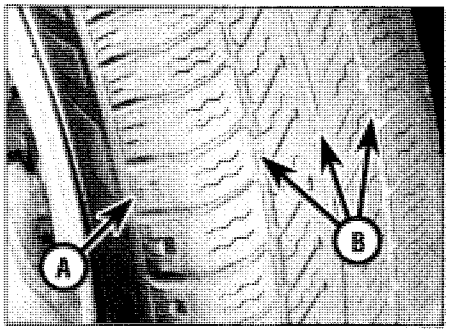
Tyre condition and pressure

It is very important that tyres are in good condition, and at the correct pressure - having a tyre failure at any speed is highly dangerous. Tyre wear is influenced by driving style - harsh braking and acceleration, or fast cornering, will all produce more rapid tyre wear. As a general rule, the front tyres wear out faster than the rears. Interchanging the tyres from front to rear ("rotating" the tyres) may result in more even wear. However, if this is completely effective, you may have the expense of replacing all four tyres at once!

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.

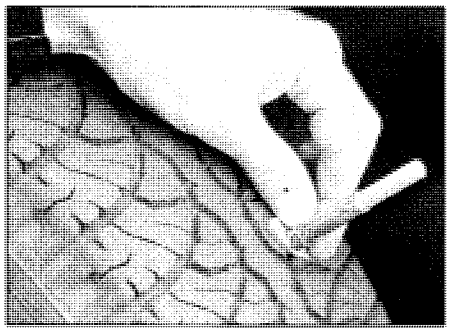
Regularly check the tyres for damage in the form of cuts or bulges, especially in the sidewalls. Periodically remove the wheels, and clean any dirt or mud from the inside and outside surfaces. Examine the wheel rims for signs of rusting, corrosion or other damage. Light alloy wheels are easily damaged by "kerbing" whilst parking; steel wheels may also become dented or buckled. A new wheel is very often the only way to overcome severe damage.

New tyres should be balanced when they are fitted, but it may become necessary to re-balance them as they wear, or if the balance weights fitted to the wheel rim should fall off. Unbalanced tyres will wear more quickly, as will the steering and suspension components. Wheel imbalance is normally signified by vibration, particularly at a certain speed (typically around 50 mph). If this vibration is felt only through the steering, then it is likely that just the front wheels need balancing. If, however, the vibration is felt through the whole car, the rear wheels could be out of balance. Wheel balancing should be carried out by a tyre dealer or garage.



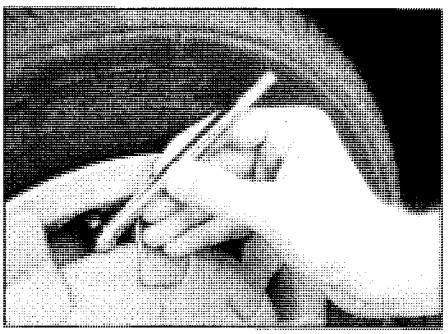
1 *Tread Depth - visual check*

The original tyres have tread wear safety bands (B), which will appear when the tread depth reaches approximately 1.6 mm. The band positions are indicated by a triangular mark on the tyre sidewall (A).



2 *Tread Depth - manual check*

Alternatively, tread wear can be monitored with a simple, inexpensive device known as a tread depth indicator gauge.



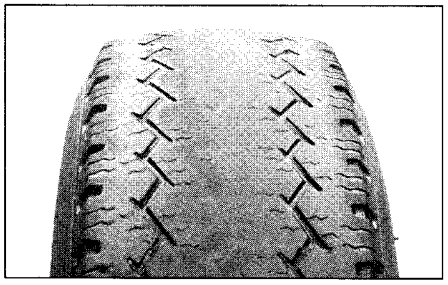
3 *Tyre Pressure Check*

Check the tyre pressures regularly with the tyres cold. Do not adjust the tyre pressures immediately after the vehicle has been used, or an inaccurate setting will result. Tyre pressures are shown on page 0•17.

Tyre tread wear patterns

Shoulder Wear

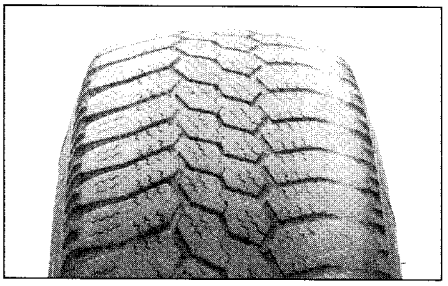
Underinflation (wear on both sides)
Under-inflation will cause overheating of the tyre, because the tyre will flex too much, and the tread will not sit correctly on the road surface. This will cause a loss of grip and excessive wear, not to mention the danger of sudden tyre failure due to heat build-up.
Check and adjust pressures
Incorrect wheel camber (wear on one side)
Repair or renew suspension parts
Hard cornering
Reduce speed!



Centre Wear

Overinflation
Over-inflation will cause rapid wear of the centre part of the tyre tread, coupled with reduced grip, harsher ride, and the danger of shock damage occurring in the tyre casing.
Check and adjust pressures

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



Uneven Wear

Front tyres may wear unevenly as a result of wheel misalignment. Most tyre dealers and garages can check and adjust the wheel alignment (or "tracking") for a modest charge.
Incorrect camber or castor
Repair or renew suspension parts
Malfunctioning suspension
Repair or renew suspension parts
Unbalanced wheel
Balance tyres
Incorrect toe setting
Adjust front wheel alignment
Note: *The feathered edge of the tread which typifies toe wear is best checked by feel.*

Battery

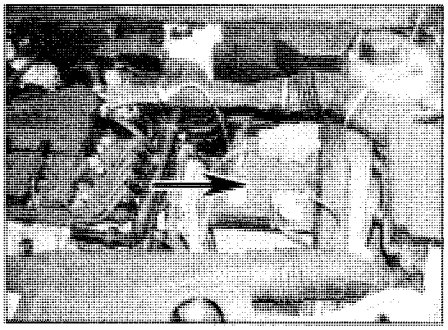
Caution: Before carrying out any work on the vehicle battery, read the precautions given in Safety first! at the start of this manual.

✔ Make sure that the battery tray is in good condition, and that the clamp is tight. Corrosion on the tray, retaining clamp and the battery itself can be removed with a solution of water and baking soda. Thoroughly rinse all cleaned areas with water. Any metal parts damaged by corrosion should be covered with a zinc-based primer, then painted.

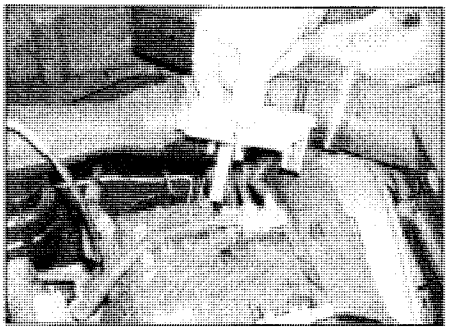
✔ Periodically (approximately every three months), check the charge condition of the battery as described in Chapter 5A.

✔ On batteries which are not of the maintenance-free type, periodically check the electrolyte level in the battery - see Chapter 1.

✔ If the battery is flat, and you need to jump start your vehicle, see *Roadside repairs*.

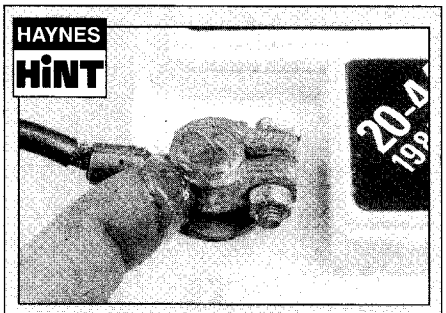


1 The battery is located at the front of the engine compartment on the left-hand side. The exterior of the battery should be inspected periodically for damage such as a cracked case or cover

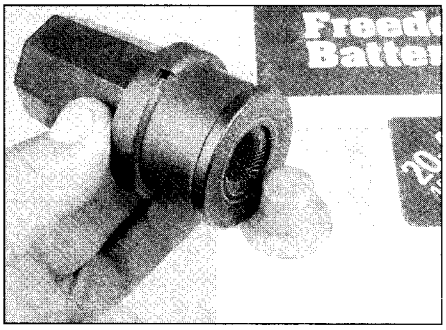


2 Lift off the terminal covers, and check the tightness of battery clamps to ensure good electrical connections. Also check each cable for cracks and frayed conductors.

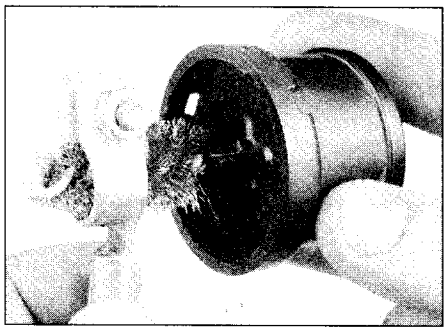
HAYNES HiNT



Battery corrosion can be kept to a minimum by applying a layer of petroleum jelly to the clamps and terminals after they are reconnected.



3 If corrosion (white, fluffy deposits) is evident, remove the cables from the battery terminals, clean them with a small wire brush, then refit them. Automotive stores sell a tool for cleaning the battery post . . .



4 . . . as well as the battery cable clamps

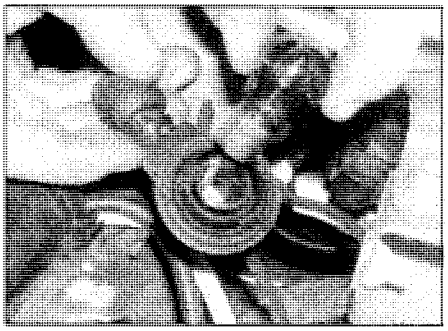
Bulbs and fuses

✔ Check all external lights and the horn. Refer to the appropriate Sections of Chapter 12 for details if any of the circuits are found to be inoperative.

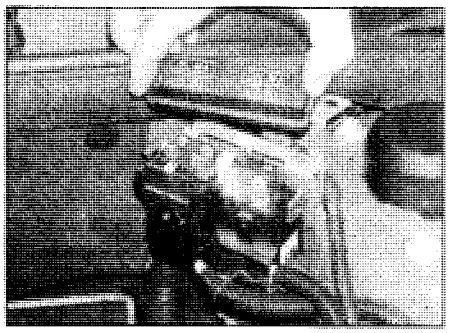
✔ Visually check all accessible wiring connectors, harnesses and retaining clips for security, and for signs of chafing or damage.

HAYNES HiNT

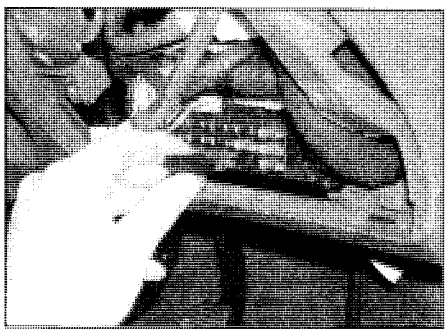
If you need to check your brake lights and indicators unaided, back up to a wall or garage door and operate the lights. The reflected light should show if they are working properly.



1 If a single indicator light, stop-light or headlight has failed, it is likely that a bulb has blown and will need to be replaced. Refer to Chapter 12 for details. If both stop-lights have failed, it is possible that the stop-light switch is faulty (see Chapter 9).



2 If more than one indicator light or headlight has failed, it is likely that either a fuse has blown or that there is a fault in the circuit (see Chapter 12). The main fuses are located in the fusebox situated to the right of the steering wheel. Additional fuses are located behind the glovebox, with several engine-related fuses on the engine compartment bulkhead or next to the battery.

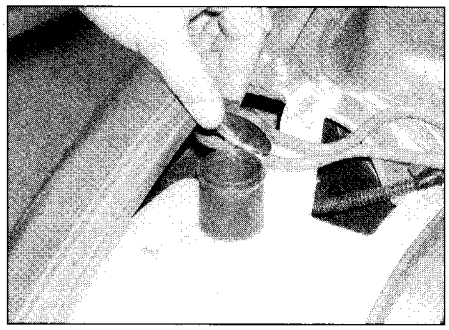


3 To replace a blown fuse, simply pull it out using the plastic tweezers provided. Fit a new fuse of the same rating (see Chapter 12). If the fuse blows again, it is important that you find out why - a complete checking procedure is given in Chapter 12.

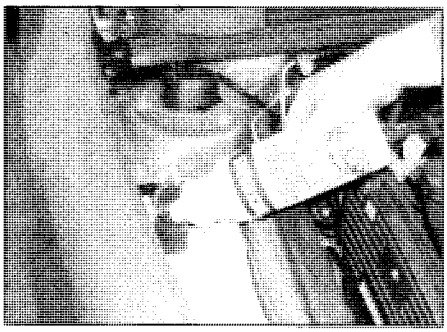
Washer fluid level

● The windscreen washer reservoir also supplies the tailgate washer jet. On models so equipped, the same reservoir also serves the headlight washers.
● Screenwash additives not only keep the windscreen clean during foul weather, they also prevent the washer system freezing in cold weather - which is when you are likely to need it most. Don't top up using plain water as the screenwash will become too diluted, and will freeze during cold weather.

On no account use coolant antifreeze in the washer system - this could discolour or damage paintwork.



1 On most models, the washer fluid reservoir filler is located at the rear right-hand side of the engine compartment; 1.4 litre models have the reservoir on the left-hand side. Release the cap and observe the level in the reservoir by looking down the filler neck. Models with headlight washers have a dipstick which can be used to verify the level.

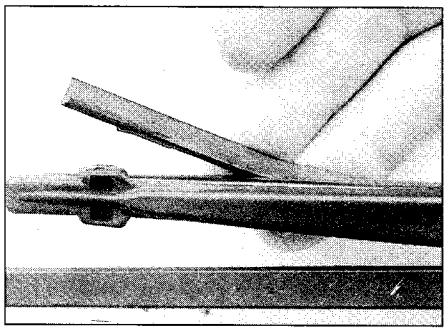


2 To top-up the level, pull the filter inside the filler neck upwards until it clicks - this can now be used as a funnel. When topping-up the reservoir, a screenwash additive should be added in the quantities recommended on the bottle.

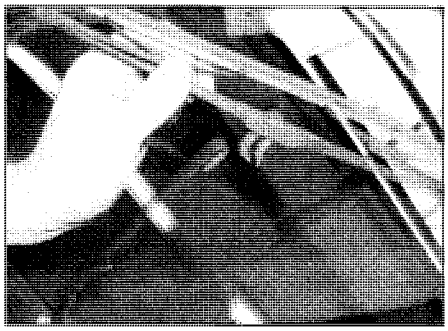
Wiper blades

Caution: Take care during the fitting of new blades that the wiper arms do not accidentally strike the windscreen or tailgate glass.

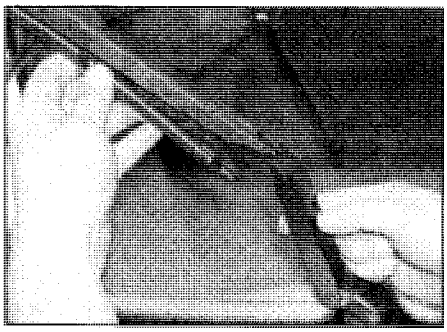
Note: *Fitting details for wiper blades vary according to model, and according to whether genuine FIAT wiper blades have been fitted. Use the procedures and illustrations shown as a guide for your car.*



1 Check the condition of the wiper blades; if they are cracked or show any signs of deterioration, or if the glass swept area is smeared, renew them. Wiper blades should be renewed annually.



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



3 Don't forget to check the rear wiper blade as well. To remove the blade, press in the catch at the base of the arm, and slide the blade and upper section of the arm out.

Lubricants and fluids

Engine	Synthetic-based multigrade engine oil, viscosity SAE 10W/40, to ACEA A3, API SJ or better *(Duckhams QXR Premium Petrol Engine Oil)*
Cooling system	Ethylene glycol-based antifreeze *(Duckhams Antifreeze and Summer Coolant)*
Manual transmission	Gear oil, viscosity SAE 75W/80, to API GL5 *(Duckhams Hypoid Gear Oil 75W-80W GL-5)*
Automatic transmission	Dexron II type automatic transmission fluid *(Duckhams ATF Autotrans III)*
Braking system	Brake and clutch fluid to DOT 4 *(Duckhams Universal Brake & Clutch Fluid)*
Power steering	Dexron type ATF *(Duckhams ATF Autotrans III)*

Choosing your engine oil

Engines need oil, not only to lubricate moving parts and minimise wear, but also to maximise power output and to improve fuel economy. By introducing a simplified and improved range of engine oils, Duckhams has taken away the confusion and made it easier for you to choose the right oil for your engine.

HOW ENGINE OIL WORKS

• *Beating friction*

Without oil, the moving surfaces inside your engine will rub together, heat up and melt, quickly causing the engine to seize. Engine oil creates a film which separates these moving parts, preventing wear and heat build-up.

• *Cooling hot-spots*

Temperatures inside the engine can exceed 1000° C. The engine oil circulates and acts as a coolant, transferring heat from the hot-spots to the sump.

• *Cleaning the engine internally*

Good quality engine oils clean the inside of your engine, collecting and dispersing combustion deposits and controlling them until they are trapped by the oil filter or flushed out at oil change.

OIL CARE - FOLLOW THE CODE

To handle and dispose of used engine oil safely, always:

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

- ***Avoid skin contact with used engine oil. Repeated or prolonged contact can be harmful.***
- ***Dispose of used oil and empty packs in a responsible manner in an authorised disposal site. Call 0800 663366 to find the one nearest to you. Never tip oil down drains or onto the ground.***

DUCKHAMS ENGINE OILS

For the driver who demands a premium quality oil for complete reassurance, we recommend synthetic formula **Duckhams QXR Premium Engine Oils**.

For the driver who requires a straight-forward quality engine oil, we recommend **Duckhams Hypergrade Engine Oils**.

For further information and advice, call the Duckhams UK Helpline on 0800 212988.

DUCKHAMS

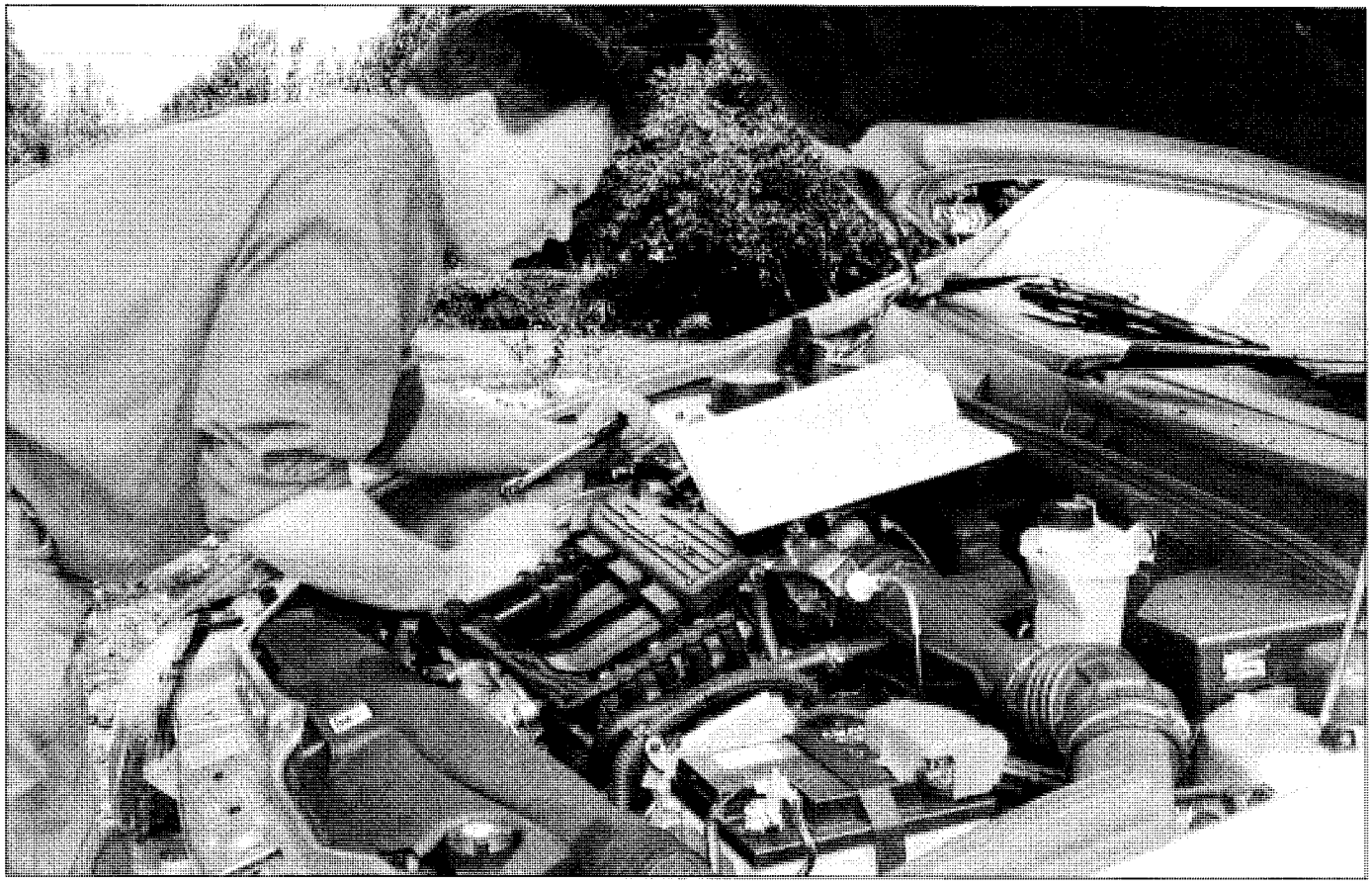
Tyre pressures (cold)

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

	Front	Rear
Normal load:		
Except 185/55 R15 and 195/50 R15 tyres	2.2 bar (32 psi)	2.2 bar (32 psi)
185/55 R15 and 195/50 R15 tyres	2.2 bar (32 psi)	2.3 bar (33 psi)
Full load	2.3 bar (33 psi)	2.5 bar (36 psi)
Spare wheel:		
Normal (full-width) wheel	2.8 bar (41 psi)	2.8 bar (41 psi)
Space saver (narrow) wheel	4.2 bar (61 psi)	4.2 bar (61 psi)

Chapter 1
Routine maintenance & servicing

Contents



Degrees of difficulty

Easy, suitable for novice with little experience

Fairly easy, suitable for beginner with some experience

Fairly difficult, suitable for competent DIY mechanic

Difficult, suitable for experienced DIY mechanic

Very difficult, suitable for expert DIY or professional

1•2 Servicing specifications

Lubricants and fluids

Refer to end of *Weekly checks* on page 0•17

Capacities

Engine oil (including filter):	
1.2 litre engine	2.8 litres
1.4 litre engine	4.1 litres
1.6 litre engine	3.8 litres
1.8 litre engine	4.3 litres
Cooling system (approximate):	
1.2 and 1.4 litre engines	6.0 litres
1.6 and 1.8 litre engines	7.0 litres
Transmission (approximate):	
Manual transmission:	
1.2 and 1.4 litre engine models	1.65 litres
1.6 and 1.8 litre engine models	2.0 litres
Automatic transmission (fluid change)	4.3 litres
Fuel tank (approximate):	
Except 1.8 litre models	50 litres
1.8 litre models	60 litres
Washer reservoir:	
Models with headlight washers	6.4 litres
Models without headlight washers	5.0 litres

Engine

Oil filter:	
1.2, 1.4 and 1.6 litre engines	Champion F107*
1.8 litre engine:	
Up to March 1996	Champion F107*
April 1996 onwards	Champion F133*

***Note**: This is the latest information available; if in any doubt, contact Champion on 01274 848283.*

Cooling system

Antifreeze mixture:	
40% antifreeze	Protection down to -25°C
50% antifreeze	Protection down to -35°C

Note: *Refer to antifreeze manufacturer for latest recommendations.*

Fuel system

Air filter element:	
Except 1.2 litre engine	Champion U564*
1.2 litre engine	Champion type not available*
Fuel filter	Champion L225*

***Note**: This is the latest information available; if in any doubt, contact Champion on 01274 848283.*

Ignition system

Ignition timing	Refer to Chapter 5B
Spark plugs:	
Except 1.2 litre engine	Champion RC8BYC or RC7YC*
1.2 litre engine	Champion RA4HCX or RA4HC*
Electrode gap**:	
Champion RC8BYC	Not adjustable
Champion RA4HCX	0.8 mm (0.032 in)
Champion RC7YC or RA4HC	0.7 mm (0.028 in)

***Note**: This is the latest information available; if in any doubt, contact Champion on 01274 848283.*

***The spark plug electrode gap is as quoted by Champion for their recommended plugs. If spark plugs of any other type are to be used, refer to their manufacturer's specifications.*

Clutch

Clutch pedal stroke (see Section 22):	
1.2 and 1.4 litre models (where applicable)	155 ± 10 mm
1.6 and 1.8 litre models	170 ± 10 mm

Brakes

Brake pad/shoe friction material minimum thickness	1.5 mm

Torque wrench settings

	Nm	lbf ft
Manual transmission drain plug	46	34
Manual transmission filler/level plug	46	34
Roadwheel bolts	86	63

Torque wrench settings (continued)	Nm	lbf ft
Spark plugs:		
All except 1.6 litre engine	25	18
1.6 litre engine	27	20
Sump drain plug:		
1.2 litre engine	10	7
1.4 litre engine	25	18
1.6 litre engine	50	37
1.8 litre engine	20	15

Maintenance schedule

The maintenance intervals in this manual are provided with the assumption that you, not the dealer, will be carrying out the work. These are the minimum intervals recommended 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, since it enhances the efficiency, performance and resale value of your vehicle.

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

Every 250 miles (400 km) or weekly

- ☐ Refer to *Weekly checks*

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

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

- ☐ Renew the engine oil and filter (Section 3)
- ☐ Check the front brake pad thickness (Section 4)
- ☐ Check the automatic transmission fluid level (Section 5)
- ☐ Check battery electrolyte level - where applicable (Section 6)
- ☐ Check the tension of the auxiliary drivebelt(s) (Section 7)
- ☐ Renew the pollen filter element (Section 8)
- ☐ Check all underbonnet/underbody components and hoses for fluid leaks (Section 9)
- ☐ Check the transmission and driveshaft gaiters for leaks and damage (Section 10)
- ☐ Check the brake pipes and hoses for leaks and damage (Section 11)
- ☐ Check the condition of the exhaust system and its mountings (Section 12)
- ☐ Check the steering and suspension components for condition and security (Section 13)
- ☐ Check underbody protection for damage (Section 14)
- ☐ Check operation of all lights and horn (Section 15)
- ☐ Lubricate all hinges, locks and door check straps (Section 16)
- ☐ Carry out a road test (Section 17)

Every 24 000 miles (40 000 km) or 2 years

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

- ☐ Renew the spark plugs (Section 18)
- ☐ Renew the air filter element (Section 19)
- ☐ Renew the fuel filter, where applicable (Section 20)

Every 24 000 miles (40 000 km) or 2 years (continued)

- ☐ Check the condition of the auxiliary drivebelt(s), and renew if necessary (Section 21)
- ☐ Check clutch cable adjustment, where applicable (Section 22)
- ☐ Check handbrake adjustment (Section 23)
- ☐ Check exhaust gas emissions (Section 24)
- ☐ Check engine management system for fault codes (Section 25)

Every 36 000 miles (60 000 km) or 2 years

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

- ☐ Renew the brake fluid (Section 26)
- ☐ Check the manual transmission oil level (Section 27)
- ☐ Check the rear brake shoe lining thickness (Section 28)

Every 48 000 miles (80 000 km) or 4 years

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

- ☐ Check the evaporative emissions control system (Section 29)

Every 72 000 miles (120 000 km)

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

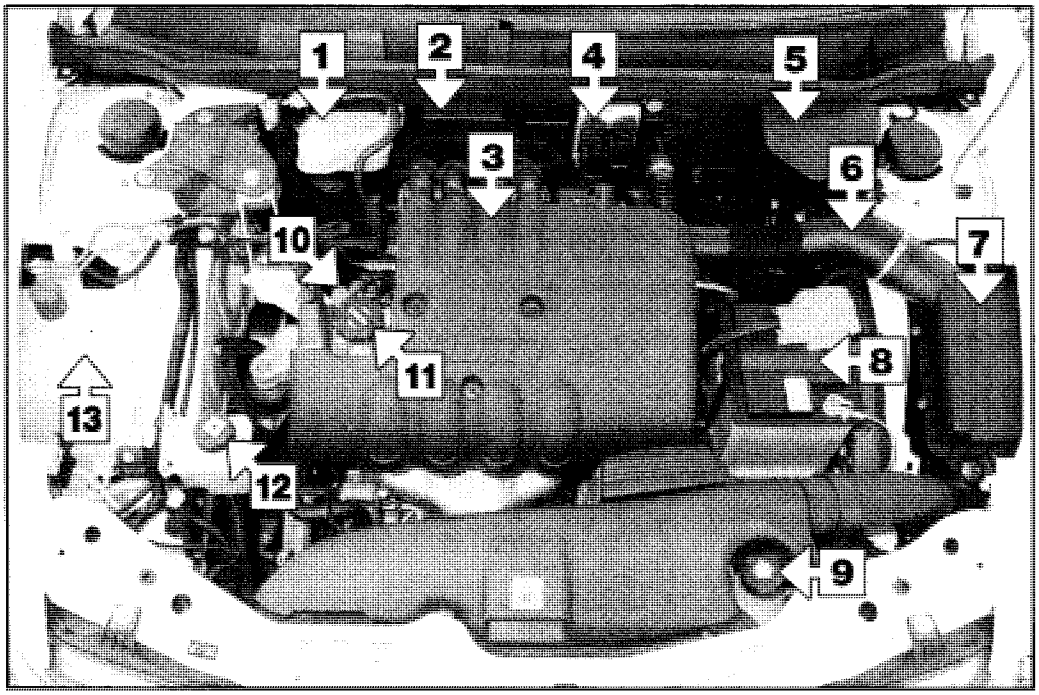
- ☐ Renew the timing belt (Section 30)

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

Every 2 years (regardless of mileage)

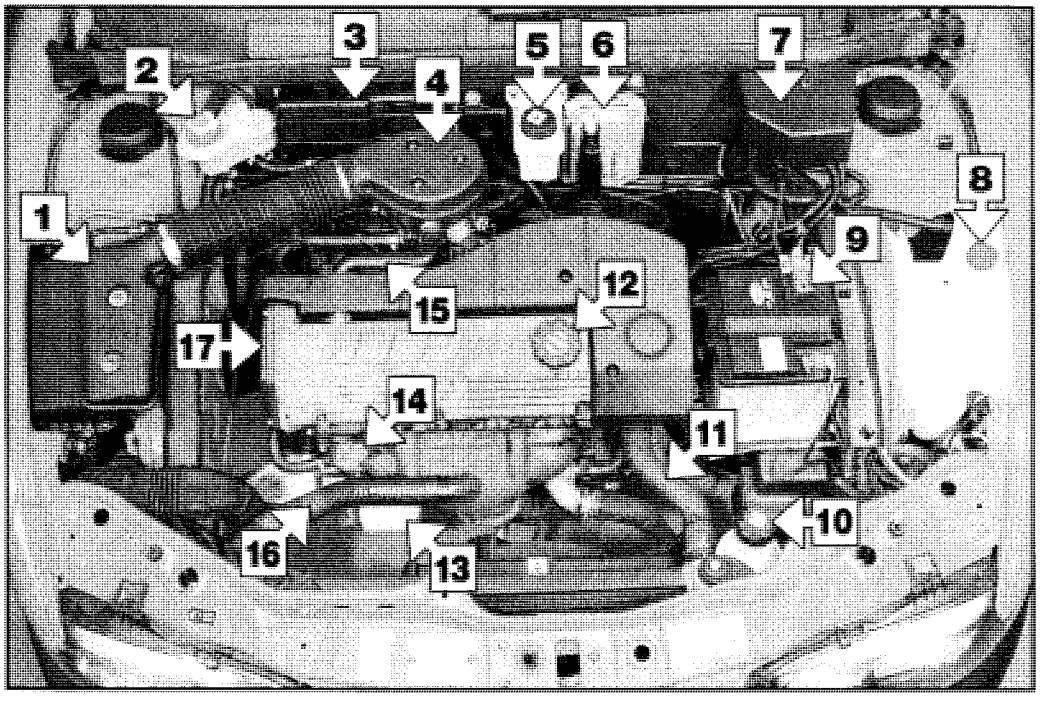
- ☐ Renew the coolant (Section 31)

Underbonnet view of 1.2 litre model



1 *Brake and clutch fluid reservoir*
2 *Fuse and relay box*
3 *Engine top cover (remove for access to coils and spark plugs)*
4 *Engine management system ECU*
5 *Auxiliary fusebox*
6 *Air inlet duct*
7 *Air cleaner*
8 *Battery*
9 *Cooling system expansion tank*
10 *Engine oil dipstick*
11 *Oil filler cap*
12 *Power steering reservoir*
13 *Washer reservoir*

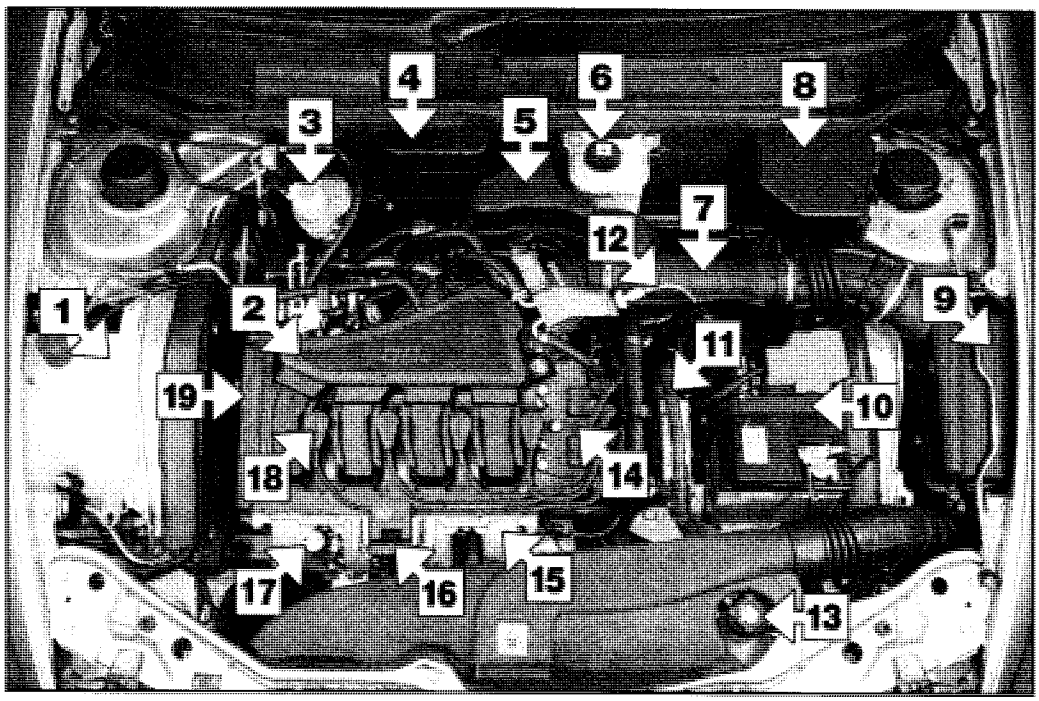
Underbonnet view of 1.4 litre model



1 *Air cleaner*
2 *Brake and clutch fluid reservoir*
3 *Fuse and relay box*
4 *Throttle body airbox*
5 *Power steering reservoir*
6 *Engine management system ECU*
7 *Auxiliary fusebox*
8 *Washer reservoir*
9 *Battery*
10 *Cooling system expansion tank*
11 *Radiator top hose*
12 *Oil filler cap*
13 *Oil filter*
14 *Engine oil dipstick*
15 *Crankcase breather hose*
16 *Warm-air inlet duct*
17 *Timing belt cover*

Underbonnet view of 1.6 litre model

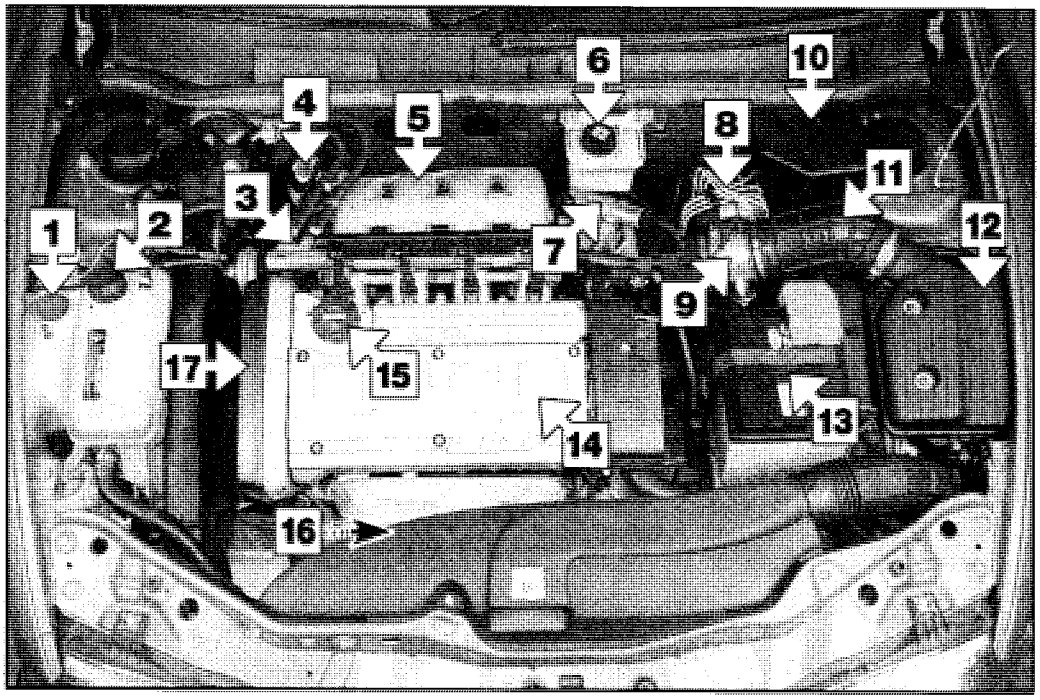
1 Washer reservoir
2 Inlet manifold (upper section)
3 Brake and clutch fluid reservoir
4 Fuse and relay box
5 Inlet air resonator box
6 Power steering reservoir
7 Air inlet duct
8 Auxiliary fusebox
9 Air cleaner
10 Battery
11 Engine management system ECU
12 Accelerator cable
13 Cooling system expansion tank
14 Ignition coil
15 Inlet manifold (lower section)
16 Oil filler cap
17 Engine oil dipstick
18 No 1 spark plug HT lead
19 Timing belt cover



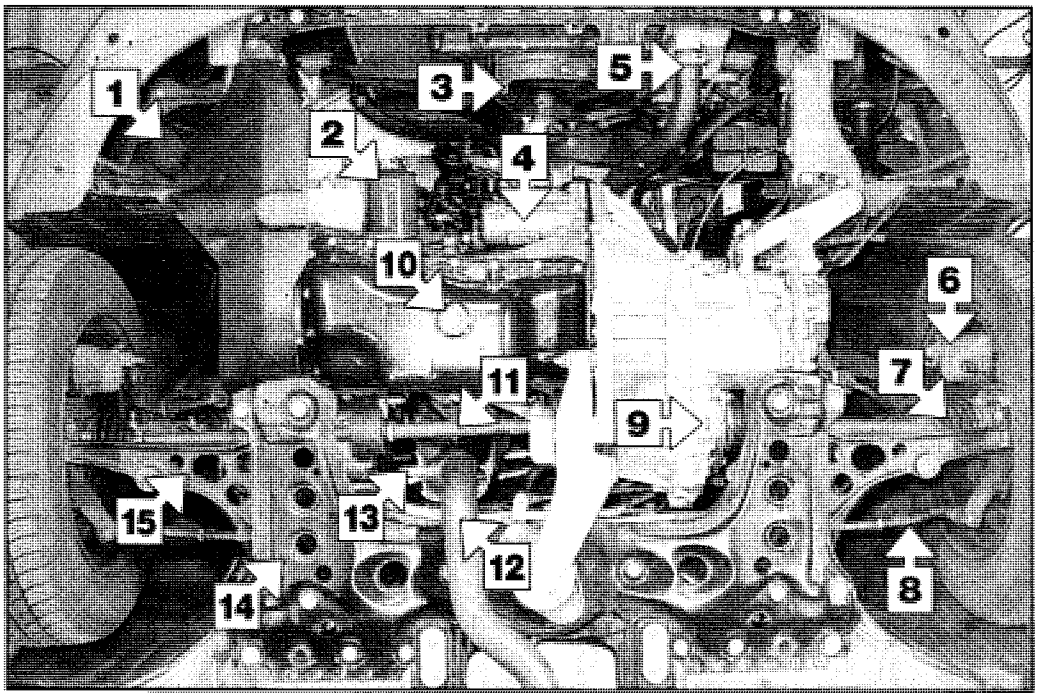
1

Underbonnet view of 1.8 litre model

1 Washer reservoir
2 Cooling system expansion tank
3 Fuel hoses, fuel rail and injectors
4 Brake and clutch fluid reservoir
5 Inlet manifold
6 Power steering reservoir
7 Idle speed control valve
8 Anti-lock braking system (ABS) modulator
9 Airflow meter
10 Auxiliary fusebox
11 Air inlet duct
12 Air cleaner
13 Battery
14 Engine top cover (remove for access to coils and spark plugs)
15 Oil filler cap
16 Engine oil dipstick
17 Timing belt cover

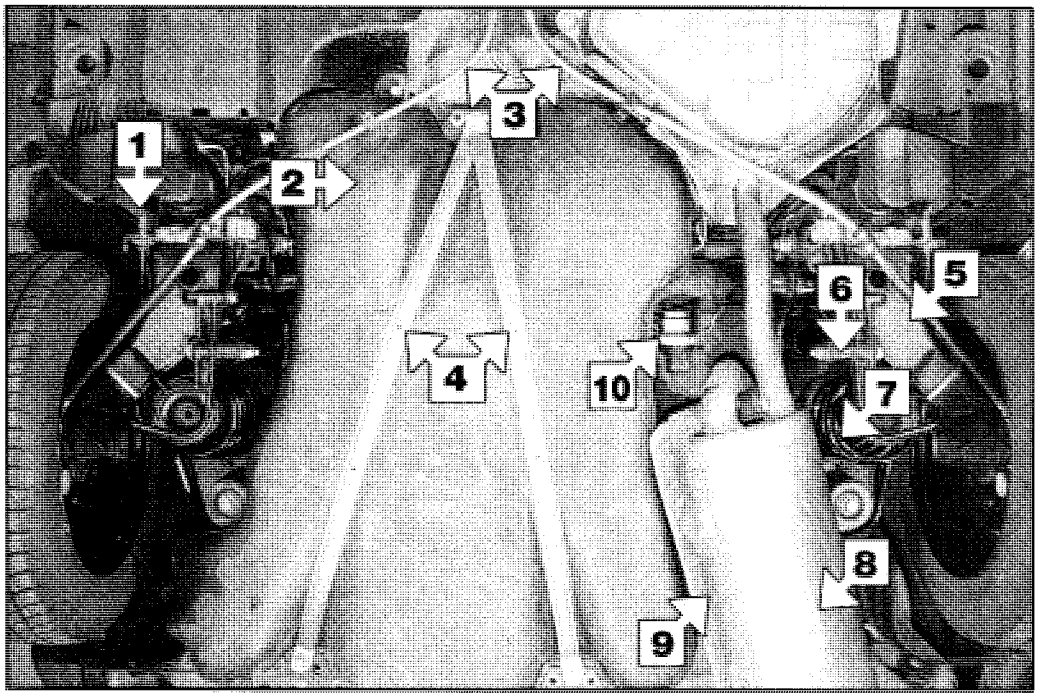


Front underside view of 1.6 litre model



1 *Horn unit*
2 *Oil filter*
3 *Radiator cooling fan*
4 *Starter motor*
5 *Radiator bottom hose*
6 *Front brake caliper*
7 *Driveshaft CV joint gaiter*
8 *Track rod end*
9 *Manual transmission drain plug*
10 *Engine oil drain plug*
11 *Right-hand driveshaft*
12 *Exhaust downpipe*
13 *Oxygen sensor*
14 *Subframe*
15 *Suspension arm*

Rear underside view of 1.6 litre model



1 *Brake pipe/hose connection*
2 *Fuel tank*
3 *Handbrake cables*
4 *Fuel tank retaining straps*
5 *Rear suspension arm*
6 *Rear shock absorber mounting*
7 *Rear coil spring*
8 *Exhaust rear silencer*
9 *Exhaust heat shield*
10 *Brake pressure proportioning valve*

1 Introduction

General information

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

The Chapter contains a master maintenance schedule, followed by Sections dealing specifically with each task 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 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 all the parts and tools required. If a problem is encountered, seek advice from a parts specialist, or a dealer service department.

2 Regular maintenance

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

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

3 If engine wear is suspected, a compression test (refer to the relevant part of Chapter 2) 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.

4 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 (See Weekly checks and Section 6, where applicable).
b) Check all the engine-related fluids (See Weekly checks).
c) Check the condition and tension of the auxiliary drivebelt (Sections 7 and 21).
d) Renew the spark plugs (Section 18).
e) Check the condition of the air filter, and renew if necessary (Section 19).
f) Check the fuel filter, where applicable (Section 20).
g) Check the condition of all hoses, and check for fluid leaks (Section 9).
h) Check the exhaust gas emissions (Section 24).

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

Secondary operations

All items listed under Primary operations, plus the following:

a) Check the charging system (see Chapter 5A, Section 4).
b) Check the ignition system (see Chapter 5B).
c) Check the fuel system (see relevant Part of Chapter 4).
d) Renew the ignition HT leads, if applicable.

Every 12 000 miles (20 000 km)

3 Engine oil and filter renewal

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

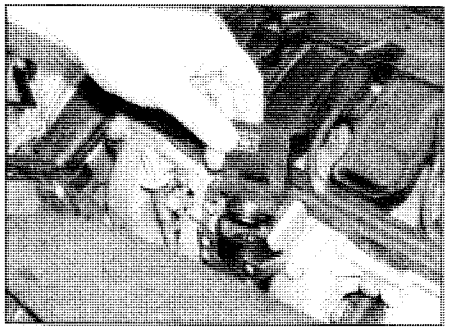
2 The oil change interval given in this Manual is the same as quoted by the manufacturer, but owners of older vehicles (or those covering a small annual mileage) may feel justified in changing the oil and filter more frequently, perhaps every 6000 miles, or every 6 months. The quality of engine oil used is a significant factor in this - the 12 000-mile interval **only** applies if a high-quality synthetic-based oil is used.

3 Before starting this procedure, gather all the necessary tools and materials. Also make sure that you have plenty of clean rags and newspapers handy, to mop up any spills. Ideally, the engine oil should be warm, as it will drain better, and more built-up sludge will be removed with it. Take care, however, not to touch the exhaust or any other hot parts of the engine when working under the vehicle. To avoid any possibility of scalding, and to protect yourself from possible skin irritants and other harmful contaminants in used engine oils, it is advisable to wear gloves when carrying out this work.

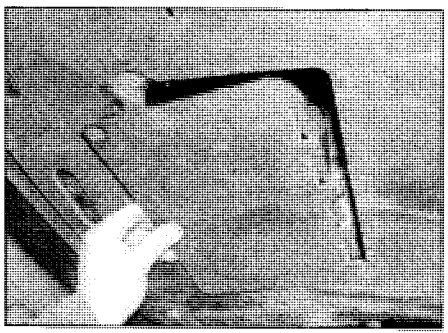
4 Remove the oil filler cap **(see illustration)**, and take out the dipstick.

5 Access to the underside of the vehicle will be greatly improved if it can be raised on a lift, driven onto ramps, or jacked up and supported on axle stands (see *Jacking and vehicle support*). Whichever method is chosen, make sure that the vehicle remains level, or if it is at an angle, that the drain plug is at the lowest point.

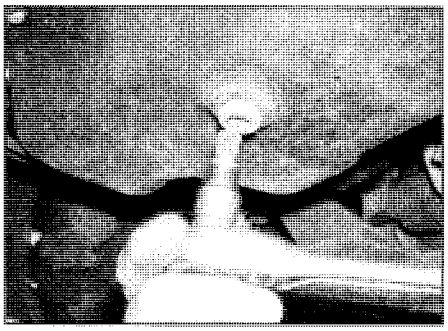
6 Where applicable, unscrew the fasteners and remove the engine undertray, for access to the drain plug. On 1.8 litre engines, the drain plug can be reached from the back of the engine, and a panel is provided in the undertray, which can be hinged down to get to the filter **(see illustration)**.



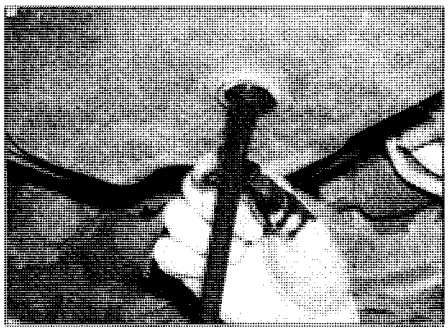
3.4 Removing the oil filler cap on a 1.6 litre model



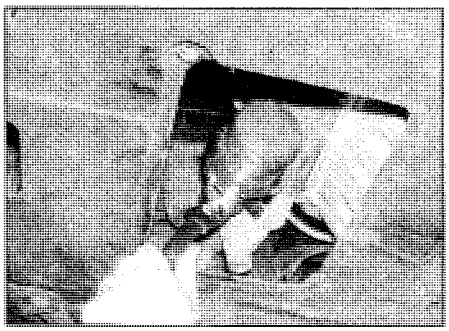
3.6 Removing the oil filter access panel on a 1.8 litre model



3.7 On some models, a special socket is required to loosen the sump drain plug



3.8 Draining the engine oil



3.11 Removing the oil filter on a 1.8 litre model

7 Using a special socket where necessary, slacken the drain plug (on the base of the sump) about half a turn **(see illustration)**. Position the draining container under the drain plug, then remove the plug completely. Recover the sealing ring from the drain plug.

8 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 **(see illustration)**.

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

10 Move the container into position under the oil filter, which is located on the front of the cylinder block.

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

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

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

14 Remove the old oil from under the car, then refit the undertray or access panel (as applicable). Lower the car to the ground.

15 With the car on level ground, 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 **(see illustration)**. Pour in half the specified quantity of oil first, then wait a few minutes for the oil to fall to the sump.

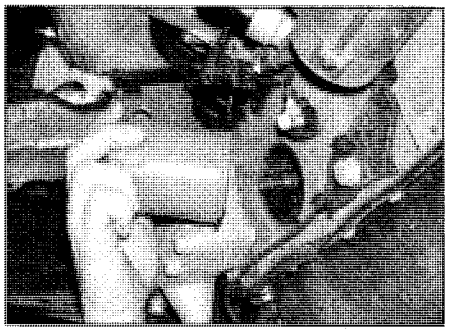
16 Continue adding oil a small quantity at a time until the level is up to the MIN mark on the dipstick. Adding around 1.0 litre of oil will now bring the level up to the MAX on the dipstick - do not worry if a little too much goes in, as some of the apparent excess will be taken up in filling the oil filter. Refit the dipstick and the filler cap.

17 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 few seconds' delay before the oil pressure warning light goes out when the engine is started, as the oil circulates through the engine oil galleries and the new oil filter before the pressure builds up.

18 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.

19 Dispose of the used engine oil safely, with reference to *General repair procedures* in the *Reference* section of this manual.

4 Front brake pad check



3.13 Fit and tighten the new oil filter by hand only - do not use any tools

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

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

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

4 Check the operation of the pad wear warning light by disconnecting the wiring plug adjacent to the brake caliper. With the ignition on, touch the wiring plug to earth, and check that the warning light comes on.

5 Automatic transmission fluid level check

1 Ideally, the fluid level must be checked with the engine/transmission at operating temperature. This can be achieved by checking the level after a journey of at least 10 miles. If the level is checked when cold, follow this up with a level check when the fluid is hot.

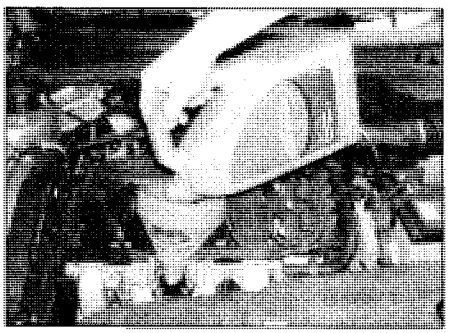
2 Park the car on level ground, and apply the handbrake very firmly. As an added precaution, chock the front and rear wheels, so that the car cannot move.

3 With the engine idling, move the selector lever gently from position P to position 1, and back to P.

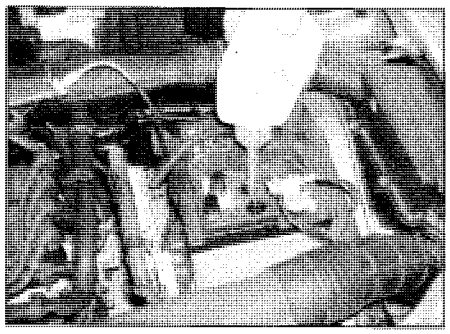
4 The fluid level dipstick is located on the front of the transmission. Before removing the dipstick, thoroughly clean the area around it - no dirt or debris must be allowed to enter the transmission.

5 Extract the dipstick, and wipe it clean using a clean piece of rag or tissue. Re-insert the dipstick completely, then pull it out once more. The fluid level should be between the reference marks on the side of the dipstick marked HOT (if the level is checked when cold, use the markings on the COLD side of the dipstick).

6 If topping-up is required, this is done via the dipstick tube. It is most important that no dirt



3.15 Filling the engine with oil



6.3 Topping-up the battery electrolyte

or debris enters the transmission as this is done - use a clean funnel (preferably with a filter) and fresh fluid from a clean container.

7 Pour the fresh fluid a little at a time down the dipstick tube, checking the level frequently.

8 When the level is correct, refit the dipstick and switch off the engine.

6 Battery electrolyte level check

Warning: The electrolyte inside a battery is diluted acid - it is a good idea to wear suitable rubber gloves. When topping-up, don't overfill the cells so that the electrolyte overflows. In the event of any spillage, rinse the electrolyte off without delay. Refit the cell covers and rinse the battery with copious quantities of clean water. Don't attempt to siphon out any excess electrolyte.

1 Models covered by this Manual are fitted with a 'limited-maintenance' battery as standard equipment (or may have had a 'maintenance-free' one fitted as a replacement). If the battery in your vehicle is marked 'Freedom', 'Maintenance-Free' or similar, no electrolyte level checking is required (the battery is often completely sealed, preventing any topping-up).

2 Batteries which do require their electrolyte level to be checked can be recognised by the presence of level markings and removable covers over the six battery cells - the battery casing is also sometimes translucent, so that the electrolyte level can be more easily checked. Some of the batteries fitted by FIAT have level markings, but no means of topping-up!

3 Remove the cell covers and either look down inside the battery to see the level web, or check the level using any markings provided on the battery casing. The electrolyte should at least cover the battery plates. If necessary, top up a little at a time with distilled (de-ionised) water until the level in all six cells is correct - don't fill the cells up to the brim **(see illustration)**. Wipe up any spillage, then refit the cell covers.

4 On batteries where the level can be checked but not topped-up, if the level is low, consult a dealer or automotive electrical specialist as to the best course of action (likely to be fitting a replacement battery).

7 Auxiliary drivebelt tension check

Note: *On models with 1.4 and 1.8 litre engines, an automatic belt tensioner is used, and regular tension checks are not required. Check the belt condition at the specified intervals, however, as described in Section 21.*

1 The only belt tension specifications quoted by FIAT are for use with their dedicated belt tensioning equipment, and are not of great practical help. The advice given below should be treated as a rough guide, and should be adequate in most cases. If there is serious concern over belt tension, refer to a FIAT dealer for advice.

2 If a drivebelt is set too tight, it will subject the driven unit to excess load, resulting in premature wear of the unit (and of the belt). If the belt is too slack, it will not transmit drive properly, and the belt will suffer wear due to slippage.

1.2 litre engine

3 Two or three separate belts are used on this engine, depending on whether or not air conditioning is fitted.

4 For improved access to the belts, remove the three bolts securing the engine top cover, and lift the cover away.

5 Each of the drivebelts is checked and adjusted in much the same way. To check the power steering pump drivebelt, remove the bolt securing the belt upper cover, and remove the cover. To access the air conditioning compressor drivebelt, refer to paragraphs 16 to 18.

6 Press on the belt at the centre-point between the two pulleys, and the drivebelt should deflect by approximately 5 mm.

Alternator drivebelt

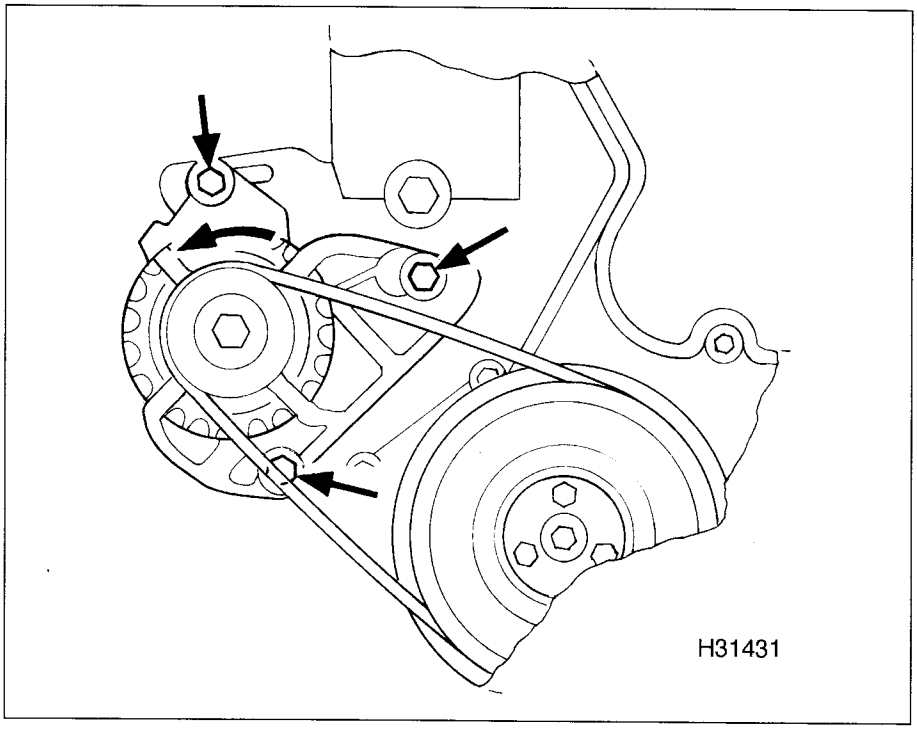
7 If adjustment is required, loosen the nuts and bolts on the two adjuster slots, and the lower mounting through-bolt. Pivot the alternator as necessary using a suitable lever to set the belt tension, then re-tighten all the fasteners **(see illustration)**. Take care when levering the alternator that no damage is caused to the alternator or surrounding components.

8 On models with air conditioning, note that if the air conditioning compressor drivebelt needs adjusting, this will affect the alternator belt tension.

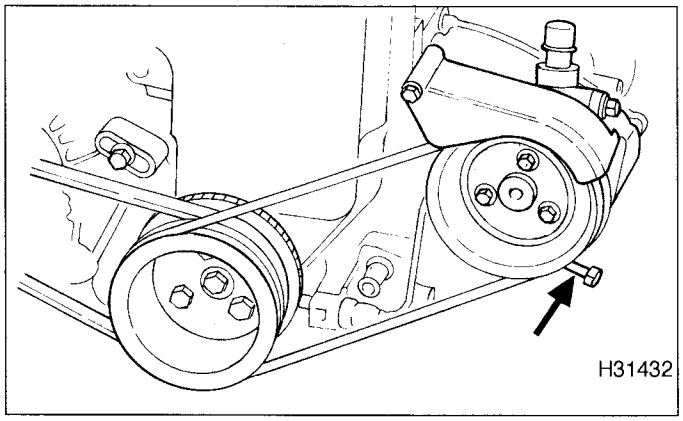
Air conditioning compressor drivebelt

9 If adjustment is required, loosen the nut and bolt on the adjuster slot, and the lower mounting through-bolt. Pivot the compressor as necessary using a suitable lever to set the belt tension, then re-tighten all the fasteners. Take care when levering the compressor that no damage is caused to the compressor or surrounding components.

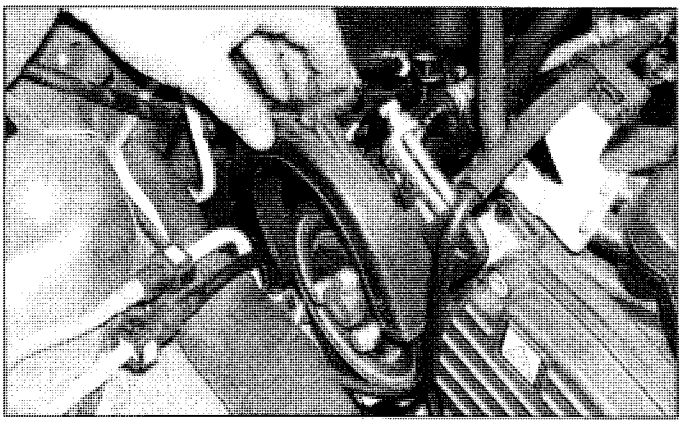
10 Note that if the air conditioning compressor drivebelt needs adjusting, this will affect the alternator belt tension.



7.7 Loosen the alternator mountings (arrowed) and pivot the alternator to tension the belt



7.11 Power steering pump adjuster bolt (arrowed)



7.13 To improve access to the power steering pump drivebelt, remove the belt guard

Power steering pump drivebelt

11 If adjustment is required, loosen the nuts and bolts on the two adjuster slots, and the upper mounting through-bolt. The belt tension is set by now turning the adjuster bolt at the front of the pump mounting bracket **(see illustration)**. When the belt tension is correct, re-tighten all the fasteners and refit the belt upper cover.

1.6 litre engine

12 Two or three separate belts are used on this engine, depending on whether or not air conditioning is fitted.

Power steering pump drivebelt

13 Check the power steering pump drivebelt first - to improve access, unbolt and remove the drivebelt guard **(see illustration)**. Press on the belt at the centre-point between the two pulleys, and the drivebelt should deflect by approximately 5 mm.

14 If adjustment is required, loosen the pump mountings, the nut and bolt on the adjuster slot, and the adjuster locknut. Turn the adjuster bolt as required to set the belt tension, then re-tighten the locknut and the nut and bolt on the adjuster slot **(see illustrations)**.

15 With all fixings re-tightened, turn the belt clockwise through one complete revolution, using a spanner on the crankshaft pulley bolt. Re-check the belt tension, and re-adjust if necessary. Refit the drivebelt guard on completion.

Alternator/coolant pump drivebelt

16 With the car parked on a level surface, apply the handbrake and chock the rear wheels. Loosen the right-hand front wheel bolts.

17 Raise the front of the vehicle, rest it securely on axle stands and remove the right-hand front roadwheel.

18 Unscrew and release the fasteners securing the wheelarch inner panel, to gain access to the belt run **(see illustration)**.

19 Press firmly on the belt, midway between the crankshaft and water pump pulleys **(see illustration)**. The belt should deflect by approximately 5 mm.

20 Refer to the advice given in paragraph 2, noting that the lower drivebelt drives the alternator and coolant pump.

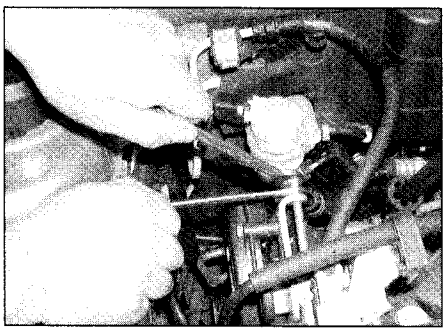
21 If adjustment is required, loosen the tensioner upper and lower bolts. Using an Allen key, turn the hex adjuster as required to set the belt tension, then re-tighten the tensioner bolts **(see illustration)**.

22 Turn the belt clockwise through one complete revolution, using a spanner on the crankshaft pulley bolt. Re-check the belt tension, and re-adjust if necessary.

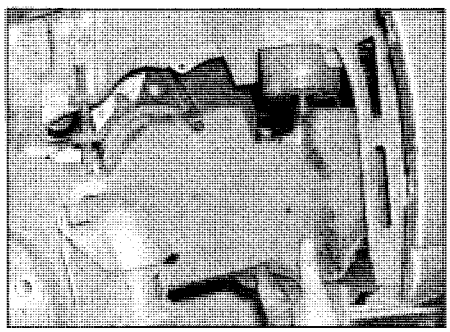
23 On completion, refit the wheelarch access panel and the roadwheel, and lower the car to the ground. Tighten the wheel bolts to the specified torque.

7.14a Loosen the pump mounting bolts . . .

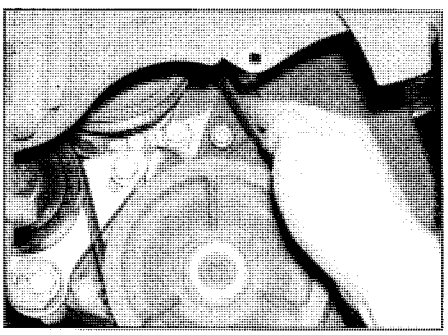
7.14b . . . and the nut and bolt on the adjuster slot . . .



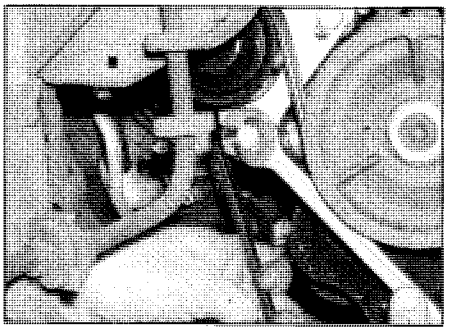
7.14c . . . then turn the adjuster bolt as required before tightening the locknut



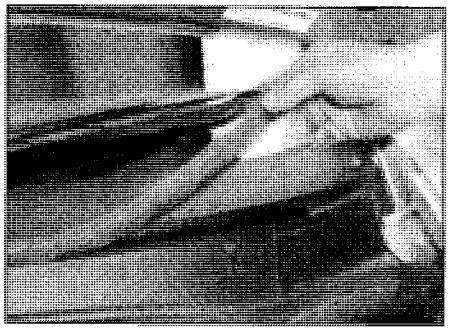
7.18 Removing the wheelarch inner panel



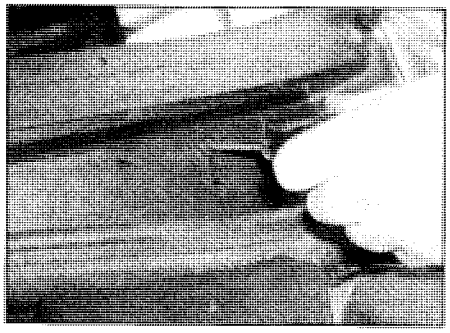
7.19 Checking the drivebelt tension



7.21 Set the belt tension, then tighten the tensioner bolts



8.3 Lift up the weatherstrip which fits over the filter access panel



8.4a Undo the two screws . . .

Air conditioning compressor drivebelt

24 Press on the belt at the centre-point between the two pulleys, on the opposite side to the tensioner wheel. The drivebelt should deflect by approximately 5 mm.

25 If adjustment is required, loosen the bolt on the adjuster slot, and the pivot bolt at the top of the tensioner arm.

26 Loosen the locknut at the front of the arm, and turn the adjuster bolt as required to move the tensioner wheel and set the belt tension.

27 On completion, re-tighten all the fasteners. With all fixings re-tightened, turn the belt clockwise through one complete revolution, using a spanner on the crankshaft pulley bolt. Re-check the belt tension, and re-adjust if necessary.

8 Pollen filter renewal

Note: *A pollen filter is not fitted to all models, and one was not actually fitted to our main project vehicle seen in the workshop.*

1 The air entering the vehicle's ventilation system is passed through a very fine pleated-paper air filter element, which removes particles of pollen, dust and other airborne foreign matter. To ensure its continued effectiveness, this filter's element must be renewed at regular intervals. Failure to renew the element will also result in greatly-reduced airflow into the passenger compartment, reducing demisting and ventilation.

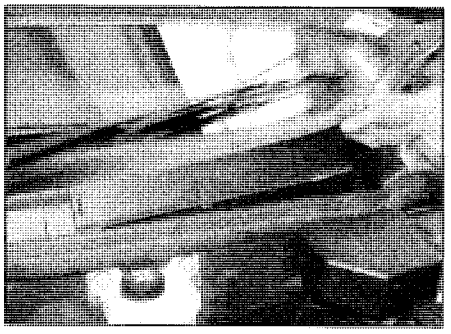
2 The pollen filter is located in the air intake at the base of the windscreen. Open the bonnet for access.

3 Lift up the separate section of weatherstrip which fits over the top edge of the pollen filter access panel **(see illustration)**.

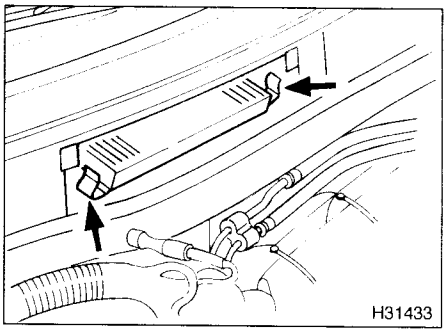
4 Unscrew and remove the two retaining bolts, and pull out the pollen filter access panel **(see illustrations)**.

5 Reach in through the access panel, and release the two spring clips which retain the pollen filter. Lower the filter out of its location, noting which way up it fits **(see illustration)**.

6 As far as possible, clean the inside of the filter housing, and the inside of the access panel.



8.4b . . . and lift out the access panel



8.5 Remove the pollen filter by releasing the two clips (arrowed)

7 Fit the new filter into position, and secure with the two clips.

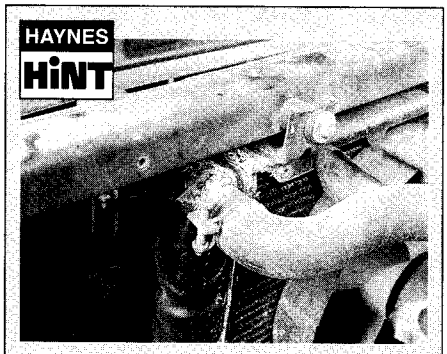
8 Refit the access panel, secure with the two bolts, and clip the weatherstrip into position.

9 Hose and fluid leak check

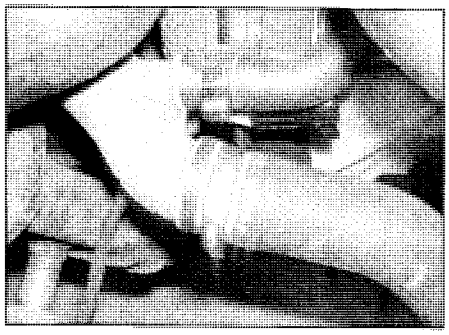
1 Visually inspect the engine joint faces, gaskets and seals for any signs of water or oil leaks. Pay particular attention to the areas around the cylinder head, oil filter and sump joint faces. Bear in mind that, over a period of time, some very slight seepage from these areas is to be expected - what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

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

3 Carefully check the radiator hoses and heater hoses along their entire length. Renew any hose that is cracked, swollen or deteriorated. Cracks will show up better if the hose is squeezed. Pay close attention to the hose clips that secure the hoses to the cooling system components. Hose clips can pinch and puncture hoses, resulting in cooling system leaks **(see illustration)**.



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



9.3 Check all hoses and their retaining clips

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

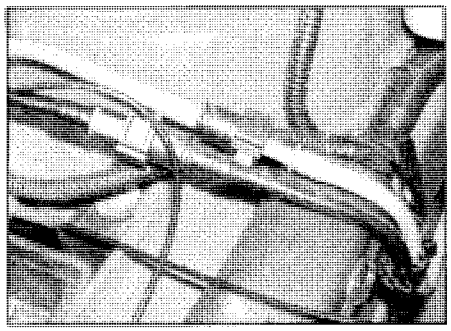
5 Where applicable, inspect the automatic transmission fluid cooler hoses for leaks or deterioration.

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

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

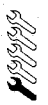
8 From within the engine compartment, check the security of all fuel hose attachments and pipe unions, and inspect the fuel hoses and vacuum hoses for kinks, chafing and deterioration **(see illustration)**.

9 Check the condition of the power steering fluid hoses and pipes.



9.8 Check all fuel and vacuum hoses

10 Transmission and driveshaft gaiter check



1 Raise the front of the vehicle and support on axle stands. Alternatively, drive the car onto ramps.

2 Inspect around the transmission for any sign of leaks or damage. In particular, check the area around the driveshaft oil/fluid seals for leakage. Slight seepage should not be of great concern, but a serious leak should be investigated further, with reference to Chapter 7A or 7B.

3 Check the security and condition of the wiring and wiring plugs on the transmission housing.

4 With the vehicle raised and securely supported on stands, turn the steering onto full lock, then slowly rotate the roadwheel. Inspect the condition of the outer constant velocity (CV) joint rubber gaiters, squeezing the gaiters to open out the folds. Check for signs of cracking, splits or deterioration of the rubber, which may allow the grease to escape, and lead to water and grit entry into the joint. Also check the security and condition of the retaining clips. Repeat these checks on the inner CV joints. If any damage or deterioration is found, the gaiters should be renewed (see Chapter 8).

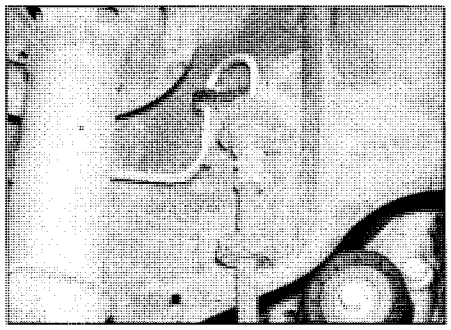
5 At the same time, check the general condition of the CV joints themselves by first holding the driveshaft and attempting to rotate the wheel. Repeat this check by holding the inner joint and attempting to rotate the driveshaft. Any appreciable movement indicates wear in the joints, wear in the driveshaft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

11 Braking system pipes and hoses check

1 Starting under the bonnet, examine the brake fluid reservoir and master cylinder for leaks. When a brake fluid leak occurs, it is normal to find blistered or wrinkled paint in the area of the leak. Check the metal pipes from the master cylinder for damage, and check the brake pressure regulator, servo/ABS unit and fluid unions for leaks.

2 With the vehicle raised and securely supported on stands, first inspect each front brake caliper. In particular, check the flexible hose leading to the caliper for signs of damage or leaks, especially where the hose enters the metal end fitting. Make sure that the hose is not twisted or kinked, and that it cannot come into contact with any other components when the steering is on full lock.

3 From the caliper, trace the metal brake pipes back along the car. Again, look for leaks from the fluid unions or signs of damage, but additionally check the pipes for signs of corrosion **(see illustration)**. Make sure the pipes are securely located by the clips provided on the vehicle underside.



11.3 Check all brake pipes and fittings for corrosion

4 At the rear of the vehicle, inspect each rear brake and its flexible hose, where applicable. Examine the handbrake cable, tracing it back from each rear brake and checking for frayed cables or other damage. Lubricate the handbrake cable guides, pivots and other moving parts with general-purpose grease.

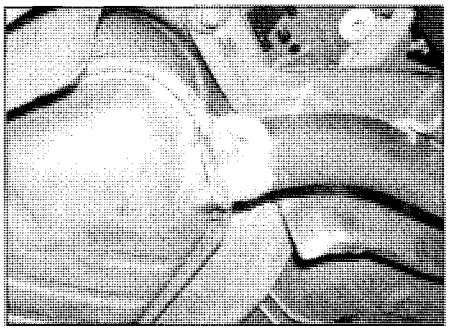
5 If any damage is found, refer to Chapter 9 for further information.

12 Exhaust system check

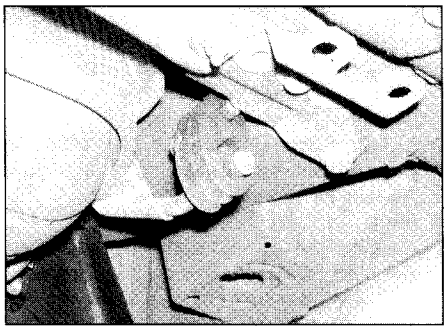
1 With the engine cold (at least an hour after the vehicle has been driven), check the complete exhaust system from the engine to the end of the tailpipe. The exhaust system is most easily checked with the vehicle raised on a hoist, or suitably supported on axle stands, so that the exhaust components are readily visible and accessible.

2 Check the exhaust pipes and connections for evidence of leaks, severe corrosion and damage **(see illustration)**. Make sure that all brackets and mountings are in good condition, and that all relevant nuts and bolts are tight. Leakage at any of the joints or in other parts of the system will usually show up as a black sooty stain in the vicinity of the leak.

3 Rattles and other noises can often be traced to the exhaust system, especially the brackets and mountings **(see illustration)**.



12.2 Check all exhaust joints for signs of corrosion damage



12.3 Check the condition of all exhaust mounting brackets and rubbers

Try to move the pipes and silencers. If the components are able to come into contact with the body or suspension parts, secure the system with new mountings. Otherwise separate the joints (if possible) and twist the pipes as necessary to provide additional clearance.

13 Steering and suspension check

Front suspension and steering check

1 Raise the front of the vehicle, and securely support it on axle stands. Where necessary for improved access, release the fasteners and remove the engine undertray (where applicable).

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

3 Check the power steering fluid hoses for chafing or deterioration, and the pipe and hose unions for fluid leaks. Also check for signs of fluid leakage under pressure from the steering gear rubber gaiters, which would indicate failed fluid seals within the steering gear.

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

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

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

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

Suspension strut/shock absorber check

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

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

14 Underbody protection check

Raise and support the vehicle on axle stands. Using an electric torch or lead light, inspect the entire underside of the vehicle, paying particular attention to the wheelarches. Look for any damage to the flexible underbody coating, which may crack or flake off with age, leading to corrosion. Also check that the wheelarch liners are securely attached with any clips provided - if they come loose, dirt may get in behind the liners and defeat their purpose. If there is any damage to the underseal, or any corrosion, it should be repaired before the damage gets too serious.

15 Lights and horn operation check

1 With the ignition switched on where necessary, check the operation of all exterior lights.

2 Check the brake lights with the help of an assistant, or by reversing up close to a reflective door. Make sure that all the rear lights are capable of operating independently, without affecting any of the other lights - for example, switch on as many rear lights as possible, then try the brake lights. If any unusual results are found, this is usually due to an earth fault or other poor connection at that rear light unit.

3 Again with the help of an assistant or using a reflective surface, check as far as possible that the headlights work on both main and dipped beam.

4 Replace any defective bulbs with reference to Chapter 12.

13.2 Check the condition of the balljoint rubber covers

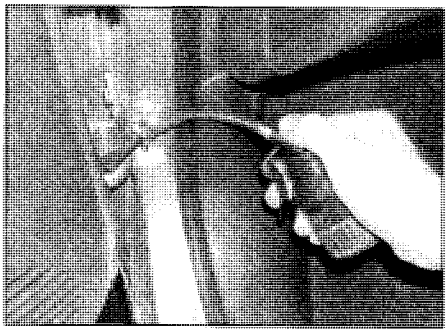
> **HAYNES HINT** ***Particularly on older vehicles, bulbs can stop working as a result of corrosion build-up on the bulb or its holder - fitting a new bulb may not cure the problem in this instance. When replacing any bulb, if you find any green or white-coloured powdery deposits, these should be cleaned off using emery cloth.***

5 Check the operation of all interior lights, including the glovebox and luggage area illumination lights. Switch on the ignition, and check that all relevant warning lights come on as expected - the vehicle handbook should give details of these. Now start the engine, and check that the appropriate lights go out. When you are next driving at night, check that all the instrument panel and facia lighting works correctly. If any problems are found, refer to Chapter 12, Section 5.

6 Finally, choose an appropriate time of day to test the operation of the horn.

16 Hinge and lock lubrication

Lubricate the hinges of the bonnet, doors and tailgate with light general-purpose oil. Similarly, lubricate all latches, locks and lock strikers, and the door check straps with general-purpose oil or grease **(see illustration)**. At the same time, check the



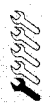
16.1 Lubricate the door hinges and check straps

security and operation of all the locks, adjusting them if necessary (see Chapter 11).

Lightly lubricate the bonnet release mechanism and cable with suitable grease.

Do not attempt to lubricate the steering lock.

17 Road test



Instruments and electrical equipment

1 Check the operation of all instruments and electrical equipment.

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

Steering and suspension

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

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

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

Drivetrain

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

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

8 Make sure the engine runs smoothly at idle, and there is no hesitation on accelerating.

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

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

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

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

Braking system

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

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

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

16 Test the operation of the brake servo unit as follows. With the engine off, depress the footbrake four or five times to exhaust the vacuum. Hold the brake pedal depressed, then start the engine. As the engine starts, there should be a noticeable 'give' in the brake pedal as vacuum builds up. Allow the engine to run for at least two minutes, and then switch it off. If the brake pedal is 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 harder.

Every 24 000 miles (40 000 km)

18 Spark plug renewal

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

2 Before removing the spark plugs, allow the engine time to cool.

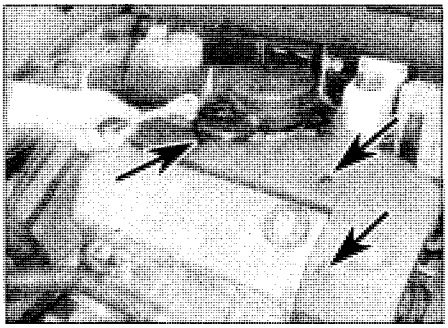
1.2 and 1.4 litre engines

3 Remove the three bolts securing the engine top cover, loosen the fourth bolt at the rear of the timing cover (where applicable), and lift away the cover for access to the spark plugs and leads **(see illustrations)**.

1.2, 1.4 and 1.6 litre engines

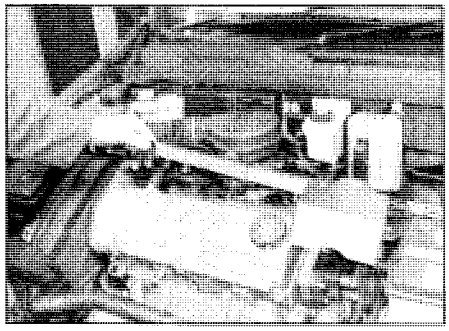
4 Release the HT leads from the retaining clips on the top of the cylinder head as necessary.

5 If the marks on the original-equipment spark plug (HT) leads cannot be seen, mark the leads 1 to 4, to correspond to the cylinder the lead serves (No 1 cylinder is at the timing belt end of the engine).

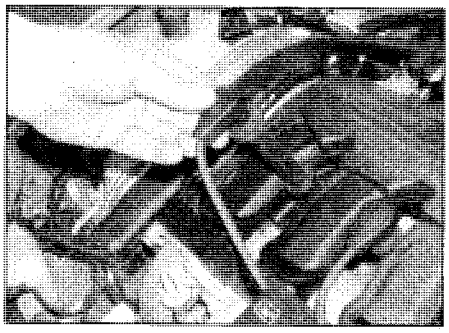


18.3a Remove the three screws (arrowed) . . .

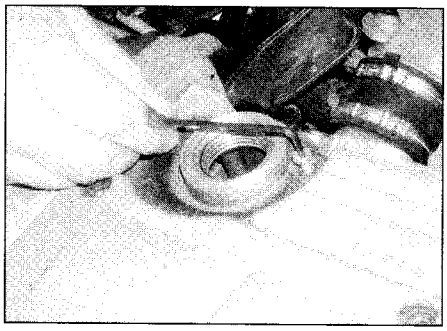
18.3b . . . loosen the screw behind the timing cover . . .



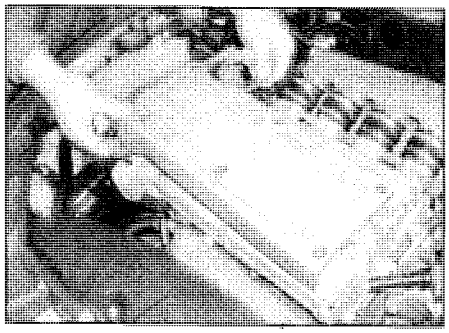
18.3c . . . and remove the engine top cover - 1.4 litre engine



18.6 Pull the HT leads off the spark plugs



18.7a Removing one of the Allen screws under the oil filler cap



18.7b Lifting off the engine top cover

6 Carefully pull the lead end fittings upwards from the plugs, and (where applicable) out of the recesses in the cylinder head. Grip the end fitting, not the lead, otherwise the lead connection may be fractured **(see illustration)**.

1.8 litre engine

7 Unscrew the oil filler cap, and remove the two Allen screws concealed underneath. Remove the six main cover bolts, and lift off the engine top cover, for access to the ignition coil assemblies **(see illustrations)**.

8 Disconnect the wiring plugs from the ignition coil which fits over each spark plug **(see illustration)**.

9 To avoid transposing the ignition coils, it is advisable to work on one assembly at a time. Alternatively, mark the coil assemblies for position, noting that No 1 coil is nearest the timing belt end of the engine.

10 Starting with No 1 coil, unscrew the two bolts securing the coil to the cylinder head **(see illustration)**.

11 Carefully pull the coil and plug connector upwards off the plug, and withdraw it from the cylinder head recess **(see illustration)**.

All engines

12 It is advisable to remove the debris from the spark plug recesses using a clean brush, vacuum cleaner or compressed air before removing the plugs. If this is not done, this debris will drop into the cylinders or lodge in the spark plug threads.

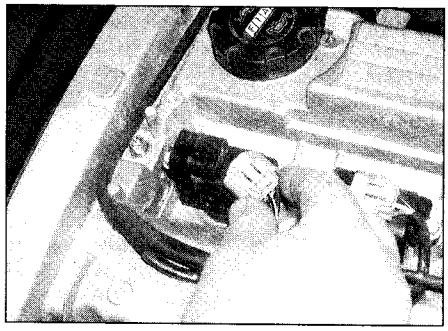
13 Unscrew the plugs using a spark plug spanner, suitable box spanner or a deep socket and extension bar **(see illustrations)**. Keep the socket aligned with the spark plug - if it is forcibly moved to one side, the ceramic insulator may be broken off. As each plug is removed, examine it as follows.

14 Examination of the spark plugs will give a good indication of the condition of the engine. If the insulator nose of the spark plug is clean and white, with no deposits, this is indicative of a weak mixture or too hot a plug (a hot plug transfers heat away from the electrode slowly, a cold plug transfers heat away quickly).

15 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.

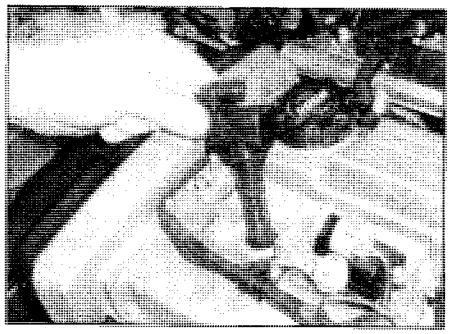
16 If the insulator nose is covered with light-coloured deposits, then the mixture is correct and it is likely that the engine is in good condition.

17 The spark plug electrode gap is of considerable importance as, if it is too large or too small, the size of the spark and its efficiency will be seriously impaired. Where the

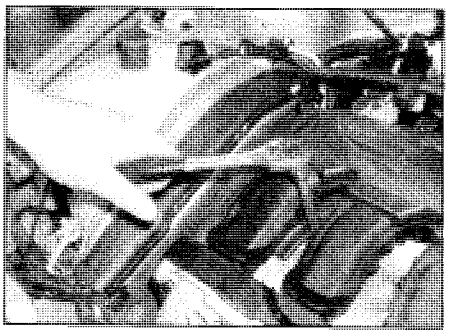


18.8 Disconnect the wiring plug from each coil

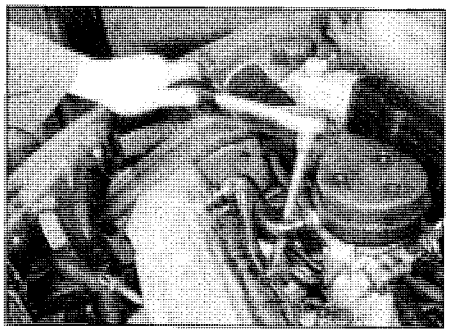
18.10 Unscrew the two coil retaining bolts



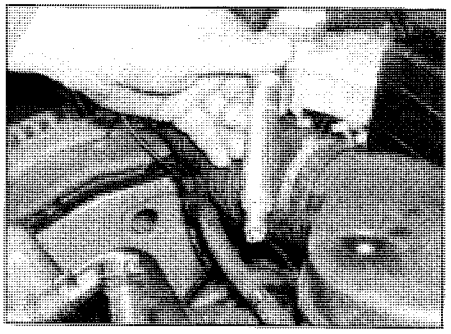
18.11 Pull the coil upwards off its spark plug



18.13a Unscrew the plugs using a socket and extension bar - 1.6 litre engine . . .

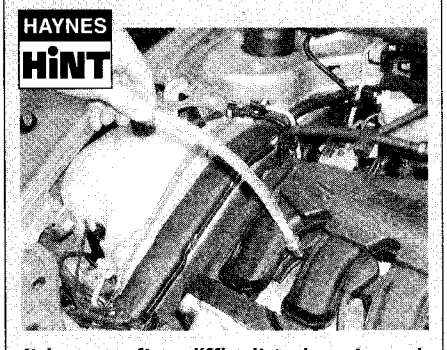


18.13b . . . and on the 1.4 litre engine



18.13c . . . and remove them from the engine - note the twin-earth electrode plug

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

gap can be adjusted, it should be set to the value specified at the start of this Chapter.

Note: *Spark plugs with multiple earth electrodes are becoming an increasingly common fitment, especially to vehicles equipped with catalytic converters. Unless there is clear information to the contrary, no attempt should be made to adjust the plug gap on a spark plug with more than one earth electrode.*

18 To set the gap, measure it with a feeler blade and then bend open, or closed, the outer plug electrode until the correct gap is achieved. The centre electrode should never be bent, as this may crack the insulator and cause plug failure, if nothing worse. If using feeler blades, the gap is correct when the appropriate-size blade is a firm sliding fit.

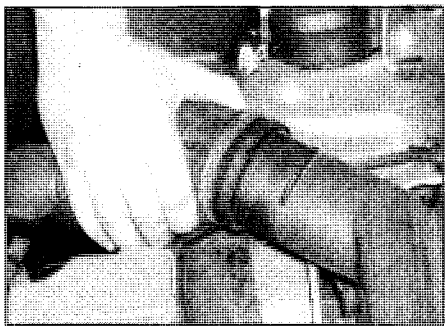
19 Special spark plug electrode gap adjusting tools are available from most motor accessory shops, or from some spark plug manufacturers.

20 Before fitting the spark plugs, check that the threaded connector sleeves are tight, and that the plug exterior surfaces and threads are clean. It's often difficult to screw in new spark plugs without cross-threading them - this can be avoided using a piece of rubber hose **(see Haynes Hint)**.

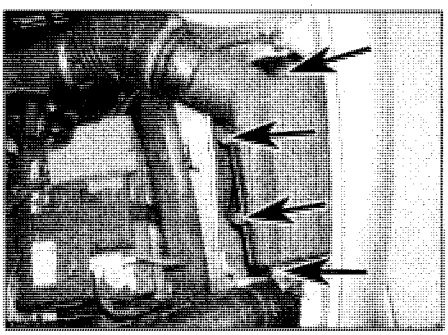
21 Remove the rubber hose (if used), and tighten the plug to the specified torque using the spark plug socket and a torque wrench. If a torque wrench is not available, tighten the plug by hand until it just seats, then tighten it by no more than a quarter of a turn further with the plug socket and handle. Refit the remaining spark plugs in the same manner.

22 Refit the HT leads (or ignition coils) securely in their correct order.

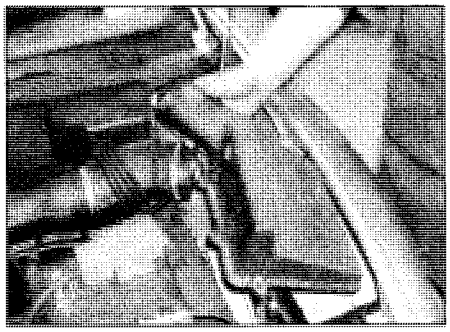
23 Where applicable, refit the engine top cover, using a reversal of the removal procedure.



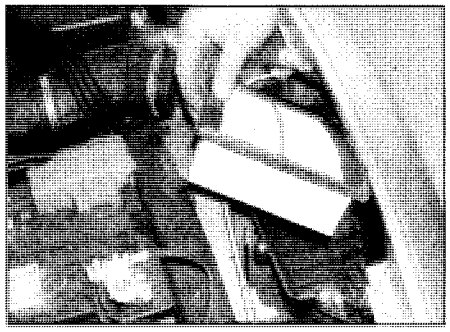
19.1 Loosen the securing clip, and pull off the air inlet duct . . .



19.2a Loosen the securing screws (arrowed) . . .



19.2b . . . and remove the air cleaner lid



19.3 Lift out the air filter element, noting which way round it fits

19 Air filter renewal

1 Release the metal retaining band securing the air inlet duct to the air cleaner lid, and separate the duct from the lid **(see illustration)**.

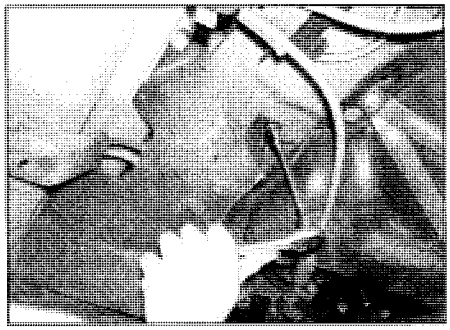
2 Remove the screws securing the air cleaner lid, and lift the lid away **(see illustrations)**.

3 Lift out the filter element, noting which way round it fits **(see illustration)**.

4 Remove any debris that may have collected inside the air cleaner.

5 Fit a new air filter element in position, noting any direction-of-fitting markings and ensuring that the edges are securely seated.

6 Refit the air cleaner lid and secure with the screws. Refit the air inlet duct, and secure with the retaining band.



20.3 Unscrew the bolts securing the filter cover panel

20 Fuel filter renewal

Warning: Refer to the notes in Safety first!, and follow them implicitly. Petrol is a highly-dangerous and volatile liquid, and the precautions necessary when handling it cannot be overstressed.

Note: *On later 1.6 litre models, and all 1.2 litre models, an in-line fuel filter is not fitted (even though the plastic cover panel still appears under the car). On these models, the only filters are fitted to the base of the fuel pump/sender unit, inside the fuel tank - these are not routinely replaced.*

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

2 Depressurise the fuel system with reference to the relevant Part of Chapter 4.

3 To gain access to the filter, unbolt and remove the plastic cover panel fitted underneath it **(see illustration)**.

4 If you have them, fit hose clamps to the filter inlet and outlet hoses. These are not essential, but even with the system depressurised, there will still be an amount of petrol in the pipes (and the old filter), and this will siphon out when the pipes are disconnected. Even with hose clamps fitted, the old filter will contain some fuel, so have some rags ready to soak up any spillage.

5 Before removing the filter, note any direction-of-flow markings on the filter body, and check against the new filter - the arrow should point in the direction of fuel flow (following the hose leading to the front of the car) **(see illustration)**.
6 The inlet and outlet hoses are equipped with quick-release connectors. To release the connectors, squeeze them together at the sides, then pull apart **(see illustration)**.
7 Loosen the retaining clamp bolt and remove the old filter **(see illustration)**.
8 If the fuel hoses show any sign of damage, or if the quick-release connectors are not making a secure fit, seek the advice of a FIAT dealer on renewing the hoses.
9 Fit the new filter into position, with the flow marking arrow correctly orientated, and tighten the retaining clamp bolt **(see illustration)**.
10 Reconnect the fuel hoses, ensuring that no dirt is allowed to enter the hoses or filter connections, and that the quick-release connectors click together fully.
11 Start the engine (there may be a delay as the system re-pressurises and the new filter fills with fuel). Let the engine run for several minutes while you check the filter hose connections for leaks.
12 Refit the cover panel below the filter, secure with the bolts, then lower the vehicle to the ground.

Warning: Dispose safely of the old filter; it will be highly flammable, and may explode if thrown on a fire.

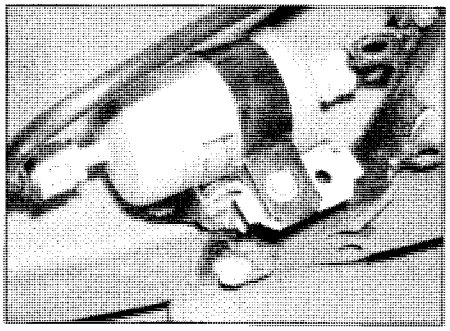
21 Auxiliary drivebelt check and renewal

1.2 litre engine

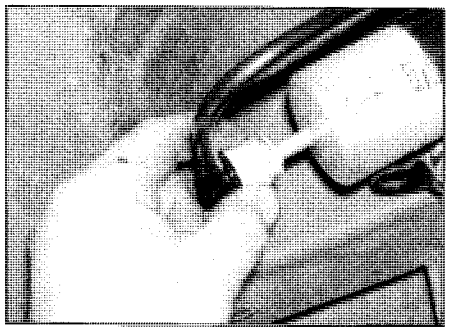
1 Remove the three bolts securing the engine upper cover, and remove the cover for access to the belts.
2 With the car parked on a level surface, apply the handbrake and chock the rear wheels. Loosen the right-hand front wheel bolts.
3 Raise the front of the vehicle, rest it securely on axle stands and remove the right-hand front roadwheel.
4 Unscrew and release the fasteners securing the wheelarch inner panel, to gain access to the belt run.

Power steering pump drivebelt

5 The power steering pump is located at the front of the engine. Check the condition of the pump drivebelt as follows.
6 Look for cracks, splitting and fraying on the surface of the belt; check also for signs of glazing (shiny patches) and separation of the belt plies. If damage or wear is visible, the belt should be renewed. If there is any evidence of contamination by oil, grease or coolant, the reason should be investigated without delay.



20.5 Note the flow direction arrow before removing the old filter



20.6 Disconnecting one of the quick-release hoses

7 Note that it is not unusual for a ribbed belt to exhibit small cracks in the edges of the belt ribs, and unless these are extensive or very deep, belt renewal is not essential.
8 Using a socket and wrench on the crankshaft pulley bolt, rotate the crankshaft so that the full length of the drivebelt can be examined.
9 If the belt is to be removed, loosen the fasteners described in Section 7 and slip the drivebelt from the pulleys.
10 Refitting the belt is a reversal of removal, making sure that the belt ribs engage properly with the pulley grooves. Tension the belt using the information in Section 7.

Air conditioning compressor drivebelt

11 Where fitted, the drivebelt is the 'middle' drivebelt of three. The compressor is mounted at the rear of the engine, below the alternator.
12 Check the belt using the information in paragraphs 6 to 8.
13 If the belt is to be removed, first remove the power steering pump drivebelt as described previously. Loosen the fasteners on the compressor as described in Section 7, and slip the drivebelt from the pulleys.
14 Refitting the belt is a reversal of removal, making sure that the belt ribs engage properly with the pulley grooves. Tension the compressor and pump drivebelts using the information in Section 7.

Alternator drivebelt

15 The alternator is fitted at the rear of the engine.
16 Check the belt using the information in paragraphs 6 to 8.
17 If the belt is to be removed, first remove the air conditioning compressor drivebelt (where applicable) as described previously. Loosen the fasteners on the alternator as described in Section 7, and slip the drivebelt from the pulleys.
18 Refitting the belt is a reversal of removal, making sure that the belt ribs engage properly with the pulley grooves. On models with air conditioning, loosely fit the alternator drivebelt first, then fit and tension the compressor drivebelt before tensioning the alternator belt. Tension the drivebelts using the information in Section 7.

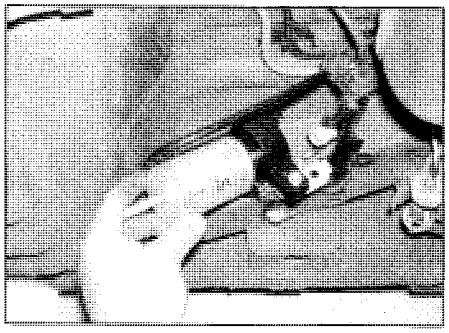
1.6 litre engine

19 To improve access, remove the wheelarch inner panel as described in paragraphs 2 to 4.

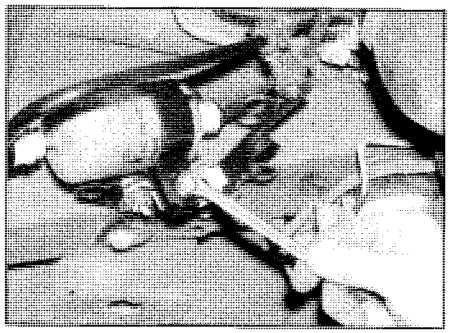
Air conditioning compressor drivebelt

20 The air conditioning compressor is mounted at the front of the engine.
21 Check the belt using the information in paragraphs 6 to 8.
22 Loosen the fasteners on the tensioner pulley as described in Section 7, and slip the drivebelt from the pulleys.
23 Refitting the belt is a reversal of removal, noting the following points:

a) Fit the belt around the pulleys as noted on removal, with the flat side of the belt over the tensioner wheel. Make sure that the belt ribs engage properly with the pulley grooves. Make sure that any slack in the belt is adjacent to the tensioner.
b) Tension the belt using the information in Section 7.



20.7 Removing the fuel filter



20.9 Tighten the filter clamp bolt securely