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

Engine

Oil filter type	Champion C104
Valve clearances (cold):	
OHV engines:	
Inlet	0.22 mm (0.008 in)
Exhaust	0.59 mm (0.023 in)
HCS engines:	
Inlet	0.22 mm (0.008 in)
Exhaust	0.32 mm (0.012 in)

Cooling system

Recommended antifreeze concentration	45% by volume

Fuel system

Idle speed:	
Carburettor models:	
All except Weber 2V TLDM carburettor	750 to 850 rpm
Weber 2V TLDM carburettor	700 to 800 rpm
Bosch K-Jetronic fuel injection models	750 to 850 rpm
Bosch KE-Jetronic fuel injection models:	
1985 models	800 to 900 rpm
1986 models onwards	920 to 960 rpm
Electronic Fuel Injection (EFI) models	900 ± 50 rpm
Idle mixture CO content:	
Bosch K-Jetronic fuel injection models	1.0 to 1.5 %
Bosch KE-Jetronic fuel injection models:	
1985 models	0.25 to 0.75%
1986 models onwards	0.5 to 1.1%
Electronic Fuel Injection (EFI) models	0.8 ± 0.25% (cooling fan running)
Air filter element type:	
1.1 litre and 1.3 litre OHV engines	Champion W153
1.1 litre and 1.3 litre HCS engines	Champion W225
1.1 litre and 1.3 litre CVH engines	Champion W127
1.4 litre CVH engine:	
Carburettor engines	Champion W179
Central Fuel Injection (CFI) engines	Champion W201
1.6 litre CVH engine (except XR3 models):	
Up to 1986	Champion W169
1986 to October 1988	Champion W201
October 1988 on	Champion W226
1.6 litre CVH engine (XR3 models)	Champion W201

Ignition system

Contact breaker points gap:	
Bosch distributor	0.40 to 0.50 mm (0.016 to 0.02 in)
Lucas distributor	0.40 to 0.59 mm (0.016 to 0.023 in)
Dwell angle (contact breaker ignition system)	48º to 52º
Ignition timing *:	
OHV engines:	
Up to 1984 (contact breaker)	12º BTDC at idle speed
1984-on (contact breaker) and all electronic ignition	6º BTDC at idle speed
CVH engines (all models)	12º BTDC at idle speed

*** Note:** *Ignition timing on models with either a Distributorless Ignition Sytem (DIS) or a programmed ignition system (ESC) cannot be adjusted. Refer to Chapter 5, Part B for further information.*

Spark plugs:	
Type:	
OHV and HCS engines	Champion RS9YCC or RS9YC
CVH engines:	
Carburettor models	Champion RC7YCC or RC7YC
Bosch K-Jetronic fuel injection and Electronic Fuel Injection (EFI) models	Champion C6YCC or RC6YC
Bosch KE-Jetronic fuel injection models	Champion C61YC
Central Fuel Injection (CFI) models	Champion RC7YCC or RC7YC4
Electrode gap:	
All except HCS and CFI models:	
RS9YCC, RC7YCC, C6YCC spark plugs	0.8 mm (0.032 in)
RS9YC, RC7YC, RC6YC,	0.7 mm (0.028 in)
HCS and CFI models	1.0 mm (0.039 in)

Brakes

Minimum front brake disc pad thickness	1.5 mm (0.06 in)
Minimum rear brake shoe lining thickness	1.0 mm (0.04 in)

Tyres

Tyre pressures	See "*Weekly checks*" on page 0•16

Torque wrench settings

	Nm	lbf ft
Exhaust manifold nuts - RS Turbo models	14 to 17	10 to 13
Turbocharger-to-manifold nuts	21 to 26	15 to 19
Spark plugs:		
OHV and HCS engines	13 to 20	10 to 15
CVH engines	25 to 38	18 to 28
Seat belt anchor bolts	29 to 41	21 to 30
Roadwheel bolts	70 to 100	52 to 74

Capacities

Engine oil (drain and refill)

OHV engine:	
With filter change	3.25 litres (5.7 pints)
Without filter change	2.75 litres (4.8 pints)
CVH engine:	
Carburettor engines with filter change:	
Pre-July 1982	3.75 litres (6.6 pints)
July 1982 onwards	3.50 litres (6.2 pints)
Carburettor engines without filter change:	
Pre-July 1982	3.50 litres (6.2 pints)
July 1982 onwards	3.25 litres (5.7 pints)
Fuel-injected engines with filter change	3.85 litres (6.8 pints)
Fuel-injected engines without filter change	3.60 litres (6.3 pints)

Fuel tank

All models (except XR3i and Van) pre-May 1983	40 litres (8.8 gallons)
All other models (except Van)	48 litres (10.6 gallons)
Van	50 litres (11.0 gallons)

Cooling system

1.1 litre OHV engine	6.7 litres (11.8 pints)
1.1 litre CVH engine:	
With small radiator	6.2 litres (11.0 pints)
With large radiator	7.2 litres (12.6 pints)
1.3 litre OHV engine	7.1 litres (12.5 pints)
1.3 litre CVH engine:	
Pre-1986	7.1 litres (12.5 pints)
1986 onwards	7.6 litres (13.3 pints)
1.4 litre CVH engine	7.6 litres (13.3 pints)
1.6 litre CVH engine:	
Pre-1986	6.9 litres (12.1 pints)
1986 onwards	7.8 litres (13.7 pints)

Transmission

4-speed manual	2.8 litres (4.9 pints)
5-speed manual	3.1 litres (5.5 pints)
Automatic transmission	7.9 litres (13.9 pints)

Ford Escort maintenance schedule

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 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

- ☐ See "*Weekly checks*"

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

In addition to all the items in the 250 mile (400 km) service, carry out the following:

- ☐ Renew the engine oil and filter (Section 6)
- ☐ On OHV and HCS engines, remove and clean the oil filler cap (Section 7)
- ☐ Check the hoses, hose clips and visible joint gaskets for leaks and any signs of corrosion or deterioration (Section 8)
- ☐ Visually check the fuel pipes and hoses for security, chafing, leaks and corrosion (Section 8)
- ☐ Check the fuel tank for leaks and any sign of damage or corrosion (Section 8)
- ☐ On RS Turbo models check the tightness of the exhaust manifold retaining nuts (Section 9)
- ☐ Check and if necessary adjust the idle speed and mixture settings (Section 10)
- ☐ Clean the distributor cap, coil tower and HT leads and check for tracking (Section 11)
- ☐ On contact breaker point distributors lubricate the distributor shaft and cam (Section 12)
- ☐ On contact breaker point distributors check and if necessary adjust the points gap (dwell angle), then check the ignition timing (Sections 13 and 14)
- ☐ On RS Turbo models renew the spark plugs (Section 15)
- ☐ Check the front disc pad thickness (Section 16)
- ☐ Check the rear brake shoe lining thickness (Section 17)
- ☐ Check the steering and suspension components for any signs of damage and wear (Section 18)
- ☐ Check the security of the front suspension lower arm balljoint (Section 18)
- ☐ Check the seat belt webbing for cuts or damage and check the seat belt operation (Section 19)
- ☐ Carefully inspect the paintwork for damage and the bodywork for corrosion (Chapter 11)
- ☐ Check the condition and adjustment of the alternator drivebelt (Section 20)

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

In addition to all the items in the 6000 mile (10 000 km) service, carry out the following:

- ☐ On OHV and HCS engines check and if necessary adjust the valve clearances (Section 21)
- ☐ Check the exhaust system condition and security (Section 22)
- ☐ On RS Turbo models check the tightness of the turbocharger-to-manifold nuts (Section 23)
- ☐ Renew the spark plugs (Sections 24 and 15)
- ☐ On contact breaker point distributors renew the contact breaker points (Section 25)
- ☐ Check and if necessary top-up the manual transmission oil (Section 26)
- ☐ Check the automatic transmission fluid level - where applicable (Section 27)
- ☐ Check the operation of the automatic transmission selector mechanism (Section 28)
- ☐ Check the driveshafts for damage or distortion and check the condition of the constant velocity joint bellows (Section 29)
- ☐ Inspect the roadwheels for damage (Section 30)
- ☐ Check the tightness of the roadwheel bolts (Section 30)
- ☐ Lubricate all hinges, door locks, check straps and the bonnet release mechanism (Section 31)
- ☐ Check the operation of all door, tailgate, bonnet release and window regulator components (Section 31)
- ☐ Carry out a road test (Section 32)

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

In addition to all the items in the 12 000 mile (20 000 km) and 6000 mile (10 000 km) services, carry out the following:

- ☐ Renew the coolant (Section 33)
- ☐ Renew the air cleaner element (Section 34)
- ☐ On CVH engines renew the crankcase emission control filter (Section 35)
- ☐ On fuel-injected engines renew the fuel filter (Section 36)

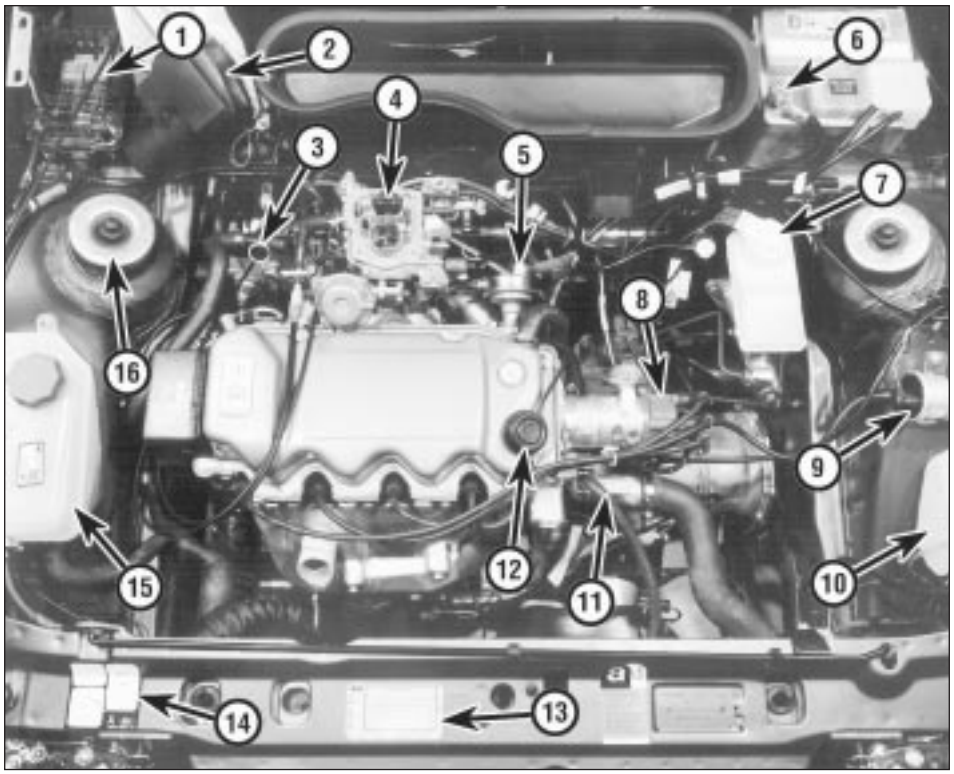
Every 36 000 miles (60 000 km) or 3 years - whichever comes first

In addition to all the items listed in the previous services, carry out the following:

- ☐ On CVH engines renew the timing belt (Section 37)
- ☐ Make a thorough inspection of all brake components and rubber seals for signs of leaks, general deterioration and wear (Section 38)
- ☐ Renew the brake fluid (Section 39)

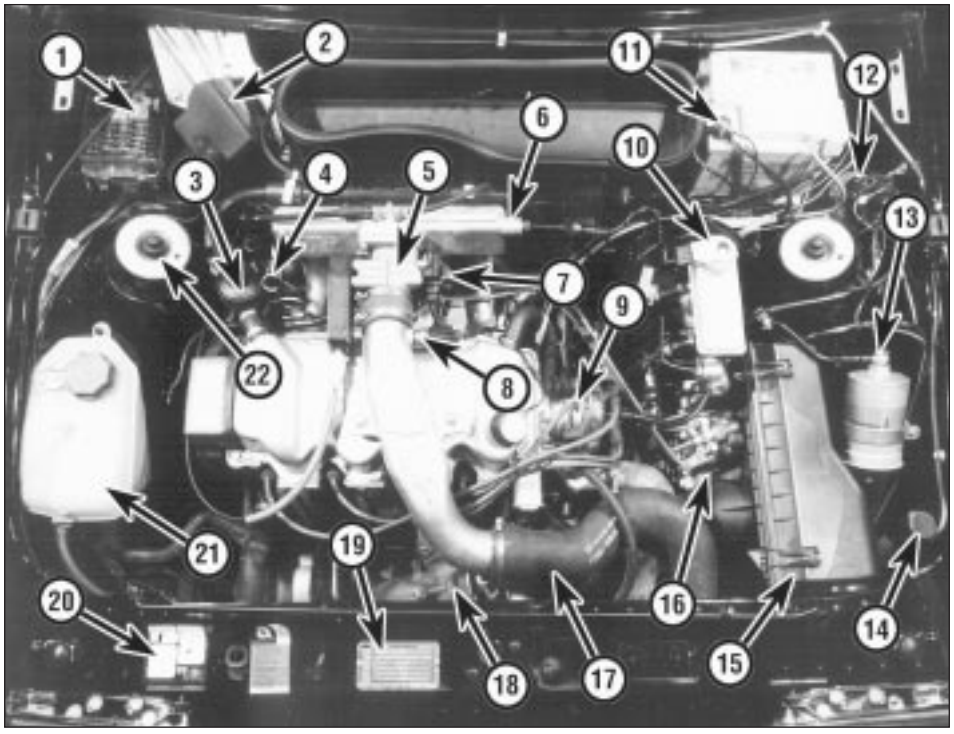
Engine and under bonnet component location on 1986 1.4 litre models (air cleaner removed for clarity)

1 Fuse and relay box
2 Windscreen wiper motor
3 Engine oil dipstick
4 Carburettor
5 Fuel pump
6 Battery negative terminal
7 Brake master cylinder reservoir
8 Distributor
9 Ignition coil
10 Washer reservoir
11 Thermostat housing
12 Oil filler cap
13 Vehicle identification plate
14 Engine tuning decal
15 Cooling system expansion tank
16 Suspension strut top mounting

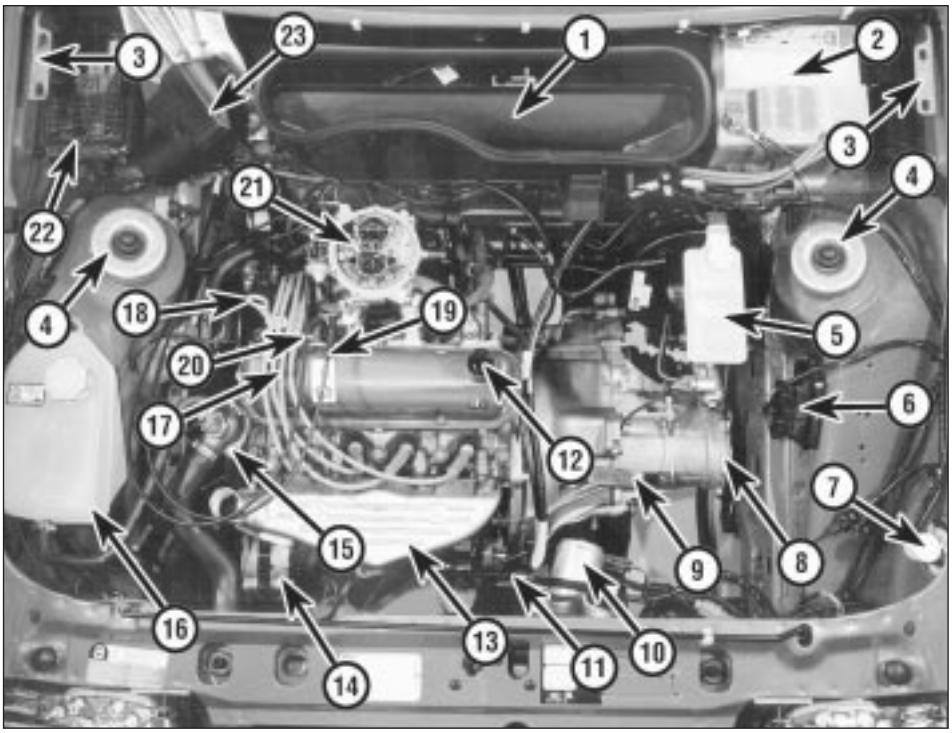


Engine and under bonnet component locations on 1986 RS Turbo models

1 Fuse and relay box
2 Windscreen wiper motor
3 Crankcase emission control filter
4 Engine oil dipstick
5 Throttle housing
6 Inlet manifold
7 Throttle position sensor
8 Charge air temperature sensor
9 Distributor
10 Brake master cylinder reservoir
11 Battery negative terminal
12 Ignition coil
13 Fuel filter
14 Washer reservoir
15 Air cleaner
16 Fuel distributor
17 Inlet air hose
18 Turbocharger
19 Vehicle identification plate
20 Engine tuning decal
21 Cooling system expansion tank
22 Suspension strut top mounting

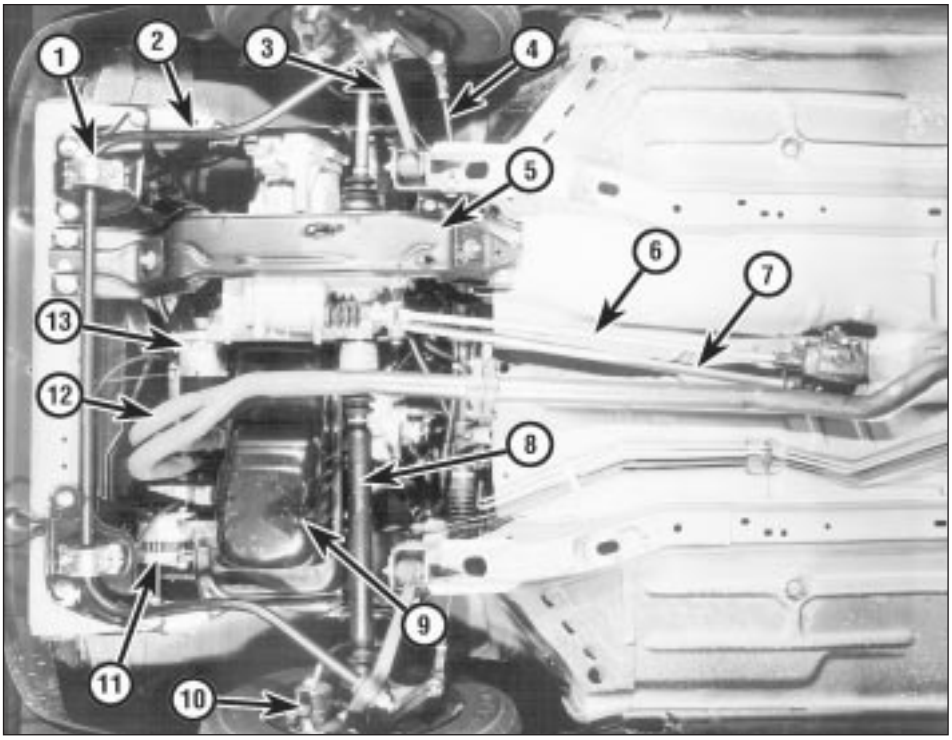


Engine and underbonnet components location on 1989 1.3 litre HCS model (air cleaner removed for clarity)



1 Ventilation air inlet duct
2 Battery
3 Bonnet hinge
4 Suspension strut upper mounting
5 Brake system fluid reservoir
6 Ignition system ESC module
7 Windscreen washer reservoir filler cap
8 Transmission housing
9 Clutch release lever
10 Cooling fan motor
11 Starter motor
12 Engine oil filler neck (cap removed)
13 Exhaust manifold shield
14 Alternator
15 Coolant thermostat and fan thermal switch
16 Coolant expansion tank
17 Spark plug HT leads
18 Engine oil dipstick
19 Throttle cable
20 Choke cable
21 Carburettor
22 Fusebox
23 Windscreen wiper motor

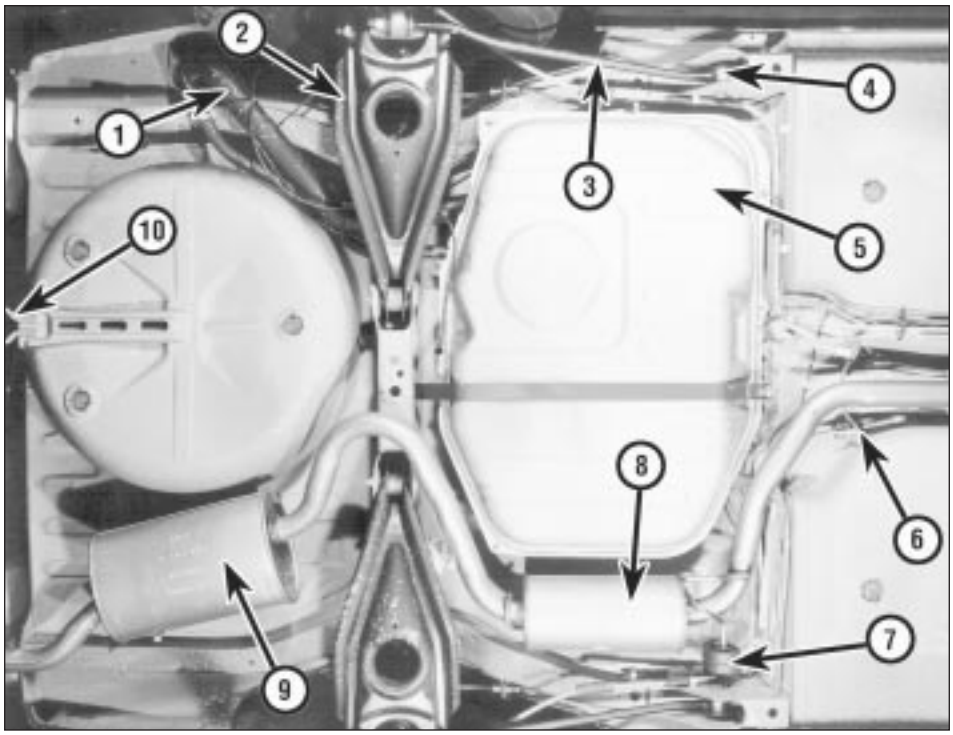
Front underbody view of a 1986 1.4 litre Saloon model



1 Anti-roll bar clamp
2 Anti-roll bar
3 Front suspension lower arm
4 Steering tie-rod
5 Transmission support crossmember
6 Gearchange rod
7 Gearchange stabiliser
8 Driveshaft
9 Engine oil drain plug
10 Brake caliper
11 Alternator
12 Exhaust front pipe
13 Starter motor

Rear underbody view of a 1986 1.4 litre Saloon model

1 Fuel filler pipe
2 Suspension lower arm
3 Tie-bar
4 Tie-bar front mounting
5 Fuel tank
6 Handbrake cable adjuster
7 Exhaust mounting
8 Exhaust intermediate silencer
9 Exhaust rear silencer
10 Rear towing eye



1 Introduction

General information

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 on 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 of your vehicle in accordance with the mileage/time maintenance schedule and the following Sections will provide a planned maintenance program, 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 program 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.

a) Clean, inspect and test the battery (Section 5).
b) Check the levels of all the engine related fluids (Section 3).
c) Check the condition and tension of the alternator drivebelt (Section 20).
d) Check the condition of the spark plugs and renew if necessary (Section 15).
e) Check the condition of the air cleaner element, and renew if necessary (Section 34).
f) Check the condition of all hoses and check for fluid leaks.
g) Check and if necessary adjust the idle speed (where possible) (Section 10).

Weekly checks

3 Fluid level checks

See "*Weekly checks*" starting on Page 0•10.

4 Tyre checks

See "*Weekly checks*" starting on Page 0•10.

5 Battery check

See "*Weekly checks*" starting on Page 0•10.

Every 6000 miles or 6 months

6 Engine oil and filter renewal

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

2 Before starting this procedure, gather together all the necessary tools and materials. Also make sure that you have plenty of clean rags and newspapers handy to mop up any spills. Ideally, the engine oil should be warm, as it will drain better and more built-up sludge will be removed with it. Take care, however, not to touch the exhaust or any other hot parts of the engine when working under the vehicle. To avoid any possibility of scalding, and to protect yourself from possible skin irritants and other harmful contaminants in used engine oils, it is advisable to wear rubber gloves when carrying out this work. Access to the underside of the vehicle will be greatly improved if it can be raised on a lift, driven onto ramps or jacked up and supported on axle stands (see *"Jacking and Vehicle Support"*). Whichever method is chosen, make sure that the vehicle remains as level as possible, to enable the oil to drain fully.

3 Remove the oil filler cap from the rocker cover, then position a container beneath the sump.

4 Clean the drain plug and the area around it, then slacken it using a suitable socket or spanner **(see illustration)**. If possible, try to keep the plug pressed into the sump while unscrewing it by hand the last couple of turns. As the plug releases from the threads, move it away sharply so the stream of oil issuing from the sump runs into the container, not up your sleeve!

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.

6 After all the oil has drained, wipe off the drain plug with a clean rag and check the condition of the sealing washer. Renew the washer if necessary. Clean the area around the drain plug opening, then refit and tighten the plug to the specified torque setting.

7 Move the container into position under the oil filter. The oil filter is located at the rear of the cylinder block, and is accessible from under the vehicle **(see illustration)**

8 Using an oil filter removal tool, slacken the filter initially. Loosely wrap some rags around the oil filter, then unscrew it and immediately position it with its open end uppermost to prevent further spillage of oil. Remove the oil filter from the engine compartment and empty the oil into the container.

9 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.

10 Apply a light coating of clean 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. Wipe clean the exterior of the oil filter.

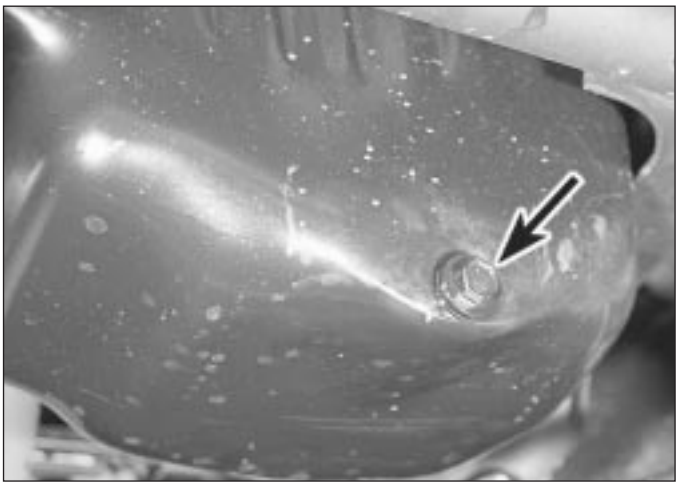
11 Remove the old oil and all tools from under the vehicle, then (if applicable) lower the vehicle to the ground.

12 Fill the engine with the specified quantity and grade of oil, as described in "*Weekly checks*". Pour the oil in slowly, otherwise it may overflow from the top of the rocker cover. Check that the oil level is up to the correct level on the dipstick, then refit and tighten the oil filler cap.

13 Run the engine for a few minutes, and check that there are no leaks around the oil filter seal and the sump drain plug.

14 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 if necessary.

15 Dispose of the used engine oil safely with reference to *"General repair procedures"* in the Reference Sections at the end of this manual.



6.4 Engine oil drain plug (arrowed) - CVH engine

6.7 Oil filter location - CVH engine

7 Oil filler cap cleaning - OHV and HCS engines

1 Simply pull the oil filler cap from the rocker cover and, where applicable, disconnect the hose(s) from the cap.
2 Inspect the filler cap, and if necessary clean the cap using clean petrol to remove any deposits.
3 Ensure that the cap is completely dry before refitting.

8 Fluid leak check

1 Visually inspect the engine joint faces, gaskets and seals for any signs of water 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. Should a leak be found, renew the offending gasket or oil seal by referring to the appropriate Chapter(s) in 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 Carefully check the condition of all coolant, fuel 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.
5 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.
6 Similarly, inspect all brake hoses and metal 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 hose or pipe.
7 Carefully check all rubber hoses and metal fuel lines leading away from the petrol tank. Check for loose connections, deteriorated hoses, crimped lines and other damage. Pay particular attention to the vent pipes and hoses which often loop up around the filler neck and can become blocked or crimped. Follow the lines to the front of the vehicle carefully inspecting them all the way. Renew damaged sections as necessary.
8 From within the engine compartment, check the security of all fuel hose attachments and pipe unions, and inspect the fuel hoses and vacuum hoses for kinks, chafing and deterioration.
9 Where applicable, check the condition of the oil cooler hoses and pipes.
10 Check the condition of all exposed wiring harnesses.
11 Also check the engine and transmission components for signs of fluid leaks.

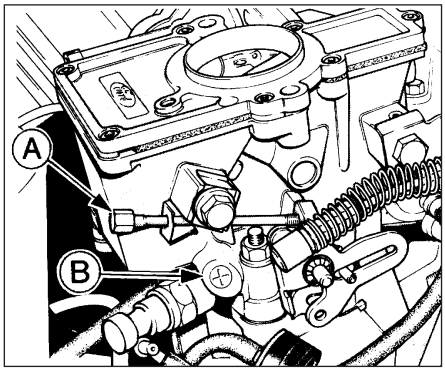
9 Exhaust manifold nut check - RS Turbo models

Check the tightness of the exhaust manifold securing nuts using a torque wrench.

10 Idle speed and mixture adjustment

Caution: Certain adjustment points in the fuel system are protected by "tamperproof" caps, plugs or seals. In some EEC countries (though not yet in the UK) it is an offence to drive a vehicle with broken or missing tamperproof seals. Before disturbing a tamperproof seal, satisfy yourself that you will not be breaking any local or national laws by doing so, and fit a new seal after adjustment is complete where required by law. Do not break tamperproof seals on a vehicle which is still under warranty.

Note: *Before carrying out any carburettor adjustment, ensure that the contact breaker points, ignition timing and spark plug gaps (as applicable) are set as specified and that the distributor is operating correctly (where applicable). To carry out the adjustments an accurate tachometer will be required and the use of an exhaust gas analyser (CO meter) is also preferable.*



10.6 Idle speed adjustment screw (A) and mixture adjustment screw (B) - Ford VV carburettor

Models with Ford VV carburettor

Idle speed

1 With the engine at normal operating temperature, connect a tachometer in accordance with the manufacturer's instructions.
2 Disconnect the wiring multi-plug from the radiator cooling fan thermostatic switch in the thermostat housing and bridge the two contacts in the plug using a suitable length of wire. This is necessary so that the cooling fan runs continuously during adjustment.
3 On automatic transmission models slacken the adjuster screw on the throttle valve shaft lever to give clearance of 2 to 3 mm (0.079 to 0.118 in) - see Chapter 7**,** Part B.
4 Ensure that the air cleaner is fitted and that its vacuum hoses are not in any way trapped or pinched, particularly between the air cleaner body and the top face of the carburettor.
5 Run the engine at 3000 rpm for 30 seconds, then allow it to idle and note the idle speed. If using an exhaust gas analyser it should be noted that initially the CO% reading will rise, but then fall and stabilise after a period of 5 to 25 seconds. The CO reading should then be as specified.

Idle mixture

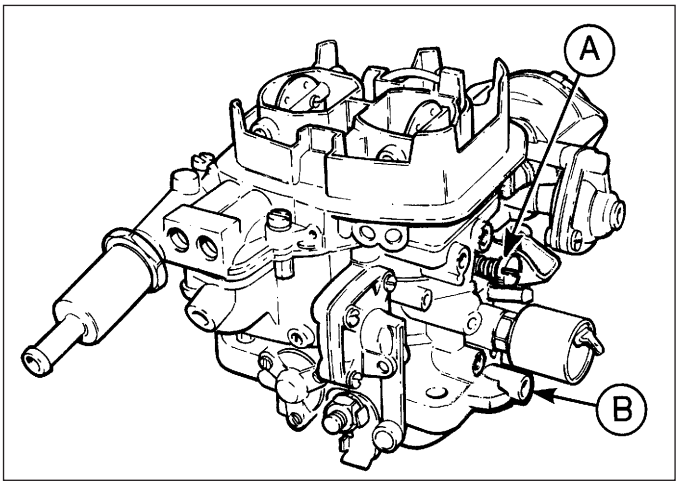
6 If necessary, adjust the idle speed adjustment screw to give the specified idle speed **(see illustration)**.
7 Adjustment of the CO content (mixture) is not normally required during routine maintenance, but if the reading noted in paragraph 5 is not as given in the Specifications first remove the tamperproof plug, prising it free using a small screwdriver.
8 Run the engine at 3000 rpm for 30 seconds, then allow it to idle. Adjust the mixture screw **(see illustration 10.6)** within 30 seconds. If more time is required run the engine at 3000 rpm again for 30 seconds.
9 Adjust the idle speed if necessary and recheck the CO content.
10 Fit a new tamperproof plug to the mixture adjuster screw on completion. It should be noted that mixture adjustment without a CO analyser is not accurate and therefore not recommended.
11 On completion disconnect the instruments, remove the cooling fan bridging wire and reconnect the multi-plug.
12 On automatic transmission models adjust the downshift linkage (Chapter 7**,** Part B).

Models with Weber 2V carburettor

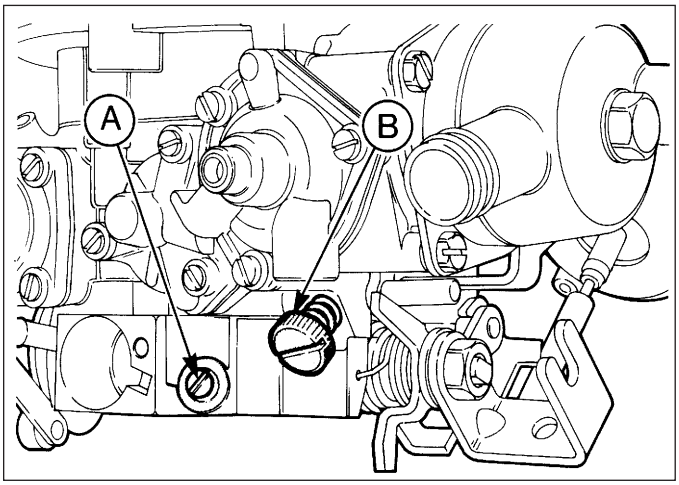
13 The procedure is the same as for the Ford VV carburettor as described previously in this Section, but the adjusting screw locations are as shown **(see illustrations)**.

Models with Bosch K-Jetronic fuel injection system

14 The idle speed and fuel mixture adjustments will normally only be required after the installation of new components.



10.13a Weber 2V carburettor idle speed adjustment screw (A) and mixture screw (B) - XR3 and 1.4 litre models

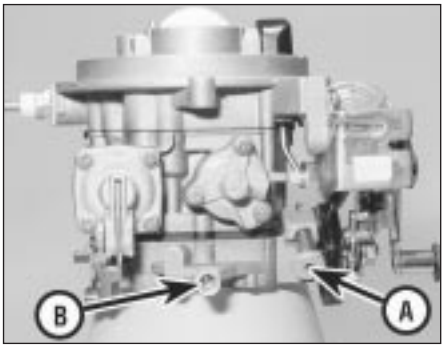


10.13b Weber 2V carburettor mixture adjustment screw (A) and idle speed adjustment screw (B) - 1.6 litre models

Refer to the caution at the beginning of this Section before proceeding.

15 On early models the idle speed adjustment screw is located on the rear of the throttle housing, but access is severely limited unless the heater plenum chamber top cover is removed as described in Chapter 4**,** Part B **(see illustration)**.

16 On later models the idle speed adjustment screw is located on top of the throttle housing beneath a tamperproof plug **(see illustration)**.



10.13c Idle speed screw (A) and mixture adjustment screw (B) on Weber 2V TLDM carburettor (1.1 and 1.3 HCS engines)

Hook out the plug with a sharp pointed tool to gain access.

17 Before making any adjustments, warm the engine up to normal operating temperature and connect a tachometer in accordance with the manufacturer's instructions.

18 Increase the engine speed to 3000 rpm and hold it at this speed for 30 seconds, then allow the engine to idle, check the tachometer reading and if necessary turn the idle speed adjustment screw as required until the engine is idling at the specified speed.

19 To check the mixture adjustment an exhaust gas analyser is needed and should be connected in accordance with the manufacturer's instructions. A 3 mm Allen key will also be required to make any adjustments.

20 Before making any adjustments to the mixture, ensure that the idle speed is correct.

21 Remove the tamperproof plug from the top of the mixture adjustment screw tube on top of the fuel distributor **(see illustration)**.

22 Stabilise the exhaust gases (paragraph 18).

23 Insert the Allen key into the mixture screw tube and engage the adjusting screw. Turn the screw as necessary until the correct CO reading is obtained, then if required readjust the idling speed.

24 If the mixture adjustment cannot be finalised within 30 seconds from the moment of stabilising the exhaust gases, repeat the operations in paragraph 18 before continuing the adjustment procedure.

25 On completion fit a new tamperproof plug and disconnect the tachometer and exhaust gas analyser.

Models with Bosch KE-Jetronic fuel injection system

26 The idle speed and fuel mixture adjustments will normally only be required after the installation of new components.

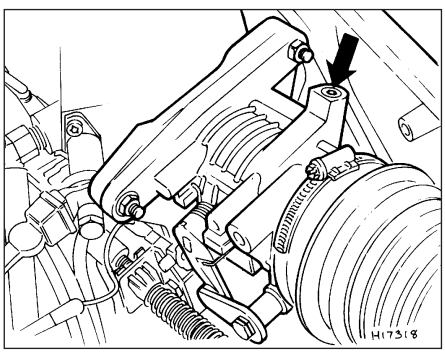
27 The idle speed adjustment screw is located on the side of the throttle housing **(see illustration)**.

28 Before making any adjustments, warm the engine up to normal operating temperature and connect a tachometer in accordance with the manufacturer's instructions.

29 Disconnect the wiring multi-plug at the pressure actuator on the side of the fuel distributor **(see illustration)**.

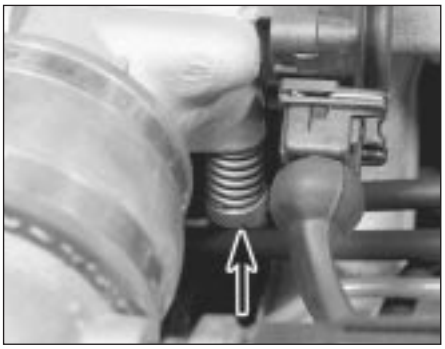
30 Increase the engine speed to 3000 rpm and hold it at this speed for 30 seconds, then allow the engine to idle. Check the tachometer reading and if necessary turn the

10.15 Idle speed adjustment screw (arrowed) on early K-Jetronic systems



10.16 K-Jetronic system idle speed adjustment screw (arrowed) on later models

10.21 K-Jetronic system mixture adjustment screw location (arrowed)



10.27 Idle speed adjustment screw (arrowed) on KE-Jetronic system

idle speed adjustment screw as required until the engine is idling at the specified speed.

31 To check the mixture adjustment an exhaust gas analyser is needed and should be connected in accordance with the manufacturer's instructions. A 3 mm Allen key will also be required to make any adjustments.

32 Before proceeding ensure that the idle speed is correct.

33 Unscrew the tamperproof plug from the mixture adjustment orifice on top of the fuel distributor **(see illustration)**.

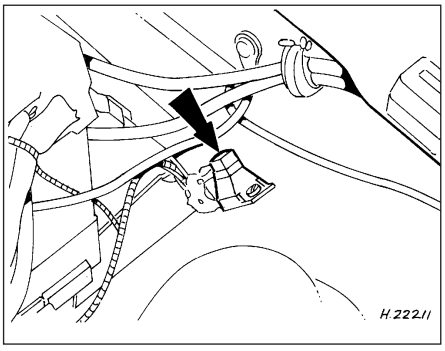
34 Stabilise the exhaust gases (paragraph 30).

35 Insert the Allen key into the mixture adjustment orifice and push down to engage the adjustment screw. Turn the adjustment screw clockwise to increase the CO reading and anti-clockwise to decrease it. Remove the Allen key, plug the orifice and check the CO reading.

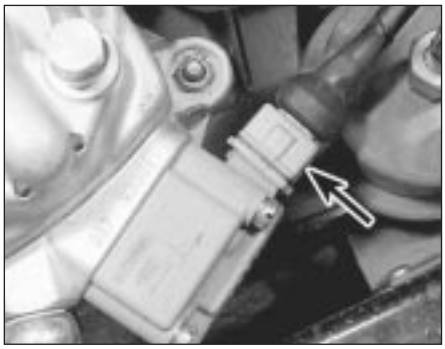
36 If the mixture adjustment cannot be finalised within 30 seconds from the moment of stabilising the exhaust gases, repeat the operations in paragraph 30 before continuing the adjustment procedure. Make sure that the Allen key is removed before increasing the engine speed otherwise the fuel distributor will be damaged.

37 Continue adjustment until the correct CO reading is obtained, then if necessary readjust the idle speed.

38 Refit the tamperproof screw and reconnect the pressure actuator multi-plug. Disconnect the tachometer and exhaust gas analyser.



10.45 CO adjustment potentiometer location (arrowed) - 1.6 EFI engine



10.29 Pressure actuator wiring multi-plug (arrowed) - KE-Jetronic system

Models with Central (single-point) Fuel Injection (CFI) system

39 Both the idle speed and mixture are controlled by the engine management system. Adjustment requires the use of specialist equipment. If the idle speed is suspected of being incorrect, the vehicle must be taken to a Ford dealer for diagnostic checks and, if necessary, adjustment.

Models with Electronic Fuel Injection (EFI) system

40 Idle speed is controlled by the EEC IV module, and cannot be adjusted.

41 To adjust the mixture (CO content), first run the engine until it reaches normal operating temperature.

42 Connect a CO meter and a tachometer in accordance with the manufacturer's instructions.

43 Clear any excess fuel in the inlet manifold by running the engine at 3000 rpm for approximately 15 seconds, then allow the engine to idle.

44 Wait for the test instrument readings to stabilise, then record the CO content and the idle speed.

45 If adjustment of the CO content is required, remove the tamperproof cap from the CO adjustment potentiometer (located on the wing panel behind the left-hand suspension turret) and adjust the screw to obtain the correct CO setting at the specified idle speed **(see illustration)**. Note that any adjustment must be made within 30 seconds of the instrument readings stabilising, otherwise the procedure described in paragraph 43 must be repeated.

46 On completion of adjustment, stop the engine and disconnect all test equipment. Fit a new tamperproof cap to the CO adjustment potentiometer.

11 Ignition system component check

1 Where applicable, remove the distributor cap and thoroughly clean it inside and out with a dry lint-free cloth. Examine the four HT lead segments inside the cap. If the segments appear badly burnt or pitted, renew the cap.

10.33 KE-Jetronic system mixture adjustment tamperproof plug (arrowed)

Make sure that the carbon brush in the centre of the cap is free to move and that it protrudes significantly from its holder.

2 Check the distributor cap for signs of tracking (indicated by thin black lines on the surface of the cap). Renew the cap if tracking is evident.

3 Wipe clean the HT leads and the coil tower.

4 Check the condition and security of all leads and wiring associated with the ignition system. Make sure that no chafing is occurring on any of the wires and that all connections are secure, clean and free from corrosion.

12 Distributor lubrication - models with contact breaker distributor

1 Remove the distributor cap and the rotor arm.

2 Apply a couple of drops of light oil to the felt pad in the top of the shaft.

3 Wipe clean the distributor cam, then apply a trace of high melting-point grease to the four cam lobes.

4 Refit the rotor arm and the distributor cap.

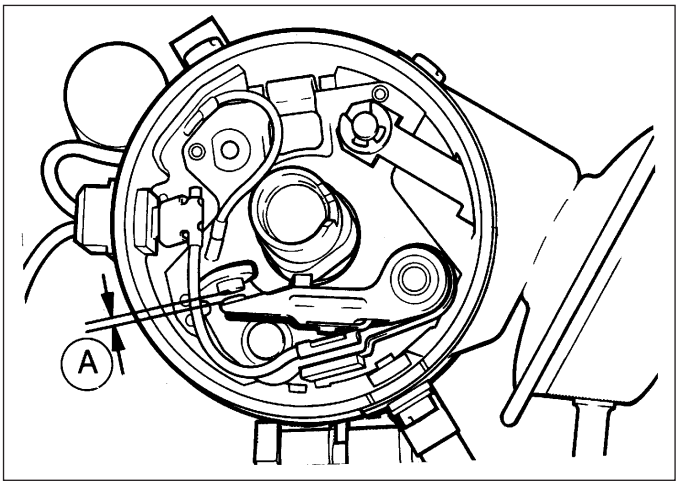
13 Contact breaker points adjustment - models with contact breaker distributor

1 Spring back the retaining clips or undo the screws as appropriate and lift off the distributor cap.

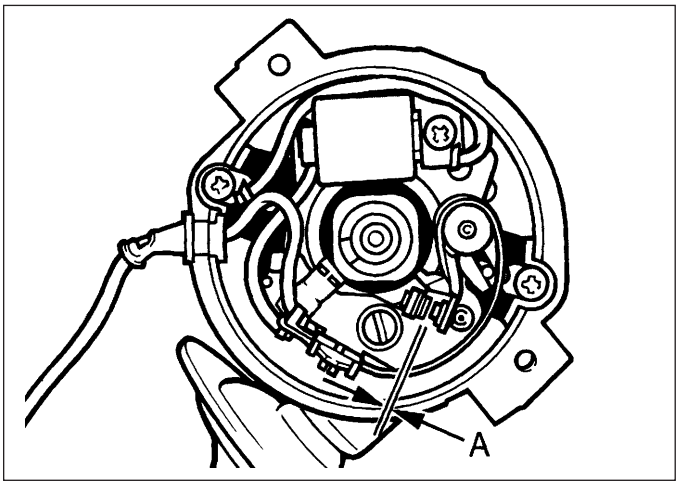
2 Withdraw the rotor arm from the distributor shaft.

3 Using a screwdriver, gently prise the contact breaker points open to examine the condition of their faces. If they are rough, pitted or dirty they should be renewed as described in the next Section.

4 Assuming that the points are in a satisfactory condition or that they have just been renewed, the gap between the two faces should be checked and if necessary adjusted. This can be done using feeler blades as described in the following paragraphs, or preferably by using the more accurate dwell angle method as described from paragraph 8 onwards.



13.5a Contact breaker points gap (A) - Bosch distributor



13.5b Contact breaker points gap (A) - Lucas distributor

5 To adjust the points using feeler blades, turn the crankshaft using a spanner on the crankshaft pulley bolt until the heel of the contact breaker arm is on the peak of one of the four cam lobes and the points are fully open. A feeler blade of thickness equal to the contact breaker points gap as given in the Specifications should now just slide between the point faces **(see illustrations)**.

6 If adjustment is required, slacken the retaining screw slightly and move the fixed point as necessary to achieve the desired gap **(see illustrations)**. After adjustment tighten the retaining screw and recheck the gap.

HAYNES HiNT ***The points can be easily moved by engaging a screwdriver in the slot on the end of the fixed point and levering against the corresponding slot or raised pips on the baseplate.***

7 Refit the rotor arm and the distributor cap.

8 If a dwell meter is available adjust the contact breaker points by measuring and setting the dwell angle as follows.

9 The dwell angle is the number of degrees of distributor cam rotation during which the contact breaker points are closed; ie the period from when the points close after being opened by one cam lobe, until they are opened again by the next cam lobe. The advantages of setting the points by this method are that any wear of the distributor shaft or cam lobes is taken into account and the inaccuracies associated with using feeler blades are eliminated. Also, on 1.1 litre CVH engines the static ignition timing is accurately set in production and adjustment of the ignition timing in service has been deleted from the maintenance schedule. Therefore dwell angle adjustment is far more critical on these engines.

10 In general a dwell meter should be used in accordance with the manufacturer's instructions. However, the use of one type of meter is outlined as follows.

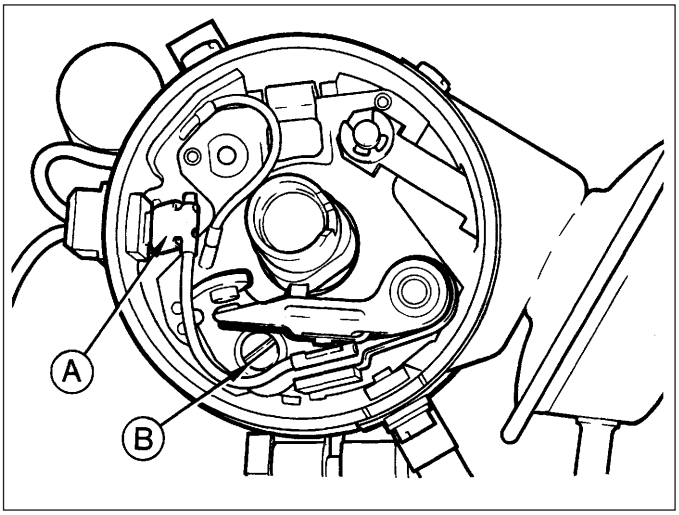
11 Remove the distributor cap and rotor arm and connect one lead of the dwell meter to the "+" terminal on the coil and the other lead to the coil "-" terminal.

12 Whilst an assistant turns on the ignition and cranks the engine on the starter, observe the reading on the dwell meter scale. With the engine cranking the reading should be equal to the dwell angle given in the Specifications.

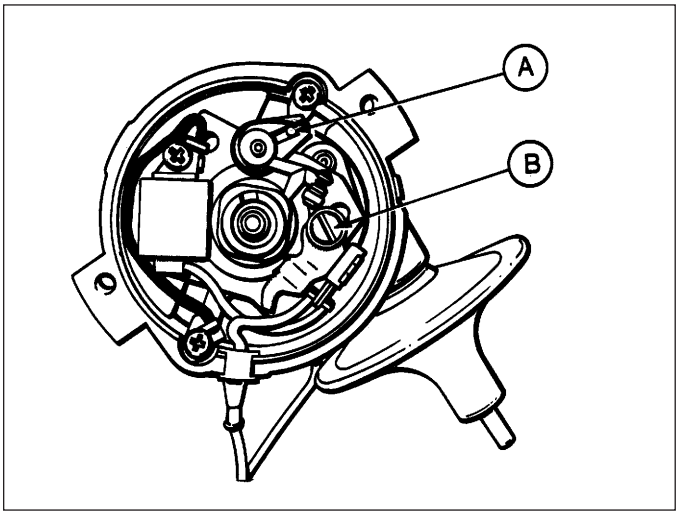
13 If the dwell angle is too small, the contact breaker points gap should be reduced and if the dwell angle is excessive the gap should be increased.

14 Adjust the points gap while the engine is cranking using the method described in paragraph 6. When the dwell angle is satisfactory, disconnect the meter, then refit the rotor arm and distributor cap.

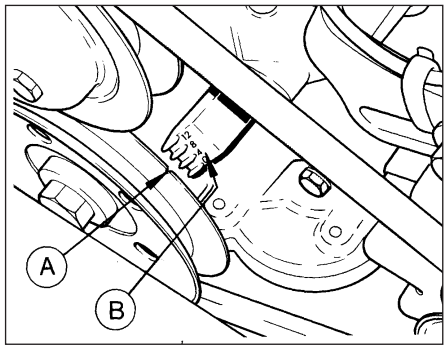
15 Check the ignition timing (Section 14).



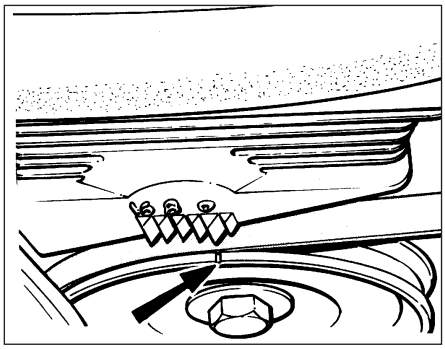
13.6a Contact breaker point components - Bosch distributor
A LT lead connector B Contact breaker retaining screw



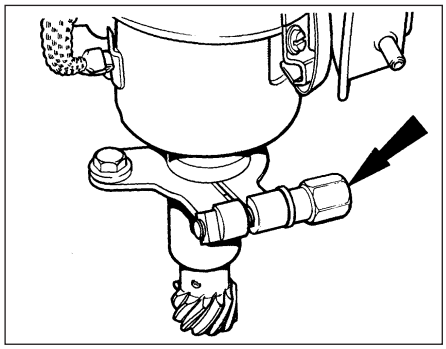
13.6b Contact breaker point components - Lucas distributor
A Secondary movement cam and peg B Contact breaker retaining screw



14.5a Timing mark identification - OHV engines
A Notch on crankshaft pulley
B Timing scale cast into timing cover



14.5b Crankshaft pulley notch (arrowed) and timing scale - CVH engine



14.7 Distributor clamp pinch-bolt location (arrowed) - OHV engines

14 Ignition timing check - models with contact breaker distributor

Note: *With modern ignition systems the only suitable way to time the ignition accurately is with a stroboscopic timing light. However, for initial setting up purposes (ie after major overhaul, or if the timing has been otherwise completely lost) a basic initial static setting may be used to get the engine started Once the engine is running, the timing should be accurately set using the timing light. Before carrying out any of the following, ensure that the contact breaker points are correctly adjusted as described in Section 13.*

1 In order that the engine can run efficiently, it is necessary for a spark to occur at the spark plug and ignite the fuel/air mixture at the instant just before the piston on the compression stroke reaches the top of its travel. The precise instant at which the spark occurs is determined by the ignition timing and this is quoted in degrees before top dead centre (BTDC).

2 If the timing is being checked as a maintenance or service procedure, refer to paragraph 11 onwards. If the distributor has been dismantled or renewed, or if its position on the engine has been altered, obtain an initial static setting as follows.

Static setting

3 Pull off the plug lead and remove No 1 spark plug (nearest the crankshaft pulley).

4 Place a finger over the plug hole and turn the crankshaft in the normal direction of rotation (clockwise from the crankshaft pulley end) until pressure is felt in No 1 cylinder. This indicates that the piston is commencing its compression stroke. The crankshaft can be turned with a spanner on the pulley bolt.

5 Continue turning the crankshaft until the notch on the pulley is aligned with the appropriate mark on the timing scale for the engine being worked on (see Specifications). On OHV engines the timing scale is cast into the timing cover and situated just above and to the right of the pulley. On CVH engines the scale is moulded into the timing belt cover and is situated directly above the pulley. On all engines the "O" mark on the scale represents Top Dead Centre (TDC) and the raised projections to the left of TDC are in increments of 4° BTDC **(see illustrations)**.

6 Remove the distributor cap and check that the rotor arm is pointing towards the No 1 spark plug lead segment in the cap.

7 Slacken the distributor clamp pinch bolt (OHV engines) or the three distributor flange securing bolts (CVH engines) **(see illustration)**.

8 Turn the distributor body anti-clockwise slightly until the contact breaker points are closed, then slowly turn the distributor body clockwise until the points just open. Hold the distributor body in this position and tighten the clamp pinch bolt or flange securing bolts as applicable.

9 Refit the distributor cap, No 1 spark plug and the plug lead.

10 It should now be possible to start and run the engine enabling the timing to be accurately checked with a timing light as follows.

Stroboscopic setting

11 Refer to the Specifications for the timing setting applicable to the engine being worked on and then highlight the appropriate mark on the timing scale and the notch in the pulley with a dab of white paint (see paragraph 5).

12 Connect a timing light to the engine in accordance with the manufacturer's instructions (usually between No 1 spark plug and plug lead).

13 Disconnect the vacuum hose at the distributor vacuum unit and plug the hose.

14 Start the engine and allow it to idle.

15 Point the timing light at the timing marks. They should appear to be stationary with the crankshaft pulley notch in alignment with the appropriate notch on the scale.

16 If adjustment is necessary (ie the marks are not aligned) slacken the distributor clamp pinch bolt or flange securing bolts as applicable, and turn the distributor body as necessary to align the marks. Tighten the pinch bolt or flange bolts when the setting is correct.

17 A secondary use of the timing light is to check that the centrifugal and vacuum advance functions of the distributor are working.

18 The tests are not of course precise as would be the case if sophisticated equipment were used, but will at least indicate the serviceability of the unit.

19 With the engine idling, timing light connected and vacuum pipe disconnected and plugged as described in the preceding paragraphs, increase the engine speed to 2000 rpm and note the approximate distance which the pulley mark moves out of alignment with the mark on the scale.

20 Reconnect the vacuum pipe to the distributor and repeat the test when for the same increase in engine speed, the alignment differential of the timing marks should be greater than previously observed.

21 If the timing marks did not appear to move during the first test, a fault in the distributor centrifugal advance mechanism is indicated. No increased movement of the marks during the second test indicates a punctured diaphragm in the vacuum unit, or a leak in the vacuum line.

22 On completion of the adjustments and checks, switch off the engine and disconnect the timing light.

15 Spark plug renewal - RS Turbo models

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, and the suitable type is specified at the end of this chapter. If this type is used and the engine is in good condition, the spark plugs should not need attention between scheduled replacement intervals. Spark plug cleaning is rarely necessary and should not be attempted unless specialised equipment is available as damage can easily be caused to the firing ends.

2 To remove the plugs, first mark the HT leads to ensure correct refitment, then pull them off the plugs. When removing the leads, pull the terminal insulator at the end of the lead - not the lead itself.
3 Using a spark plug spanner or deep socket and extension bar, unscrew the plugs and remove them from the engine **(see illustration)**.
4 The condition of the spark plugs will also tell much about the condition of the engine.
5 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 it 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 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 spark plug gap should be set to the figure given in the Specifications at the beginning of this Chapter.

15.10a Measuring the spark plug gap with a wire gauge . . .

15.10b . . . and adjusting the gap using a special adjusting tool

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

9 To set it, measure the gap with a feeler blade, and then bend open, or close, the outer plug electrode until the correct gap is achieved **(see illustration)**. The centre electrode should never be bent as this may crack the insulation and cause plug failure, if nothing worse.
10 Special spark plug electrode cap adjusting tools are available from most motor accessory shops **(see illustrations)**.
11 Before fitting the plugs first ensure that the plug threads and the seating area in the cylinder head are clean, dry and free of carbon.
12 Screw the plugs in by hand initially and then fully tighten to the specified torque. If a torque wrench is not available, tighten the plugs until initial resistance is felt, then tighten by a further 1/16 of a turn for the taper seat plugs fitted to OHV engines, or ¼ of a turn for the gasket seat type fitted to CVH engines. Do not over-tighten the spark plugs, otherwise damage to the threads may occur and they will also be extremely difficult to remove in the future.

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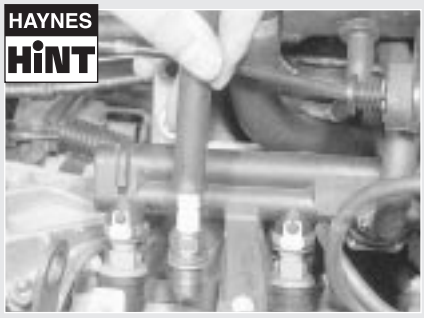


It is very often difficult to insert spark plugs into their holes without cross-threading them. To avoid this possibility, fit a short length of 5/16-inch internal diameter rubber hose over the end of the spark plug. The flexible hose acts as a universal joint to help align the plug with the plug hole. Should the plug begin to cross-thread, the hose will slip on the spark plug, preventing thread damage to the aluminium cylinder head.

15.9 Measuring the spark plug gap with a feeler blade

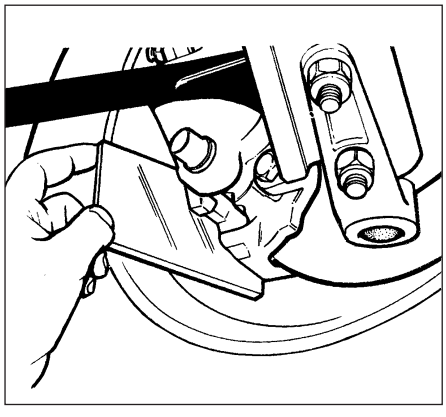
13 Refit the plug leads in the correct order ensuring that they are a secure fit over the plug ends. Periodically wipe the leads clean to reduce the risk of HT leakage by arcing and remove any traces of corrosion that may occur on the end fittings.

16 Front brake disc pad check

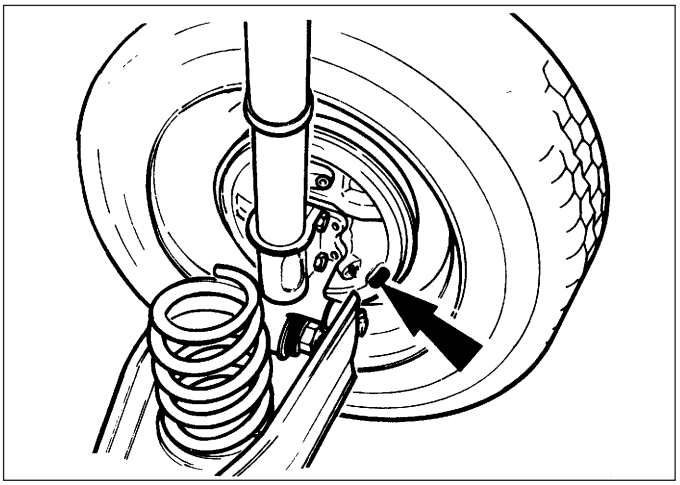
1 Place a mirror between the roadwheel and the caliper and check the thickness of the friction material of the disc pads **(see illustration)**. If the material has worn down to the specified minimum or less, the pads must be renewed as an axle set (four pads).
2 For a comprehensive check, the brake 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 examined on both sides. Refer to Chapter 9 for further information.

17 Rear brake shoe lining check

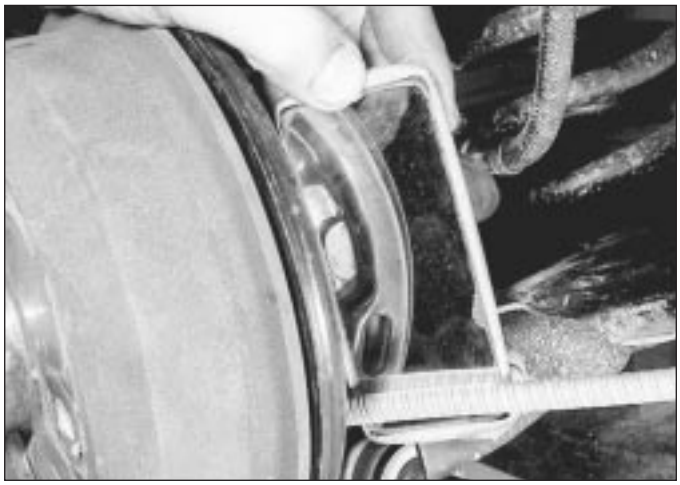
1 Due to the fact that the rear brake drums are combined with the hubs, which makes removal of the drums more complicated than is the case with detachable drums, inspection of the shoe linings can be carried out at the



16.1 Checking the front disc pad wear using a mirror



17.1a Brake shoe viewing hole location (arrowed) in backplate



17.1b Checking rear brake lining wear with a mirror

specified intervals by prising out the small inspection plug from the brake backplate and observing the linings through the hole using a mirror **(see illustrations)**.

2 A minimum thickness of friction material must always be observed on the shoes. If it is worn down to this level, renew the shoes.

3 Do not attempt to re-line shoes yourself but always obtain factory re-lined shoes.

4 Renew the shoes in an axle set (four shoes), even if only one is worn to the minimum.

18 Suspension and steering check

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

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

4 Now grasp the wheel at the 9 o'clock and 3 o'clock positions, and try to rock it as before. Any movement felt now may again be caused by wear in the hub bearings or the steering track-rod balljoints. If the inner or outer balljoint is worn, the visual movement will be obvious.

5 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.

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

7 Visually check that each lower arm balljoint is correctly located in the hub carrier, ensuring that the Torx type pinch-bolt is fully engaged in the groove in the balljoint stud.

Suspension strut/shock absorber check

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

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

19 Seat belt check

1 Periodically check the belts for fraying or other damage. If evident, renew the belt.

2 If the belts become dirty, wipe them with a damp cloth using a little detergent only.

3 Check the tightness of the anchor bolts and if they are ever disconnected, make quite sure that the original sequence of fitting of washers, bushes and anchor plates is retained.

18.2 Checking a steering gear gaiter

18.3 Rocking the roadwheel to check steering/suspension components

20 Alternator drivebelt check

1 A conventional vee drivebelt is used to drive both the alternators and water pump pulleys on OHV and HCS engines, and the alternator pulley only on CVH engines, power being transmitted via a pulley on the engine crankshaft.

2 To remove the drivebelt, slacken the alternator mounting bolts and the bolts on the adjuster link and push the alternator in towards the engine as far as possible **(see illustration)**.

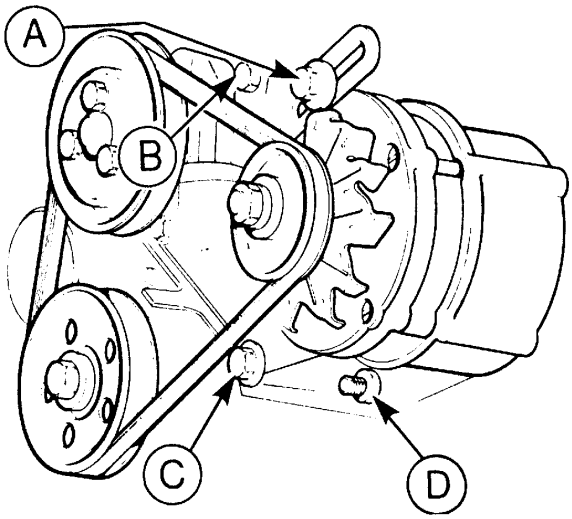
3 Withdraw the belt from the pulleys. In some instances it may also be necessary to remove the adjuster link-to-alternator bolt to avoid straining the drivebelt.

4 Fit the belt by slipping it over the pulley rims. If necessary remove the adjuster link-to-alternator bolt, if not already done, to avoid straining the belt. Never be tempted to remove or refit the drivebelt by prising it over a pulley rim otherwise the pulley or the drivebelt internal webbing will be damaged.

5 To tension the belt pull the alternator away from the engine until the belt is fairly taut, and tighten the adjuster link-to-alternator bolt. Check that the total deflection of the belt, using finger pressure at a point midway between the alternator and crankshaft or water pump pulleys, is 10 mm (0.4 in) **(see illustrations)**. A little trial and error may be necessary to obtain the correct tension. If the belt is too slack, it will slip in the pulleys and soon become glazed or burnt. This is often indicated by a screeching noise as the engine is accelerated, particularly when the headlights or other electrical accessories are switched on. If the belt is too tight the bearings in the water pump and/or alternator will soon be damaged.

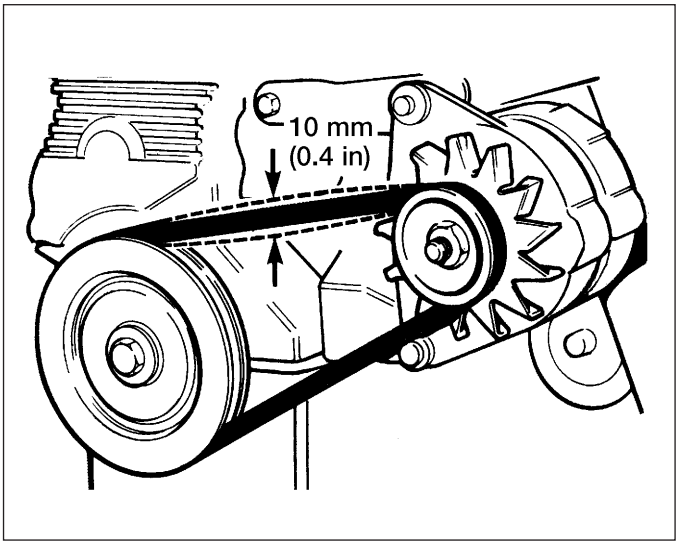
6 Once the tension is correct, tighten the remaining adjuster link bolt, front mounting bolt and rear mounting bolt in that order.

7 If a new belt has been fitted the tension should be rechecked and adjusted again if necessary after the engine has run for approximately ten minutes.

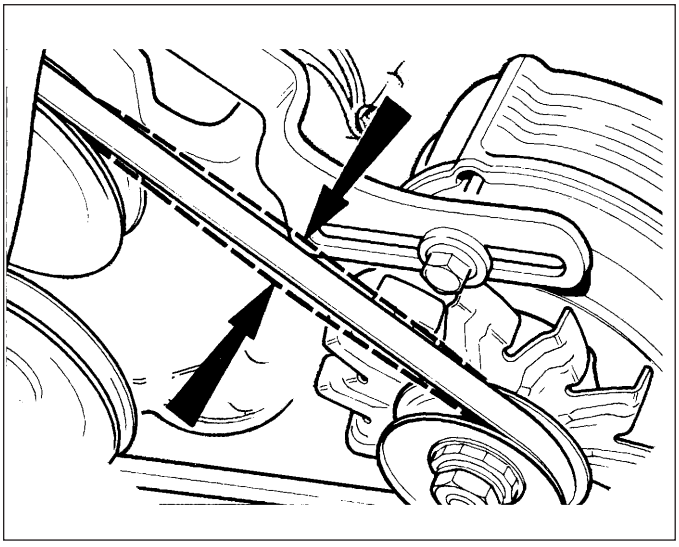


20.2 Alternator mounting and adjuster link bolts

A Adjuster link-to-alternator bolt
B Adjuster link-to-engine bolt
C and D Alternator mounting bolts



20.5a Drivebelt tension checking point - CVH engines



20.5b Drivebelt tension checking point - OHV engines

Every 12 000 miles or 12 months

21 Valve clearance adjustment - OHV and HCS engines

OHV engines

1 This operation should be carried out with the engine cold and the air cleaner and rocker cover removed.

2 Using a ring spanner or socket on the crankshaft pulley bolt, turn the crankshaft in a clockwise direction until No 1 piston is at TDC on its compression stroke. This can be verified by checking that the pulley and timing cover marks are in alignment and that the valves of No 4 cylinder are rocking. When the valves are rocking, this means that the slightest rotation of the crankshaft pulley in either direction will cause one rocker arm to move up and the other to move down.

3 Numbering from the thermostat housing end of the cylinder head, the valves are identified as follows.

Valve No		Cylinder No
1	Exhaust	1
2	Inlet	1
3	Exhaust	2
4	Inlet	2
5	Exhaust	3
6	Inlet	3
7	Exhaust	4
8	Inlet	4

4 Adjust the valve clearances by following the sequence given in the following table. Turn the crankshaft pulley 180º (half a turn) after adjusting each pair:

Valves rocking	Valves to adjust
7 and 8	1 (Exhaust), 2 (Inlet)
5 and 6	3 (Exhaust), 4 (Inlet)
1 and 2	7 (Exhaust), 8 (Inlet)
3 and 4	5 (Exhaust), 6 (Inlet)

5 The clearances for the inlet and exhaust valves are different (see Specifications). Use a feeler blade of the appropriate thickness to check each clearance between the end of the valve stem and the rocker arm. The gauge should be a stiff sliding fit. If it is not, turn the adjuster bolt with a ring spanner. These bolts are of stiff thread type and require no locking nut. Turn the bolt clockwise to reduce the clearance and anti-clockwise to increase it **(see illustration)**.

6 Refit the air cleaner and rocker cover on completion of adjustment.

HCS engines

7 The procedure is as described previously for OHV engines, but note that the valve arrangement has been altered and is now as shown below. Take care not to overtighten the rocker cover bolts on refitting, as this can result in leaks.

Valve No		Cylinder No
1	Exhaust	1
2	Inlet	1
3	Exhaust	2
4	Inlet	2
5	Inlet	3
6	Exhaust	3
7	Inlet	4
8	Exhaust	4

22 Exhaust system check

With the vehicle raised on a hoist or supported on axle stands (see "*Jacking and Vehicle Support*"), check the exhaust system for signs of leaks, corrosion or damage and check the rubber mountings for condition and security **(see illustration)**. Where damage or corrosion are evident, renew the system complete or in sections, as applicable, using the information given in Chapter 4**,** Part E.

23 Turbocharger-to-manifold nut check - RS Turbo models

Check the tightness of the turbocharger-to-exhaust manifold securing nuts using a torque wrench.

24 Spark plug renewal

The procedure is as described for RS Turbo models in Section 15.

25 Contact breaker points renewal

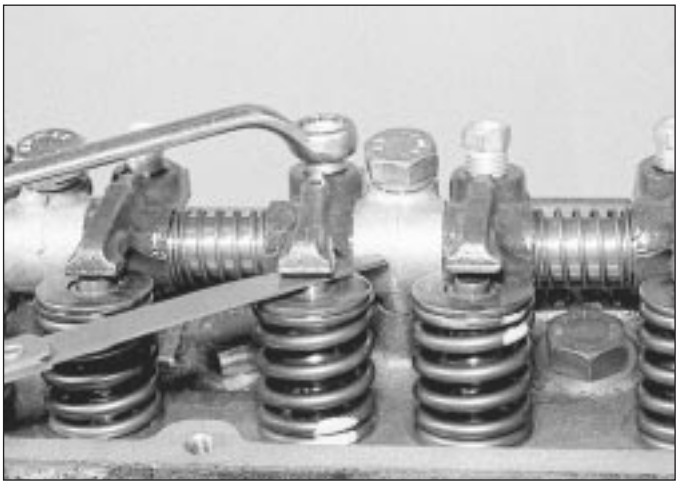
1 Spring back the retaining clips or undo the screws as appropriate and lift off the distributor cap.

2 Withdraw the rotor arm from the distributor shaft.

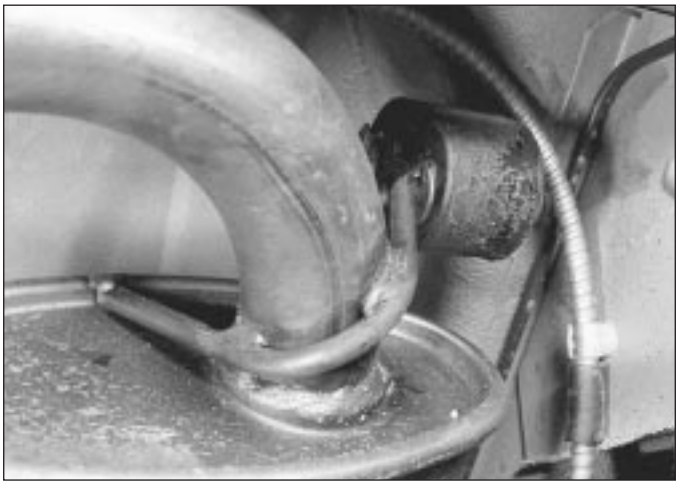
3 On the Bosch distributor disconnect the contact breaker points LT lead at the spade connector. On the Lucas distributor ease the contact breaker spring arm out of the plastic insulator and slide the combined LT and condenser lead out of the hooked end of the spring arm.

4 Undo the retaining screw and withdraw the contact breaker points from the distributor baseplate. Take care not to drop the screw and washer inside the distributor during removal and refitting. If possible use a magnetic screwdriver, or alternatively, retain the screw on the end of the screwdriver using a dab of grease.

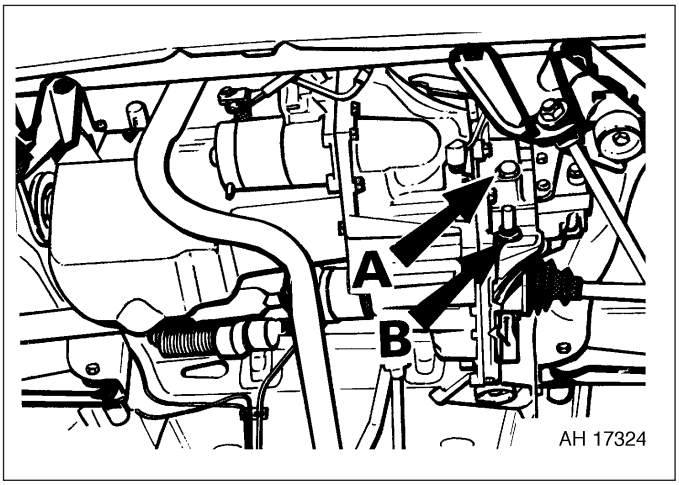
5 Wipe clean the distributor cam, then apply a trace of high-melting-point grease to the four cam lobes. Also, on OHV engines apply two drops of light oil to the felt pad at the top of the distributor shaft.



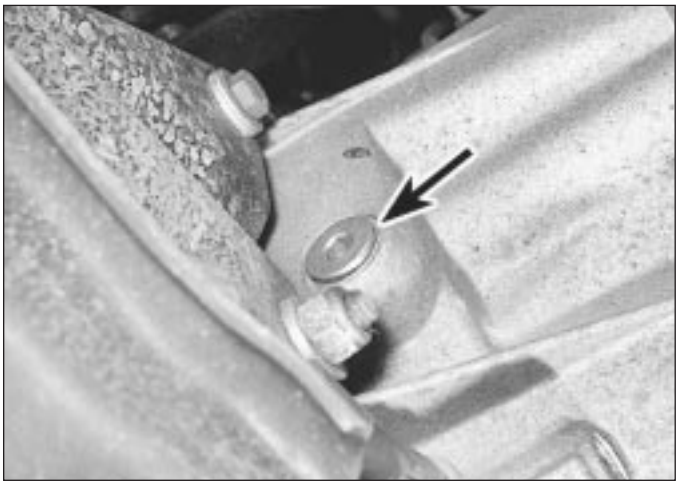
21.5 Valve clearance adjustment



22.1 Exhaust silencer mounting



26.1a Transmission oil filler plug (A) and selector shaft locking mechanism cap (B)



26.1b Allen type transmission filler plug (arrowed) as fitted to later models

6 Locate the new contact breaker points on the baseplate and secure with the retaining screw, lightly tightened only at this stage. On the Lucas distributor ensure that the secondary movement cam is engaged with the peg, and that both washers are refitted with the retaining screw **(see illustration 13.6b)**.

7 Reconnect the LT lead, then refer to Section 13 and adjust the contact breaker points gap.

26 Manual transmission oil level check

1 With the car on level ground wipe the area around the filler plug, then unscrew the plug using a socket spanner, or on later versions a suitable Torx or Allen key or socket bit, as applicable. Access can be gained from above or below the car **(see illustrations)**.

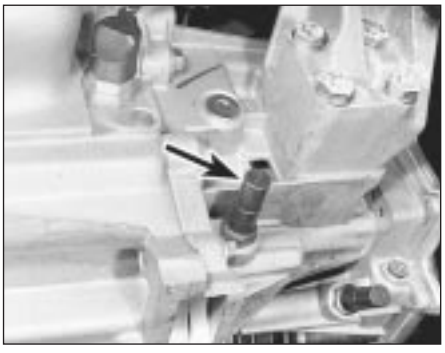
2 Locate the aluminium build code tag, which is secured to one of the transmission housing upper bolts, and note the transmission part number stamped on the tag. If the last letter of the part number suffix is a D then the transmission was manufactured prior to August 1985. Transmissions manufactured from August 1985 have an E as the last letter of the part number suffix.

3 On the early type transmission (suffix letter D) the oil level must be maintained between 5 and 10 mm (0.2 and 0.4 in) below the lower edge of the filler plug hole.

4 If the transmission is of the later type (suffix letter E) the oil level must be maintained between 0 and 5 mm (0.2 in) below the lower edge of the filler plug hole.

5 To simplify the checking procedure a dipstick can be made from thin rod bent at right angles and having marks on one "leg" made with a file at 5 mm (0.2 in) intervals. Rest the unmarked leg on the lower edge of the filler plug hole with the marked leg immersed in the oil. Remove the dipstick, read off the level and top-up if necessary using the specified grade of oil. Refit the filler plug on completion.

6 Renewal of the transmission oil is not a service requirement, but if draining is necessary prior to a repair or overhaul task place a suitable container beneath the selector shaft locking mechanism cap nut located just below the filler plug **(see illustration)**. Unscrew the cap nut, remove the spring and interlock pin and allow the oil to drain.



26.6 Selector shaft locking mechanism cap nut (arrowed)

Caution: Take care when unscrewing the cap nut as the tension of the spring may cause the pin to fly out as the cap nut is released. Refit the pin, spring and cap nut when draining is complete, but apply sealer to the cap nut threads (see Specifications). Note that from 1986 onwards the cap nut is shrouded by the transmission support crossmember and cannot be removed in situ. On these models draining can only be carried out after removal of the transmission from the car.

27 Automatic transmission fluid level check

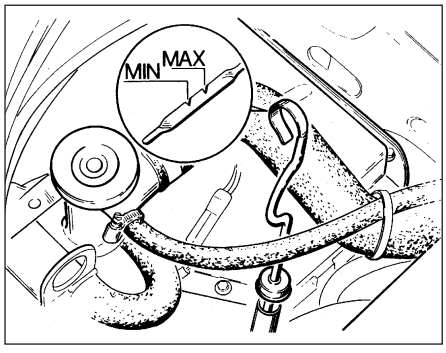
1 The automatic transmission fluid level must be checked when the engine and transmission are at normal operating temperature; preferably after a short journey.

2 Park the car on level ground, then fully apply the handbrake.

3 With the engine running at its normal idle speed, apply the footbrake and simultaneously move the selector lever through the full range of positions three times then move it back to the P position. Allow the engine to run at idle for a further period of one minute.

4 With the engine still idling, extract the transmission fluid level dipstick and wipe it dry, with a clean non-fluffy cloth. Fully reinsert the dipstick and then extract it again and check the fluid level mark, which must be between the "MAX" and "MIN" markings **(see illustration)**

5 If topping-up is necessary, use only the specified fluid type and pour it through the dipstick tube, but take care not to overfill. The level must not exceed the "MAX" mark.



27.4 Transmission fluid level dipstick location and level markings

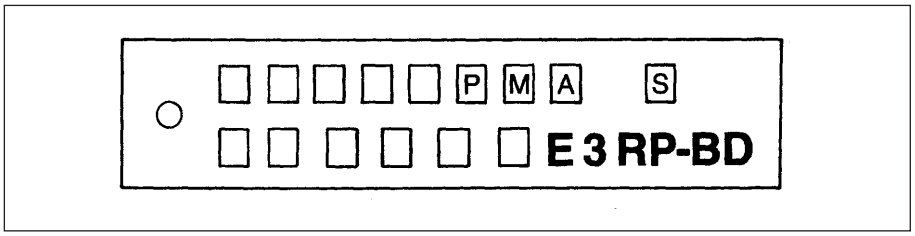
6 An improved type of transmission fluid is used in later models and before topping-up or refilling it is necessary to identify the transmission being worked on so that the correct fluid may be obtained.
7 Locate the transmission identification number which is stamped on a metal tag attached to the top of the valve body cover **(see illustration)**. If, at the end of the second line on the metal tag, the prefix E3RP- appears, then the transmission is of the early type. If the prefix is E6RP- then the unit is of the later type. Later transmissions can also be identified by having a black dipstick stating the fluid specification and type. Having determined whether the transmission is of the early or later type, refer to *"Lubricants and fluids"* for the fluid requirement. *Under no circumstances may the later type fluid be used in the early type transmission, and vice versa.*
8 If the fluid level was below the minimum mark when checked or is in constant need of topping-up, check around the transmission for any signs of excessive fluid leaks, and if present then they must be rectified without delay.
9 If the colour of the fluid is dark brown or black this denotes the sign of a worn brake band or transmission clutches in which case have your Ford dealer check the transmission at the earliest opportunity.

28 Automatic transmission selector mechanism check

Carry out a thorough road test, ensuring that all gearchanges occur smoothly without snatching, and without an increase in engine speed between changes. Check that all gear positions can be engaged with the appropriate movement of the selector lever, and with the vehicle at rest. Check the operation of the parking pawl when "P" is selected.

29 Driveshaft check

1 Carry out a thorough inspection of the driveshafts and joints as follows.
2 Jack up the front of the car and support it securely on axle stands (see "*Jacking and Vehicle Support*").
3 Slowly rotate the roadwheel and inspect the condition of the outer joint rubber bellows. 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 **(see illustration)**. Also check the security and condition of the retaining clips. Repeat these checks on the inner constant velocity joints. If any damage or deterioration is found, the bellows should be renewed as described in Chapter 8.
4 Continue rotating the roadwheel and check for any distortion or damage to the driveshaft. Check for any free play in the joints by first holding the driveshaft and attempting to rotate the wheel. Repeat this check by holding the inner joint and attempting to rotate the driveshaft. Any appreciable movement indicates wear in the joints, wear in the driveshaft splines or loose retaining nut.
5 Road test the car and listen for a metallic clicking from the front as the car is driven slowly in a circle with the steering on full lock. If a clicking noise is heard this indicates wear in the outer constant velocity joint caused by excessive clearance between the balls in the joint and the recesses in which they operate. Remove and inspect the joint (Chapter 8).
6 If vibration, consistent with road speed, is felt through the car when accelerating, there is a possibility of wear in the inner constant velocity joint. If so, renewal of the driveshaft inner joint will be necessary.



27.7 Transmission identification number on valve body tag

30 Roadwheel check

Check the wheel rims for distortion, damage and excessive run-out. Also make sure that the balance weights are secure with no obvious signs that any are missing.
Check the torque of the wheel bolts.

31 Hinge and lock check and lubrication

1 Work around the vehicle, and lubricate the bonnet, door and tailgate hinges with a light machine oil such as Duckhams Home Oil.

29.3 Checking driveshaft outer joint rubber bellows

2 Lightly lubricate the bonnet release mechanism and exposed sections of inner cable with a smear of grease.
3 Check the security and operation of all hinges, latches and locks, adjusting them where required. Where applicable, check the operation of the central locking system.
4 Check the condition and operation of the tailgate struts, renewing them if either is leaking or is no longer able to support the tailgate securely when raised.

32 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.
9 Where applicable, 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 24 000 miles or 2 years

33 Coolant renewal

Cooling system draining

1 It is preferable to drain the system when the coolant is cold. If it must be drained when hot, release the pressure cap on the thermostat housing (or expansion tank on later models) very slowly, having first covered it with a cloth to avoid any possibility of scalding. Having relieved the pressure, remove the cap.

2 Set the heater control to the maximum heat position.

3 Check to see if a drain plug is fitted to the lower left-hand side of the radiator. If so, place a suitable container beneath the radiator, unscrew the plug and allow the coolant to drain **(see illustration)**.

4 If a drain plug is not fitted, place the container beneath the radiator bottom hose. Slacken the clip, release the hose and allow the coolant to drain.

5 A cylinder block drain plug is also fitted to certain models on the forward facing side of the cylinder block, towards the flywheel end. Where this is the case, unscrew the plug and allow the cylinder block to drain into the container **(see illustrations)**.

Cooling system flushing

6 Providing that the correct mixture of antifreeze and water has previously been maintained in the system, then no flushing should be necessary and the system can be refilled immediately as described in the following paragraphs.

7 Where the system has been neglected however, and rust or sludge is evident at draining, then the system should be flushed through using a cold water hose inserted into the thermostat housing (thermostat removed - see Chapter 3). Continue flushing until the water flows clean from the disconnected bottom hose, radiator drain plug and cylinder block drain plug, as applicable. If, after a reasonable period the water still does not run clear, the radiator can be flushed with a good proprietary cleaning system.

8 If the radiator is suspected of being clogged, remove and reverse flush it as described in Chapter 3.

9 When the coolant is being changed, it is recommended that the overflow pipe is disconnected from the expansion tank and the coolant drained from the tank. If the interior of the tank is dirty, remove it and thoroughly clean it out.

10 After draining or flushing, reconnect all disconnected hoses and refit the drain plugs where applicable.

Cooling system filling

11 Using the correct antifreeze mixture (See following sub-Section) fill the system through the thermostat housing filler neck slowly until the coolant is nearly overflowing. Wait a few moments for trapped air to escape and add more coolant. Repeat until the level does not drop and refit the cap. Pour similar strength coolant into the expansion tank up to the "MAX" mark and fit the cap.

12 On later models with a screw type pressure cap on the expansion tank, fill the system in the same way, but through the expansion tank rather than the thermostat housing.

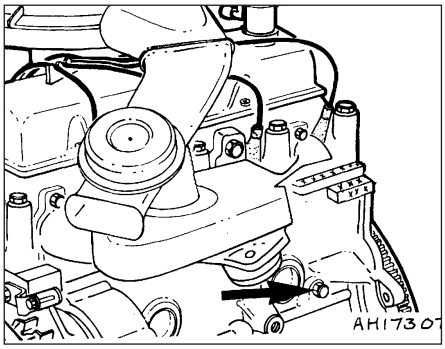
13 On all models start the engine and run it to normal operating temperature then switch off. Once it has cooled, check and carry out any final topping-up to the expansion tank only.

Antifreeze mixture

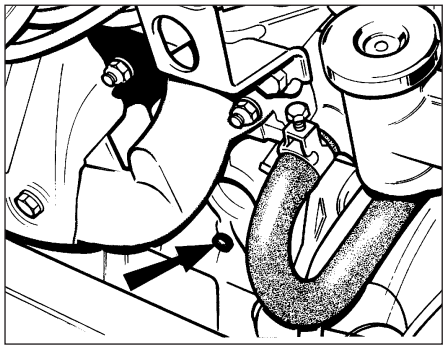
14 Never operate the vehicle with plain water in the cooling system. Apart from the danger of freezing during winter conditions, an important secondary purpose of antifreeze is to inhibit the formation of rust and to reduce corrosion.

15 The coolant must be renewed at the intervals specified. Although the antifreeze properties of the coolant will remain indefinitely, the effectiveness of the rust and corrosion inhibitors will gradually weaken.

33.3 Radiator drain plug location (arrowed)



33.5a Cylinder block drain plug location (arrowed) - OHV engines



33.5b Cylinder block drain plug location (arrowed) - CVH engines