

# Chapter 1

## Routine maintenance and servicing

### Contents

Air cleaner filter element renewal	38	Fluid level checks	3
Air conditioner condenser check	25	Front and rear brake pad check	9
Air conditioner refrigerant charge check	26	Fuel filter renewal	41
Automatic choke check	36	Hinge and lock check and lubrication	19
Automatic transmission brake band adjustment	40	Hot starting check	37
Automatic transmission fluid level check	17	Idle mixture check	16
Automatic transmission selector lubrication	28	Idle speed check	15
Auxiliary drivebelt check	21	Idle speed linkage clean	33
Battery electrolyte level check	6	Ignition system component check	39
Battery terminal check	22	Intensive maintenance	2
Brake fluid renewal	44	Introduction	1
Brake pipe and hose check	32	Manual gearbox oil level check	18
Brake system seal and hose renewal	43	Oil filler cap check	14
Camshaft drivebelt renewal	45	Power steering fluid level check	35
Crankcase ventilation vent valve renewal	42	Road test	34
Driveshaft check	30	Roadwheel security check	13
Electrical system check	5	Seat belt check	11
Engine coolant renewal	46	Spark plug renewal	20
Engine inlet manifold security check	24	Specifications	See end of Chapter
Engine oil and filter renewal	8	Steering and suspension security check	29
Engine valve clearance check	23	Tyre checks	4
Exhaust system check	12	Underbody inspection	31
Final drive oil level check	27	Wiper blade check	7
Fluid leak check	10		

### Degrees of difficulty

<b>Easy</b> , suitable for novice with little experience 	<b>Fairly easy</b> , suitable for beginner with some experience 	<b>Fairly difficult</b> , suitable for competent DIY mechanic 	<b>Difficult</b> , suitable for experienced DIY mechanic 	<b>Very difficult</b> , suitable for expert DIY or professional 
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### Ford Granada 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

- Check the engine oil level (Section 3).
- Check the engine coolant level (Section 3).
- Check the brake fluid level (Section 3).
- Check the screen washer fluid level (Section 3).
- Visually examine the tyres for tread depth, and wear or damage (Section 4).
- Check and if necessary adjust the tyre pressures (Section 4).
- Check and if necessary top-up the battery electrolyte level - where applicable (Section 6).
- Check the operation of the horn, all lights, and the wipers and washers (Sections 5 and 7).

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

- Renew engine oil and filter (Section 8)
- Check brake pads for wear (front and rear) (Section 9)
- Check tightness of wheel nuts (Section 13)
- Check idle speed (1.8 litre only) (Section 15)
- Check idle mixture (not fuel-injection models) - at first 6000 miles only (Section 16)
- Clean oil filler cap (Section 14)
- Inspect engine bay and underside of vehicle for fluid leaks or other signs of damage (Section 10)
- Check function and condition of seat belts (Section 11)
- Check operation of brake fluid level warning indicator (Section 9)
- Check condition and security of exhaust system (Section 12).

# Maintenance Schedule

## Every 12 000 miles (20 000 km) or 12 months – whichever comes sooner

- Check operation of latches, check straps and locks; lubricate if necessary (Section 19)
- Check condition and tension of auxiliary drivebelt(s); adjust or renew as necessary (Section 21)
- Check tightness of battery terminals, clean and neutralise corrosion if necessary (Section 22)
- Check engine valve clearances (Section 23)
- Check tightness of inlet manifold bolts (V6 only) (Section 24)
- Renew spark plugs (Section 20)
- Clean air conditioning condenser fins (when applicable) (Section 25)
- Check air conditioning refrigerant charge (when applicable) (Section 26)
- Check manual gearbox oil level (Section 18)
- Check final drive oil level (Section 27)
- Lubricate automatic transmission selector/kickdown linkage (Section 28)
- Check security and condition of steering and suspension components, gaiters and boots (Section 29)
- Check condition and security of driveshaft joints (Section 30)
- Inspect underbody and panels for corrosion or other damage (Section 31)
- Inspect brake pipes and hoses (Section 32)
- Clean idle speed control linkage at throttle (when applicable) (Section 33)
- Road test and check operation of ABS (Section 34)
- Check automatic transmission fluid level (engine hot) (Section 17)
- Check engine for satisfactory hot starting (Section 37)
- Check that automatic choke is fully off with engine hot (not fuel-injection models) (Section 36)
- Check power steering fluid level (when applicable) (Section 35)

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

- Renew air cleaner element (Section 38)
- Clean and inspect distributor cap, rotor arm, HT leads and coil tower (Section 39)
- Adjust automatic transmission brake bands (Section 40)
- Renew fuel filter (fuel-injection models only) (Section 41)
- Renew crankcase ventilation vent valve (carburettor models) (Section 42)

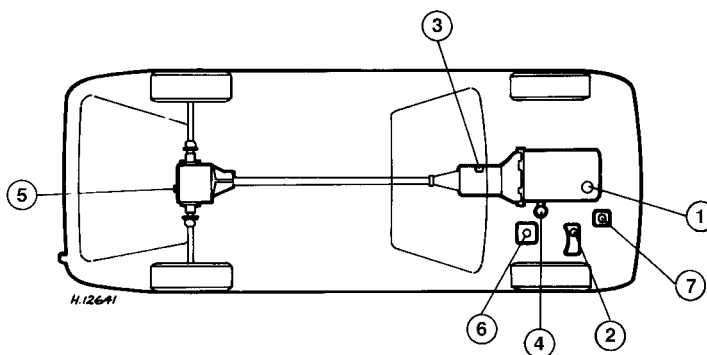
## Every 36 000 miles (60 000 km) or 3 years - whichever comes sooner

- Renew brake hydraulic system seals and hoses if necessary (Section 43)
- Renew brake hydraulic fluid (Section 44)
- Renew camshaft drivebelt on SOHC models - recommended as a precautionary measure (Section 45)

## Every 2 years - regardless of mileage

- Renew coolant (Section 46)

## Lubricants and fluids



Component or system	Lubricant type/specification
1 Engine	Multigrade engine oil, viscosity range SAE 10W/30 to 20W/50 to API SG/CD or better
2 Cooling system	Soft water/antifreeze to Ford spec. SSM 97B9103-A or SDM-M97B49-A
3 Manual transmission: N9 MT75	Semi-synthetic gear oil to Ford spec. ESD M2C175-A (80 EP) Gear oil to Ford spec. ESD-M2C186-A
4 Automatic transmission	ATF to Ford spec. SQM-2C9010-A (TQ Dexron II)
5 Final drive	Gear oil SAE 90EP to API GL5
6 Brake hydraulic system	Hydraulic fluid to Ford spec. SAM- 6C9103-A
7 Power steering	ATF to Ford spec. SQM-2C9010-A (TQ Dexron II)

## Capacities

### Engine oil

- SOHC:  
 With filter .....3.75 litres (6.6 pints)  
 DOHC:  
 With filter .....4.5 litres (7.9 pints)  
 Without filter .....4.0 litres (7.0 pints)  
 V6:  
 With filter .....4.25 litres (7.5 pints)

### Cooling system

- OHC .....8.0 litres (14.1 pints)  
 V6 .....8.5 litres (15.0 pints)

### Fuel tank

- All models .....70 litres (15.4 gallons)

### Manual gearbox

- All models .....1.25 litres (2.2 pints)

### Automatic transmission

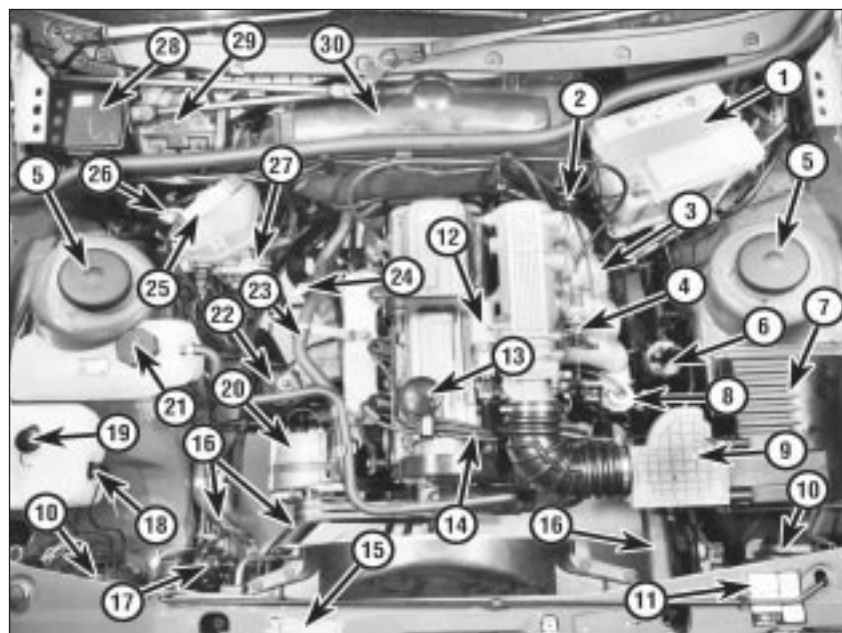
- All models (from dry) .....8.5 litres (15.0 pints)

### Final drive

- 7 inch crownwheel .....0.9 litres (1.6 pints)  
 7.5 inch crownwheel .....1.3 litres (2.3 pints)

### Power steering

- OHC .....0.65 litres (1.1 pints)  
 V6 .....0.75 litres (1.3 pints)

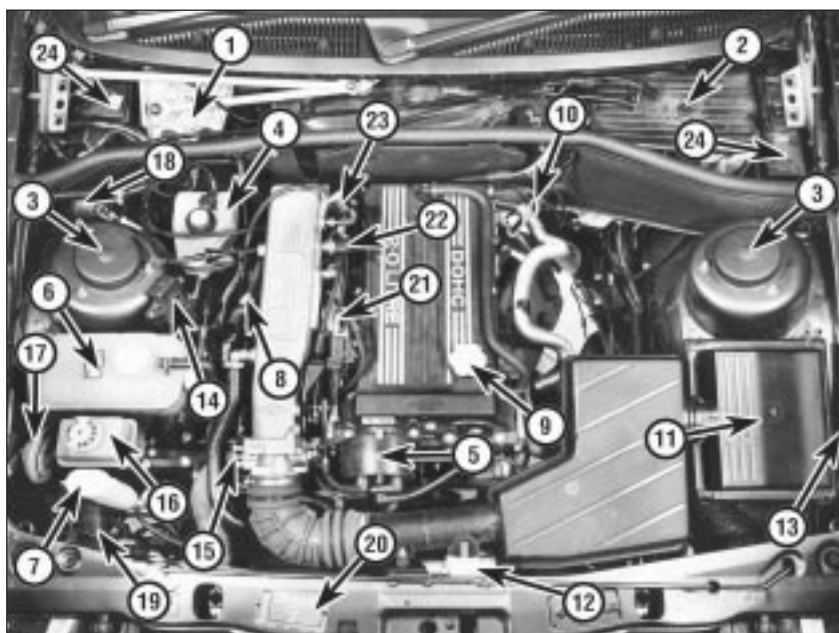


Under-bonnet view of a 2.0 litre SOHC Granada with fuel-injection

- |                                   |  |
|-----------------------------------|--|
| 1 Battery                         | 19 Windscreen washer reservoir           |
| 2 Engine oil dipstick             | 20 Alternator                            |
| 3 Inlet manifold                  | 21 Coolant expansion tank cap            |
| 4 Throttle/kickdown cable bracket | 22 Engine mounting                       |
| 5 Suspension turrets              | 23 Heater hose                           |
| 6 Ignition coil                   | 24 Automatic transmission fluid dipstick |
| 7 Air cleaner cover               | 25 Brake fluid reservoir cap             |
| 8 Fuel pressure regulator         | 26 Brake hydraulic unit accumulator      |
| 9 Vane airflow meter              | 27 Brake hydraulic unit valve block      |
| 10 Headlight covers               | 28 Main fuse/relay box                   |
| 11 Tune-up label                  | 29 Wiper motor (behind cover)            |
| 12 Idle speed control valve       | 30 Heater blower cover pump              |
| 13 Oil filler cap                 |  |
| 14 Spark plug leads               |  |
| 15 VIN plate                      |  |
| 16 Radiator hoses                 |  |
| 17 Horn                           |  |
| 18 Windscreen washer pump         |  |

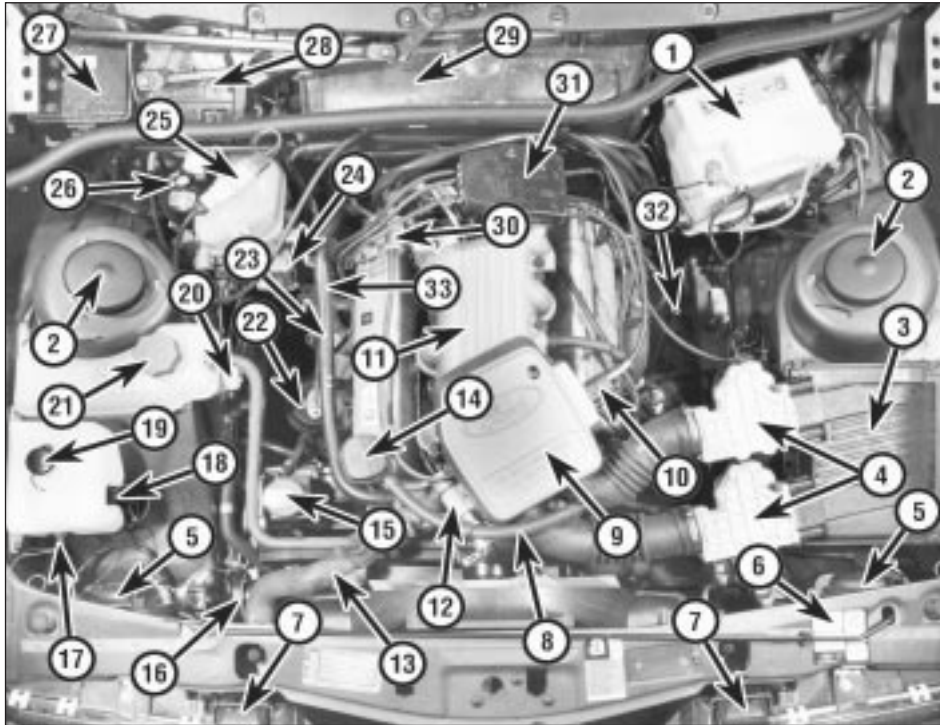
Under-bonnet view of a 2.0 litre DOHC Granada with fuel-injection

- |  |  |
|--|--|
| 1 Windscreen wiper motor                   | 15 Throttle position sensor                |
| 2 Battery                                  | 16 Power steering fluid reservoir          |
| 3 Suspension strut top mounting            | 17 Anti-theft alarm horn                   |
| 4 Brake fluid reservoir                    | 18 Speed control system diaphragm          |
| 5 Ignition distributor                     | 19 Speed control system vacuum pump        |
| 6 Coolant expansion tank                   | 20 Vehicle identification (VIN) plate      |
| 7 Washer fluid reservoir                   | 21 Fuel pressure regulator                 |
| 8 Automatic transmission fluid dipstick    | 22 Air charge temperature sensor           |
| 9 Oil filler cap                           | 23 Manifold absolute pressure (MAP) sensor |
| 10 Engine oil level dipstick               | 24 Fuse/relay box                          |
| 11 Air cleaner element housing             |  |
| 12 Idle speed control valve                |  |
| 13 Ignition module                         |  |
| 14 Manifold Absolute Pressure (MAP) sensor |  |



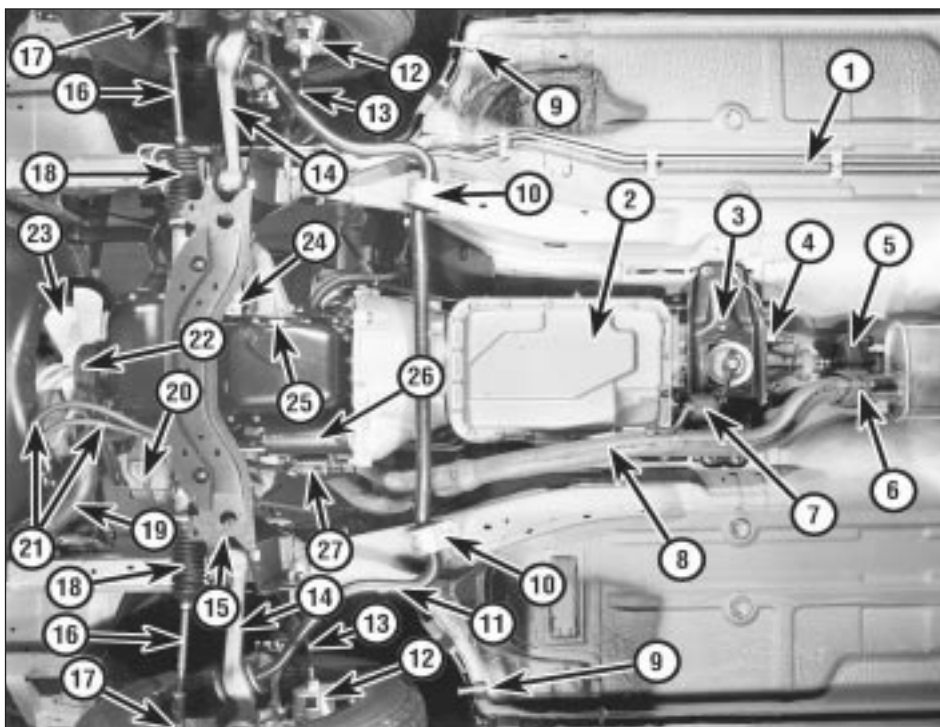
# Maintenance Schedule

Under-bonnet view of a 2.8 litre V6 Granada



- 1 Battery
- 2 Suspension turrets
- 3 Air cleaner cover
- 4 Vane airflow meters
- 5 Headlight covers
- 6 Tune-up label
- 7 Auxiliary driving light covers
- 8 Crankcase ventilation hoses
- 9 Throttle linkage cover
- 10 Throttle cable and kickdown switch
- 11 Plenum chamber
- 12 Idle speed control valve
- 13 Radiator top hose
- 14 Oil filler cap
- 15 Power steering fluid reservoir
- 16 Horn
- 17 Washer fluid level switch
- 18 Windscreen washer pump
- 19 Windscreen washer reservoir
- 20 Coolant level switch
- 21 Coolant expansion tank cap
- 22 Engine mounting
- 23 Heater hose
- 24 Brake hydraulic unit valve block
- 25 Brake fluid reservoir cap
- 26 Brake hydraulic unit accumulator
- 27 Main fuse/relay box
- 28 Wiper motor (behind cover)
- 29 Heater blower cover
- 30 Fuel pressure regulator
- 31 Distributor screening lid
- 32 Engine oil dipstick
- 33 Automatic transmission fluid dipstick

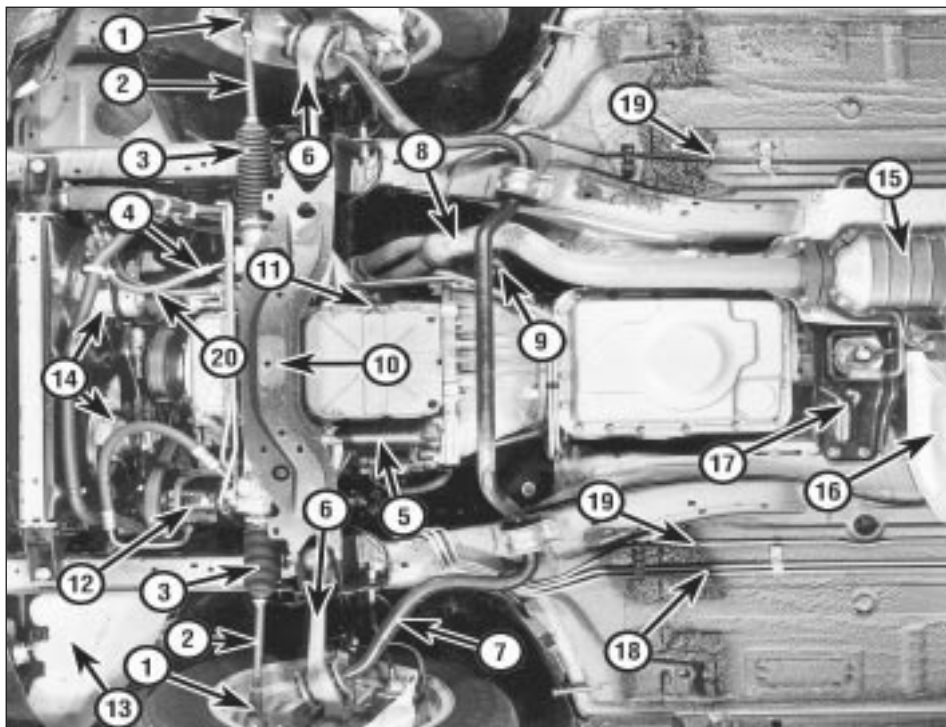
Front underbody view of a 2.0 litre SOHC Granada with automatic transmission



- 1 Brake and fuel pipes
- 2 Transmission sump
- 3 Transmission crossmember
- 4 Speedometer sender unit
- 5 Propeller shaft coupling
- 6 Exhaust flanged joint
- 7 Exhaust mounting
- 8 Exhaust pipe
- 9 Jacking points
- 10 Anti-roll bar clamps
- 11 Anti-roll bar
- 12 Brake calipers
- 13 Brake flexible hoses
- 14 Suspension lower arms
- 15 Front crossmember
- 16 Track rods
- 17 Track rod ends
- 18 Steering rack bellows
- 19 Radiator bottom hose
- 20 Alternator
- 21 Transmission fluid cooler hoses
- 22 Crankshaft pulley
- 23 Fan
- 24 Oil filter
- 25 Sump drain plug
- 26 Starter motor
- 27 Starter motor solenoid

Front underbody view of a 2.0 litre DOHC Granada with automatic transmission

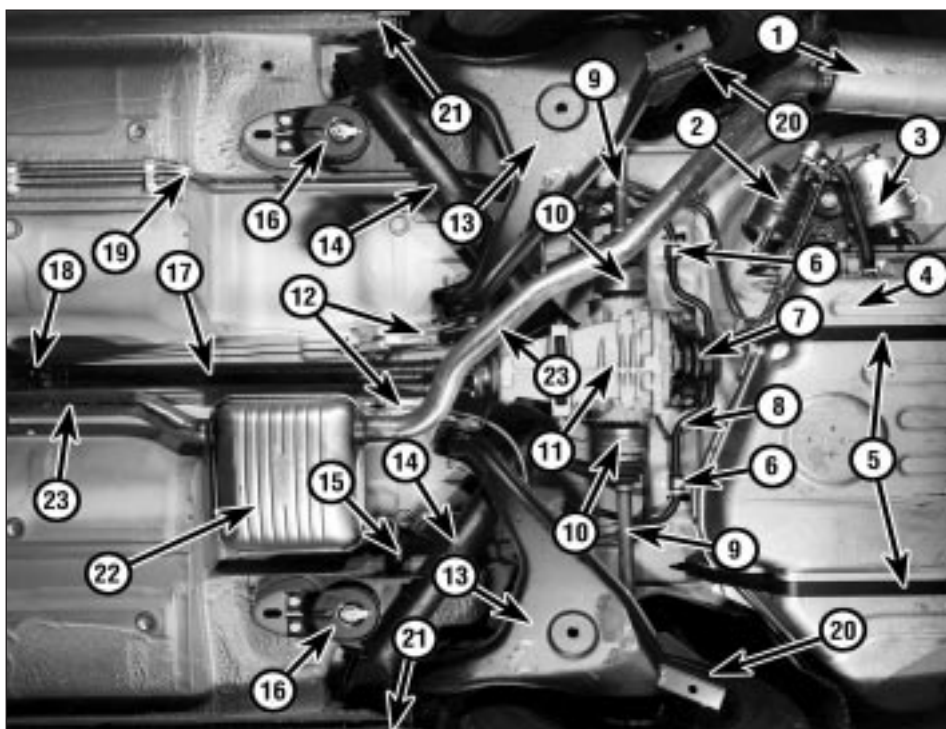
- 1 Track rod end
- 2 Track rod
- 3 Steering gear gaiter
- 4 Water pump
- 5 Starter motor
- 6 Front suspension lower arm
- 7 Front suspension anti-roll bar
- 8 Exhaust downpipe
- 9 Exhaust gas oxygen (HEGO) sensor - models with catalytic converter
- 10 Front suspension crossmember
- 11 Sump drain plug
- 12 Power steering pump
- 13 Washer fluid reservoir
- 14 Radiator cooling fans
- 15 Catalytic converter (where fitted)
- 16 Catalytic converter heatshield (where fitted)
- 17 Transmission crossmember
- 18 Fuel feed and return pipes
- 19 Rear brake pipes
- 20 Steering gear feed and return hoses



1

Rear underbody view of a 2.0 litre SOHC Granada with fuel-injection

- 1 Rear silencer
- 2 Fuel pump (fuel-injection)
- 3 Fuel filter (fuel-injection)
- 4 Fuel tank
- 5 Fuel tank straps
- 6 Anti-roll bar clamps
- 7 Final drive rear mounting
- 8 Anti-roll bar
- 9 Driveshafts
- 10 Driveshaft joints
- 11 Final drive unit
- 12 Handbrake cables
- 13 Suspension lower arms
- 14 Crossmember
- 15 Exhaust hanger
- 16 Guide plates
- 17 Propeller shaft
- 18 Propeller shaft universal joint
- 19 Brake and fuel pipes
- 20 Shock absorber lower mountings
- 21 Jacking points
- 22 Intermediate silencer
- 23 Exhaust pipe



## 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 (Section 6)
- b) Check all the engine-related fluids (Section 3).
- c) Check the condition and tension of the auxiliary drivebelt (Section 21).
- d) Renew the spark plugs (Section 20).
- e) Inspect the distributor cap, rotor arm and HT leads - as applicable (Chapter 5).
- f) Check the condition of the air cleaner filter element, and renew if necessary (Section 38).
- g) Renew the fuel filter (Section 41).
- h) Check the condition of all hoses, and check for fluid leaks (Section 10).
- i) Check the idle speed and mixture settings - as applicable (Chapter 4).

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

### Secondary operations

- a) Check the charging system (Chapter 5).
- b) Check the ignition system (Chapter 5).
- c) Check the fuel system (Chapter 4).
- d) Renew the distributor cap and rotor arm - as applicable (Chapter 5).
- f) Renew the ignition HT leads - as applicable (Chapter 5).

## Weekly checks

### 3 Fluid level checks



#### Engine oil

- 1 Check the oil level as follows.
- 2 With the vehicle parked on level ground, and with the engine having been stopped for a few minutes, open and prop the bonnet. Withdraw the dipstick, wipe it on a clean rag

and re-insert it fully. Withdraw it again and read the oil level relative to the marks on the end of the stick (**see illustration**).

3 The oil level should be in between the MAX and MIN marks on the dipstick. If it is at or below the MIN mark, top-up (via the oil filler cap) without delay. The quantity of oil required to raise the level from MIN to MAX on the dipstick is approximately 1 litre. Do not overfill (**see illustration**).

4 The rate of oil consumption depends on

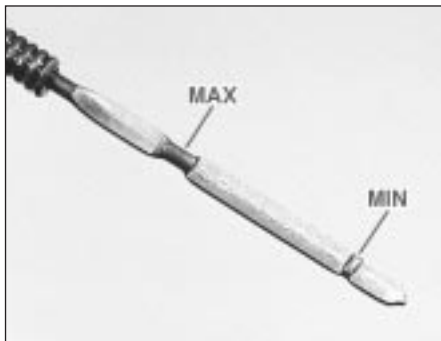
leaks and on the quantity of oil burnt. External leakage should be obvious. Oil which is burnt may enter the combustion chambers through the valve guides or past the piston rings; excessive blow-by past the rings can also force oil out via the crankcase ventilation system. Driving conditions also affect oil consumption.

5 Always use the correct grade and type of oil as shown in "Lubricants and fluids".

#### Coolant

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

- 6 Check the coolant level as follows.
- 7 Open and prop the bonnet. Observe the level of coolant through the translucent walls of the expansion tank (on the right-hand side of the engine bay). The level should be up to the MAX mark when the engine is cold, and may be somewhat above the mark when hot.
- 8 If topping-up is necessary, wait for the system to cool down if it is hot. Place a thick rag over the expansion tank cap and slacken it



3.2 Dipstick markings



3.3 Topping up the engine oil



3.9 Topping up the cooling system

to release any pressure. When pressure has been released, carry on unscrewing the cap and remove it.

9 Top-up to the MAX mark with the specified coolant (see illustration). In an emergency plain water is better than nothing, but remember that it is diluting the proper coolant. Do not add cold water to an overheated engine whilst it is still hot.

10 Refit the expansion tank cap securely when the level is correct. With a sealed type cooling system like this, the addition of coolant should only be necessary at very infrequent intervals. If frequent topping-up is required, it is likely there is a leak in the system. Check the radiator, all hoses and joint faces for any sign of staining or actual wetness, and rectify as necessary. If no leaks can be found, it is advisable to have the pressure cap and the entire system pressure-tested by a dealer or suitably-equipped garage, as this will often show up a small leak not previously apparent.

### Brake fluid



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



4.1 Checking the tyre tread depth



3.14 Removing the brake fluid reservoir cap

Be sure to use only the specified brake hydraulic fluid, since mixing different types of fluid can cause damage to the system. See "Lubricants, fluids and capacities" at the beginning of this Chapter. When adding fluid, it is a good idea to inspect the reservoir for contamination. The system should be drained and refilled if deposits, dirt particles or contamination are seen in the fluid.

11 Check the brake fluid level as follows.

12 With the vehicle parked on level ground and the ignition switched off, pump the brake pedal at least 20 times or until the pedal feels hard.

13 Open the bonnet. Switch on the ignition: the hydraulic unit pump will be heard running. Wait until the pump stops, then switch off the ignition.

14 The fluid level in the reservoir should now be between the MAX and MIN marks. If topping-up is necessary, unplug the electrical connectors from the cap, then unscrew and remove it (see illustration). Catch the hydraulic fluid which will drip off the level sensor with a piece of rag.

**HAYNES** *If any brake fluid gets onto paintwork, wash it off immediately with clean water.*

**HINT**

15 Top-up with fresh brake fluid of the specified type (see illustration). Do not overfill. Refit and reconnect the reservoir cap immediately.



4.3 Checking tyre pressure



3.15 Topping up the brake fluid reservoir

16 The fluid level in the reservoir will drop slightly as the brake pads wear down during normal operation. If the reservoir requires repeated replenishment to maintain the proper level, this is an indication of a hydraulic leak somewhere in the system, which should be investigated immediately.

### Washer fluid

17 When topping-up the windscreen or rear screen washer fluid reservoir, a screenwash additive should be added in the quantities recommended on the bottle.

## 4 Tyre checks



1 On later models tyres may have tread wear safety bands, which will appear when the tread depth reaches approximately 1.6 mm. Otherwise, tread wear can be monitored with a simple, inexpensive device known as a tread depth indicator gauge (see illustration).





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

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

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

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

## Tyre Tread Wear Patterns

			
<p><b>Shoulder Wear</b></p> <p><b>Underinflation</b> (wear on both sides) <i>Check and adjust pressures</i></p> <p><b>Incorrect wheel camber</b> (wear on one side) <i>Repair or renew suspension parts</i></p> <p><b>Hard cornering</b> <i>Reduce speed!</i></p>	<p><b>Centre Wear</b></p> <p><b>Overinflation</b> <i>Check and adjust pressures</i></p> <p><i>If you sometimes have to inflate your car's tyres to the higher pressures specified for maximum load or sustained high speed, don't forget to reduce the pressures to normal afterwards.</i></p>	<p><b>Toe Wear</b></p> <p><b>Incorrect toe setting</b> <i>Adjust front wheel alignment</i></p> <p><b>Note:</b> The feathered edge of the tread which characterises toe wear is best checked by feel.</p>	<p><b>Uneven Wear</b></p> <p><b>Incorrect camber or castor</b> <i>Repair or renew suspension parts</i></p> <p><b>Malfunctioning suspension</b> <i>Repair or renew suspension parts</i></p> <p><b>Unbalanced wheel</b> <i>Balance tyres</i></p> <p><b>Out-of-round brake disc/drum</b> <i>Machine or renew</i></p>

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

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

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

**9** The balance of each wheel and tyre assembly should be maintained to avoid excessive wear, not only to the tyres but also to the steering and suspension components. Wheel imbalance is normally signified by vibration through the vehicle's bodyshell, although in many cases it is particularly noticeable through the steering wheel. Conversely, it should be noted that wear or

damage in suspension or steering components may cause excessive tyre wear. Out-of-round or out-of-true tyres, damaged wheels, and wheel bearing wear also fall into this category. Balancing will not usually cure vibration caused by such wear.

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

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

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

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

### 5 Electrical system check

Check the operation of all the electrical equipment, ie. lights, direction indicators, horn, washers, etc. Refer to the appropriate Sections of Chapter 13 for details if any of the circuits are found to be inoperative.

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

### 6 Battery electrolyte level check

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

**1** The battery fitted as original equipment is "maintenance-free", and requires no maintenance apart from having the case kept clean, and the terminals clean and tight.

**2** If a "traditional" type battery is fitted as a replacement, remove the old cell covers and check that the plate separators in each cell are covered by approximately 6 mm (0.25 in) of electrolyte. If the battery case is translucent, the cell covers need not be removed to check the level. Top-up if necessary with distilled or de-ionized water; do not overfill, and mop up any spillage at once (see illustration).



6.2 Topping up the battery

3 Persistent need for topping-up the battery electrolyte suggests either that the alternator output is excessive, or that the battery is approaching the end of its life.

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

## 7 Wiper blade check

1 Clean the wiper blades and the windscreen, using a solution of concentrated washer fluid or methylated spirit. Similarly clean the headlight lens and wiper blades.

2 Check the condition of the wiper blades; if they are cracked or show any signs of deterioration, or if the glass swept area is smeared, renew them. At the same time, check the headlight wiper blades (where fitted) for condition, and renew if necessary.



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

3 To remove a blade, hinge the arm and blade away from the screen. Press the tab on the spring clip in the middle of the blade and unhook the blade from the arm.



7.4 Fitting a windscreen wiper blade

4 Refit the blade by sliding it onto the hook on the arm (see illustration).

5 Check that the windscreen washer jets operate correctly, and direct the washer fluid towards the upper area of the wiper blade stroke. If necessary, use a pin to reposition the washer jets.

# Every 6000 miles or 6 months

1

## 8 Engine oil and filter renewal

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

1 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



8.6 Fitting an oil filter

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 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"). Whichever method is chosen, make sure that the vehicle remains level, or if it is at an angle, that the drain plug is at the lowest point.

3 Slacken the drain plug about half a turn. Position the draining container under the drain plug, then remove the plug completely. If possible, try to keep the plug pressed into the sump while unscrewing it by hand the last couple of turns. As the plug releases from the threads, move it away sharply so the stream of oil issuing from the sump runs into the container, not up your sleeve. Recover the sealing washer from the drain plug.

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

5 After all the oil has drained, wipe off the drain plug with a clean rag. Check the sealing washer for condition, and renew it if necessary. Clean the area around the drain plug opening, and refit the plug. Tighten the plug to the specified torque.

6 Move the container into position under the oil filter. On SOHC engines, the filter is located on the left-hand side of the cylinder block in front of the engine bearer. On DOHC and V6 engines, the filter is located on the right-hand side of the cylinder block (see illustration).

7 Using an oil filter removal tool if necessary, slacken the filter, then unscrew it by hand the rest of the way. Empty the oil from the old filter into the container, and discard the filter.

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

9 Apply a light coating of clean engine oil to the sealing ring on the new filter, then screw it into position on the engine. Tighten the filter firmly by hand only - **do not** use any tools. Wipe clean the filter and sump drain plug.

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

11 Remove the oil filler cap and withdraw the dipstick from the top of the filler tube. Fill the engine, using the correct grade and type of oil (see "Lubricants and fluids"). An oil can spout or funnel may help to reduce spillage. Pour in half the specified quantity of oil first, then wait a few minutes for the oil to fall to the sump. Continue adding oil a small quantity at a time until the level is up to the lower mark on the dipstick. Finally, bring the level up to the upper mark on the dipstick. Insert the dipstick, and refit the filler cap.

12 Start the engine and run it for a few minutes; check for leaks around the oil filter seal and the sump drain plug. Note that there may be a delay of a few seconds before the oil pressure warning light goes out when the engine is first started, as the oil circulates through the engine oil galleries and the new oil filter, before the pressure builds up.

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

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

## 9 Front and rear brake pad check



- 1 Firmly apply the handbrake, then jack up the front and rear of the car and support it securely on axle stands (see "Jacking").
- 2 For a quick check, the front brake disc pads can be inspected without removing the front wheels, using a mirror and a torch through the aperture in the rear face of the caliper. If any one pad is worn down to the minimum specified, all four pads (on both front wheels) must be renewed.
- 3 It is necessary to remove the rear wheels in order to inspect the rear pads. The pads can be viewed through the top of the caliper after removing the spring clip. If any one pad is worn down to the minimum specified, all four pads (on both rear wheels) must be renewed.
- 4 For a comprehensive check, the brake pads should be removed and cleaned. The operation of the caliper can then also be checked, and the condition of the brake discs can be fully examined on both sides. Refer to Chapter 10 for further information.
- 5 At the same interval, check the function of the brake fluid level warning light. Chock the wheels, release the handbrake and switch on the ignition. Unscrew and raise the brake fluid reservoir cap whilst an assistant observes the warning light: it should come on as the level sensor is withdrawn from the fluid. Refit the cap.
- 6 On completion, refit the wheels and lower the car to the ground.

## 10 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 any 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

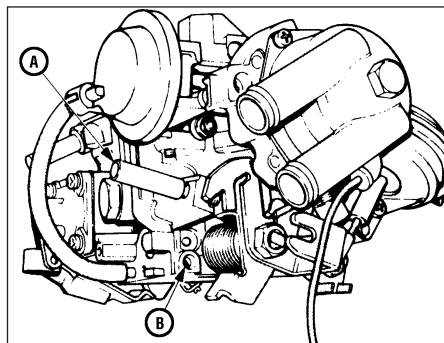
clips can pinch and puncture hoses, resulting in leaks. If wire type hose clips are used, it may be a good idea to replace them with screw-type clips.

- 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.

## 11 Seat belt check



- Periodically check the belts for fraying or other damage. If evident, renew the belt.
- If the belts become dirty, wipe them with a damp cloth using a little detergent only.
- 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.



15.3 Idle adjustment screws - Pierburg 2V carburettor

A Idle speed

B Idle mixture

## 12 Exhaust system check



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

## 13 Roadwheel security check



With the wheels on the ground, slacken each wheel nut by a quarter turn, then retighten it immediately to the specified torque.

## 14 Oil filler cap check



Remove and clean the oil filler cap of any sludge build-up using paraffin.

Inspect the vent hose for blockage or damage. A blocked hose can cause a build-up of crankcase pressure, which in turn can cause oil leaks.

## 15 Idle speed check - 1.8 litre SOHC



An accurate tachometer (rev. counter) will be needed to adjust the idle speed. The engine must be at operating temperature, the air cleaner element must be clean and the vacuum hoses fitted, and the engine valve clearances must be correct. The ignition system must also be in good condition.

Connect the tachometer to the engine as instructed by the manufacturers. Start the engine and allow it to idle. Read the speed from the tachometer and compare it with the value in the Specifications of Chapter 4 (Pierburg 2V carburettor).

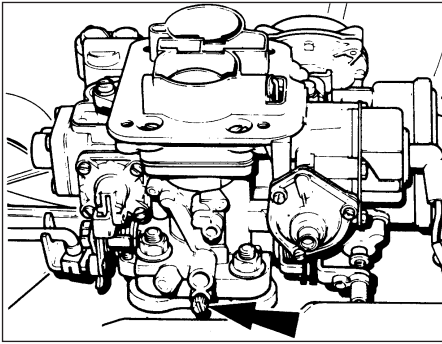
If adjustment is necessary, turn the idle speed adjustment screw. Turn the screw clockwise to increase the speed, and anti-clockwise to decrease the speed (see illustration).

## 16 Idle mixture check - carburettor models only



### 1.8 litre engine

- 1 An exhaust gas analyser (CO meter) or other proprietary device will be needed to adjust the idle mixture.
- 2 The engine must be at operating temperature, the air cleaner element must be clean and the vacuum hoses fitted, and the



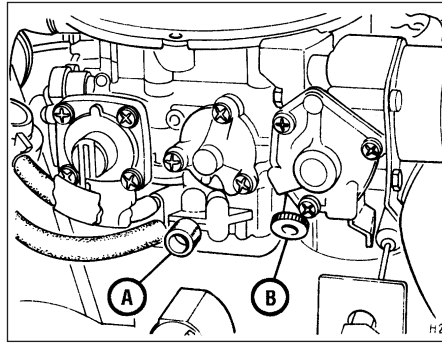
**16.12 Idle mixture adjustment screw (arrowed) - Weber 2V carburettor**

engine valve clearances must be correct. The ignition system must also be in good condition.

**3** Mixture adjustment is not usual on a routine basis. If the CO level is incorrect, proceed as follows.

**4** Connect the exhaust gas analyser as instructed by the manufacturers.

**5** Raise the engine speed to 3000 rpm approximately and hold it at this speed for 30 seconds, then allow it to idle. Repeat this procedure every 60 seconds until adjustment is complete.



**16.13 Idle adjustment screws- Weber 2V TLD carburettor**

*A Idle mixture*

*B Idle speed*

**6** Read the CO level when it has stabilised after the 3000 rpm burst. The desired level is given in the Specifications of Chapter 4 (Pierburg 2V carburettor).

**7** If the idle mixture needs adjustment, turn the mixture adjusting screw. The screw may be covered by a tamperproof plug.

**8** Recheck the idle speed after adjusting the mixture.

**9** Stop the engine and disconnect the test gear.

**10** Fit a new tamperproof plug to the mixture adjusting screw if required.

## 2.0 litre SOHC engine

**11** If mixture adjustment is required, proceed as described for the 1.8 litre engine above.

**12** See illustration for the location of the mixture adjusting screw on the Weber 2V carburettor fitted to this engine

## DOHC engine

**13** Proceed as described for the 1.8 litre engine, noting the following points (see illustration).

**14** Refer to the Specification for the Weber 2V (TLD) carburettor in Chapter 4.

**15** The air cleaner must be removed for access to the mixture adjustment screw.

**16** Prise the tamperproof seal from the mixture screw.

**17** Loosely refit the air cleaner, ensuring that the vacuum pipe and the camshaft cover breather hose are securely connected and free from restrictions (there is no need to secure the air cleaner in position).

**18** On completion, fit a new tamperproof seal to the mixture screw (the service replacement plug is coloured blue) and refit the air cleaner assembly.

# Every 12 000 miles or 12 months

## 17 Automatic transmission fluid level check

**1** Fluid level should be checked with the transmission at operating temperature (after a run) and with the vehicle parked on level ground.

**2** Open and prop the bonnet. With the engine idling and the handbrake and footbrake applied, move the gear selector through all positions three times, finishing up in position P.

**3** Wait one minute. With the engine still idling, withdraw the transmission dipstick (see illustration). Wipe the dipstick with a clean lint-free rag, re-insert it fully and withdraw it

again. Read the fluid level at the end of the dipstick: it should be between the two notches.

**4** If topping-up is necessary, do so via the dipstick tube, using clean transmission fluid of the specified type (see illustration). Do not overfill.

**5** Stop the engine, refit the dipstick and close the bonnet.

**6** Note that 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. If present, leaks must be rectified without delay.

**7** 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.

## 18 Manual gearbox oil level check

**1** Place the vehicle over a pit, or raise and support it at front and rear. The vehicle must be level for an accurate check.

**2** If the transmission is hot after a run, allow it to cool for a few minutes. This is necessary because the oil can foam when hot and give a false level reading.

**3** Wipe clean around the filler/level plug, which is located on the left-hand side of the gearbox. Unscrew the plug with a square drive key and remove it

**4** Using a piece of bent wire as a dipstick, check that the oil level is up to the bottom of the filler/level plug hole, or no more than 5 mm (0.2 in) below it.

**5** Top-up if necessary using clean oil of the specified type. Do not overfill; allow excess oil to drip out of the plug hole if necessary. Refit and tighten the filler/level plug.

**6** Frequent need for topping-up can only be due to leaks, which should be rectified. The rear extension oil seal can be renewed *in situ* after removing the propeller shaft (N type only).

**7** No periodic oil changing is specified, and no drain plug is fitted.



**17.3 The automatic transmission dipstick**



**17.4 Topping up the transmission fluid**

## 19 Hinge and lock check and lubrication



- 1 Work around the vehicle, and lubricate the hinges and locks with a light machine oil.
- 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.

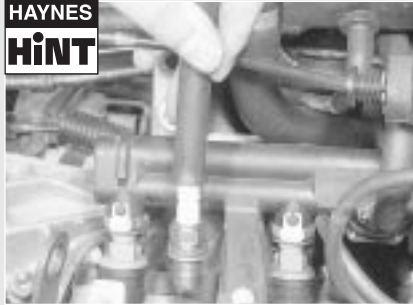
## 20 Spark plug renewal



### SOHC and V6 engines

- 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.
- 2 Make sure that the ignition is switched off before inspecting the HT leads to see if they carry their cylinder numbers - if not, number each lead using sticky tape or paint.
- 3 Pull the HT lead connectors off the plugs. Pull on the connectors, not on the leads.
- 4 Blow away any dirt from around the spark plug recesses in the cylinder head(s).
- 5 Unscrew and remove the plugs, using a proprietary plug spanner or a spark plug socket, extension and ratchet.
- 6 The condition of the plugs will tell much about the overall condition of the engine. If the insulator nose of the spark plug is clean and white, with no deposits, this is indicative of a weak mixture or too hot a plug (a hot plug transfers heat away from the electrode slowly, a cold plug transfers heat away quickly).
- 7 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.
- 8 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.
- 9 Apply a smear of anti-seize compound to the threads of the new plugs. Make sure that the insulators are clean and that the screwed HT lead adapters are tight. Pay particular attention to the plug seating surfaces on OHC engines, since these plugs have no sealing washers ("taper seat" type) and any dirt will cause a bad seal.
- 10 Screw each plug into its hole by hand. If a plug is reluctant to go in, do not force it with a spanner, but unscrew it and try again. If the plug is cross-threaded, it is the cylinder head which will be damaged.

**HAYNES**  
**HINT**



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

- 11 Final tightening of the spark plugs should ideally be carried out using a torque wrench. The tightening torques are given in the Specifications. If a torque wrench is not available, tighten the plugs beyond the point where they contact the head as follows:

*OHC (taper seat plugs) - One-sixteenth of a turn maximum*

*V6 (plugs with washers) - One-quarter of a turn maximum*

- 12 If the taper seat type of plug is overtightened, the sealing faces will bite together and removal will be very difficult.
- 13 Refit the HT leads to the plugs, paying attention to the cylinder numbers. Push each connector firmly onto its plug.
- 14 Run the engine to verify that the HT leads have been refitted correctly.

### DOHC engines

- 15 Proceed as described above whilst noting the following points.

- a) Remove the air cleaner as described in Chapter 4.
- b) The minimal length of number 3 HT lead makes removal from the spark plug difficult. It is advisable to remove this lead from the distributor prior to removing it from the spark plug.
- c) The spark plugs are deeply recessed in the cylinder head and it will be necessary to use a spark plug socket with a long extension bar. If possible, use a spark plug socket with a rubber grip inside as this will hold onto the spark plug once loosened and will enable the spark plugs to be withdrawn and refitted more easily.

## 21 Auxiliary drivebelt check



### SOHC and all V6 engines

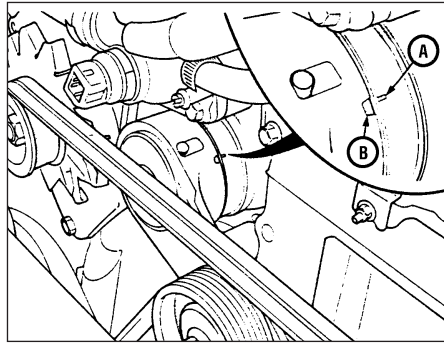
- 1 All of these engines have one or two drivebelts which drive the water pump and alternator from the crankshaft pulley. When power steering is fitted, the same belts drive the steering pump. The air conditioning compressor, when fitted, is driven independently.
- 2 Periodically inspect the drivebelt(s) for fraying, cracks, glazing or other damage. Turn the engine so that the full length of the belt(s) can be viewed. Renew belts which are in poor condition. When twin drivebelts are fitted, both must be renewed together, even if only one is damaged.
- 3 Check the tension of the drivebelt(s) by pressing firmly with the fingers in the middle of the longest belt run (engine stopped). Tension is correct when the belt can be deflected by 10 mm (0.4 in) under firm finger pressure (see illustration).
- 4 Renewal and adjustment procedures for models with power steering are given in Chapter 11. For other models proceed as follows.
- 5 Disconnect the battery negative lead.
- 6 On models with air conditioning, remove the compressor drivebelt.
- 7 Slacken the alternator pivot and adjusting bolts. Swing the alternator towards the engine and slip the belt(s) off the pulleys.
- 8 Fit the new belt(s) over the pulleys. Move the alternator away from the engine until the belt tension is correct, then tighten the alternator adjusting strap and pivot bolts. If it is necessary to lever against the alternator to achieve the correct tension, only do so using a wooden or plastic lever (see illustration).
- 9 Refit and tension the air conditioning compressor drivebelt, when applicable.
- 10 Reconnect the battery. If a new drivebelt has been fitted, run the engine for a few minutes, then stop it and recheck the tension.
- 11 Check the tension of new belts again after a few hundred miles.



21.3 Checking drivebelt tension



21.8 Tightening the alternator strap bolt



21.14a Water pump/alternator drivebelt tensioner indicator position - DOHC engine

A Indicator mark      B Block



21.14b Water pump/alternator drivebelt tensioner wear indicator location (arrowed) - DOHC engine

## DOHC engines

12 On this engine, the coolant/alternator drivebelt also drives the power steering pump and (where applicable) the air conditioning compressor. The drivebelt tension is set by an automatic tensioner assembly.

13 The condition of the drivebelt should be checked as described above.

14 An idea of the amount of wear which has taken place on the belt can be gained from the position of indicator mark (A) on the mounting bracket in relation to the block (B) on the tensioner arm (see illustration). When the belt is new the mark should be aligned with the top of the tensioner block. As the belt wears, the tensioner arm moves and the block on the arm will move slowly up in relation to the mark on the bracket. When the mark aligns with the bottom of the tensioner arm block the belt can be regarded as worn and should be replaced (see illustration).

15 To renew the belt, turn the automatic tensioner arm clockwise, using a 17 mm socket and a wrench on the boss in the centre of the pulley, and slide the belt from the pulleys, then slowly release the tensioner.

16 To fit a new belt, rotate the tensioner clockwise as during removal, then slide the belt over the pulleys. With the belt correctly located, slowly release the tensioner; the tensioner will automatically set the correct drivebelt tension.

## 22 Battery terminal check



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

1 The battery fitted as original equipment is "maintenance-free", and requires no maintenance apart from having the case kept clean, and the terminals clean and tight.

2 To clean the battery terminals disconnect them, after having first removed the cover (later models) - negative earth first. Use a wire brush or abrasive paper to clean the terminals. Bad corrosion should be treated with a solution of bicarbonate of soda, applied with an old toothbrush. Do not let this solution get inside the battery.

3 Coat the battery terminals with petroleum jelly or a proprietary anti-corrosive compound before reconnecting them. Reconnect and tighten the positive (live) lead first, followed by the negative (earth) lead. Do not overtighten.

4 Keep the top of the battery clean and dry. Periodically inspect the battery tray for corrosion, and make good as necessary.

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

## 23 Engine valve clearance check



### SOHC engines

1 Valve clearances are checked with the engine cold.

2 On carburettor models, remove the air cleaner.

3 On fuel-injection models, remove the bracing strap which connects the inlet manifold to the right-hand side of the engine.

4 On all models, identify the HT leads and disconnect them from the spark plugs. Unclip the leads from the rocker cover.

5 Although not essential, it will make the engine easier to turn if the spark plugs are removed.

6 Remove the ten bolts which secure the rocker cover, noting the location of the different shapes of reinforcing plates. Remove the cover and gasket.



23.7 Measuring a valve clearance - SOHC engine

7 One of the cam lobes will be seen to be pointing upwards. Measure the clearance between the base of this cam and the cam follower, finding the thickness of feeler blade which gives a firm sliding fit (see illustration).

8 The desired valve clearances are given in the Specifications. Note that the clearances for inlet and exhaust valves are different. Numbering from the front (sprocket) end of the camshaft, the exhaust valves are 1, 3, 5 and 7, and the inlet valves 2, 4, 6 and 8.

9 If adjustment is necessary, slacken the ball-pin locknut and screw the ball-pin up or down until the clearance is correct. Hold the ball-pin stationary and tighten the locknut (see illustration). Recheck the clearance after tightening the locknut in case the ball-pin has moved.

10 Turn the engine to bring another cam lobe to the vertical position and repeat the above procedure. Carry on until all eight valves have been checked.

11 Access to some of the ball-pins is made difficult by the carburettor or fuel-injection inlet manifold. To avoid having to remove the offending components, double cranked spanners or cutaway socket spanners can be used (see illustration).

12 When adjustment is complete, refit the rocker cover using a new gasket. Make sure that the dovetail sections of the gasket fit together correctly.

13 Fit the rocker cover bolts and reinforcing plates. Tighten the bolts as described in Chapter 2A Section 44, paragraph 11.

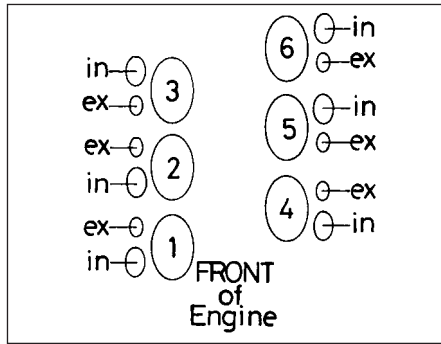


23.9 Adjusting a valve clearance - SOHC engine

# Every 12 000 miles or 12 months



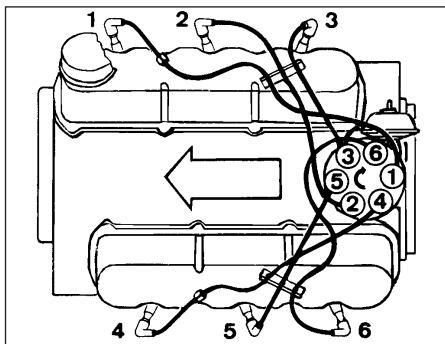
23.11 Cutaway socket spanner



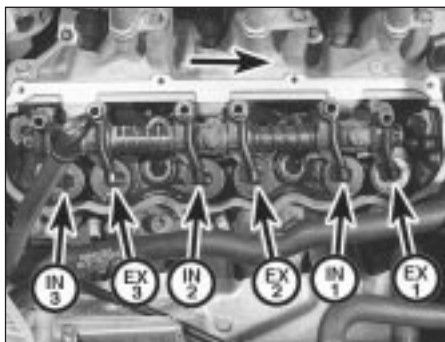
23.19 Inlet and exhaust valve location - 2.8 litre V6 engine



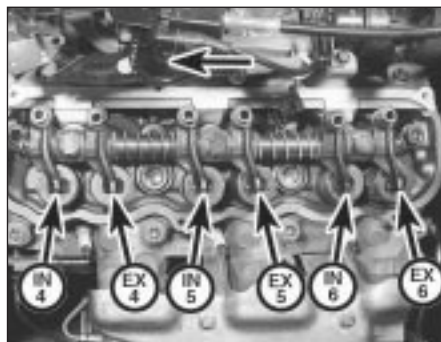
23.20 Adjusting a valve clearance - V6 engine



23.22 Cylinder numbering and HT lead connections - V6 engine  
White arrow points to front of engine



23.25a Valve arrangement for RH cylinder head - 2.4 & 2.9 litre engines  
Upper arrow points to front of engine



23.25b Valve arrangement for LH cylinder head - 2.4 & 2.9 litre engines  
Upper arrow points to front of engine

screw until the specified clearance is obtained (see illustration). Inlet and exhaust valve are different.

21 If the engine is now rotated one-third of a turn clockwise at the crankshaft, the valves of No 3 cylinder will be overlapping and the valves of No4 cylinder can be checked and adjusted.

22 Proceed to adjust the clearances according to the firing order as follows. The cylinders are numbered (see illustration) and the valves are listed in their correct order, working from the front of the engine:

Valves overlapping	Valves to adjust
No 5 cylinder	No 1 cylinder (in, ex)
No 3 cylinder	No 4 cylinder (in, ex)
No 6 cylinder	No 2 cylinder (in, ex)
No 1 cylinder	No 5 cylinder (ex, in)
No 4 cylinder	No 3 cylinder (ex, in)
No 2 cylinder	No 6 cylinder (ex, in)

23 Refit the rocker covers, using new gaskets if necessary. Tighten the rocker cover bolts to the specified torque.

24 If the engine is in the vehicle, refit the other displaced components.

## 2.4 & 2.9 litre engines

25 The operation for these engines is essentially as described for the 2.8 litre engine, noting that the valve arrangement is changed (see illustrations).

## 24 Engine inlet manifold security check - V6 only

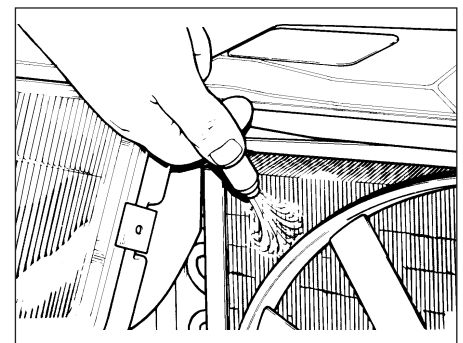


Using a spanner of the appropriate size, check each manifold securing nut in turn whilst referring to the appropriate Sections in Chapter 2C for tightening sequences and torque loading figures.

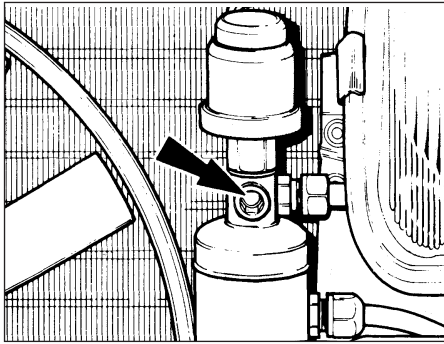
## 25 Air conditioner condenser check



Remove the radiator grille and clean any leaves, insects etc. from the condenser coil and fins. Be very careful not to damage the condenser fins: use a soft brush, or a compressed air jet, along (not across) the fins (see illustration).



25.1 Cleaning the air conditioner condenser fins



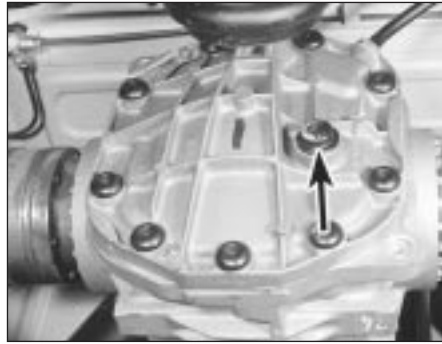
26.3 Refrigerant sight glass (arrowed)

## 26 Air conditioner refrigerant charge check

- 1 Remove the radiator grille being careful not to damage the condenser fins.
- 2 Check the refrigerant charge as follows. The engine should be cold and the ambient temperature should be between 18° and 25°C (64° and 77°F).
- 3 Start the engine and allow it to idle. Observe the refrigerant sight glass (see illustration) and have an assistant switch on the air conditioning to fan speed III. A few bubbles should be seen in the sight glass as the system starts up, but all bubbles should disappear within 10 seconds. Persistent bubbles, or no bubbles at all, mean that the refrigerant charge is low. Switch off the system immediately if the charge is low and do not use it again until it has been recharged.
- 4 Inspect the refrigerant pipes, hoses and unions for security and good condition. Refit the radiator grille.
- 5 The air conditioning system will lose a proportion of its charge through normal seepage typically up to 100 g (4 oz) per year - so it is as well to regard periodic recharging as a maintenance operation.

## 27 Final drive oil level check

- 1 Check the final drive oil level as follows.
- 2 Position the vehicle over a pit, or raise it at front and rear on ramps or axle stands (see "Jacking"). The vehicle must be level.
- 3 Wipe clean around the final drive filler/level plug (see illustration). Unscrew the plug with a hexagon key. Using a piece of bent wire as a dipstick, check that the oil is no more than 10 mm (0.4 in) below the plug hole.
- 4 If topping-up is necessary, use clean gear oil of the specified type. Do not overfill. Frequent need for topping-up can only be due to leaks, which should be rectified.
- 5 When the level is correct, refit the filler/level plug and tighten it.
- 6 There is no requirement for periodic oil changing, and no drain plug is provided.



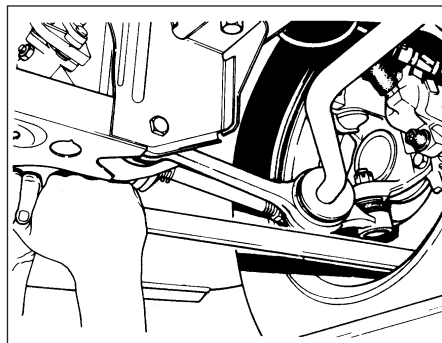
27.3 Final drive oil filler/level plug (arrowed)

## 28 Automatic transmission selector linkage lubrication

Lubricate the transmission selector and kickdown linkages with engine oil or aerosol lubricant.

## 29 Steering and suspension security check

- 1 Examine all steering and suspension components for wear and damage. Pay particular attention to dust covers and gaiters, which if renewed promptly when damaged can save further damage to the component protected.
- 2 At the same intervals, check the front suspension lower arm balljoints for wear by levering up the arms (see illustration). Balljoint free movement must not exceed 0.5 mm (0.02 in). The track rod end balljoints can be checked in a similar manner, or by observing them whilst an assistant rocks the steering wheel back and forth. If the lower arm balljoint is worn, the complete lower arm must be renewed.
- 3 Check the shock absorbers by bouncing the vehicle up and down at each corner in turn. When released, it should come to rest within one complete oscillation. Continued movement, or squeaking and groaning noises from the shock absorber suggests that renewal is required.



29.2 Checking a front suspension lower arm balljoint

## 30 Driveshaft check

Position the vehicle over a pit, or raise it at front and rear on ramps or axle stands.

Examine the driveshaft joint rubber gaiters. Flex the gaiters by hand and inspect the folds and clips. Damaged or leaking gaiters must be renewed without delay to avoid damage occurring to the joint itself

Check the tightness of the final drive mounting bolts and the driveshaft flange screws.

## 31 Underbody inspection

1 Except on vehicles with a wax-based underbody protective coating, have the whole of the underframe of the vehicle steam-cleaned, engine compartment included, so that a thorough inspection can be carried out to see what minor repairs and renovations are necessary.

2 Steam-cleaning is available at many garages, and is necessary for the removal of the accumulation of oily grime, which sometimes is allowed to become thick in certain areas. If steam-cleaning facilities are not available, there are some excellent grease solvents available which can be brush-applied; the dirt can then be simply hosed off.

3 After cleaning, position the vehicle over a pit, or raise it at front and rear on ramps or axle stands.

4 Using a strong light, work around the underside of the vehicle, inspecting it for corrosion or damage. If either is found, refer to Chapter 12 for details of repair.

## 32 Brake pipe and hose check

Periodically inspect the rigid brake pipes for rust and other damage, and the flexible hoses for cracks, splits or "ballooning". Have an assistant depress the brake pedal (ignition on) and inspect the hose and pipe unions for leaks. Renew any defective item without delay.

## 33 Idle speed linkage clean

On 2.0 litre engines, good electrical contact between the carburettor stepper motor plunger and the adjusting screw is essential to maintain a regular idle speed.

Clean the plunger and adjusting screw contact faces with abrasive paper followed by switch cleaning fluid. Switch cleaning fluid is available from electronic component shops.

## 34 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".



35.2 Removing the power steering fluid dipstick

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

- 11 Make sure that the vehicle does not pull to one side when braking, and that the wheels do not lock prematurely when braking hard.
- 12 Check that there is no vibration through the steering when braking.
- 13 Check that the handbrake operates correctly, without excessive movement of the lever, and that it holds the vehicle stationary on a slope.
- 14 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.

## 35 Power steering fluid level check



- 1 The power steering fluid dipstick is incorporated in the reservoir filler cap. The reservoir is mounted on the pump. Observe scrupulous cleanliness when checking the level or topping-up.
- 2 The system should be at operating temperature and the engine switched off. Wipe clean around the reservoir filler cap. Unscrew the cap, withdraw the dipstick and wipe it with a clean lint-free rag. Reinsert the dipstick, screw the cap home, then unscrew it again and read the level on the dipstick. It should be up to the MAX or upper HOT mark (depending on the dipstick markings) (see illustration).
- 3 Top-up if necessary with clean fluid of the specified type. Check for leaks if topping-up is frequently required.
- 4 If the level is checked cold, use the MIN or FULL COLD mark on the dipstick for reference. Recheck the level at operating temperature.

## 36 Automatic choke check



On carburettor models, remove the air cleaner cover and check that the automatic choke is opening fully when the engine is hot.

## 37 Hot starting check



Run the engine until it reaches normal operating temperature. Stop the engine and immediately restart it. If the engine fails to start cleanly and immediately then refer to either Chapters 4 or 5 and check fuel feed adjustments.

# Every 24 000 miles or 2 years

## 38 Air cleaner filter element renewal



### Carburettor models

#### SOHC engines

- 1 Remove the screws from the air cleaner cover (see illustration).
- 2 Release the spring clips (when fitted), then lift off the cover (see illustration).
- 3 Lift out the air cleaner element (see illustration). Wipe clean inside the air cleaner housing, but be careful not to sweep dirt into the carburettor throat.
- 4 Where it is necessary to remove the air cleaner body for cleaning or repair, first disconnect the cold air inlet trunking from the spout (see illustration).

- 5 Disconnect the vacuum pipe from the inlet manifold, and the hot air trunking from the spout or exhaust manifold shroud (see illustration).

- 6 Remove the remaining screw which secures the air cleaner to the valve cover, then lift off the air cleaner.
- 7 Refit by reversing the removal operations.



38.1 Removing an air cleaner cover screw (carburettor model)



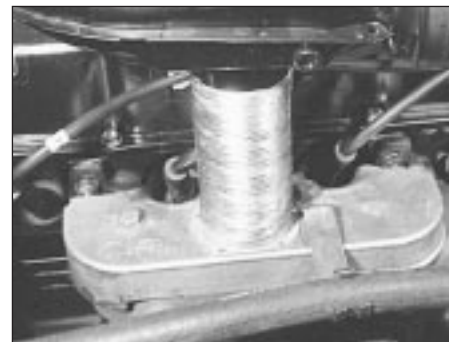
38.2 Releasing an air cleaner cover clip (carburettor model)



**38.3 Removing the air cleaner element (carburettor model)**



**38.4 Disconnecting the air cleaner cold air inlet trunking (carburettor model)**



**38.5 Air cleaner hot air trunking and manifold shroud (carburettor model)**

## DOHC engine

**8** Proceed as described above whilst noting that the camshaft cover breather hose must be disconnected before the air cleaner can be removed.

## Fuel-injection models

### SOHC and V6 engines

**9** Release the four spring clips which secure the air cleaner cover (see illustration).

**10** Lift off the cover and move it aside. It is attached to the vane airflow meter(s): be careful not to strain the air trunking or meter wiring. To remove the cover completely, disconnect the meter(s) or unbolt the cover (see illustration).

**11** Remove the air cleaner element, noting

which way up it is fitted (see illustration). Wipe clean inside the air cleaner body.

**12** Where it is necessary to remove the air cleaner body for cleaning or repair, remove the three securing nuts which are accessible from inside the left-hand wheel arch. Disengage the body from the air pick-up hose and remove it.

**13** Refit by reversing the removal operations.

### DOHC engine

**14** To renew the element, disconnect the battery negative lead.

**15** Disconnect the wiring plug from the idle speed control valve at the front of the plenum chamber.

**16** Loosen the clamp, and detach the air inlet hose from the air inlet tubing.

**17** Unscrew the securing nut, and release the

air inlet tube from the bracket on the engine compartment front panel (see illustration).

**18** Release the air cleaner lid securing clips, then lift away the air inlet tube, plenum chamber and air cleaner lid as an assembly, disconnecting the breather hose from the air inlet tube.

**19** Lift out the air cleaner element, then wipe the inside of the air cleaner lid and casing clean (see illustration).

**20** Fit the new element with the sealing lip uppermost.

**21** Further refitting is a reversal of removal.

**22** To remove and refit the air cleaner housing, refer to paragraph 12.

**23** Refitting is the reverse of the removal procedure.

## 39 Ignition system component check



**1** Before disturbing any part of the ignition system, disconnect the battery negative lead.

**2** Identify and clearly mark all HT leads before disconnecting them from the spark plugs.

### All engines except DOHC

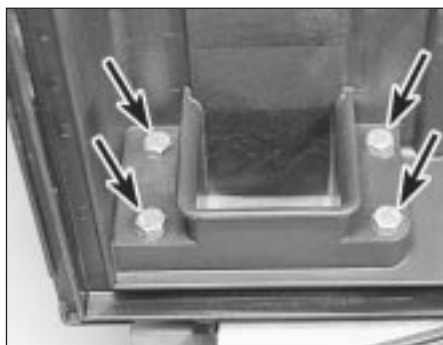
**3** On V6 models, remove the screening can lid (see illustration).

**4** Remove the coil-to-distributor HT lead (sometimes called the king lead) by disconnecting it from the coil tower and the distributor cap.

**5** Disconnect the other HT leads from the



**38.9 Air cleaner cover spring clip (fuel-injection SOHC and V6)**



**38.10 Airflow meter to cover bolts (arrowed) (fuel-injection SOHC and V6)**



**38.11 Removing the air cleaner element (fuel-injection SOHC and V6)**



**38.17 Air intake tube retaining nut (fuel-injection DOHC)**



**38.19 Removing the air cleaner element (fuel-injection DOHC)**



**39.3 Removing a distributor can screening lid - V6 engine**

distributor cap, making a sketch if necessary so that they can be reconnected to the same terminals. Remove the leads.

**6** On V6 models, remove the distributor screening can (see illustration).

**7** Release the two clips or screws which secure the distributor cap. Remove the cap (see illustration).

**8** Note that if the distributor cap is secured by clips, the engine must not be cranked with the cap removed. This is because it is possible for a spring clip to foul the rotating parts of the distributor and cause damage.

**9** Remove the rotor arm. It may simply pull off, or it may be secured by two screws (see illustration). The rotor arm tips may be coated with silicone grease - if so, do not rub it off.

**10** Clean the HT leads and distributor cap



**39.6 Removing a distributor screening can - V6 engine**

with a dry cloth. Scrape any corrosion or other deposits from the connectors and terminals. Also clean the coil tower.

**11** Renew the HT leads if they are cracked, burnt or otherwise damaged. If a multi-meter is available, measure the resistance of the leads. The desired value is given in the Specifications of Chapter 5.

**12** Renew the distributor cap if it is cracked or badly burnt inside, or if there is evidence of "tracking" (black lines marking the path of HT leakage). If there is a carbon brush at the centre of the cap, make sure that it moves freely, and is not excessively worn.

**13** Clean the metal track of the rotor arm with abrasive paper (but see paragraph 9 first). Renew the arm if it is cracked or badly burnt.

**14** Commence reassembly by fitting the rotor



**39.7 Removing a distributor cap**

arm to the distributor. It is positively located by a notch or shaped pegs so it cannot be fitted the wrong way round. Tighten the securing screws, when applicable.

**15** Refit the distributor cap and secure it with the clips or screws.

**16** On V6 models, refit the screening can.

**17** Reconnect the HT leads to the distributor cap, making sure that they are correctly fitted. The No 1 connector on the cap is marked (see illustration).

**18** On V6 models, refit the screening can lid.

**19** Reconnect the HT leads to the spark plugs and coil.

**20** Reconnect the battery and run the engine.

## DOHC engines

**21** Unclip the lower section of the distributor shield from the upper section, then unscrew the two securing nuts, and withdraw the upper section of the shield from the studs on the upper timing chain cover (see illustrations).

**22** Disconnect the HT leads from the spark plugs by pulling on the connectors, not the leads. Similarly, disconnect the HT lead from the coil, and release it from the clip on the timing chain cover.

**23** Using a suitable Torx key or socket, unscrew the two distributor cap securing screws, then lift off the cap.

**24** The rotor arm is a push-fit on the end of the rotor shaft (see illustration).

**25** If desired, the rotor housing can be pulled from the timing chain cover.

**26** Inspect all components as described in



**39.9 Removing a rotor arm**



**39.17 HT lead identification at distributor cap - V6 engine**



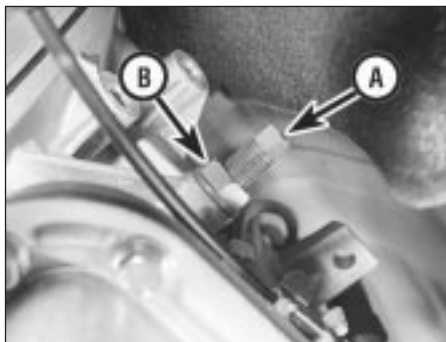
**39.21a Unclipping the lower section . . .**



**39.21b . . . and the upper section of the distributor shield - DOHC engine**



**39.24 Removing the distributor cap and rotor arm - DOHC engine**



40.3 Brake band adjuster screw (A) and locknut (B)

the previous sub Section.

27 Refitting is a reversal of removal, ensuring that the rotor arm is pushed fully home on the rotor shaft. Make sure that the HT leads are fitted to their correct cylinders. Note that the rotor arm will only fit in one position.

## 40 Automatic transmission brake band adjustment



**Note:** A brake band torque wrench - Ford tool No 17-005, or equivalent - will be required for this job.

- 1 Raise and support the front of the vehicle.
- 2 Disconnect the downshift (kickdown) cable from the transmission when so equipped.
- 3 Release the locknuts on the two brake band adjuster screws. Back off each adjuster screw a couple of turns (see illustration).
- 4 Using the torque wrench, tighten one adjusting screw to 13 Nm (10 lbf ft). Remove the torque wrench and back off the adjuster screw exactly two full turns from this position, then hold the screw and tighten the locknut.
- 5 Repeat the operations on the other adjuster.
- 6 Reconnect the downshift cable, when applicable, then lower the vehicle.



41.4 Fuel filter outlet union (arrowed) - OHC engine

## 41 Fuel filter renewal



### OHC engines

- 1 Fitted to all fuel-injected models, the filter can be renewed as follows. Disconnect the battery negative lead.
- 2 Raise and support the rear of the vehicle.
- 3 Place a drain pan under the fuel filter. Take adequate fire precautions.
- 4 Wipe clean the area around the filter inlet and outlet unions, then disconnect them (see illustration). **Caution:** Fuel under pressure may spray out as the unions are slackened.
- 5 Slacken the filter clamp bolt and withdraw the filter from the clamp. Dispose of the filter safely, remember it is full of fuel.
- 6 Fit the new filter into the clamp, observing the arrows on the filter indicating the direction of fuel flow. If there is a plastic band or sleeve on the filter, position the clamp over the sleeve to prevent chafing. Tighten the clamp bolt.
- 7 Refit the inlet and outlet unions, using new sealing washers. Tighten the union bolts.
- 8 Reconnect the battery. Have an assistant



42.1 Pulling the vent valve from the oil separator - SOHC engine

switch the ignition on and off a few times to pressurise the system; watch the filter for leakage as this is done.

- 9 Lower the vehicle on completion.

### V6 engines

10 This operation is essentially the same as described above, noting that the fuel system should first be depressurised, see Chapter 4, Section 28.

11 Once the new filter has been installed, switch the ignition on and off five times, without cranking the engine, to pressurise the system then check the filter unions for leaks.

## 42 Crankcase ventilation vent valve renewal



Renew the crankcase ventilation vent valve by pulling it from the oil separator and loosening the hose clip (see illustration). Fit the new valve, tighten the clip, and insert it into the oil separator grommet.

Inspect the vent hose for blockage or damage. A blocked hose can cause a build-up of crankcase pressure, which in turn can cause oil leaks.

# Every 36 000 miles or 3 years

## 43 Brake hydraulic system seal and hose renewal



If in doubt as to the condition of any of the brake system seals and hoses, then renew defective items whilst referring to the relevant Sections of Chapter 10.

## 44 Brake hydraulic fluid renewal



1 An assistant and bleeding equipment will be needed. A considerable quantity of hydraulic fluid will be required - probably about 2 litres (nearly half a gallon).

- 2 Slacken the front wheel nuts. Raise and support the front of the vehicle and remove the front wheels.
- 3 Remove the hydraulic fluid reservoir cap.
- 4 Open both front bleed screws one full turn. Attach one bleed tube to each screw, placing the free end of each tube in a jar.
- 5 Pump the brake pedal to expel fluid from the bleed screws. Pause after each upstroke to allow the master cylinder to refill.
- 6 When air emerges from both bleed screws, stop pumping. Detach the left-hand caliper without disconnecting it and remove the inboard brake pad.
- 7 Depress the caliper piston, using a purpose-made tool or a blunt item such as a tyre lever, to force more fluid out of the caliper. Hold the

piston depressed and have the assistant pump the pedal until air emerges from the bleed screw again.

8 Tighten the bleed screw on the left-hand caliper. Loosely refit the caliper and pad so that the piston is not accidentally ejected.

9 Repeat the purging operation on the right-hand caliper, but do not refit it or tighten the bleed screw yet.

10 Fill the reservoir with fresh hydraulic fluid. Position the bleed jar for the right-hand caliper at least 300 mm (1 foot) above the level of the bleed screw.

11 Have the assistant pump the brake pedal until fluid free of bubbles emerges from the bleed screw. Tighten the bleed screw at the end of a downstroke.

**12** Place a piece of wood in the caliper jaws to limit piston travel. Keep your fingers clear of the piston. Have the assistant depress the brake pedal **gently** in order to move the caliper piston out.

**13** With the pedal held depressed, slacken the bleed screw on the right-hand caliper and again depress the piston. Tighten the bleed screw when the piston is retracted. The pedal can now be released.

**14** Disconnect the bleed tube. Refit the right-

hand brake pad and caliper.

**15** Remove the left-hand caliper and inboard pad again. Carry out the operations described in paragraphs 10 to 14 on the left-hand caliper.

**16** Bleed the rear brakes as described in Chapter 10.

**17** Refit the front wheels, lower the vehicle and tighten the wheel nuts.

**18** Pump the brake pedal to bring the pads up to the discs, then make a final check of the

hydraulic fluid level. Top-up and refit the reservoir cap.

## 45 Camshaft drivebelt renewal - SOHC engines



Camshaft drivebelt renewal is recommended as a precautionary measure. Refer to Chapter 2, Part A, Sections 13 and 45 for the full renewal procedure.

## Every 2 years (regardless of mileage)

### 46 Engine coolant renewal



**1** Before proceeding, note the precautions given in Chapter 3, Section 1.

**2** Disconnect the battery negative lead.

**3** Remove the expansion tank cap. Take precautions against scalding if the system is hot.

**4** Place a drain pan of adequate capacity beneath the radiator drain plug. Unscrew the plug, without removing it, and allow the coolant to drain (**see illustration**). On OHC engines, release the hose clip and remove the rubber cap from the bleed spigot on top of the thermostat housing (**see illustration**). On V6 engines, remove the bleed screw (if fitted) from the radiator top hose.

**5** Place another drain pan below the cylinder block drain plug, which is located on the right-hand side of the engine (except DOHC engine which has no plug). Remove the drain plug and allow the coolant to drain from the block.

**6** Dispose of the old coolant safely, or keep it in a covered container if it is to be re-used.

**7** Flushing should not be necessary unless periodic renewal of the coolant has been neglected, or unless plain water has been used as coolant. In either case the coolant will appear rusty and dark in colour. Flushing is then required and should be carried out as follows.

**8** Drain the system and disconnect the top hose from the radiator. Insert a garden hose into the radiator and run water into the radiator until it flows clear from the drain plug.

**9** Run the hose into the expansion tank (OHC engines) or into the radiator top hose (V6 engines) until clean water comes out of the cylinder block drain plug. On DOHC engines there is no drain plug in the cylinder block, so the engine should be flushed until water runs clear from the radiator bottom hose.

**10** If, after a reasonable period the water still does not run clear, the radiator can be flushed with a good proprietary cleaning agent.

**11** Flush the heater matrix by disconnecting one of the heater hoses and running the hose into that.

**12** In severe cases of contamination the radiator should be removed, inverted and

flushed in the reverse direction to normal flow, ie with the water going in at the bottom and out at the top. Shake the radiator gently while doing this to dislodge any deposits.

**13** Refit any hoses which were disturbed, making sure that they and their clips are in good condition. Refit the cylinder block drain plug and tighten the radiator drain plug.

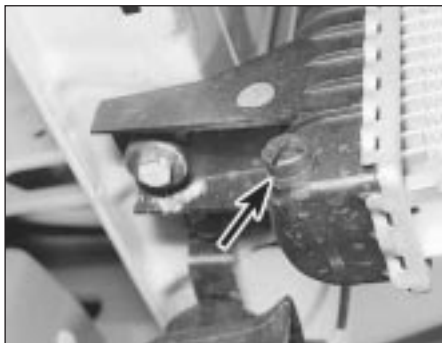
**14** On OHC engines, make sure that the bleed spigot cap is still removed (not DOHC). On V6 engines, check, if applicable, that the bleed screw is still removed.

**15** Pour coolant in through the expansion tank filler hole until the level is up to the MAX line.

**16** Refit the bleed spigot cap or screw when coolant starts to emerge from the spigot. Tighten the clip.

**17** Squeeze the radiator hoses to help disperse airlocks. Top-up the coolant further if necessary, then refit and tighten the expansion tank cap.

**18** Run the engine up to operating temperature, checking for coolant leaks. Stop the engine and allow it to cool, then top-up the coolant again to the MAX mark if necessary.



46.4a Radiator drain plug (arrowed) - OHC engine



46.4b Releasing the bleed spigot cap - OHC engine

## Engine

Oil filter type (all models) .....	Champion C102
Valve clearances (cold):	
SOHC:	
Inlet .....	0.20 ± 0.03 mm (0.008 ± 0.001 in)
Exhaust .....	0.25 ± 0.03 mm (0.010 ± 0.001 in)
V6:	
Inlet .....	0.35 mm (0.014 in)
Exhaust .....	0.40 mm (0.016 in)

## Cooling system

Specific gravity at 45 to 50% antifreeze concentration .....	1.069 to 1.077
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**Note:** Refer to antifreeze manufacturer for latest recommendations.

## Fuel system

Air filter element type:	
1.8 litre (carburettor) .....	Champion W118
2.0 litre (carburettor) .....	Champion W152
2.0 litre and V6 (injection) .....	Champion U507
Fuel filter type:	
All models (injection) .....	Champion L204

## Ignition system

Spark plugs:	
1.8 and 2.0 litre SOHC .....	Champion RF7YCC or RF7YC
2.0 litre DOHC .....	Champion RC7YCC or RC7YC
2.8 litre V6 .....	Champion RN7YCC or RN7YC
2.4 and 2.9 litre V6 without catalytic converter .....	Champion RC7YCC or RC7YC
2.9 litre V6 with catalytic converter .....	Champion RS9YCC or RS9YC
Spark plug electrode gap*:	
Champion RF7YCC and RN7YCC .....	0.8 mm
Champion RF7YC and RN7YC .....	0.7 mm
Champion RC7YCC .....	0.8 mm
Champion RC7YC .....	0.7 mm
Champion RS9YCC and RS9YC .....	1.0 mm
Ignition HT lead set:	
Resistance .....	30 k ohms maximum per lead
Type:	
1.8 and 2.0 litre .....	Champion LS-09 boxed set
1.8 and 2.0 litre (Male distributor fitting) .....	Champion LS-10 boxed set

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

## Brakes

Brake pad friction material minimum thickness .....	1.5 mm (0.06 in)
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## Tyres

Tyre sizes .....	175 SR/TR/HR 14, 185/70 HR/TR/VR 14, 195/65 HR 15, 205/60 VR 15	
Tyre pressures: .....	<b>Front</b>	<b>Rear</b>
Normal load .....	1.8 bar (26 lbf/in <sup>2</sup> )	1.8 bar (26 lbf/in <sup>2</sup> )
Full load .....	2.1 bar (30 lbf/in <sup>2</sup> )	2.9 bar (42 lbf/in <sup>2</sup> )

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

## Torque wrench settings

	Nm	lbf ft
Engine oil drain plug .....	21 to 28	16 to 21
Engine block coolant drain plug .....	21 to 25	16 to 18
Spark plugs:		
1.8 and 2.0 litre SOHC .....	20 to 28	15 to 21
2.0 litre DOHC .....	15 to 21	11 to 15
2.8 litre V6 .....	30 to 40	22 to 30
2.4 and 2.9 litre V6 .....	15 to 21	11 to 15
Manual gearbox filler/level and drain plugs:		
N9 type .....	23 to 27	17 to 20
MT75 type .....	29 to 41	21 to 30
Brake caliper slide bolts:		
Front .....	20 to 25	15 to 18
Rear .....	31 to 35	23 to 26
Roadwheel bolts (steel and alloy wheels) .....	70 to 100	52 to 74

