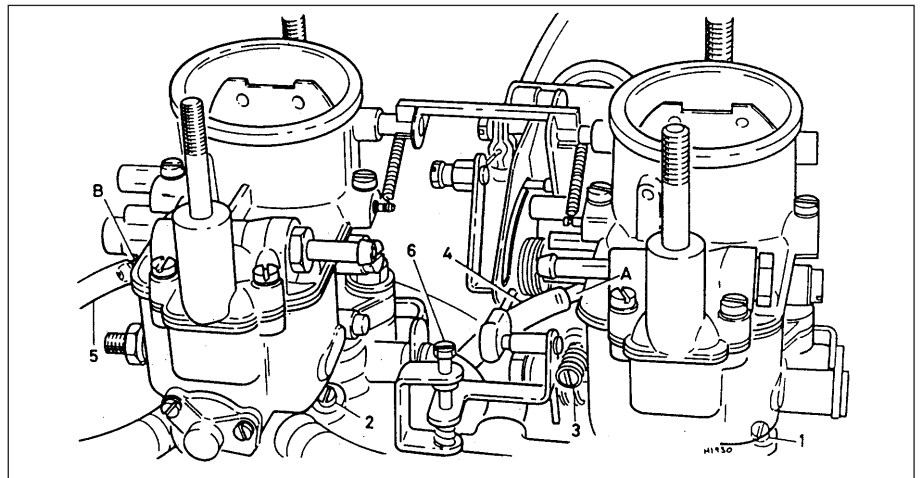
13 Reset the idle speed by means of the idle speed screw to obtain the specified idling speed.

14 If a vacuum gauge is not available a carburettor synchronising tool available at most motor stores can be used instead. These instruments are basically airflow meters and should show identical readings when moved from one carburettor venturi to the other. Adjust the airflow through the carburettor, by means of the synchronising screw, until both carburettors show the same reading on the tool. When correct, reset the idling speed by means of the idle speed screw to obtain the specified speed. Note that if one of these instruments is being used, it will not be necessary to disconnect the carburettor vacuum pipes.

15 If the idle mixture CO content is not to be adjusted, switch off the engine, disconnect the instruments and refit all disturbed components.

### Idle mixture CO level adjustment

16 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 setting is lost, it can be reset. Note, however, that an exhaust gas analyser (CO meter) will be required to check



28.9b Adjustment points on the Weber twin carburettor installation

- |                 |                    |                       |
|-----------------|--------------------|-----------------------|
| 1 Mixture screw | 3 Idle speed screw | 5 Vacuum pipe         |
| 2 Mixture screw | 4 Vacuum pipe      | 6 Synchronising screw |

A and B Vacuum gauge pipe connections

the mixture, in order to set it with the necessary standard of accuracy; if this is not available, the car must be taken to a Peugeot dealer for the work to be carried out.

17 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 by turning the mixture adjustment screw as necessary. As with the idle speed screw, the mixture adjusting screw is situated in various locations according to carburettor type (see illustrations). The screw may also be covered with a tamperproof plug to prevent unnecessary adjustment. If so, use a sharp instrument to hook out the plug.

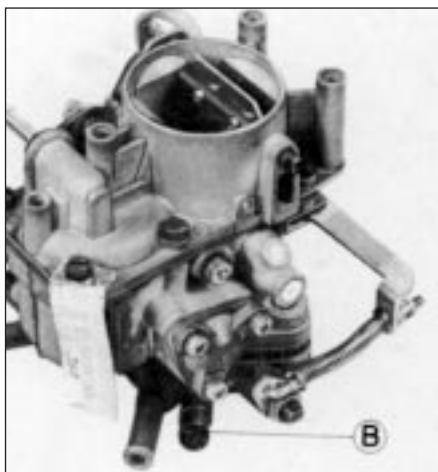
18 Using a suitable flat-bladed screwdriver, turn the mixture adjustment screw (in very small increments) until the CO level is correct. Turning the screw in (clockwise) weakens the mixture and reduces the CO level, turning it

out will richen the mixture and increase the CO level. On twin carburettor installations turn both mixture adjustment screws by equal amounts when making the adjustments.

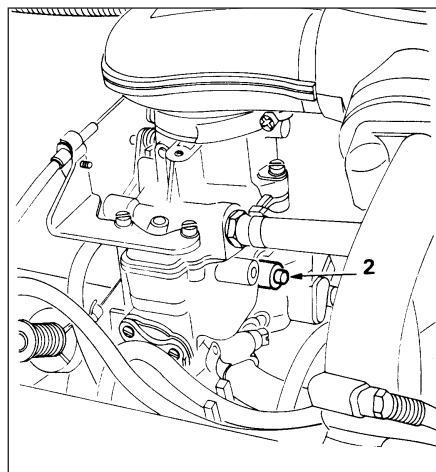
19 When adjustments are complete, disconnect any test equipment, and fit a new tamperproof plug to the mixture adjustment screw. Recheck the idle speed and, if necessary, readjust.

### Single-point fuel injection models

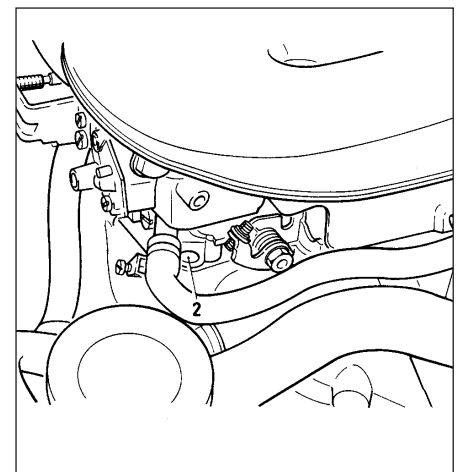
20 Experienced home mechanics with a considerable amount of skill and equipment (including a good-quality tachometer and a good-quality, carefully-calibrated exhaust gas analyser) may be able to check the exhaust CO level and the idle speed. However, if these are found to be in need of adjustment, the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



28.17a Typical idle mixture adjusting screw location (B) on the Solex PBISA carburettors



28.17b Idle mixture adjusting screw location (2) on the Weber IBSH carburettors



28.17c Idle mixture adjusting screw location (2) on the Weber 36 TLC carburettors

Peugeot dealer, for diagnosis. On all single-point fuel injection models, the idle speed and mixture CO content is controlled by the engine management ECU and cannot be adjusted. If the idle speed and/or CO level is incorrect, there is likely to be a fault in the engine management system (see Chapter 4B).

### Multi-point fuel injection models

#### Idle speed adjustment

**21** Ensure that all electrical loads are switched off. If the car does not have a tachometer (rev counter), connect one to the engine, following its manufacturer's instructions. Note the idle speed, and compare it with that specified.

**22** If adjustment is necessary, turn the air screw (LE2-Jetronic) or idle speed adjustment screw (LU2-Jetronic and Motronic M1.3) in the throttle housing to obtain the specified idling speed (see illustrations). If, on the LE2-Jetronic system, the correct speed cannot be obtained by means of the air screw, check and adjust the throttle initial position as described in Chapter 4C, Section 10.

#### Idle mixture CO level adjustment

**Note:** Adjustment of the idle mixture CO content is only possible on the LE2-Jetronic system. On The LU2-Jetronic and Motronic M1.3 systems it is controlled by the fuel injection system ECU.

**23** 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 overhaul, the mixture setting is lost, it can be reset. Note, however, that an exhaust gas analyser (CO meter) will be required to check the mixture, in order to set it with the necessary standard of accuracy; if this is not available, the car must



**28.22a** Idle speed air screw adjustment on the LE2-Jetronic fuel injection system

be taken to a Peugeot dealer for the work to be carried out.

**24** If an exhaust gas analyser is available, follow its manufacturer's instructions to check the exhaust gas CO level. If adjustment is required, prise out the tamperproof cap on the airflow sensor and use an Allen key to adjust the mixture (see illustration). Turn the screw in to richen the mixture and out to weaken it.

**25** Blip the throttle two or three times and then recheck that the idle speed and mixture is correct.

**26** When adjustments are complete, disconnect the test equipment, and fit a new tamperproof plug to the mixture adjustment screw.

### 29 Emissions control systems check

**1** Details of the emissions 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. On engines incorporating a

breather filter in the oil filler cap, this should be removed and cleaned, or renewed if it is particularly contaminated.

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

### 30 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.

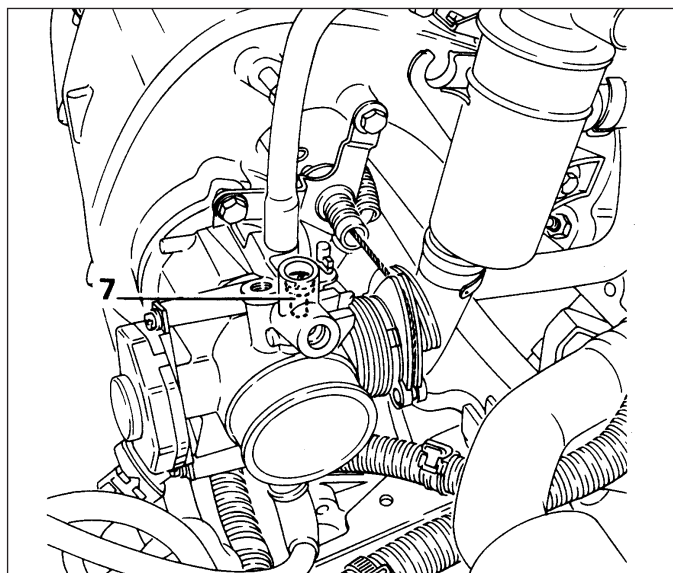
**5** Check that the steering feels positive, with no excessive "sloppiness", or roughness, and check for any suspension noises when cornering, or when driving over bumps.

### Drivetrain

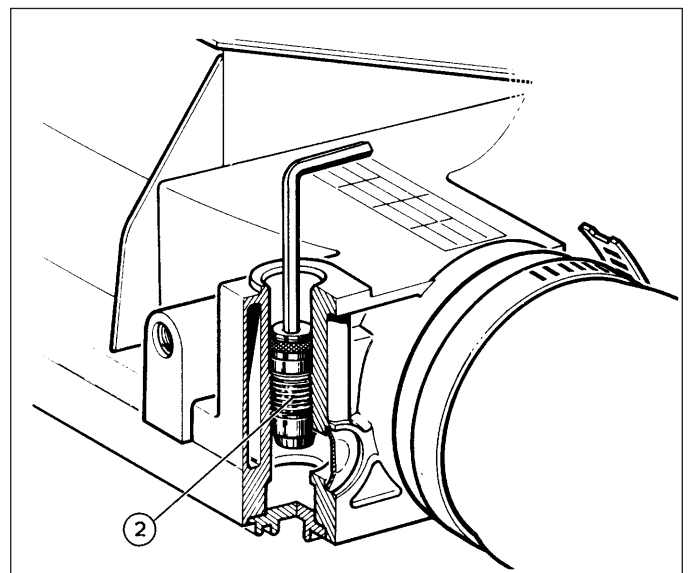
**6** Check the performance of the engine, clutch, transmission and driveshafts.

**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.



**28.22b** Idle speed adjustment screw (7) on the LU2-Jetronic and Motronic M1.3 fuel injection systems



**28.24** Mixture adjustment screw (2)



## 1•20 Every 24 000 miles or 2 years

9 Check that 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 Check that all gears can be engaged smoothly, without noise, and that the gear lever action is not abnormally vague or "notchy".

11 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 complete driveshaft must be renewed (see Chapter 8).

### **Check the operation and performance of the braking system**

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

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

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

15 Test the operation of the brake servo unit as follows. With the engine off, depress the footbrake four or five times to exhaust the vacuum. Start the engine, holding the brake pedal depressed. 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 depressed now, 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 firmer.

## Every 36 000 miles or 3 years

### 31 Timing belt renewal



Refer to Chapter 2B or 2C.

## Every 48 000 miles or 4 years

### 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 on the engine compartment bulkhead. Before disconnecting any of the hoses from the filter it will be

necessary to depressurise the fuel system (see Chapter 4B or 4C).

2 To renew the fuel filter first disconnect the fuel hose, or unscrew the union bolt from the top of the unit then place the bolt, union and washers to one side and cover to prevent ingress of dirt (see illustration). Unscrew the clamp bolt, then lift the filter and unscrew the bottom union. Dispose safely of the old filter; it will be highly inflammable, and may explode if thrown on a fire.

3 Fit the new filter using a reversal of the removal procedure; making sure that dust and dirt is prevented from entering the fuel lines. Start the engine and check the filter hose union connections for leaks.



32.2 Fuel filter fuel hose and retaining clamp locations

## Every 2 years (regardless of mileage)

### 33 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 With the engine completely cold, 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 it off.

2 Where fitted, unscrew the radiator filler cap from the top left-hand side of the radiator.

3 Position a suitable container beneath the coolant drain outlet at the lower left-hand side of the radiator.

4 Unscrew the drain plug and allow the coolant to drain into the container.

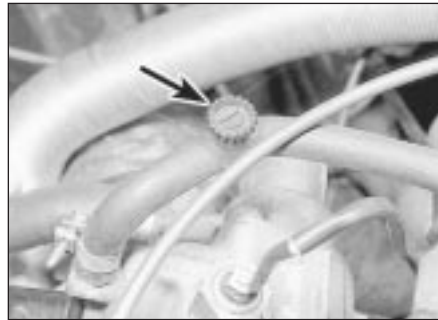
5 To assist draining, open the cooling system bleed screws. These are located in the heater matrix outlet hose union (to improve access, it may be located in an extension hose) on the engine compartment bulkhead, in the inlet manifold coolant hose (XV, XW and XU series engines) and on the top of the thermostat housing (TU series engines) (see illustrations).

6 When the flow of coolant stops, reposition the container below the cylinder block drain plug. On all engines except TU series, the drain plug is located above the right-hand driveshaft, or driveshaft intermediate bearing. On TU series engines, the drain plug is located at the front left-hand side of the cylinder block.





33.5a Cooling system bleed screws may be located in the heater hose . . .



33.5b . . . in the inlet manifold coolant hose . . .



33.5c . . . or on the thermostat housing (arrowed)

7 Remove the drain plug, and allow the coolant to drain into the container.

8 If the coolant has been drained for a reason other than renewal, then provided it is clean and less than two years old, it can be re-used, though this is not recommended.

9 Refit the radiator and cylinder block drain plugs on completion of draining.

### Cooling system flushing

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

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

### Radiator flushing

12 To flush the radiator, first tighten the radiator drain plug.

13 Disconnect the top and bottom hoses and any other relevant hoses from the radiator, with reference to Chapter 3.

14 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.

15 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 their manufacturer's instructions are followed carefully. If the contamination is particularly bad, insert the hose in the radiator bottom outlet, and reverse-flush the radiator.

### Engine flushing

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

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

18 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.

19 On completion of flushing, refit the thermostat and reconnect the hoses with reference to Chapter 3.

### Cooling system filling

20 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 an antifreeze mixture must be used all year round, to prevent corrosion of the engine components (see following sub-Section). Also check that the radiator and cylinder block drain plugs are in place and tight.

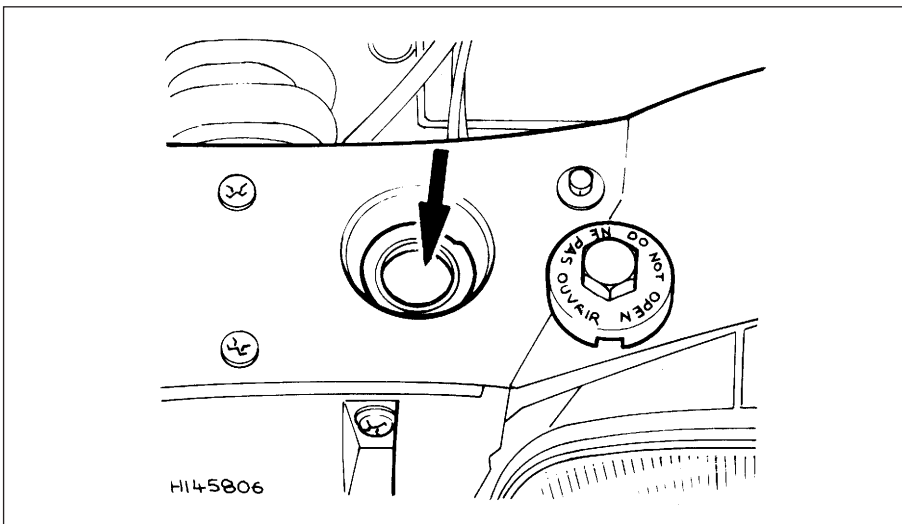
21 Remove the expansion tank filler cap.

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

23 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 system. Although Peugeot 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. On some engines, the expansion bottle/tank can be simply released from its normal location, raised as high as possible and tied to the bonnet to form the "header" tank.

24 Fit the "header tank" to the expansion tank and slowly fill the system. Where the radiator incorporates a filler cap, fill the radiator first until it is overflowing, and refit the filler cap (see illustration). Now, on all models, slowly fill the "header" tank. 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 and all bleed screws are securely tightened.

25 If a separate bottle is being used as the "header tank", ensure it is full (at least 0.5 litres of coolant). If the vehicle expansion bottle/tank is being used as the "header" tank, ensure it is filled to the "MAX" markings (see illustration). Start the engine, and run it at a fast idle speed (do not exceed 2000 rpm) until the cooling fan cuts in, and then cuts out. During this time, squeeze the top and bottom radiator hoses to allow any trapped air to rise.



33.24 Fill the radiator through the filler (arrowed) on the left-hand side

## 1•22 Every 2 years

Slacken and retighten the bleed screws to allow any air that has risen to escape. **Note:** Take great care not to scald yourself with the hot coolant during this operation.

**26** Stop the engine and allow it engine to cool, then remove the "header tank" or refit the expansion bottle/tank to its original location.

**27** When the engine has cooled, check the coolant level with reference to Section 3 of this Chapter. Top-up the level if necessary, and refit the expansion tank cap.

**Note:** If, after draining and refilling the system, symptoms of overheating are found which did not occur previously, then the fault is almost certainly due to trapped air at some point in the system, causing an air-lock and restricting the flow of coolant; usually, the air is trapped because the system was refilled too quickly. In some cases, air-locks can be released by tapping or squeezing the various hoses. If the problem persists, stop the engine and allow it to cool down completely, before unscrewing the expansion tank filler cap, slackening the bleed screws, or disconnecting hoses to bleed out the trapped air.

### Antifreeze mixture

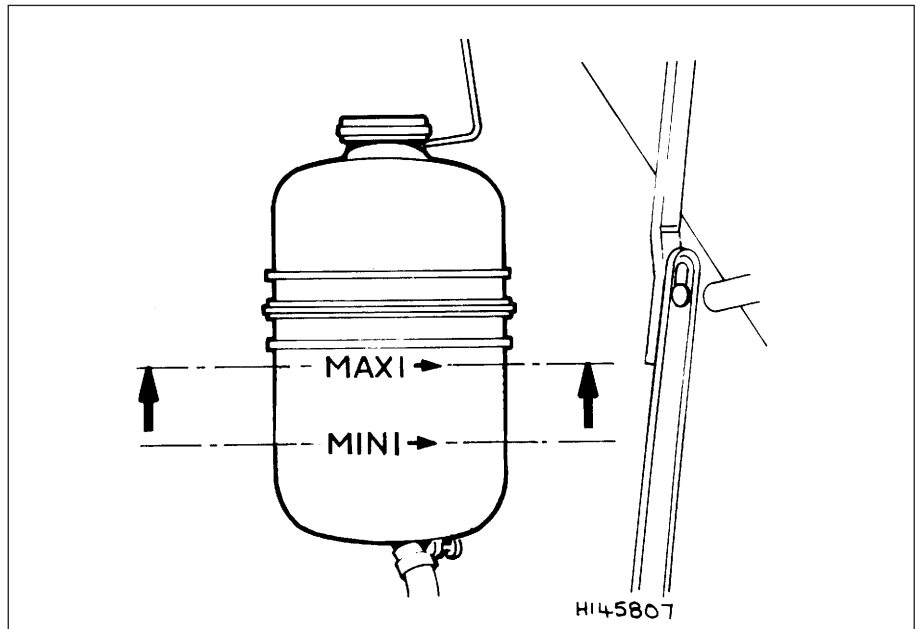
**28** The antifreeze should always be renewed at the specified intervals. This is necessary not only to maintain the antifreeze properties, but also to prevent corrosion which would otherwise occur as the corrosion inhibitors become progressively less effective.

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

**30** Before adding antifreeze, the cooling system should be completely drained, preferably flushed, and all hoses checked for condition and security.

**31** 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.

**32** 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 the quantities stated by the makers.



**33.25** Where possible, lift out the expansion bottle, suspend it from the bonnet to form a "header" tank and fill to the "MAX" mark

### 34 Brake fluid renewal



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

**1** The procedure is similar to that for the bleeding of the hydraulic system as described in Chapter 9, except that the brake fluid reservoir should be emptied by siphoning, using a clean poultry baster or similar before starting, and allowance should be made for the old fluid to be expelled when bleeding a section of the circuit.

**2** Working as described in Chapter 9, open the first bleed screw in the sequence, and pump the brake pedal gently until nearly all the old fluid has been emptied from the master cylinder reservoir.



*Old hydraulic fluid is invariably much darker in colour than the new, making it easy to distinguish the two.*

**3** Top-up to the "MAX" level with new fluid, and continue pumping until only the new fluid remains in the reservoir, and new fluid can be seen emerging from the bleed screw. Tighten the screw, and top the reservoir level up to the "MAX" level line.

**4** Work through all the remaining bleed screws 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 bleed screws 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.