Chapter 1
Routine maintenance and servicing

Contents

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

Servicing Specifications

Lubricants, fluids and capacities

Refer to the end of "Weekly checks"

Engine

For engine to model applications refer to Chapter 2, Part A, B, C or D

Oil filter type

150 engine (up to July 1988)	Champion C204
All other engines	Champion F104

Valve clearances (cold)

150 engine:	
Inlet	0.10 to 0.15 mm
Exhaust	0.20 to 0.30 mm
171 and 159 engines:	
Inlet	0.15 to 0.25 mm
Exhaust	0.35 to 0.45 mm
B1A/A engine:	
Inlet	0.15 to 0.20 mm
Exhaust	0.35 to 0.40 mm
D6A engine:	
Inlet	0.10 to 0.15 mm
Exhaust	0.20 to 0.30 mm
K1G engine:	
Inlet	0.20 mm
Exhaust	0.40 mm

Fuel system

Air cleaner element

Carburettor engines:	
BX 14	Champion V402
BX 14 (Aug 1988 to Sept 1991)	Champion V401
BX 14 (Sept 1991 on)	Champion V438
BX 16 (pre June 1987)	Champion W117
BX 16 (Sept 1988 to 1991)	Champion U543
BX 19 (pre June 1987)	Champion W117
BX 19 (from July 1987) and all Fuel-injected engines	Champion U543

Fuel filter type

Carburettor engines	Champion L101
Fuel-injected engines	Champion L201

Idle speed

Carburettor engines:	
BX	700 to 800 rpm
BX 14 (pre August 1988)	800 to 850 rpm
BX 14 (from August 1988)	700 to 800 rpm
BX 16 (pre June 1983 - Weber carburettor)	700 rpm
BX 16 (pre June 1983 - Solex carburettor)	650 to 700 rpm
BX 16 (from July 1983 - Weber carburettor)	650 to 700 rpm
BX 16 (from July 1983 - Solex carburettor)	650 to 700 rpm
BX 16 (automatic transmission and air conditioning)	750 to 800 rpm
BX 16 RE	650 to 750 rpm
BX 16 (from Sept 1988 to 1991):	
Manual gearbox	700 to 900 rpm
Automatic transmission	700 to 800 rpm
BX 19	650 to 750 rpm
BX 19 TRS/TZS (from July 1986 to 1991 - Weber carburettor)	750 to 850 rpm
BX 19 TRS/TZS (from July 1986 to 1991 - Solex carburettor)	650 to 750 rpm
BX 19 TZS (from 1991)	700 to 800 rpm
Fuel-injected engines:	
BX 16	Controlled by ECU
BX 19 GTi (pre July 1990):	
Manual gearbox	800 to 850 rpm
Automatic transmission	850 to 950 rpm
With air conditioning on	950 to 1000 rpm
BX 19 GTi (from July 1990)	850 to 900 rpm
BX 19 GTi 16v (pre 1991)	850 rpm (not adjustable)
BX 19 GTi 16v (from 1991)	850 rpm (not adjustable)
BX 19 TZi with catalytic converter	850 to 950 rpm

Ignition system

	Spark plug type	Electrode gap
Carburettor engines:		
BX	Champion S9YCC / S281YC	0.8 mm / 0.6 mm
BX 14:		
Pre Aug 1988	Champion S9YCC / S281YC	0.8 mm / 0.6 mm
From Aug 1988	Champion RC9YCC / C9YCX	0.8 mm / 0.9 mm
BX16:		
Pre Sept 1988	Champion S7YCC / S279YC	0.8 mm / 0.6 mm
From Sept 1988	Champion RC7YCC / C7YCX	0.8 mm
BX 19:		
Pre July 1987	Champion S7YCC / S279YC	0.8 mm / 0.6 mm
From July 1987	Champion RC7YCC / C7YCX	0.8 mm
Fuel-injected engines:		
BX 16	Champion C9YCX	0.9 mm
BX 19 GTi and GTi 16v	Champion RC7YCC	0.8 mm (1.6 mm - GTi 16v)

Clutch

Pedal free play	Nil
Pedal travel	130 to 150 mm

Braking system

Brake pads

Lining minimum thickness:	
Front	Indicated by warning lamp
Rear	2.0 mm - suggested

Standard discs

Wear limit:	
Front	7.0 mm
Rear	4.0 mm
Maximum run-out	0.2 mm

Steering

Front wheel alignment toe-out	0 to 3.0 mm

Tyre pressures

Refer to the end of "Weekly checks"

Torque wrench settings

	Nm	lbf ft
150 engine		
Rocker cover	10	7
Valve adjuster screw locknuts	17	12
Sump drain plug	28	20
171 and 159 engines		
Cam cover	10	7
Sump drain plug	30	22
K1G engine		
Valve cover	5	4
Oil filter	15	11
Ignition system		
Spark plugs:		
Taper seat type	12	9
Flat seat type (with washer)	25	18
Manual gearbox		
BX and BX 14 - Type BH3:		
Drain plug	25	18
BX and BX 14 - Type MA (2 CA):		
Drain and filler plugs	26	19
BX 16 and BX 19:		
Drain plug:		
Final drive	30	22
Gearbox	10	7

1•4 Citroen BX maintenance schedule

The maintenance intervals in this Manual are provided with the assumption that you will be carrying out the work yourself. 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 driven frequently at slow speeds (idling in traffic) or on short journeys, more frequent maintenance intervals are recommended.

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

- ☐ Refer to “Weekly Checks”

Every 1000 miles (1500 km) or monthly - whichever comes first

- ☐ Check seat belts (Section 3)
- ☐ Check operation of brakes (Section 4)
- ☐ Check for signs of fluid leakage (Section 5)

Every 6000 miles (10 000 km) or 6 months

- ☐ Check exhaust system (Section 6)
- ☐ Check and lubricate all lock, hinge and latch mechanisms (Section 7)
- ☐ Check hydraulic lines for condition and security (Section 8)
- ☐ Renew engine oil and filter (Section 9)
- ☐ Check automatic transmission fluid level (Section 10)
- ☐ Check clutch operation (Section 11)
- ☐ Check brake pads for wear (Section 12)
- ☐ Check brake discs for wear and condition (Section 13)
- ☐ Check handbrake adjustment (Section 14)
- ☐ Check front wheel alignment (Section 15)
- ☐ Check condition of steering gear, track rod balljoints and gaiters (Section 16)
- ☐ Check driveshaft bellows (Section 17)

Every 12 000 miles (20 000 km) or 12 months

- ☐ Check seat belt anchorages (Section 18)
- ☐ Check drivebelt tensions (Section 19)
- ☐ Clean and inspect crankcase ventilation hoses (Section 20)
- ☐ Check valve clearances - BX and BX 14 (Section 21)
- ☐ Check valve clearances - BX 16 and BX 19 (Section 22)
- ☐ Check engine idle speed (Section 23)
- ☐ Renew fuel filter - BX 16 RE (Section 24)
- ☐ Renew spark plugs (Section 25)
- ☐ Lubricate clutch pedal and cable (Section 26)
- ☐ Check front suspension lower balljoints (Section 27)

Every 18 000 miles (30 000 km) or 18 months

- ☐ Renew air cleaner element (Section 28)
- ☐ Clean hydraulic system filters (Section 29)

Every 30 000 miles (50 000 km)

- ☐ Renew engine valve springs - 150 engine (Section 30)

Every 36 000 miles (60 000 km)

- ☐ Renew camshaft drivebelt - except 150 engine (Section 31)
- ☐ Renew cooling system antifreeze (Section 32)
- ☐ Renew automatic transmission fluid (Section 33)
- ☐ Renew hydraulic system fluid (Section 34)

Every 48 000 miles (80 000 km)

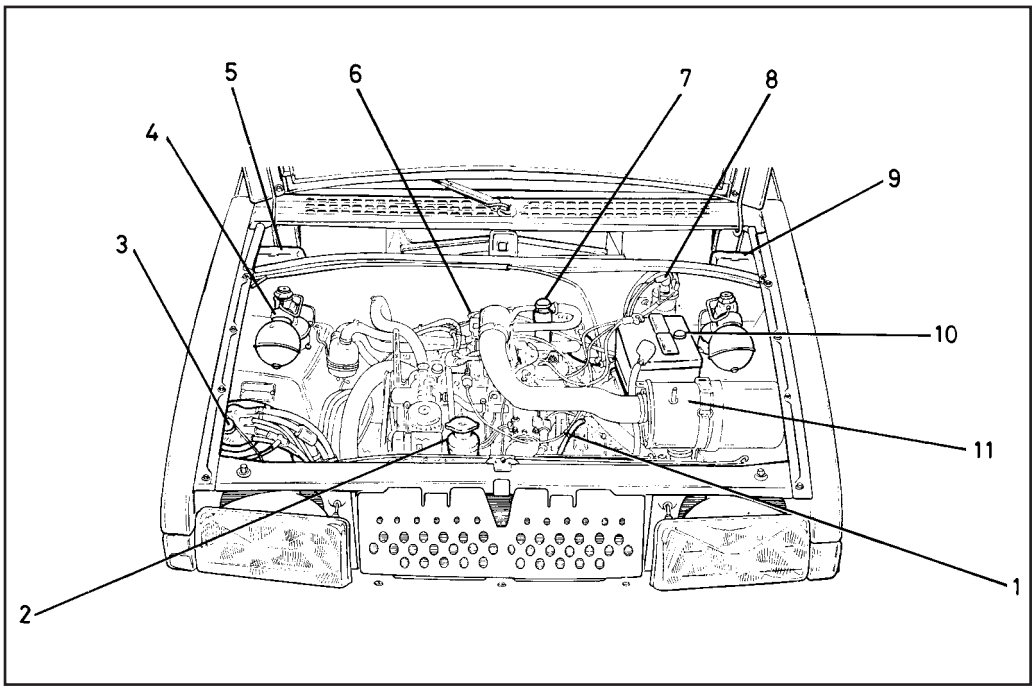
- ☐ Renew fuel filter - BX 16 fuel-injected (Section 35)

Every 60 000 miles (100 000 km)

- ☐ Renew fuel filter - BX 19 fuel-injected (Section 36)
- ☐ Renew manual gearbox oil - except BX and BX 14 pre August 1988 (Section 37)

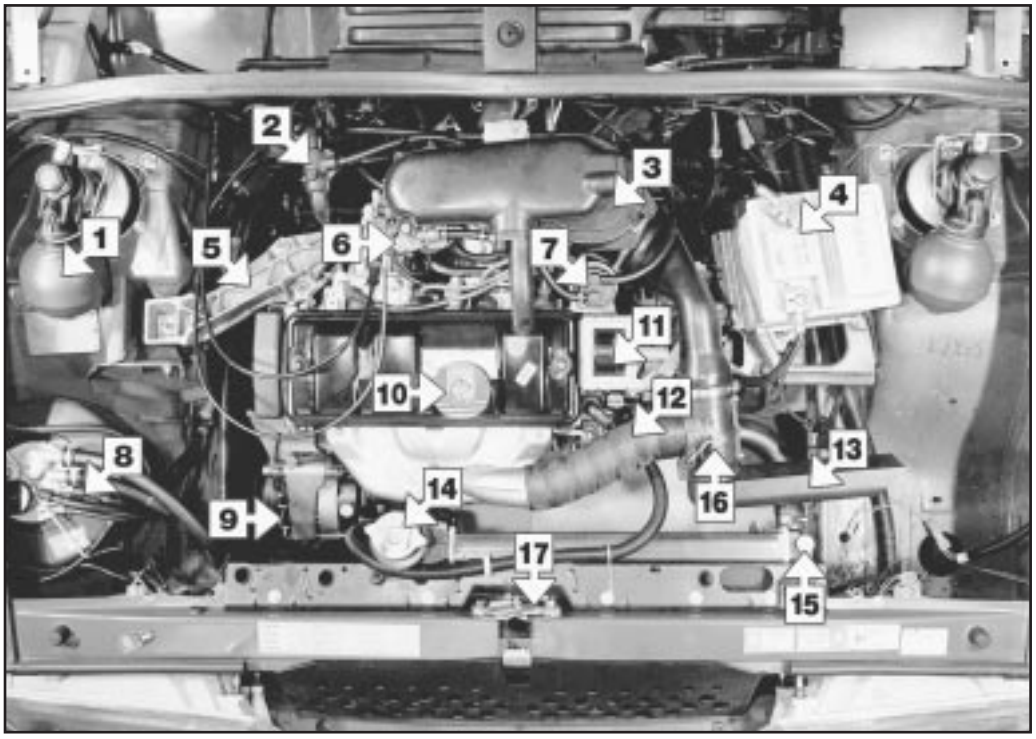
Underbonnet view of a BX or BX 14 with 150 engine

1 *Dipstick*
2 *Radiator filler cap*
3 *Hydraulic fluid reservoir*
4 *Front suspension unit (right-hand side)*
5 *Rear window washer reservoir*
6 *Carburettor*
7 *Oil filler*
8 *Ignition coil*
9 *Windscreen washer reservoir*
10 *Battery*
11 *Air filter*

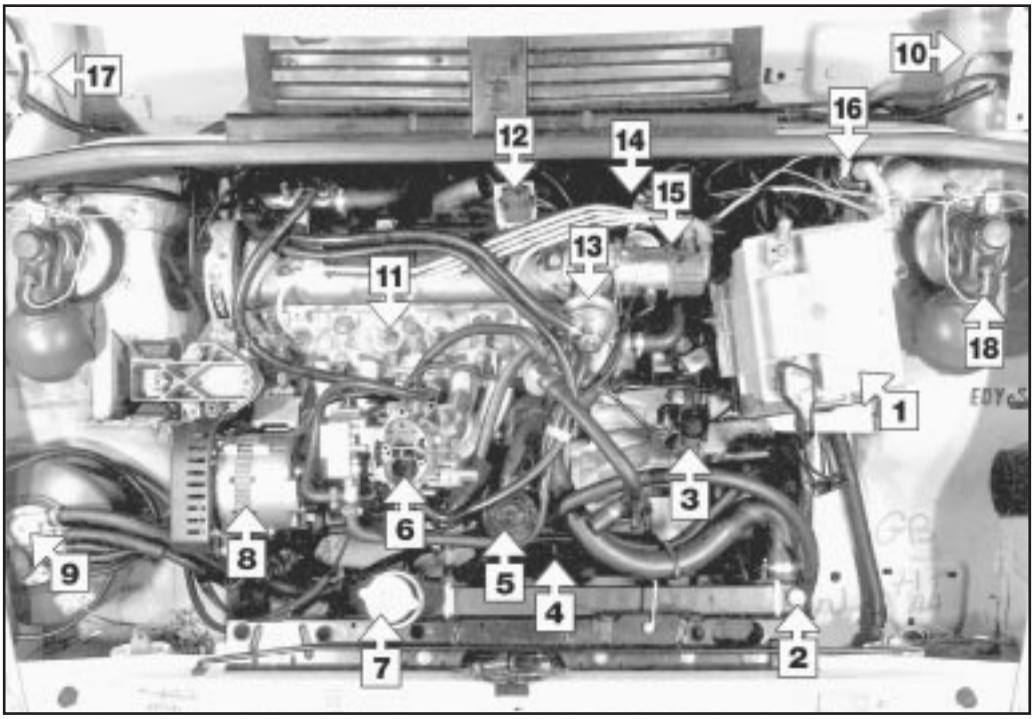


Underbonnet view of a BX 14 with K1G engine

1 *Front suspension sphere*
2 *Heater hose bleed screw*
3 *Air cleaner*
4 *Battery*
5 *Right-hand engine mounting*
6 *Carburettor*
7 *Fuel pump*
8 *Hydraulic system fluid reservoir*
9 *Alternator*
10 *Engine oil filler cap*
11 *Ignition coil*
12 *Hot air intake hose*
13 *Air intake tube*
14 *Radiator filler cap*
15 *Radiator bleed screw*
16 *Air cleaner Winter/Summer lever*
17 *Bonnet lock*

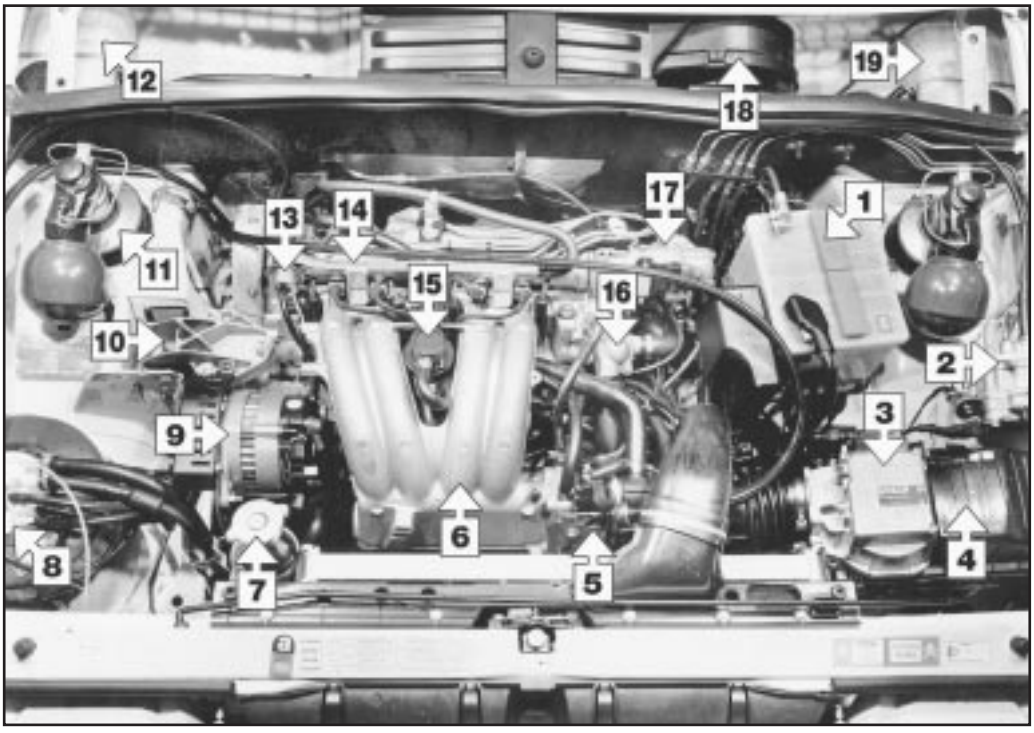


Underbonnet view of a BX 16 with air filter removed for clarity



1 Battery
2 Bleed screws - radiator
3 Clutch cable
4 Dipstick
5 Oil filler cap
6 Carburettor
7 Radiator filler cap
8 Alternator
9 Hydraulic system reservoir
10 Rear window washer reservoir
11 Spark plug
12 Diagnostic socket
13 Fuel pump
14 Dipstick - alternative position
15 Distributor
16 Ignition coil
17 Windscreen washer reservoir
18 Front suspension unit - left side

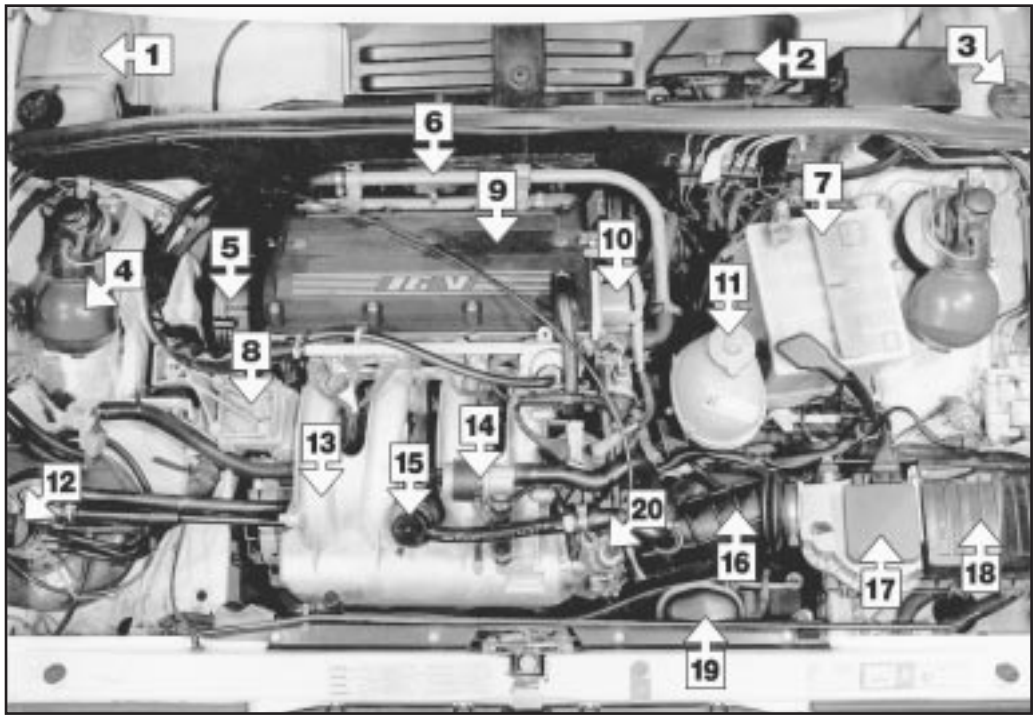
Underbonnet view of a BX 19 GTi



1 Battery
2 ABS hydraulic control unit
3 Airflow meter
4 Air cleaner
5 Throttle butterfly housing
6 Inlet manifold
7 Radiator filler cap
8 Hydraulic system fluid reservoir
9 Alternator
10 Right-hand engine mounting
11 Front suspension unit
12 Rear window washer reservoir
13 Fuel pressure regulator
14 Fuel rail
15 Engine oil filler cap
16 Thermostat housing
17 Distributor
18 Heater blower motor
19 Windscreen washer reservoir

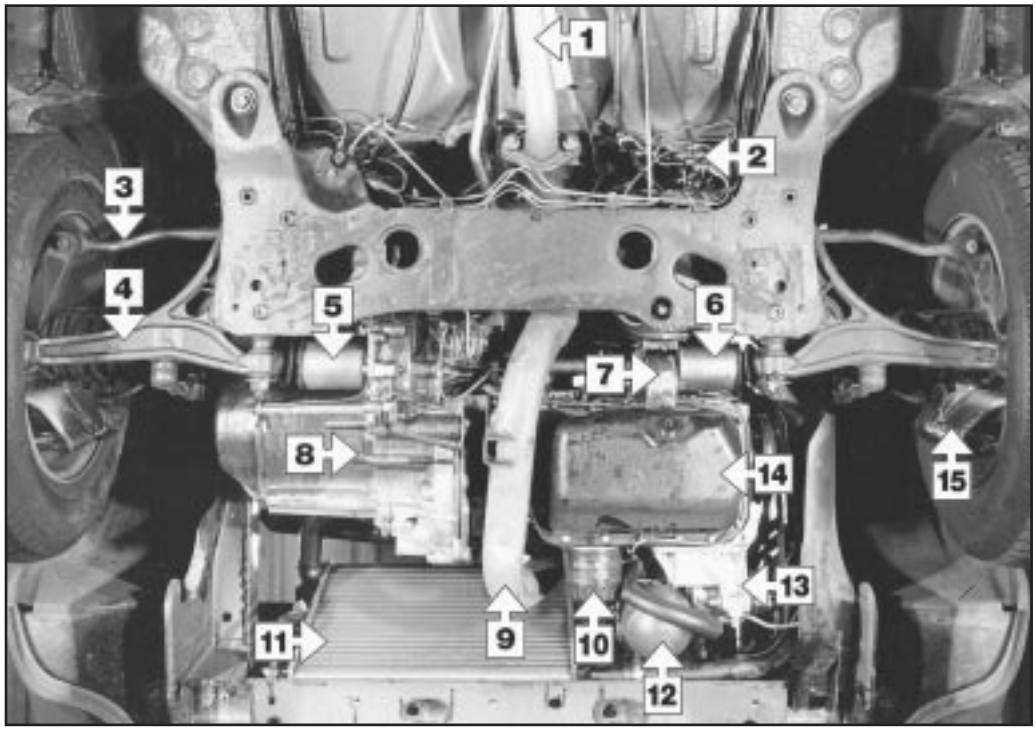
Underbonnet view of a BX 19 GTi 16 valve

1 Rear window washer reservoir
2 Heater blower motor
3 Windscreen washer reservoir
4 Front suspension sphere
5 Timing belt cover
6 Coolant distribution pipe
7 Battery
8 Right-hand engine mounting
9 Camshaft cover
10 Distributor
11 Coolant expansion tank
12 Hydraulic system fluid reservoir
13 Inlet manifold
14 Idle actuator
15 Engine oil filler cap
16 Air intake hose
17 Airflow meter
18 Air cleaner
19 Radiator
20 Throttle butterfly housing

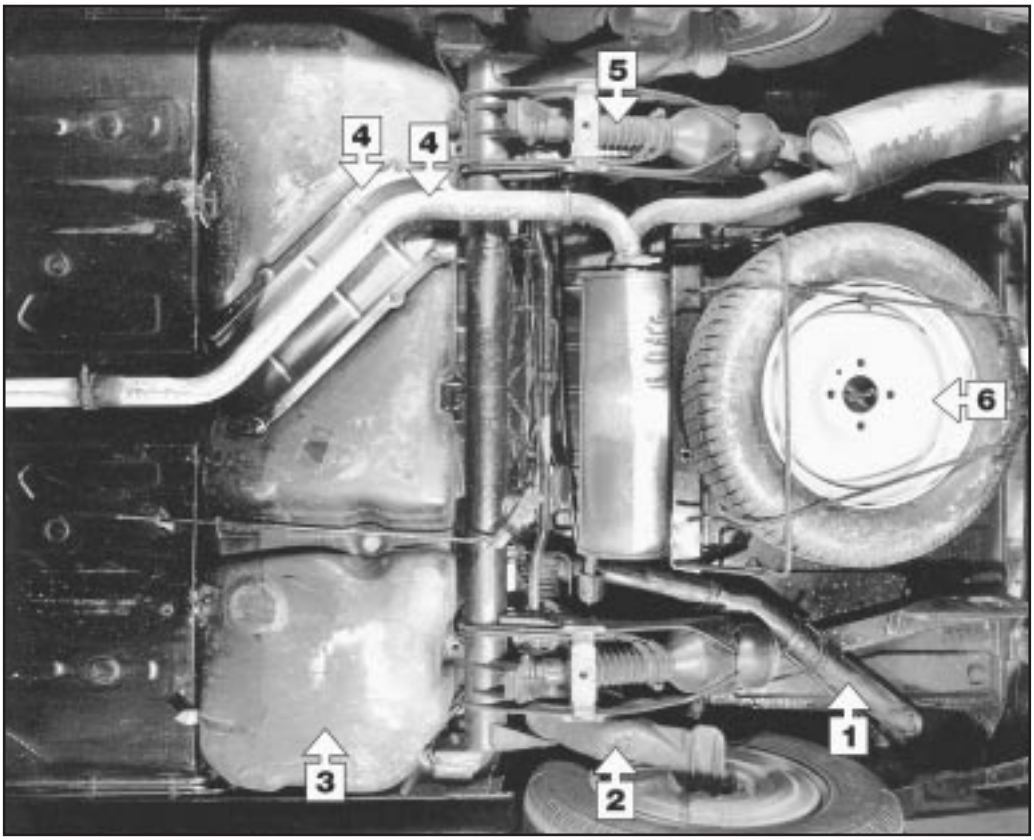


Front underbody view (typical)

1 Exhaust front section
2 Hydraulic system pipes and union
3 Steering track-rod
4 Front suspension arm
5 Driveshaft inboard joint
6 Driveshaft inboard joint
7 Driveshaft intermediate bearing
8 Transmission
9 Exhaust downpipe
10 Oil filter
11 Radiator
12 Hydraulic system fluid pressure regulator
13 Hydraulic system fluid pump
14 Sump
15 Brake disc air deflector



Rear underbody view (typical)



1 *Fuel filler pipe*
2 *Rear suspension arm*
3 *Fuel tank*
4 *Exhaust system and heat shield*
5 *Rear suspension unit*
6 *Spare wheel*

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.

The 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 can be inspected at the same time as the suspension and steering components.

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 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

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.

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.

If engine wear is suspected, a compression test 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 is carried out first.

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

Primary operations

a) Clean, inspect and test the battery
b) Check all the engine-related fluids
c) Check the condition and tension of the auxiliary drivebelt(s)
d) Renew the spark plugs
e) Inspect the distributor cap and HT leads - as applicable
f) Check the condition of the air cleaner filter element, and renew if necessary
g) Renew the fuel filter (if fitted)
h) Check the condition of all hoses and check for fluid leaks
i) Check the idle speed and mixture settings - as applicable

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

Secondary operations

a) Check the charging system
b) Check the ignition system
c) Check the fuel system
d) Renew the distributor cap and rotor arm - as applicable
e) Renew the ignition HT leads - as applicable

Every 1000 miles or Monthly

3 Seat belt check

1 Check the webbing of each seat belt for signs of fraying, cuts or other damage, pulling the belt out to its full extent to check its entire length.
2 Check the operation of the belt buckles by fitting the belt tongue plate and pulling hard to ensure that it remains locked, then check the retractor mechanism (inertia reel only) by pulling out the belt to the halfway point and jerking hard. The mechanism must lock immediately to prevent any further unreeling but must allow free movement during normal driving.
3 If there is any sign of damage, or any doubt about the condition of a belt, then it must be renewed. If the vehicle has been involved in a collision, any belts in use at the time must be renewed as a matter of course and all other belts should be checked carefully.
4 Use only warm water and non-detergent soap to clean seat belts. Never use chemical cleaners, strong detergents, dyes or bleaches. Keep the belts fully extended until they have dried naturally. Do not apply heat to dry a belt.

4 Brake operation check

1 Make sure that the vehicle does not pull to one side when braking and that the wheels do not lock prematurely when braking hard.
2 Check that there is no vibration through the steering when braking.
3 Check that the handbrake operates correctly without excessive movement of the lever and that it holds the vehicle stationary on a slope.

5 Fluid leakage check

1 Visually inspect the engine joint faces, gaskets and seals for any signs of coolant or oil leaks. Pay particular attention to the areas around the rocker 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 but what you are really looking for is any indication of a serious leak **(see Haynes Hint)**. Should a leak be found, renew the offending gasket or oil seal by referring to the appropriate Chapter(s) of this Manual.
2 Similarly, check the transmission for oil leaks and investigate and rectify and problems found.
3 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.
4 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.
5 Carefully check the condition of all coolant, fuel, power steering and brake hoses. 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 system components. Hose clips can pinch and puncture hoses, resulting in leaks. If wire type hose clips are used, it may be a good idea to replace them with screw-type clips.
6 With the vehicle raised, inspect the fuel 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 fuel 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 Inspect all hydraulic system pipes. If any damage or deterioration is discovered, do not drive the vehicle until the necessary repair work has been carried out. Renew any damaged sections of pipe immediately.
9 Check the condition of all exposed wiring harnesses.

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

Every 6000 miles or 6 Months

6 Exhaust system check

1 With the exhaust system cold, check the complete system from the engine to the end of the tailpipe. Ideally the inspection should be carried out with the vehicle raised and supported on axle stands (see "*Jacking and vehicle support*") to permit unrestricted access.
2 Check the exhaust pipes and connections for evidence of leaks, severe corrosion and damage. Make sure that all brackets and mountings are in good condition and tight. 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 Rattles and other noises can often be traced to the exhaust system, especially the brackets and mountings. Try to move the pipes and silencers. If the components can come into contact with the body or suspension parts, secure the system with new mountings or if possible, separate the joints and twist the pipes as necessary to provide additional clearance.

8.3 Carefully inspect each hydraulic pipe

7 Lock, hinge and latch mechanism check and lubrication

1 Lubricate the hinges of the bonnet, doors and tailgate with a light machine oil.
2 Lightly grease the bonnet release mechanism.
3 The door and tailgate latches, strikers and locks should also be lubricated, wiping off any surplus grease or oil.
4 Do not lubricate the steering lock mechanism with oil or any other lubricant which might foul the ignition switch contacts. If the lock is stiff, try to introduce a graphite-based powder into the mechanism.

8 Hydraulic line condition and security check

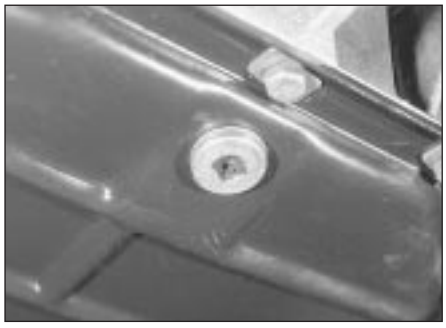
1 The hydropneumatic suspension and the braking system are both pressurised by a common hydraulic system. The pipes and hoses of this system must be checked for security and condition and any damaged or corroded components renewed immediately.
2 Start examination of the system from the fluid reservoir and work around the suspension and braking systems in a logical sequence, including the pressure regulator, pump, security valve, compensator control valve, front and rear suspension height corrector units and suspension unit cylinders.
3 Carefully work along the length of each pipe looking for dents, kinks, damage of any sort or corrosion. Corrosion should be polished off. If the depth of pitting is significant then the pipe must be renewed **(see illustration)**.
4 Look for signs of leakage at pipe and hose unions, then examine all flexible hoses for signs of cracking, chafing or deterioration of the rubber. Bend them sharply 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 **(see illustrations)**. Check that all pipes and hoses are securely fastened in their clips.

8.4a Examine all hydraulic hoses for signs of leakage, cracking, chafing or deterioration

8.4b Examining a brake system hose

9 Engine oil and filter renewal

Note: *There may be a delay of a few seconds before the oil pressure warning light goes out when the engine is first started after oil renewal*
1 Before starting, gather together all the necessary tools and materials. Make sure that you have plenty of clean rags and newspapers handy to mop up any oil spillage. 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 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.
2 Raise the vehicle to its full height setting to allow improved clearance and support it on axle stands (see "*Jacking and vehicle support*")
3 The engine oil drain plug is located at the lowest point of the sump **(see illustration)**. Remove the oil filler cap and slacken the drain plug about half a turn. Position a suitable container under the drain plug, then remove the plug completely **(see Haynes Hint)**.
4 Allow some time for the old oil to drain, noting that it may be necessary to reposition the container as the flow of oil slows to a trickle. Work can be speeded-up by removing the oil filter while the oil is draining.
5 After all the oil has drained, wipe off the drain plug with a clean rag and (where fitted) renew its sealing washer. Clean the area around the drain plug opening and refit the plug. Tighten the plug securely, to the specified torque.
6 Move the container into position under the oil filter.



9.3 The engine oil drain plug is located at the lowest point of the sump

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

7 Using a filter removal tool, slacken the filter initially then unscrew it by hand the rest of the way **(see illustration)**. If a tool is not available, pierce the side of the filter with a long pointed tool and use this as a lever to unscrew it from its mounting. Empty the oil in the old filter into the container and allow any residual oil to drain out of the engine.

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 has not stuck to the engine. If it has, carefully remove it.

9 Apply a light coating of clean engine oil to the sealing ring of the new filter and screw the filter into position until it seats. Tighten the filter by hand only, do not use any tools.

10 Remove the old oil and all tools from under the vehicle.

11 Refill the engine with fresh oil, using the correct grade and type of oil. 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 *(see Weekly Checks).* Adding a further 1.0 litre will bring the level up to the upper mark on the dipstick.

12 Start the engine and run it for a few minutes while checking for leaks around the oil filter seal and the sump drain plug.

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 safely.

OIL CARE
FOLLOW THE CODE
OIL BANK LINE
0800 66 33 66

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.

9.7 Removing the engine oil filter

10 Automatic transmission fluid level check

1 This check should be made directly after the vehicle has been used so that the transmission oil is at its normal operating temperature. Note that the transmission fluid may be very hot, so take precautions to avoid being burnt by it.

2 With the vehicle parked on level ground and the engine running, move the selector lever through all positions a number of times then finally leave it in P. The handbrake must be fully applied throughout the check procedure.

3 With the engine still running, remove the transmission fluid level dipstick, wipe it clean, reinsert it fully then withdraw it again and check the fluid level. The fluid level must be between the MIN and MAX levels on the dipstick **(see illustration)**.

4 If required, top-up the fluid level (but do not overfill) through the dipstick guide tube.

5 Stop the engine and refit the dipstick on completion.

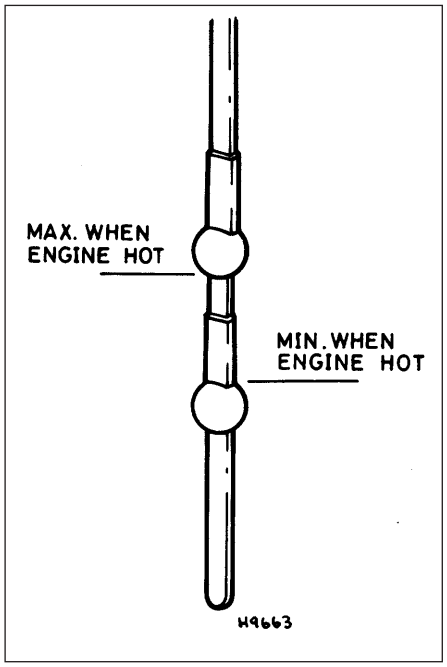
6 If topping-up becomes frequently necessary, inspect the transmission for leaks.

11 Clutch operation check

1 Check that the clutch pedal moves smoothly and easily through its full travel and that the clutch itself functions correctly, with no trace of slip or drag.

2 If excessive effort is required to operate the clutch, check first that the cable is correctly routed and undamaged, then remove the pedal to ensure that its pivot is properly greased before suspecting a fault in the cable itself. If the cable is worn or damaged, or if its adjusting mechanism is no longer effective, then it must be renewed.

3 Check clutch pedal travel by measuring the total distance from the highest to the lowest point of its travel. The recommended travel distance must be within the limits specified.



10.3 The automatic transmission fluid level dipstick

4 The clutch thrust bearing is of the self-centring ball type and it should be in permanent contact with the release mechanism. Check this by ensuring that there is no clutch pedal free play. Check the clearance between the pedal pin and the pedal unit support aperture lower limit **(see illustrations)**.

5 The clearance measured should be a minimum of 8 mm. If adjustment is necessary, loosen the clutch pushrod locknut and take up any excessive play by turning the adjustment screw. When the adjustment is correct retighten the locknut **(see illustration)**.

12 Brake pad wear check

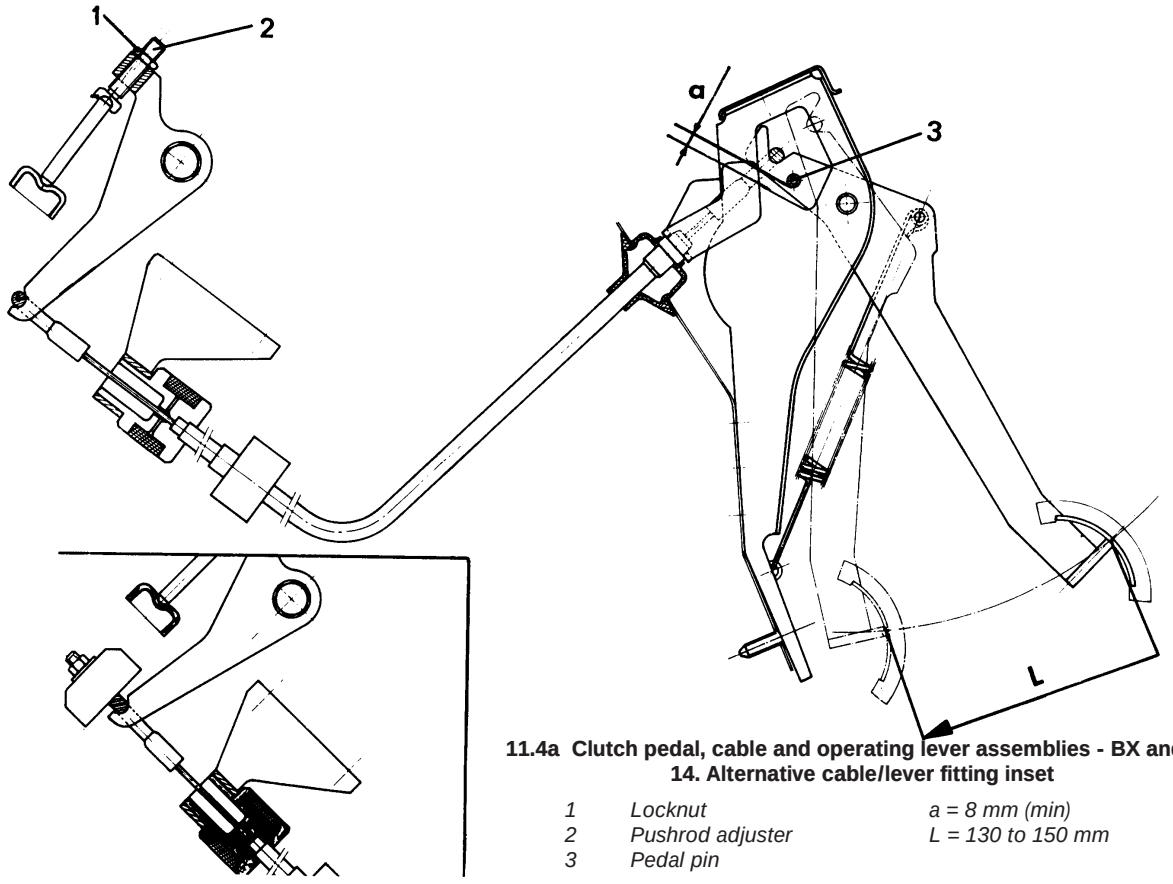
Warning: When checking brake components, take care not to disperse brake dust into the air or to inhale it, since it may contain asbestos which is injurious to health

Front

1 The brake pad wear warning lamp will indicate that the front brake pads have worn down to the specified limit.

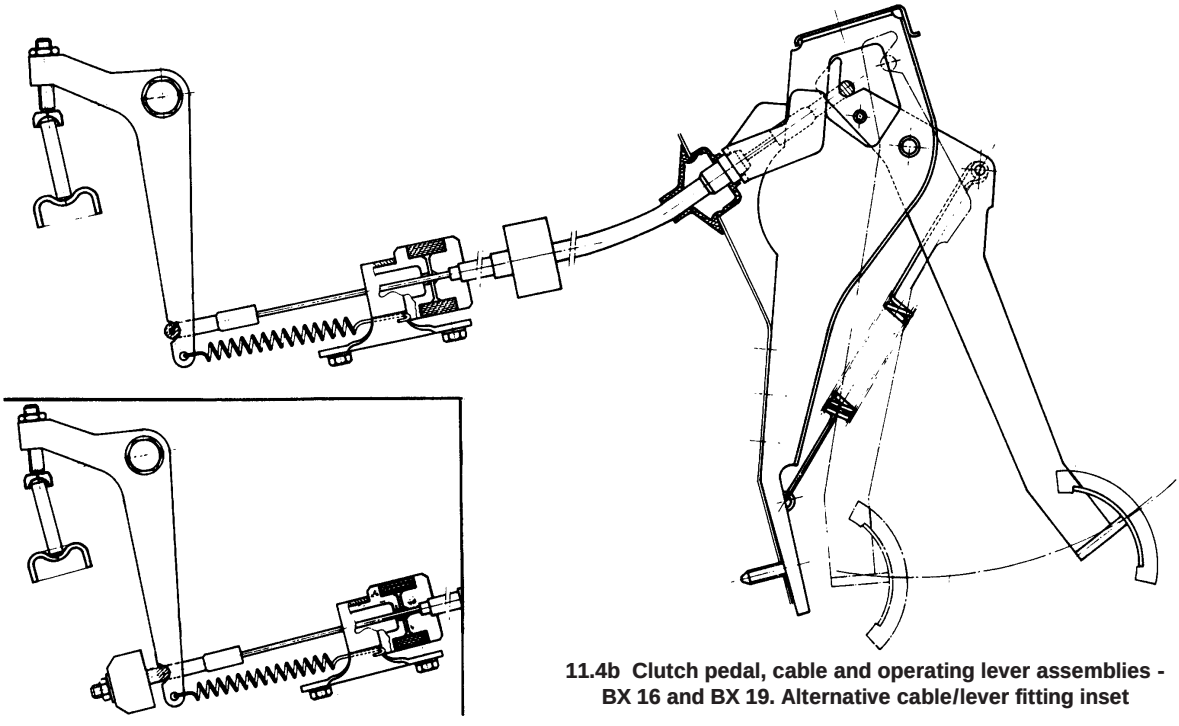
2 To carry out a visual check, chock the rear roadwheels, jack up the front of the vehicle and support it on axle stands (see "*Jacking and vehicle support*").

3 Remove the front roadwheels, release the handbrake and turn the steering so that one of the brake calipers is facing outboard.

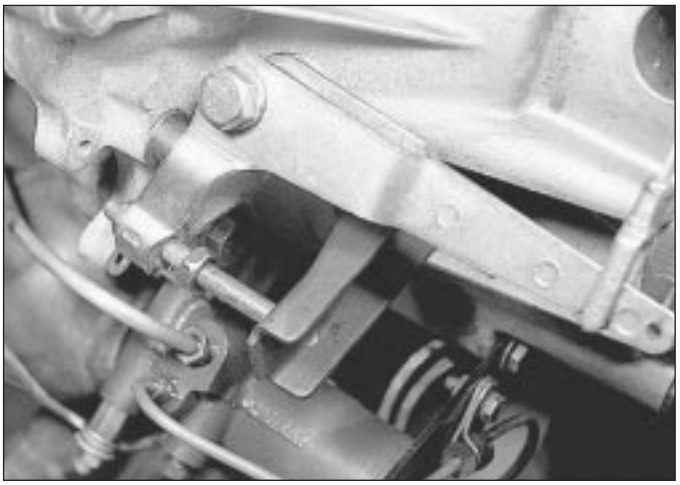


11.4a Clutch pedal, cable and operating lever assemblies - BX and BX 14. Alternative cable/lever fitting inset

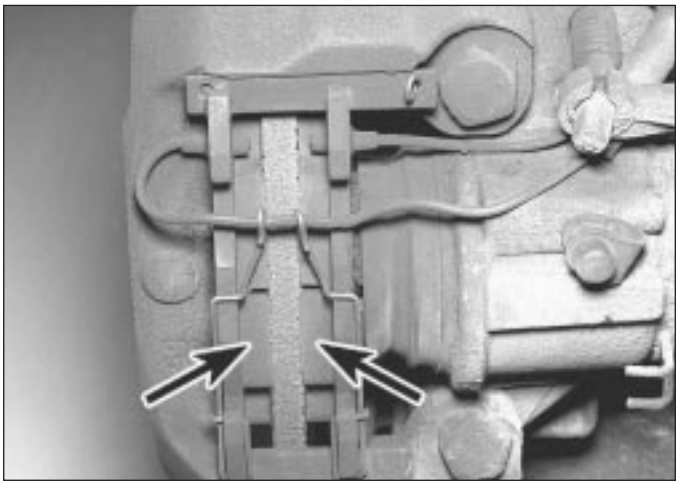
1	*Locknut*	*a = 8 mm (min)*
2	*Pushrod adjuster*	*L = 130 to 150 mm*
3	*Pedal pin*	



11.4b Clutch pedal, cable and operating lever assemblies - BX 16 and BX 19. Alternative cable/lever fitting inset



11.5 Clutch pushrod and release lever - BX 16



12.4 The thickness of the friction material on each brake pad can be measured through the aperature in the caliper body

4 Check the thickness of the brake pad linings. If worn down to or beyond the minimum allowable thickness they must be renewed without delay **(see illustration)**.
5 Repeat the process on the opposite caliper.
6 When renewing the brake pads, always fit new pads to both calipers.

Rear

7 Apply the handbrake, jack-up the rear of the vehicle and support it on axle stands. Remove both roadwheels.
8 Unscrew and remove the retaining bolt and withdraw the pad cover from each caliper.
9 Check the thickness of the brake pad linings of both calipers. If worn down to or beyond the minimum allowable thickness they must be renewed.
10 When renewing the brake pads, always fit new pads to both calipers.

13 Brake disc wear and condition check

Clean and examine each brake disc for deep scoring or grooving. Light scoring is normal but if it is severe, the disc must be refaced by a competent engineering works or, if worn to the specified wear limit, renewed.

Check each disc for run-out to determine whether it is distorted or buckled. To do this accurately, a dial gauge will be necessary. If a gauge is not available, feeler blades can be used against a fixed block as the disc is rotated slowly. Do not confuse wear in the hub bearings with disc run-out. The mating surfaces of the hub and disc must be perfectly clean or a false reading could be given. If run-out is greater than that specified, renew the disc.

14 Handbrake adjustment check

The handbrake should be capable of holding the parked car stationary, even on steep slopes, when applied with moderate force. The mechanism should be firm and positive in feel with no trace of stiffness or sponginess from the cables and should release immediately the handbrake lever is released. If the mechanism is faulty in any of these respects it must be checked immediately.

To check the setting, apply the handbrake firmly several times to establish correct pad-to-disc clearance, then release the lever fully. Applying normal moderate pressure, pull the handbrake lever to the fully-applied position and count the number of notches required to do so. If the number of notches is more or less than that specified in Chapter 10 (handbrake adjustment), then adjustment is required.

15 Front wheel alignment check

1 Accurate wheel alignment is essential for good steering and slow tyre wear. Before checking, make sure that the suspension heights are correct and that the tyres are correctly inflated.
2 Place the vehicle on level ground with the wheels in the straight-ahead position.
3 With the ground clearance lever in the "normal" position and the engine idling, measure the toe of the front wheels using a wheel alignment gauge. The amount of toe must be as specified.
4 If adjustment is necessary, refer to Chapter 11.

16 Steering gear, track rod balljoint and gaiter check

1 Raise the front of the vehicle and securely support it on axle stands (see "*Jacking and vehicle support*").
2 Visually inspect the balljoint dust covers and the steering gear rubber gaiters 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 Grasp the roadwheel at the 9 o'clock and 3 o'clock positions and try to rock it. Any movement felt may be caused by wear in the hub bearings or in the track rod balljoints. If a 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 steering gear 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.
4 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 the roadwheels. If this is not the case, closely observe the joints and mountings previously described, but in addition check for wear of the steering column universal joint and the steering gear itself.

17 Driveshaft bellow check

With the vehicle raised and securely supported on axle 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 while squeezing them to open out the folds **(see illustration)**. Check for signs of cracking, splits or deterioration of the rubber which may allow grease to escape and lead to the entry of water and grit 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.

At the same time, check the general condition of the CV joints themselves by first holding the driveshaft and attempting to rotate the roadwheel. Repeat this check by holding the inner joint and attempting to rotate the driveshaft. Any appreciable movement indicates wear in the joints, in the driveshaft splines, or a loose driveshaft nut.

17.1 Inspect the CV joint rubber bellows for signs of cracking, splits or deterioration

Every 12 000 miles or 12 Months

18 Seat belt anchorage check

1 Ensure that all belt mounting bolts are securely tightened. Note that some bolts are shouldered so that the belt anchor points are free to rotate.
2 If there is any sign of damage or heavy corrosion around an anchorage point causing a reduction in strength, then it must be repaired immediately
3 If the vehicle has been involved in a collision, then all belt anchorage points must be checked as a matter of course.

19 Drivebelt tension check

Alternator

1 If the alternator drivebelt is too loose, alternator performance will be affected. If the belt is too tight it will cause unnecessary alternator bearing wear. In either case the belt itself will suffer and its life will be shortened.
2 The belt should be tight enough to take up any play in the belt at its mid point on the longest run between the pulleys **(see illustration)**. Whilst tautness is required, the belt must not be overtightened.

HP pump

3 Belt tension must be felt to be taut under a reasonable thumb pressure at the midway point between the pulleys on its longest run. Note that the belt must not be tightened excessively or its will be shortened and damage to the pulleys and their drive bearings could result.

20 Crankcase ventilation hose check and clean

1 Check the security and condition of all crankcase breather hoses. They must be free of perishing, splits and chafing.
2 If hose blockage is suspected, remove and clean the relevant hose.
3 Ensure that all cable-ties or securing clips attached to the hoses are in place and in good condition. Clips which are broken or missing can lead to chafing of the hose which could cause more serious problems in the future.

21 Valve clearance check - BX and BX 14

Note: *For engine to model applications refer to Chapter 2*

19.2 Checking alternator drivebelt tension

150 engine

Checking

1 This operation must only be done when the engine is cold.
2 Remove the rocker cover.
3 The engine will need to be progressively turned over when checking the valve clearances. To do this, raise the front of the vehicle so that a roadwheel is clear of the ground, then turn the roadwheel with 4th gear engaged and turn the engine over as required. Removal of the spark plugs will allow the engine to be turned over more easily.
4 It is important that each clearance is checked only when the rocker of the valve being adjusted rests on the heel of the cam, that is directly opposite the peak of the cam. This can be ensured by working in the following sequence, which also avoids turning the engine more than necessary:

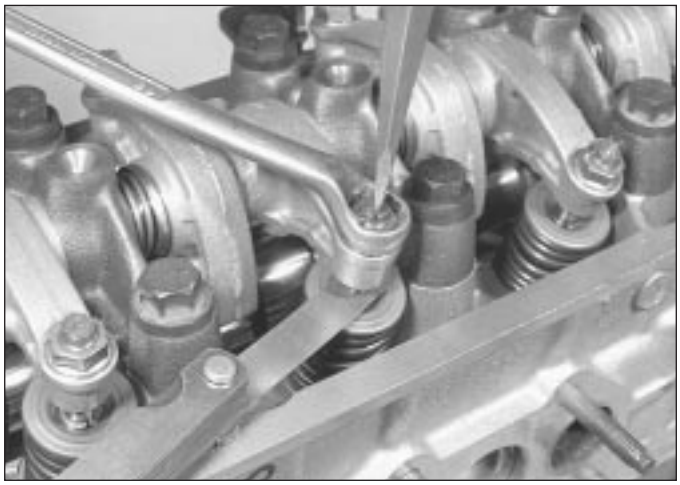
Valve fully open	Check and adjust valves
1 exhaust	*3 inlet and 4 exhaust*
3 exhaust	*4 inlet and 2 exhaust*
4 exhaust	*2 inlet and 1 exhaust*
2 exhaust	*1 inlet and 3 exhaust*

5 Each clearance must be as shown in *Specifications*.

Adjustment

6 To adjust a clearance, position the valve fully open and inserting a feeler blade in the gap between the rocker arm and valve stem. Loosen the locknut with a spanner and turn the adjuster screw with a screwdriver **(see illustration)**. Adjust the screw so that the feeler blade slides in the gap with a slight drag. Tighten the locknut, recheck the clearance and readjust if necessary.
7 Check that the rocker cover seal is in good condition and refit the cover. Fit new sealing washers under the retaining bolts and tighten the bolts.

21.6 Adjusting a valve clearance - 150 engine



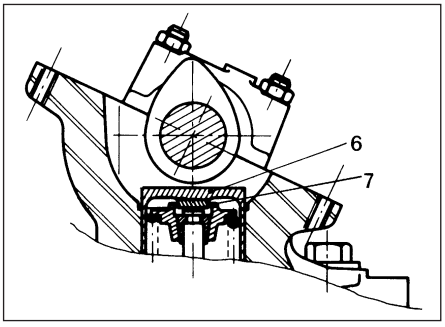
21.15 Adjusting a valve clearance - K1G engine

K1G engine

Checking

8 Disconnect the crankcase ventilation hose from the rocker cover.
9 Unscrew the nuts and remove the rocker cover.
10 Remove the two spacers and baffle plate from the studs.
11 Prepare to rotate the crankshaft, either by jacking up one front wheel and turning the wheel with 4th gear engaged, or by using a spanner on the crankshaft sprocket bolt. Rotation will be easier if the spark plugs are first removed.
12 Rotate the crankshaft until No 1 exhaust valve (flywheel end) is fully open. No 3 inlet valve and No 4 exhaust valve clearances may now be checked.
13 Insert a feeler blade of the specified thickness between the rocker arm and valve stem. It should be a firm, sliding fit if the clearance is correct.
14 Work in the following sequence:

Valve fully open	Check and adjust valves
1 Exhaust	*3 Inlet and 4 Exhaust*
3 Exhaust	*4 Inlet and 2 Exhaust*
4 Exhaust	*2 Inlet and 1 Exhaust*
2 Exhaust	*1 Inlet and 3 Exhaust*



22.5a Valve clearance is measured with the cam lobe pointing vertically upwards - 171 and 159 engines

6 Tappet *7 Shim*

Adjustment

15 Where adjustment is necessary, loosen the adjuster nut with a ring spanner, turn the adjuster as required with a screwdriver, then retighten the nut **(see illustration)**.
16 When all valve clearances have been checked and adjusted, refit the baffle plate with its edges pointing downwards, followed by the two spacers.
17 Check that the rubber gasket is re-usable (renew if necessary), then refit the rocker cover and tighten the nuts.
18 Reconnect the crankcase ventilation hose.

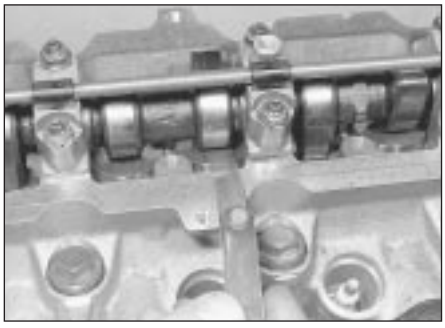
22 Valve clearance check - BX 16 and BX 19

Note: *For engine to model applications refer to Chapter 2*

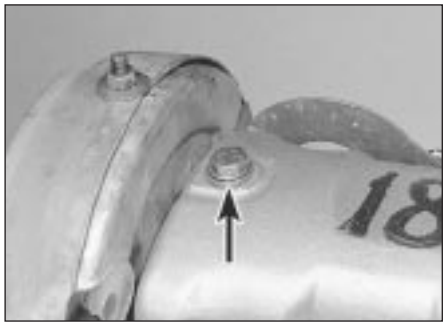
171 and 159 engines

Checking

1 Valve clearances must be checked with the engine cold.
2 Remove the camshaft cover, trying not to damage the gasket.
3 Prepare to rotate the crankshaft, either by jacking up one front wheel and turning the wheel with 5th gear engaged, or with a spanner on the crankshaft pulley bolt. The crankshaft will be easier to rotate if the spark plugs are first removed.
4 Have ready a pencil and paper to record the measured clearances.
5 Turn the crankshaft until the cam lobe nearest the pulley end of the engine is pointing vertically upwards **(see illustration)**. Use feeler blades to measure the clearance between the base of the cam and the tappet **(see illustration)**. Record the clearance.
6 Repeat the measurement for the other seven valves, turning the crankshaft as necessary so that the cam lobe in question is always vertically upwards.
7 Calculate the difference between each measured clearance and the specified value. Note that the value for inlet valves is different from that for exhaust. Counting from either end of the engine, the valve sequence is:
Exhaust- Inlet - Inlet- Exhaust- Exhaust - Inlet - Inlet - Exhaust
8 If any clearance is outside the specified tolerance, then it must be adjusted.
9 If all clearances are within tolerance, refit the camshaft cover, using a new gasket if necessary. Note the copper washer under the bolt at the timing belt end **(see illustration)**.



22.5b Measuring a valve clearance - 171 and 159 engines



22.9 Copper washer (arrowed) under bolt head

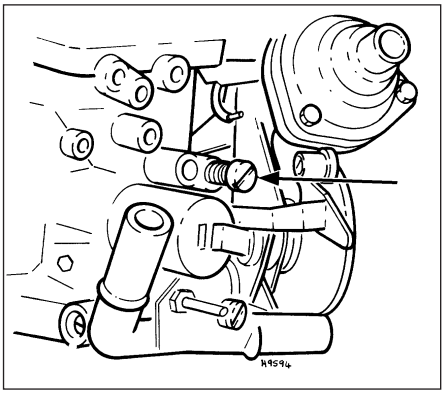
Adjustment

10 Remove the camshaft.
11 Lift off a tappet and its shim. Be careful that the shim does not fall out of the tappet. Clean the shim and measure its thickness with a micrometer **(see illustrations)**.
12 Refer to the clearance recorded for the valve concerned. If the clearance was larger than specified, a thicker shim must be fitted. If the clearance was too small, a thinner shim must be fitted.

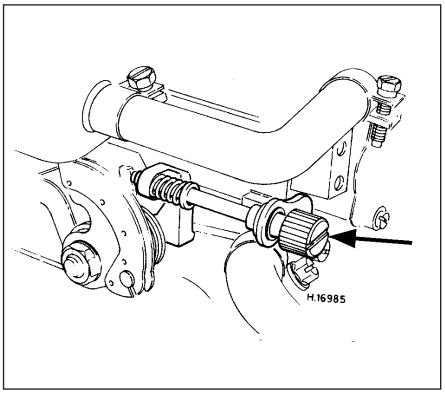
Sample calculation - clearance too large:
Desired clearance (A) 0.20 mm
Measured clearance (B) 0.28 mm
Difference (B - A) = + 0.08 mm
Original shim thickness 2.62 mm
Reqd. shim thickness 2.62 + 0.08 = 2.70 mm

Sample calculation - clearance too small:
Desired clearance (A) 0.40 mm
Measured clearance (B) 0.23 mm
Difference (B - A) = - 0.17 mm
Original shim thickness 2.86 mm
Reqd. shim thickness 2.86 - 0.17 = 2.69 mm

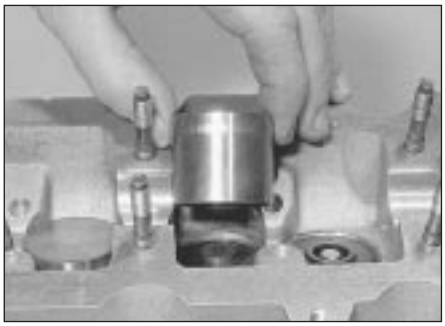
13 Shims are available in the following thicknesses:
From 2.225 to 3.025 mm in steps of 0.025 mm
From 3.100 to 3.550 mm in steps of 0.075 mm
14 Clean new shims before measuring or fitting them.



23.6a Idle speed adjustment screw (arrowed) - Weber carburettor



23.6b Idle speed adjustment screw (arrowed) - Weber 36TLP carburettor



22.11a Lifting a tappet

22.11b Measuring shim thickness with a micrometer

15 Repeat the operations on the other tappets and shims, keeping each tappet identified so that it can be refitted in the same position.
16 When reassembling, oil the shim and fit it on the valve stem, then oil the tappet and lower it smoothly into position. If the tappet is raised at any stage the shim may be dislodged.
17 When all the tappets are in position with their shims, refit the camshaft. Check the valve clearances before refitting the camshaft drivebelt in case a mistake has been made and the camshaft has to be removed again.

23 Idle speed check

Carburettor models

1 Correct idle speed adjustment can only be achieved if the engine is in generally good condition. Valve clearances must be correct and the ignition system must be in good condition and adjusted correctly.
2 An independent tachometer is necessary to make accurate adjustment and it should be connected to the engine in accordance with the manufacturer's instructions.
3 On automatic transmission models, engage "P".
4 With the air filter fitted, run the engine until warm, as indicated by engagement of the cooling fan.
5 Check the idle speed is that specified.
6 To adjust the idle speed, turn the adjustment screw **(see illustrations)**.
7 On automatic transmission models, after adjustment to the idle speed has been made, check that the handbrake is fully applied and then place chocks against the roadwheels. Engage a gear and check that the idle speed drops to between 650 to 700 rpm. If required, further adjust the idle speed with the vehicle in gear to obtain this in-gear idle speed.

Fuel injection models

Bosch LE3 Jetronic

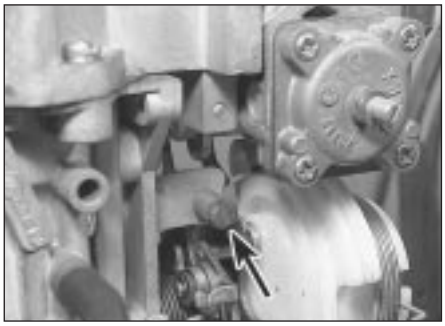
8 Before checking the idle speed, the following conditions must be met:
a) The ignition system must be in good condition and correctly adjusted
b) The air cleaner element must be clean
c) The throttle initial position must be correctly set, as must the throttle butterfly spindle switch
d) The engine must be at its normal operating temperature, the cooling fan having cut in and then out
9 Connect a tachometer and an exhaust gas analyser to the engine. If the idle speed is incorrect, turn the adjustment screw in the required direction to set the speed to that specified **(see illustration)**.

Motronic ML4.1

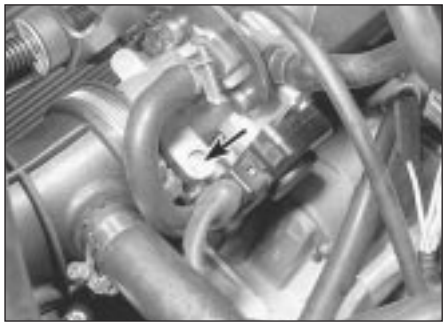
10 The idle speed is controlled by the ECU and no adjustment is possible.

Motronic M1.3 without catalyst

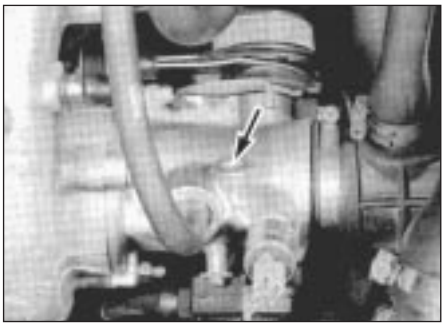
11 The idle speed is controlled by the ECU and no adjustment is possible.



23.6c Idle speed adjustment screw (arrowed) - Solex 32-34 carburettor



23.9 Idle speed adjustment screw (arrowed) - Bosch LE3 Jetronic



23.15 Idle speed adjustment screw (arrowed) - Motronic M1.3 with catalyst

Motronic M1.3 with catalyst

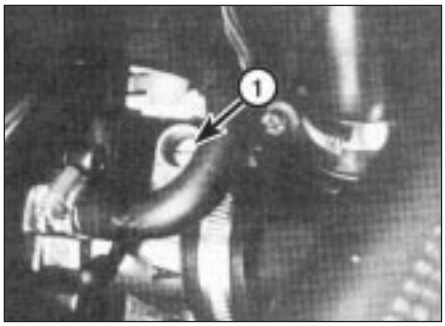
12 To adjust the idle speed, run the engine until it reaches normal operating temperature (the cooling fan should have cut in and out), then stop the engine and connect a tachometer in accordance with the manufacturer's instructions.
13 Clamp the fuel vapour recycling hose which connects to the inlet manifold.
14 Where applicable, remove the tamperproof cap from the idle speed adjustment screw on the throttle butterfly housing.
15 With the engine idling, turn the adjustment screw to obtain the specified idle speed **(see illustration)**.
16 On completion, stop the engine. Disconnect the tachometer and where necessary, fit a new tamperproof cap to the idle speed adjustment screw.

Motronic MP3.1

17 Run the engine until it reaches normal operating temperature (the cooling fan should have cut in and out), then stop the engine and connect a tachometer and an exhaust gas analyser in accordance with the manufacturer's instructions.
18 Remove the tamperproof cap from the idle speed adjustment screw on the throttle butterfly housing.
19 With the engine idling, turn the adjustment screw as necessary to obtain the specified idle speed **(see illustration)**.
20 On completion, stop the engine. Disconnect the tachometer and exhaust gas analyser and fit a new tamperproof cap to the adjustment screw.

Magneti Marelli

21 The idle speed is controlled by the ECU and does not normally require adjustment. While experienced home mechanics with a considerable amount of skill and equipment (including a good-quality tachometer and carefully-calibrated exhaust gas analyser) may be able to check the exhaust CO level and idle speed, if these are found to be in need of adjustment then the vehicle must be taken to a suitably-equipped Citroën dealer.
22 Adjustments can be made only by re-programming the ECU, using special diagnostic equipment connected to the system via the diagnostic connector.



23.19 Idle speed adjustment screw (arrowed) - Motronic MP3.1

24 Fuel filter renewal - BX 16 RE

From November 1987, BX 16 RE models have an in-line fuel filter fitted between the fuel pump and the carburettor **(see illustration)**.

When renewing this filter, ensure that the directional arrow on the filter points towards the carburettor and check for leaks at its hose connections after starting the engine.

25 Spark plug renewal

Note: *From July 1987, the engines of BX 19 models are fitted with conventional flat-seat spark plugs with washers, instead of the taper-seat plugs without washer used previously. Flat-seat spark plugs with washers are also fitted to BX 19 GTi and BX GTi 16v engines. BX 14 and BX 16 models followed suit in August and September of 1988 respectively.*

Removal

1 Pull the HT lead from each plug. Grip the rubber end fitting not the lead, otherwise the lead connection may be fractured **(see illustration)**.

> **HAYNES HiNT** ***Number each HT lead using sticky tape or paint before removal so as to avoid confusion when refitting***

2 The plugs are deeply recessed in the cylinder head. It is recommended that dirt is removed from the recesses using a vacuum cleaner or compressed air before removing the plugs, to prevent dirt dropping into the cylinders.
3 Unscrew each plug.

Fitting

4 Screw each new plug in by hand. This will make sure that there is no chance of cross-threading.

24.1 Note direction of arrow on in-line fuel filter - BX 16 RE

5 Tighten each plug to the specified torque. If a torque wrench is not available, just nip up the plug. It is better to slightly undertighten rather than overdo it and risk stripping the threads from the light alloy cylinder head.
6 Overtightening plugs of the tapered seat type can make them extremely difficult to remove.
7 When reconnecting the plug leads, make sure that they are refitted in their correct order (1 - 3 - 4 - 2) No 1 cylinder being at the flywheel end of the engine.

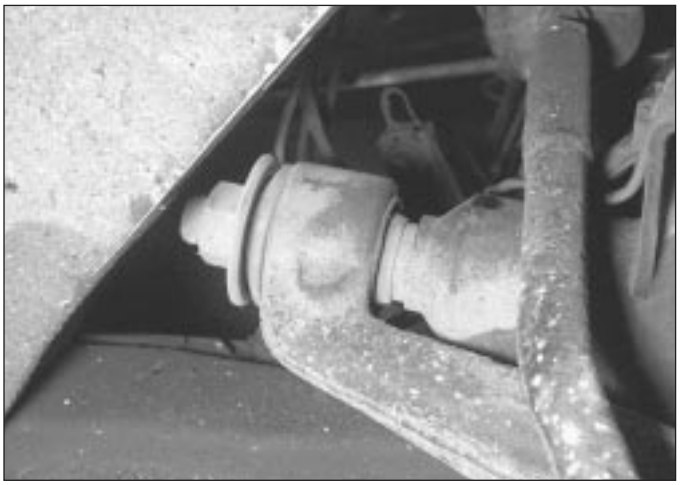
26 Clutch pedal and cable lubrication

1 Refer to Chapter 6 and remove the clutch cable from the vehicle. Check the cable outer along its length for signs of damage and ensure that the cable inner moves freely in its outer.
2 If the cable inner moves freely, lubricate it thoroughly with light machine oil and refit the cable.
3 If the cable inner is very stiff to move, the best option is to renew the cable.
4 Lubricate all cable linkages with light machine oil.
5 Remove the clutch pedal and grease its pivot.

25.1 Pulling an HT lead from a spark plug

27 Front suspension lower balljoint check

1 Raise the front of the vehicle and securely support it on axle stands with both roadwheels clear of the ground (see "*Jacking and vehicle support*").
2 Using a large screwdriver or flat bar, check for wear in the front suspension lower balljoints by levering between the relevant suspension component and its attachment point. Balljoint wear should be obvious, necessitating renewal.
3 Check the condition of any visible rubber bushes, looking for splits, cracks or contamination of the rubber **(see illustration)**.
4 Check the tightness of all nuts and bolts on the suspension.



27.3 Check each rubber bush for splits, cracks or contamination of the rubber

Every 18 000 miles or 18 Months

28 Air cleaner element renewal

Carburettor models

BX and BX 14

150 engine
1 Release the clip on the large hose at the air cleaner cover. Pull off the hose and twist it aside.

28.5a Prise down the toggle clips . . .

28.5b . . . and withdraw the lid/element assembly - BX 14 with K1G engine

2 Unscrew the cover retaining knob.
3 Withdraw the cover/filter element.
4 Clean out the casing and fit the new filter cartridge, reversing the removal procedure.

K1G engine
5 Prise down the toggle clips and withdraw the lid/element assembly **(see illustrations)**.
6 Wipe out the casing and fit the new element.

BX 16 and BX 19

7 Unscrew the wing nut securing the air cleaner top cover and lift off the cover, complete with the inlet duct, lifting the duct from the carburettor **(see illustration)**.
8 Lift the old element out of the air cleaner case and discard it. Clean out the casing.
9 Insert the new element and check that it is correctly seated.
10 Relocate the top cover and inlet duct. Fasten the cover with the wing nut.

Fuel injection models

Note: *For injection system to model applications refer to Chapter 4*

28.7 Lift off the cover, complete with inlet duct to expose the air filter element - BX 16 and BX 19

Motronic and Bosch LE3 Jetronic systems

11 Raise and support the bonnet.
12 Undo the air cleaner/airflow meter unit inlet hose clip and detach the hose.
13 Release the retaining clips and lift the air cleaner/airflow meter unit away from the lower cleaner housing.
14 Lift out the old air cleaner element from the housing and discard it **(see illustration)**.
15 Wipe clean the air cleaner housing, then fit the new air cleaner element into position.
16 Refit the air cleaner/airflow meter unit and inlet hose, reversing the removal procedures.

Magneti Marelli system

17 The air cleaner housing is situated in the left-hand front corner of the engine compartment.
18 To remove the filter element, release the five housing lid retaining clips, then lift the lid until there is sufficient clearance to withdraw the element from the air cleaner housing **(see illustrations)**.

28.14 Lifting the air filter element from its housing - Motronic and Bosch systems

28.18a Release the five retaining clips . . .

28.18a . . . remove the lid and withdraw the air filter element - Magneti Marelli system

29.3 Spring back the hydraulic reservoir cover retaining clip (arrowed) to release the cover and central block

19 On refitting, ensure that the new element is correctly seated in the housing, then refit the lid and secure it in position with the retaining clips.

29 Hydraulic system filter cleaning

Warning: Observe all precautions against fire when cleaning the hydraulic system filters with fuel

Fluid renewal and filter cleaning

1 Move the ground clearance control lever inside the vehicle to the minimum height position.

2 Loosen the pressure regulator bleed screw 1 to 1.5 turns.

3 Spring back the reservoir cover retaining clip and release the cover and central block from the reservoir **(see illustration)**.

4 Remove the overflow and return filter and the supply filter from the central block **(see illustration)**.

5 Clean the filters with fuel and blow them dry with compressed air, observing all precautions against fire.

6 Reassemble the filters and clip the cover assembly back onto the reservoir.

7 Refer to Section 34 of this Chapter and replenish the LHM hydraulic fluid.

29.4 Remove the hydraulic filter assembly from the central block

1

Every 30 000 miles

30 Engine valve spring renewal - 150 engine

Citroen recommend that all valve springs fitted to 150 engines must be renewed at this maintenance interval. Valve stem oil seals should be renewed at the same time. Refer to Chapter 2A for details.

Every 36 000 miles

31 Camshaft drivebelt renewal - except 150 engine

The camshaft drivebelt fitted to all engines except the 150 type must be renewed at this maintenance interval. Follow the procedure given in the appropriate Part of Chapter 2. If the belt is not renewed, it may break whilst the engine is running, resulting in serious and expensive engine damage.

32 Cooling system antifreeze renewal

Warning: Wait until the engine is cold before draining the cooling system

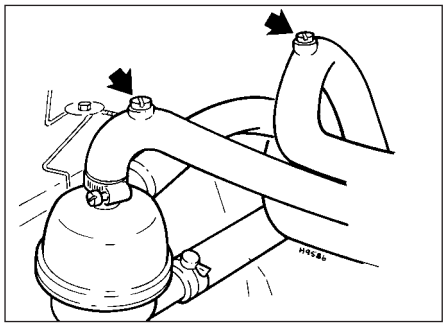
Draining

1 With the system cool, remove the filler cap from the radiator by turning it anti- clockwise. Note that on BX 19 GTi 16 valve models, no radiator cap is fitted, only the expansion bottle cap.

2 Position a container of sufficient capacity under the bottom hose connection of the radiator. Undo the hose retaining clip and pull the hose from the radiator **(see illustration)**. Once the coolant starts to flow , loosen the system bleed screws **(see illustrations)**. Note that BX 14 models equipped with the K1G engine have only a single screw at the T-piece in the heater hose **(see illustration)**.

32.2a The radiator bottom hose connection - BX 16 and BX 19

32.2b The radiator bleed screw - all models



32.2c Bleed screw locations - BX and BX 14

32.2d Bleed screw adjacent to thermostat housing - BX 16 and BX 19

32.2e Bleed screw at heater hose connection - BX 16 and BX 19

3 On BX 16 and BX 19 models, where applicable, remove the drain plug on the inlet manifold.

4 To fully drain the system, move the heater control on the facia to the "hot" position. Where fitted, remove the cylinder block drain plug **(see illustration)**.

5 When draining is complete, mop up any spillage.

6 Remember that, without dismantling, it is impossible to drain the system fully as some coolant will be retained in the heater matrix.

7 Where appropriate, refit the inlet manifold drain plug.

8 Unless the system is to be flushed, reconnect the bottom hose.

Flushing

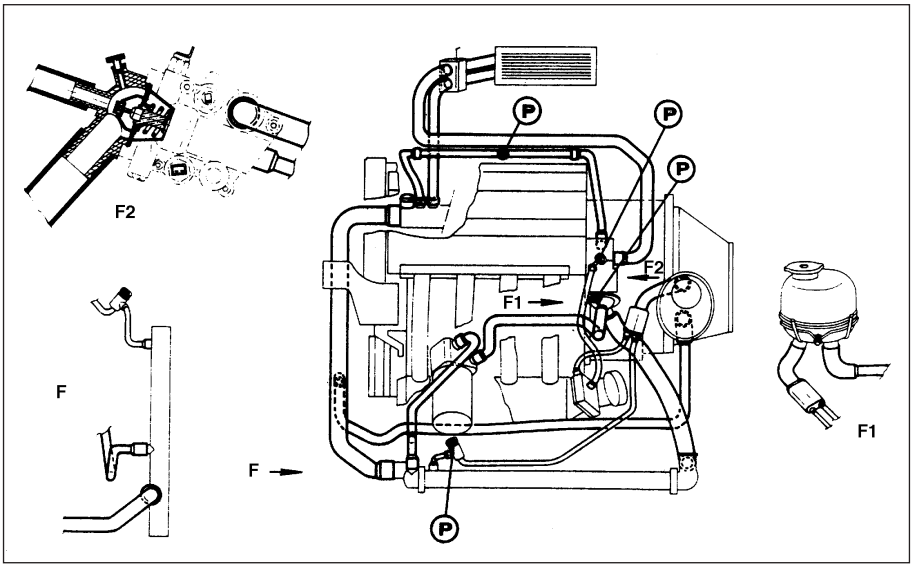
9 With the system drained, leave the bottom hose disconnected.

10 Cover the engine (in particular the ignition system) with plastic sheet.

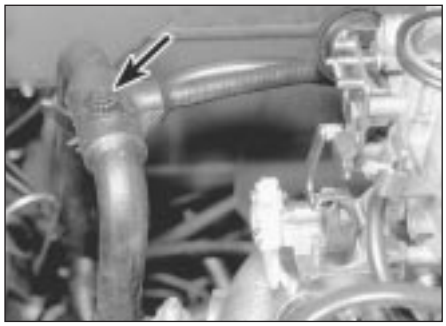
11 To flush the radiator, direct a flow of water through its filler neck and allow the water to run through until it is seen to be clean when running out of the bottom hose connector. If the radiator is badly contaminated then remove it, invert it and reverse flush, directing the water flow through the bottom hose connector. If, after a reasonable period, the water still does not run clear, the radiator should be flushed with a good proprietary cleaning agent.

12 To flush the heater matrix, disconnect one of the heater hoses at the engine compartment bulkhead and direct a flow of water through the matrix. On completion, reconnect the hose.

13 To flush the engine, leave the bottom hose disconnected. Remove the thermostat and refit the thermostat housing/hose. Disconnect the radiator top hose and direct a flow of water into it. Flush through until clean water is seen to run from the bottom hose. Reverse the flow if badly contaminated.

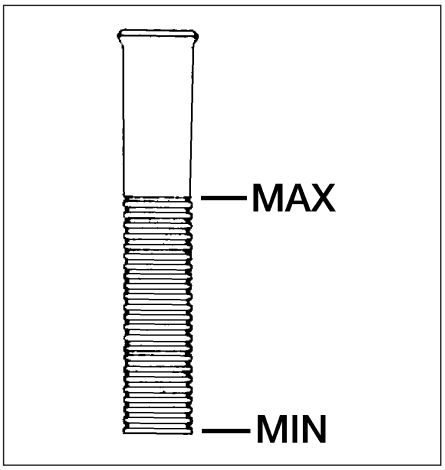


32.2f Bleed screw locations (P) - BX 19 GTi 16v



32.2g Heater hose bleed screw

32.4 Cylinder block coolant drain plug - K1G engine



32.19 The integral coolant level dipstick fitted to later models

14 On completion, refit the thermostat and reconnect the hoses. Refill the cooling system as follows.

Filling

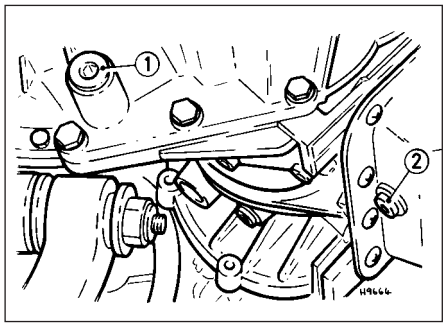
15 Before filling the system, check the condition and security of all hoses and connections. Ensure that the drain plug is firmly closed (where appropriate) and that the heater temperature control is in the "hot" position.
16 Fully undo the system bleed screw(s).
17 Fill the system slowly with the correct coolant mixture until the level rises and overflows from the radiator filler neck (or expansion bottle neck on BX 19 GTi 16 valve models). As the level rises, the coolant will emerge from the bleed screws at which point the screws should be tightened.
18 Start the engine and run it at a fast idle speed so that the coolant is warmed up and the electric cooling fan cuts in and then out, at which point stop the engine.
19 With the system cool, carefully remove the filler cap and check the coolant level. If necessary top it up to the required level. On early models, the coolant height in the radiator header tank should be 250 to 300 mm with the engine cold. This measurement can be checked with a dipstick. Later models have an integral black plastic tube type dipstick. The level must be between the MIN and MAX marks **(see illustration)**.
20 Finally, run the engine again and check the system for any leaks.

33 Automatic transmission fluid renewal

Note: *If fluid is to be drained directly after the vehicle has been driven, the transmission fluid may be very hot, so take precautions to avoid being burnt by it*
1 Position a suitable container with a minimum capacity of 3 litres under the transmission. There are two drain plugs to be removed **(see illustration)**. Remove the plugs, drain the fluid then refit the plugs.
2 Refill, using 2.5 litres of the recommended fluid, through the dipstick guide tube.
3 Recheck the fluid level after a nominal mileage has been covered and, if necessary, top-up the fluid, as described in Section 10 of this Chapter.

34 Hydraulic system fluid renewal

Note: *Use only green LHM mineral hydraulic fluid in the hydraulic system*
Note: *The hydraulic system filters must be cleaned at the same time as the system fluid is renewed*
1 Move the ground clearance control lever inside the vehicle to the minimum height position.
2 Loosen the pressure regulator bleed screw 1 to 1.5 turns.
3 Spring back the reservoir cover retaining clip and release the cover and central block from the reservoir (see illustrations in Section 29).



33.1 Automatic transmission drain plug locations

4 Remove the overflow and return filter and the supply filter from the central block.
5 Carefully lift the reservoir from the bulkhead and discard the fluid. Drain the high pressure pump supply pipe.
6 Remove the deflector plate from the bottom of the reservoir.
7 Clean the filters and reservoir with petrol and blow them dry with compressed air, observing all precautions against fire.
8 Refit the reservoir and deflector plate and fill it with 2.5 litres of LHM hydraulic fluid. Reassemble the filters and clip the cover assembly onto the reservoir.
9 Disconnect the high pressure pump supply pipe from the reservoir cover central block and using a small funnel, prime the pump with LHM hydraulic fluid.
10 Loosen the pressure regulator bleed screw 1 to 1.5 turns (if it was retightened). Get an assistant to start the engine then as it is started, quickly reconnect the high pressure pump supply pipe.
11 Grip the return pipe from the pressure regulator unit by hand and as soon as it is felt to throb, retighten the bleed screw at the regulator.
12 When the vehicle height has stabilised, top-up the fluid level in the reservoir so that the indicator is level with the upper (maximum) level mark.

1

Every 48 000 miles

35 Fuel filter renewal - BX 16 fuel-injected

Removal

1 The fuel filter is located on the underside of the vehicle, at the right-hand side, just to the rear of the fuel tank. The filter is located in a rubber holder, in tandem with the fuel pump unit which is directly beneath it.
2 To remove the fuel filter, proceed as described for fuel pump removal in Chapter 4D. Note that it may not be necessary to completely detach and remove the pump unit in order to remove the filter but this will improve access.
3 As it is removed, note which way round the filter is fitted so as to ensure correct orientation when refitting.

Refitting

4 Refit in the reverse order of removal. On completion, check for satisfactory operation and for any sign of fuel leaks from the pump and filter connections.

Every 60 000 miles

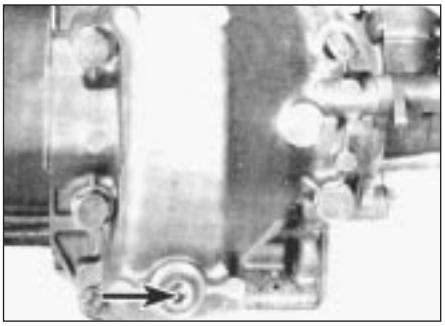
36 Fuel filter renewal - BX 19 fuel-injected

Removal

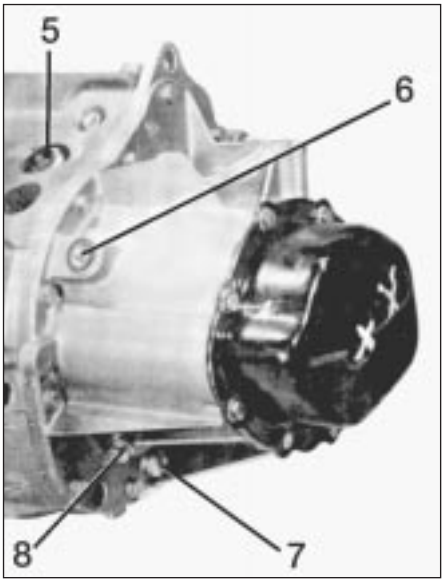
1 The fuel filter is located on the underside of the vehicle, at the right-hand side, just to the rear of the fuel tank. The filter is located in a rubber holder, in tandem with the fuel pump unit which is directly beneath it.
2 To remove the fuel filter, proceed as described for fuel pump removal in Chapter 4B. Note that it may not be necessary to completely detach and remove the pump unit in order to remove the filter but this will improve access.
3 As it is removed, note which way round the filter is fitted so as to ensure correct orientation when refitting.

Refitting

4 Refit in the reverse order of removal. On completion, check for satisfactory operation and for any sign of fuel leaks from the pump and filter connections.



37.5a Rear view of manual gearbox showing differential housing drain plug (arrowed)



37.5b Front view of manual gearbox

5 Reversing light switch
6 Oil filler plug
7 Drain plug - gearbox (early models)
8 Reverse gear shaft clamp bolt - Do not remove

37 Manual gearbox oil renewal - except BX and BX 14 pre August 1988

Note: *For gearbox to model applications refer to Chapter 7*

> **HAYNES HiNT** ***Draining the gearbox is quicker and more efficient if the gearbox is warmed up to normal operating temperature***

BX and BX 14 - pre August 1988

1 On these models the engine and transmission share the same lubrication system and therefore there is no separate transmission oil level check requirement. Periodic checks should, however, be made around the differential and driveshaft joints to ensure that there are no serious oil leaks.

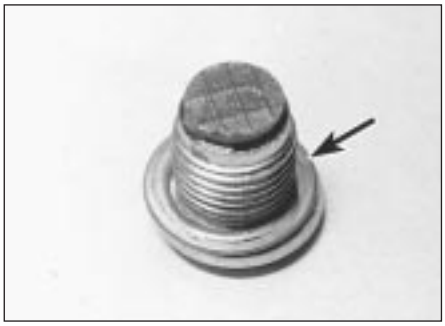
BX 14 - from August 1988

2 Routine oil changes for the Type MA (2CA) gearbox are no longer specified.

BX 16 and BX 19 - pre 1986

Draining

3 This operation is much quicker and more efficient if the vehicle is first taken on a journey of sufficient length to warm the gearbox up to normal operating temperature.
4 Park the vehicle on level ground, switch off the ignition and apply the handbrake firmly. For improved access, jack up the front of the vehicle and support it securely on axle stands (see "*Jacking and vehicle support*").
5 There are two drain plugs, one for the gearbox and one for the final drive. Both plugs must be removed **(see illustrations)**.
6 Avoid rounding-off the corners of the plugs by using only good quality, close-fitting tools. Loosen the plugs, then position a suitable container under each one before removing them completely.
7 Allow the oil to drain completely into the containers. If the oil is hot, take precautions against scalding. Clean both plugs, being especially careful to wipe any metallic particles off their magnetic inserts. Where fitted, discard the original sealing washers which should be renewed whenever they are disturbed **(see illustration)**.
8 When the oil has finished draining, clean the plug threads and those of the gearbox casing, fit new sealing washers and refit the plugs, tightening each one to the specified torque wrench setting. It the vehicle was raised for the draining operation, now lower it to the ground.



37.7 Gearbox magnetic oil drain plug with sealing washer (arrowed)

Filling

9 When filling, do so through the filler plug orifice. Remember to measure out the specified quantity of oil required beforehand. Do not overfill the gearbox.
10 Dispose of the old oil safely. Do not pour it down a drain.

BX 16 and BX 19 - from 1986

11 From early 1986, the gearbox drain plug was deleted, although the differential drain plug remained.
12 From October 1986, a filler/level plug is fitted in the gearbox end cover. The oil level should be up to the lower edge of the plug hole.
13 From 1990, routine oil changes are no longer specified.